Granddad's Wonderful Book of Magic

By Kurt Saxon



- MAGICIAN'S HANDBOOK
- HYPNOTISM
- ILLUSIONS
- PUZZLES
- SOAP BUBBLE MAGIC
- PAPER MAGIC
- CARD TRICKS
- MAGIC BOXES
- STAGE MAGIC
- COIN TRICKS
- PARTY MAGIC
- ESCAPE ARTIST
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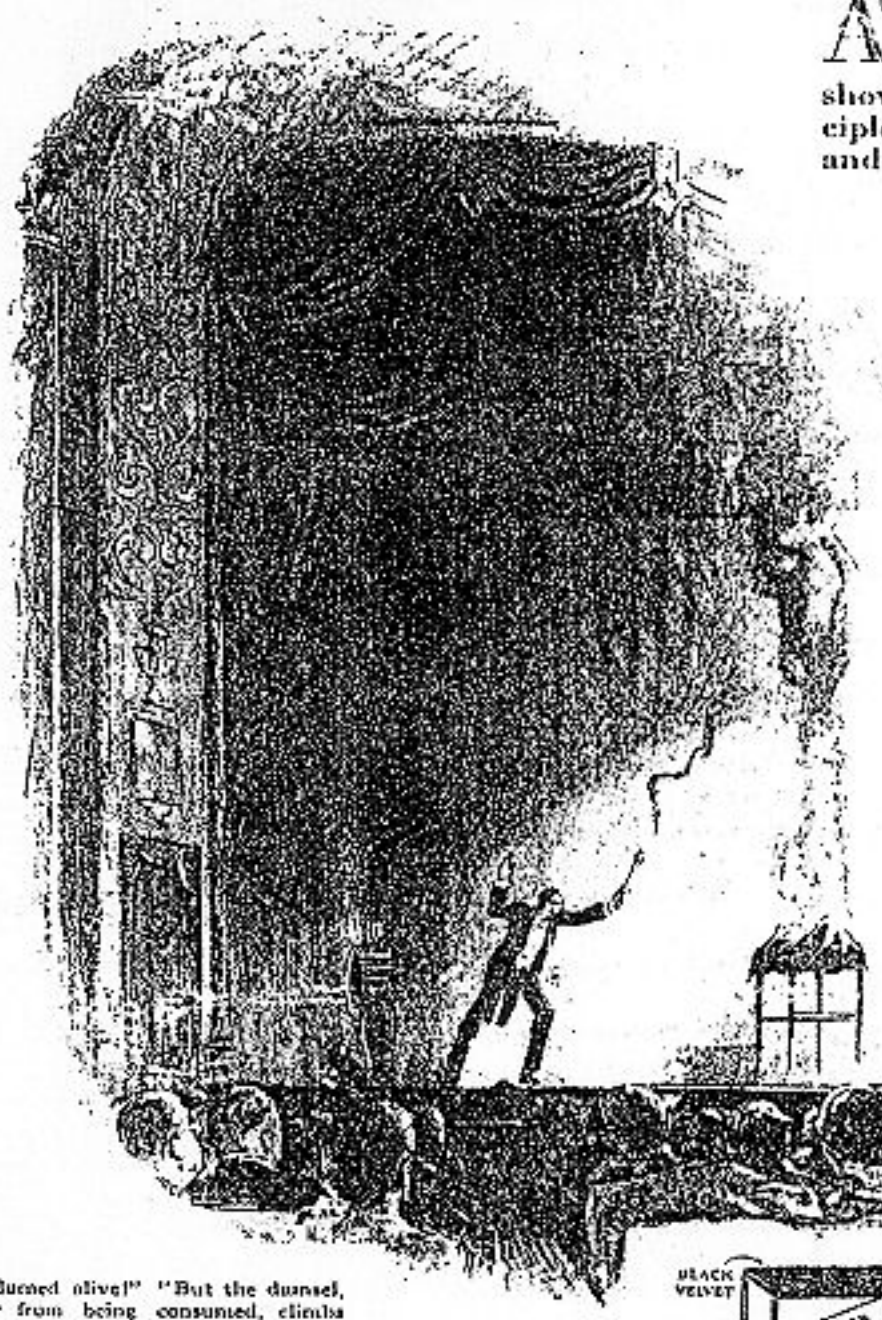
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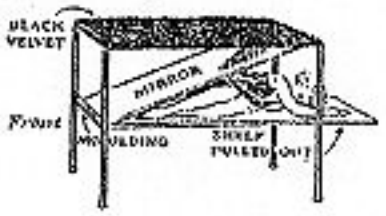
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Famous Magic Tricks Explained

POPULAR SCIENCE MONTHLY
January, 1929



"Burned alive!" "But the damsel, far from being consumed, climbs out from the pyre and hides in a compartment beneath, as shown below.



ANOTHER absorbing article revealing deep secrets of legerdemain never before told to the public. An expert takes you back-stage and shows how, by applying simple mechanical principles, magicians escape from coffins, water tanks, and bags, and perform all manner of mysteries.

By GEORGE S. GREENE

IN MY previous article I told of some of the mechanical devices which enable a magician to fool his audience and of the men who spend their time and ingenuity in creating new apparatus for performers to use. I explained how many of the tricks are accomplished by applying simple laws of science. In this article, some of the most baffling feats of legerdemain are revealed as clever utilizing of the products of the workshop and the laboratory.

You probably have seen a magician drop a handkerchief into a glass goblet, wave his hand over it, and presto! the handkerchief is gone. The explanation is simple. The goblet has a partition in it. The partition stands vertically and consists of a sheet of steel cut to fit the glass, silvered and then polished to mirror brightness. Due to reflections, the mirror partition is invisible. The handkerchief is dropped in one side of the goblet and when the glass is turned half around, under cover of the hand, the handkerchief appears to have vanished.

Rubber vacuum cups, such as are used to fasten glare shields to the automobile windshield and advertisements to show windows, are equipped by magicians with a catgut loop and used to vanish billiard balls. The loop, invisible against the hand, is placed over the thumb. The vacuum cup is pressed to a billiard ball in the hands, and with a twist, ball and suction cup are shifted to the back of the hand, quite invisible.

Have you ever offered your gold watch to a magician, and then watched him pound it to fragments in a mortar, and later return it in good condition? Did the magician collect the watch in a little black bag?

The small dark changing bag is used to exchange valuable articles for substitutions. It consists of a rim to which is sewed a black silk bag, and fastened to the rim is a black or nickel handle to carry it by. What you do not see is that the bag has a black silk inner partition sewed to a wire half-circle that fits inside the rim. When the magician wishes to "switch" one article for another, he merely gives part of the handle a half turn, which changes the silk partition to the opposite side of the bag. Then he turns the bag inside out after dropping the duplicate from it. Taken off stage, the bag is emptied of the original article by an assistant, who "loads" the article into a loaf of bread or ties it around the neck of a rabbit, to be returned to its owner.

SUCH appurtenances are indispensable to a magical performance, and there are countless others. They combine the inventiveness of magicians since before the days of the famous Cagliostro. They are made in model workshops by men who are specialists in woodcraft and metal-working, electricity, and psychology, and the ideas worked out are, in many cases, equal in cleverness to the products of our modern inventors of airplanes, radio, and electrical devices.

I was once present at the performance of a famous magician whose feature trick was "burning alive a woman." As you doubtless know, this consists of placing a young woman on a stand or table, covering her with a gasoline-soaked screen, and then lighting the screen. At the performance I attended, several women fainted, others screamed, and one man wanted to call the fire department. When the ashes of the screen were cleared away, all that remained on the table was a pile of bones and a skull!

The table, of course, was tricked. Between the top and the floor was a mirror, set at an angle which concealed a compartment in which the girl could hide. The reflections in the mirror caused spectators to imagine they could see through the legs of the table. The girl merely made an opening in the back of the paper screen, descended to the concealed compartment, and placed the bones and skull on the table in her place!

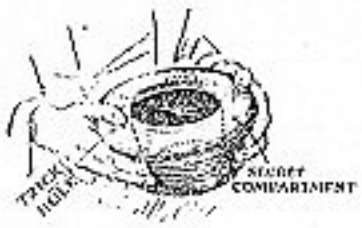
ON A similar principle are based the carnival side show illusions, commonly called "Spidora" and "The Woman without a Body." The mirror conceals the presence of the body, leaving the girl's head resting on a sword at the edge of the mirror.

Since the times of the earliest European magicians, trunks have played a valuable part in the repertoire of the magician. Usually they are used to make young women disappear and reappear. The most common method is to place the trunk on casters and remove the back.

In place of the back is inserted a combination fake back and bottom, fastened at right angles with angle irons. The girl can enter the trunk and, when it is closed, push on the back, which tips out and down to form a shelf on the outside of the trunk. At the same time the fake bottom rises and fits into the trunk back. An illustration at the bottom of this page shows the construction.

One of the strangest of magical illusions is called "The Rapping Hand" or "The Mummy Hand." Years ago a certain American magician visiting Egypt heard there a story, told by the natives, of a mummified hand of an ancient Egyptian princess which suddenly came to life. On returning to the United States he invented the present-day magical mystery.

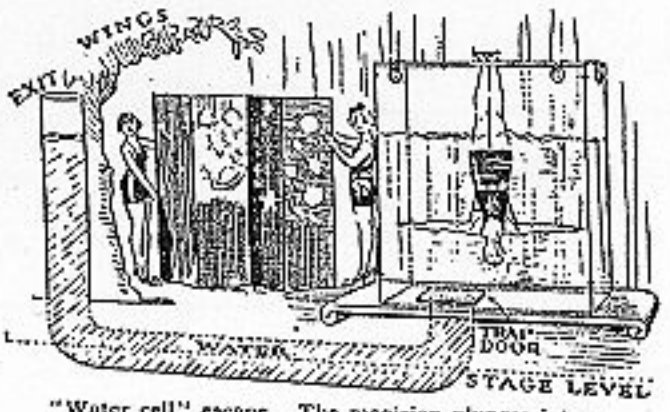
The trick consists of a polished board of redwood and a "mummy" hand, which is beautifully made from hand carved wood, and enameled flesh color, the wrist being covered with velvet and a lace cuff. The hand, placed on the board, seemingly comes to life, by tilting the fingers to tap on the board. Usually the hand and the board are passed among the spectators for examination.



The trick water bowl. At first exhibited empty, it mysteriously fills itself again and again. The trick lies in a secret water compartment punctured by a small hole. As long as the magician keeps his finger over the hole, the bowl is empty; removing the finger lets water flow in.

A DRAWING at the foot of this page shows the construction of the board, and how it controls the movement of the hand. On the underside, at each end, are small wooden strips, fastened to the board with screws. One of the screws is "faked"; in reality, it passes through the board, connecting with a leverage device that forces a needle-like plunger to rise from a tiny hole in the top of the board. The plunger is operated by pressing the screw, and the latter can be locked, immovable, by giving it a half turn. The hand is merely placed over the plunger, which causes the rods to rise and the fingers to strike the wood!

One performer, well known as a magician, but essentially an "escape artist," achieved fame in the United States and abroad through his uncanny ability to escape from a locked steel vault. Once inside the vault he removed a tiny flashlight, can of oil, and screw driver from concealment on his body, and with these removed the vault manufacturer's name plate from the inside of the vault door. This exposed the tumblers, which he was able to manipulate and so open the door. He then replaced the plate, wiped the oil from the screws, stepped out, and relocked the vault. The escapes were pronounced miracles, and spiritualists gave him credit for dematerializing himself. Such is fame, secured through a knowledge of mechanics and psychology.



"Water cell" escape. The magician plunges into a water-filled glass tank. Screened momentarily, he vanishes through trapdoor to water pipe under stage.

The appearance of a coffin on the stage always sends shivers through the audience. Several magicians have taken advantage of this by escaping from coffins. The performer is strapped into a straitjacket and placed in the coffin—a genuine one borrowed for the purpose from a local undertaker. The top of the coffin is strapped down. The performer makes the seemingly impossible escape in several minutes, inside a cabinet. A knowledge of mechanics does the trick. He slips the straitjacket up over his head slowly in the customary escape manner, and, when free, takes advantage of a fact that the layman does not generally know; that is, that with most coffins, the lid is in two parts, the upper part being removable so that the body of the dead can be viewed from the waist upward. It is out of this opening that the performer makes his escape, and another "miracle" is performed.



Hidden springs expand folded flowers.

It is easy to escape from a sack into which you have been tied—if you have the nerve. The professional magician wads up his handkerchief and places it in the neck of the sack when it is tied from the outside. When a screen has been placed around the sack by attendants, the magician pulls the handkerchief out, thus leaving plenty of slack in the rope around the neck so that he can easily work the rope upward and off.

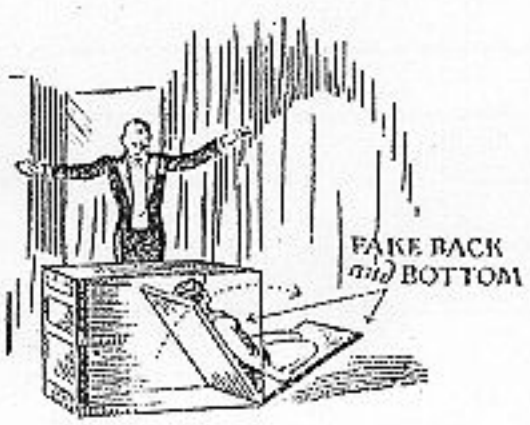
Among the countless present-day magical innovations that have given fame to their inventors, the escape from a "water cell" stands prominent. It depends entirely on a well-known but unsuspected scientific principle; dozens of magicians have attempted to imitate it, but without success.

A large cell, or glass inclosure, is exhibited in the center of the stage. It apparently consists of a number of sheets of plate glass joined into an inclosure with rubber gaskets so as to be water-tight. What makes the illusion so puzzling is that the "water cell" can be distinctly seen through. The glass tank is filled with water, into which the performer plunges. The tank is immediately concealed with screens, and when again revealed, the performer has escaped from it.

The escape depends on the fact that water seeks its own level. A metal tube large enough in diameter for a man to crawl through leads from a trapdoor in the bottom of the tank, underneath the stage, and emerges behind the side drops, extending up to the same height as the glass tank. The trap door is made of a square of glass without hinges, the under side being covered with a piece of wood matching the tank platform. The performer has merely to slide the trapdoor aside, enter the tube, and replace the door; then crawl to the exit at the other end of the tube, where the water rises to the same level as in the tank.

ONE can apparently see underneath the tank, because the tube, where it connects with the trap, is concealed behind a black drapery matching the backdrop and therefore invisible. To perform the feat, one must, of course, have the ability to stay under water for the minute or two required.

In the same category as the "walking through a brick wall" trick, described in a previous article, is the "Packing Case Escape." A large wood shipping container is obtained from a "local" store, and "local" men nail the performer into it. Various methods of escape are used; "fixing" the box just before the performance is the most common. Fixing is accomplished by removing certain nails in the box, cutting them in half, and reinserting the head part back in the holes. Other performers carry their own boxes, with carpenter-made trick panels for an exit. The simplest method used, however, is a leverage device, which can be collapsed to fit into the performer's pockets. Once inside the box, he can put it together again



Locked in the trunk, the girl reappears! She simply pushes on the fake back which tips down, lets her out, and again closes the trunk.



The "Mummy Hand." A plunger, operated by fake screw, makes fingers tap on board.

easily, and by placing one end against the floor, and the other against the lid of the box, force the lid off slowly and noiselessly. The performer escapes and pushes the nails back into the holes. It appears, to the audience, as if he had made a miraculous escape through a knot hole in the box.

Have you ever seen a magician produce a basket of flowers from an "empty" cone? The flowers are artificial, of course, and so cleverly made that they fold flat. Several hundred—enough to fill a bushel basket—can be concealed, or "palmed," in the hand. When they are released by dropping them into the cone, they instantly open and swell out, overflowing the cone. An illustration on page forty-six shows how these flowers are constructed, with green tissue outer leaves, varicolored inner petals, and a small piece of thin watch-spring steel that causes them to open and spread out when released.

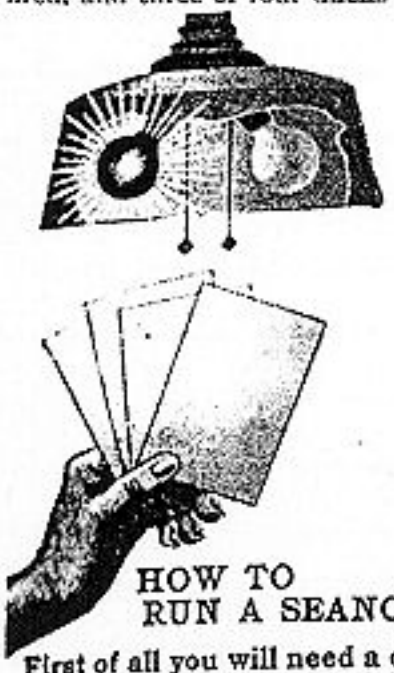
A CLEVER trick, depending entirely upon an ingenious mechanical principle, is known as "The Duck Tub." This is a large metal tub, which the magician fills with water after showing that it is apparently empty. A few wooden duck eggs are dropped into the water; a shot is fired, and three or four ducks swim to the surface of the water and jump from the tub!

The tub has a false bottom, consisting of two wide rotatable blades made like electric fan blades except that they are flat. One blade is turned by means of a rope that passes out behind a curtain. When the blades are closed, that is, when they are so turned that no opening is visible between them, the water can be poured into the tub without filling the bottom half. In this lower compartment the live ducks are placed. When the rope is pulled, revolving the blades, the ducks can escape to the surface of the water.

Any story of stage magicians would be incomplete without explaining at least one of the "effects" produced by so-called East Indian fakirs, and occasionally reported by credulous witnesses as "miraculous." It is true that in India one sees many startling, unbelievable feats performed; unfortunately, however, these become exaggerated in story on reaching our shores, so that one must take these miracles with at least a lump of salt. It is a significant fact that Houdini was able to duplicate many of the feats of the fakirs without ascribing the cause to anything more mystical than plain trickery and a knowledge of science and mechanics.

SEVERAL well-known East Indian fakirs are meeting with success in vaudeville with what they call the "buried alive" test. The performer is sealed in a casket, which is buried in a mound of sand or placed on display in full view of the spectators for a certain length of time. The fact that the casket or box is sealed prevents any outside air entering.

Here again the performer falls back on scientific means. He carries his air, in "canned" form, into the casket with him. Several manufacturers produce, for the use of the medical and dental profession, tiny steel drums containing surprising amounts of air in compressed, liquid form. These drums contain sufficient oxygen to keep one alive for a considerable time. They are small enough so that an ingenious performer may conceal several next his body even when dressed in a bathing suit. It is merely necessary to open them slightly, and a supply of fresh, life-giving oxygen continually fills the casket. On the expiration of the period and before the casket has been opened, the performer again conceals the containers, and steps out of the casket before witnesses who invariably pronounce the harassing experiment "genuine."



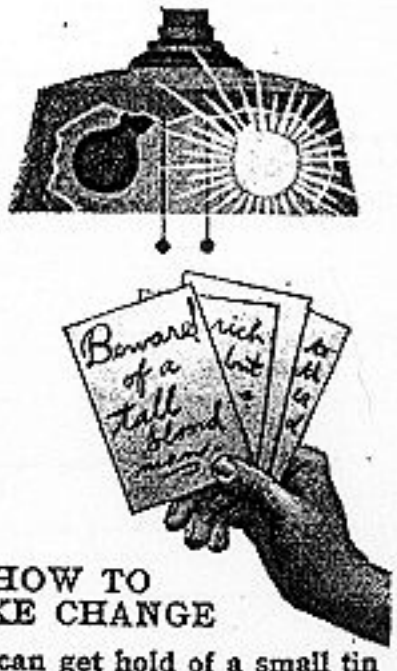
HOW TO RUN A SEANCE

First of all you will need a dark room. Chairs should be placed in a semi-circle facing the spot where the medium sits. There should be a table, and a lamp fitted with one red bulb and one ordinary white bulb which can be turned on separately. There are all sorts of amusing things you can do. The medium may pretend to talk to departed spirits. To be convincing all he has to do is to post various of his friends in closets or behind furniture and ask them to rattle chains and make low wailing and moaning sounds. It is all very shivery! When the room is completely dark, a very gruesome effect can be produced by putting your hand closely over a flashlight or by putting the flash inside your mouth. By carefully mixing red water color you can find a blend which you can use as ink on white cards. It will show up when the white bulb is on but vanish in the red light. Write fortunes with this red ink and pass the cards out to the audience when the red light is on. Tell them that when the light goes out a spirit will come and write messages. Turn out the red light; wait a second; then turn on the white light. The messages in red ink will then be visible.



MAGIC





HOW TO MAKE CHANGE

If you can get hold of a small tin tube with a spring attachment and large enough to hold several coins, you will find this trick very simple. The tube should have at one end a rubber band which is attached inside the sleeve of the performer. At the other end is a thin hair which goes around the performer's thumb, is quite invisible, and allows him to pull out the tube at will. Now, the performer, after showing that he has nothing in his hands, asks for a dollar bill, which he proceeds to roll into the shape of the tube. Having pulled out the tube secretly by stretching his arm, he inserts the dollar, releases the spring that holds the coins, and lets the tube go. When he opens his hand the astonished audience finds that he has the correct change for a dollar instead of a dollar bill!

EVENING AMUSEMENT.

LADIES' COLUMN.	GENTLEMEN'S COLUMN.
Request a gentleman to write down the following list:—	Request a lady to write down the following list:—
Set down a lady's name.	Set down a gentleman's name.
Set down some time past.	Set down some time past.
Write the name of a place.	Write the name of a place.
Write either: yes or no.	Write either: yes or no.
Yes or no, again.	Yes or no again.
A lady's name.	A gentleman's name.
Some time to come.	Some time to come.
Yes or no.	Yes or no.
Yes or no, again.	Yes or no again.
Some color.	Some color.
Some number, between 4 and 10.	Some number, between 4 and 10.
Some color.	Some color.
Yes or no.	Yes or no.
Some number, between 15 and 100	Some number, between 15 and 100
A lady's name.	A lady's name.
A gentleman's name.	A gentleman's name.
Name of a clergyman.	Name of a clergyman.
A sum of money.	A sum of money.
Name of a place.	Name of a place.
Any number at all.	Any number at all.
Then request the gentleman to read off the list he has written in answer to the following questions:	Then request the lady to read off the list she has written, in answer to the following questions:—
Who did you first offer to marry?	Who first made you an offer?
When?	When?
In what place?	In what place?
Does she love you?	Does he love you?
Did you love her?	Did you love him?
Whom will you marry?	Whom will you marry?
How soon?	How soon?
Does she love you?	Does he love you?
Do you love her?	Do you love him?
What is the color of her hair?	What is the color of his hair?
What is her height?	What is his height?
What is the color of her eyes?	What is the color of his eyes?
Is she pretty?	Is he handsome?
What is her age?	What is his age?
Who is to be bridesmaid?	Who is to be bridesmaid?
Who is to be groomsman?	Who is to be groomsman?
What clergyman is to marry you?	What clergyman is to marry you?
How much is she worth?	How much is he worth?
Where will you reside?	Where will you reside?
How many servants will you keep?	How many servants will you keep?

CO, IF YOU CAN.

You tell a person that you will clasp his hands together in such a manner that he shall not be able to leave the room without unclasping them, although you will not confine his feet, or bind his body, or in any way oppose his exit.

This trick is performed by clasping the party's hands around the pillar of a large circular table, or other bulky article of furniture, too large for him to drag through the doorway.

To Tell the Numbers on a Pair of Dice.

This is done by a simple arithmetical process.

Ask some one to throw the dice without your seeing them, then tell him to choose one of the numbers and multiply it by two, add five and multiply this number by five and add the number on the remaining die.

On his telling you the result you subtract mentally twenty-five from the number he has obtained and the remainder will be two figures representing the two numbers on the dice.

Suppose the numbers thrown to be six, three. Six multiplied by two would be twelve—with five added make seventeen, multiplied by five is eighty-five, with three added make eighty-eight; from this take twenty-five and it gives as a result sixty-three—six, three, being the numbers thrown. This can be worked with the same result if the person throwing the die multiplies the three instead of the six, the result in that case being thirty-six instead of sixty-three.

A Person Having an Even Number of Coin in One Hand, and an Odd Number in the Other, to Tell in Which Hand the Odd or Even Number Is.

You desire the person to multiply the number in his right hand by an odd figure, and the number in his left by an even one; and tell you if the products, added together, be odd or even. If even, the even number is in the right hand; if odd, the even number is in the left. For instance:

1. Number in the right hand is even	13	2. Number in the right hand is odd	7
Multiplied by	3	Multiplied by	3
Product	54	Product	21
In the left hand odd	7	In the left hand even	16
Multiplied by	2	Multiplied by	2
Product	14	Product	30
Product of both hands	68	Product of both hands	57

Magic Age Table.

1	2	4	8	16	32
3	3	5	9	17	33
5	6	6	10	18	34
7	7	7	11	19	35
9	10	12	12	20	36
11	11	13	13	21	37
13	14	14	14	22	38
15	15	15	15	23	39
17	18	20	24	24	40
19	19	21	25	25	41
21	22	22	26	26	42
23	23	23	27	27	43
25	26	28	28	28	44
27	27	29	29	29	45
29	30	30	30	30	46
31	31	31	31	31	47
33	34	36	40	48	48
35	35	37	41	49	49
37	38	38	42	50	50
39	39	39	43	51	51
41	42	44	44	52	52
43	43	45	45	53	53
45	46	46	46	54	54
47	47	47	47	55	55
49	50	53	56	56	56
51	51	53	57	57	57
53	54	54	58	58	58
55	55	55	59	59	59
57	58	60	60	60	60
59	59	61	61	61	61
61	62	62	62	62	62
63	63	63	63	63	63

KEY TO TABLE.—Add together the figures at the top of each column in which the age is found, and the sum will be the age sought. EXAMPLE—Hand the table to a lady and request her to tell you in which column or columns her age is found; if she says the first, second and fifth, you can say it is 19 by mentally adding together the first figures of those three columns, and so on for any age up to 63.

To Find a Remainder.

The key to this is that half of whatever sum you request to be added during the working of the sum is the remainder. In the example given 5 is the half of ten, the number requested to be added. Any amount may be added, but the operation is siplified by giving only even numbers, as they will divide without fractions.

EXAMPLE.

Think of	7
Double it	14
Add 10 to it	10
Half it	2) 24
Which will leave	12
Subtract the number thought of	7
The remainder will be	5

FORTY-FIVE.

How can forty-five be divided into four such parts that, if to the first part you add 2, from the second part you subtract 2, the third part you multiply by 2, and the fourth part you divide by 2, the sum of the addition, the remainder of the subtraction, the product of the multiplication, and the quotient of the division be all equal?

The 1st is 8; to which add 2—10
The 2nd is 12; subtract 2—10
The 3rd is 5; multiplied by 2—10
The 4th is 20; divided by 2—10

Subtract 45 from 45 and leave 45 as a remainder.

9 8 7 6 5 4 3 2 1 = 45
1 2 3 4 5 6 7 8 9 = 45
8 6 4 1 9 7 5 8 2 = 45

ADVANTAGEOUS WAGER.

Request a lady to lend you a watch. Examine it, and give a guess as to its value; then offer to lay the owner a wager, considerably below the real value of the watch, that she will not answer to three questions which you will put to her consecutively: "My watch." Show her the watch and say: "What is this which I hold in my hand?" she, of course, will not fail to reply: "My watch." Next present to her notice some other object, repeating the same question. If she name the object you present, she loses the wager; but if she be on her guard, and remembering her stake, she says: "My watch," she must, of course, win; and you, therefore, to divert her attention, should observe to her: "You are certain to win the stake, but supposing I lose, what will you give me?" and if, confident of success, she replies for the third time: "My watch," then take it, and leave her the wager agreed on.

THE MAGIC SQUARES.

Lay seventeen pieces of wood (lucifer matches will answer the purpose) as in Fig 1.

The puzzle you propose is—to remove only five matches and yet have no more than three perfect squares of the same size remaining. This apparent impossibility is rendered easy by removing the two upper corners on each side and the center line below, when the three squares will appear as in Fig 2.

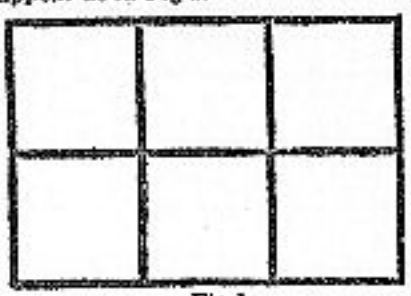


Fig 1.

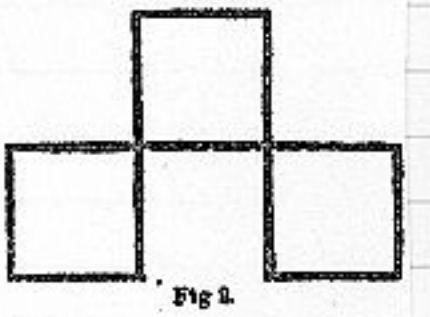


Fig 2.

IS IT POSSIBLE?

Side by side place three pieces of anything, (money is the most convenient,) then take away the middle piece without touching it.

By removing the right hand piece to the side of the left, you thus take away the center without touching it.

DOUBLE MEANING.

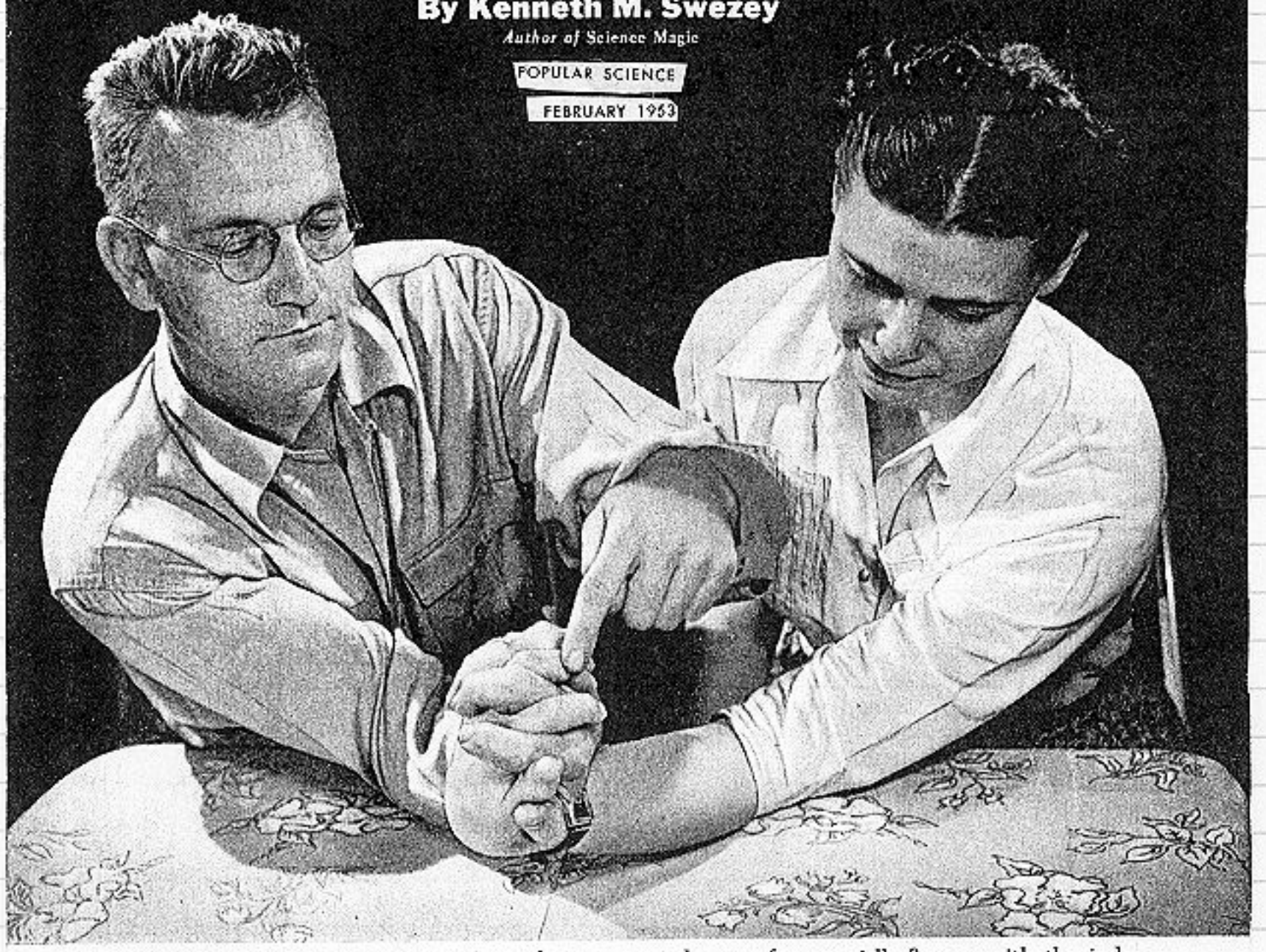
Place a glass of any liquor upon the table, put a hat over it, and say: "I will engage to drink the liquor under that hat, and yet I'll not touch the hat." You then get under the table, and after giving three knocks, you make a noise with your mouth as if you were swallowing the liquor. Then getting from under the table, you say: "Now, gentlemen, be pleased to look." Some one, eager to see if you drank the liquor, will raise the hat, when you instantly take the glass, and drink the contents, saying: "Gentlemen, I have fulfilled my promise, you are all witnesses that I did not touch the hat."

Why Your Senses May Tell You Fibs

Maybe George Washington never told a lie, but your own senses don't always stick to the truth. Your eyes, ears, nose, tongue and skin can fool you—as these stunts show.

By Kenneth M. Swezey
Author of Science Magic

POPULAR SCIENCE
FEBRUARY 1953

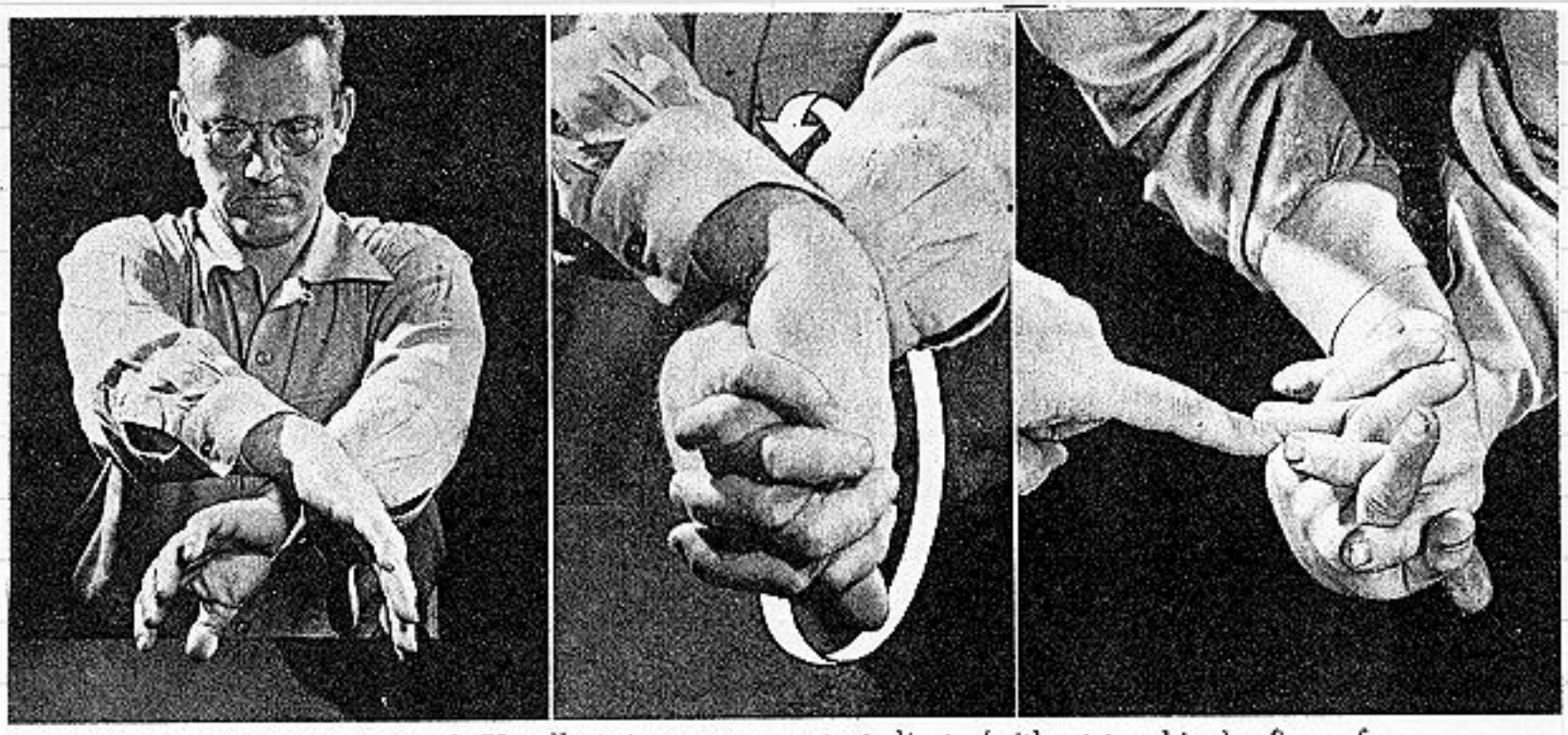


Holding hands with your best girl can be instructive as well as fun. Sitting as above, cross your right wrist over her left. Now both of you turn your hands inward until the palms face and the thumbs are downward. Interlock your fingers with hers and ask her to join you in twisting the clasped hands downward and then up between your respective arms. You now are ready for the real trick. (If this hand-wringing technique confuses you, try the bachelor version at the top of the facing page for practice.)

After achieving the contortions shown above, touch one of your girl's fingers with the index finger of your left hand and stroke it a bit in the interests of science.

Whose finger are you stroking? Your own? It does seem like it—as if it had gone to sleep. You have to look again to see whose it is.

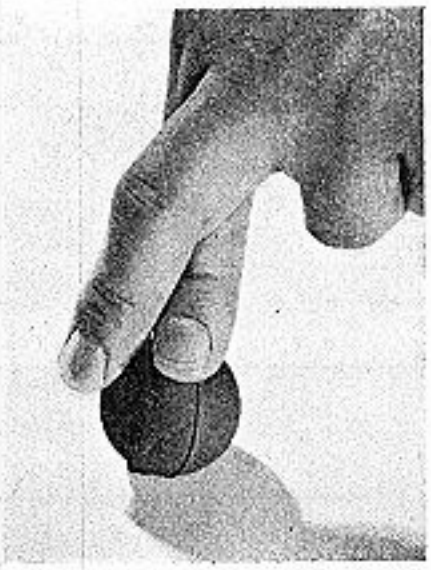
Scientists explain it this way: Apparently the touch sensation, the motion of stroking, and the stroked finger being in a position ordinarily occupied by your own combine to create this strange illusion. But that's only one way your senses can fool you.



Which finger will move? Usually it is easy to move any finger a friend points to. But it becomes surprisingly hard in this illusion, an old favorite of psychologists. Using your own hands, you go through the same contortions described in the stunt at left—cross your wrists, put your palms face to face, interlock your fingers and then twist your hands under and up as shown by the arrow.

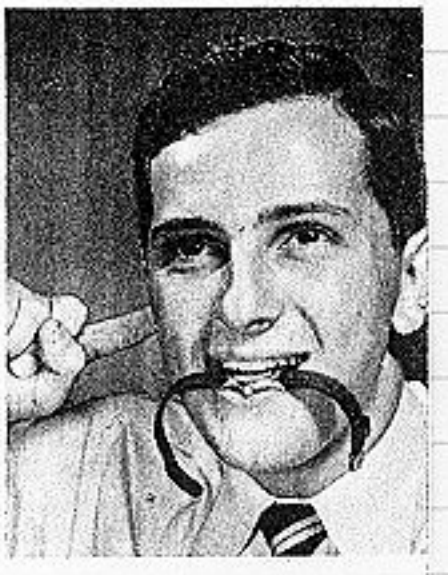
With your fingers thus entwined, have someone indicate (without touching) a finger for you to move. If you act quickly, the odds are that you'll move the wrong finger. Instead, you probably will move the corresponding finger on the other hand.

Why? Because your mind cannot determine which finger is which when your hands are in this unfamiliar position. Until a finger moves or you trace the source of each finger, your body-movement sense is completely baffled.



Two balls from one. If you trust your sense of touch, here's a stunt, handed down from Aristotle, that may change your mind. Without looking, roll a small ball back and forth between the tips of the crossed first and second fingers of one hand. You think you're touching two balls. That's because the touch sensations come from sides of your fingertips that, in their ordinary position, would signal two objects.

Plugging an ear aids your hearing in this case. Grip the watch firmly between your teeth and its ticking will seem loudest in the ear you have plugged. This shows that you can hear sounds by direct conduction through the bones of your head. The ticking seems loudest in the plugged ear because most of the external sounds are barred from the receptors in your inner ear and they don't drown out the ticking.



Don't trust your tongue, either. Food may taste bitter, sweet, salty, sour or have no taste at all depending upon where it touches your tongue. A cautious lick, therefore, may give you a wrong taste clue. On the tip, edges and back part of a tongue are taste buds that respond to all taste stimuli. An area about an inch behind the tip has no taste buds at all. Directly behind that area is another that recognizes no taste but sour.

Test this by applying a salt-sour solution (salt and lemon juice in water) to the tip of the tongue. There, it will taste both salty and sour. Apply it several inches back and it will taste merely sour.

See other stunts on the following page.





When hot seems cold. Heat a large nail by dunking in water at about 115°, dry it and then touch the point lightly to different spots on the back of your hand. On some spots the warm point will feel cool. This paradox occurs because sensations of heat and cold apparently are sent to your brain from different sets of receptors in your skin. Mild warmth sometimes stimulates the cold receptors. Because there usually are more cold receptors than warm ones, you get an illusion of cold.

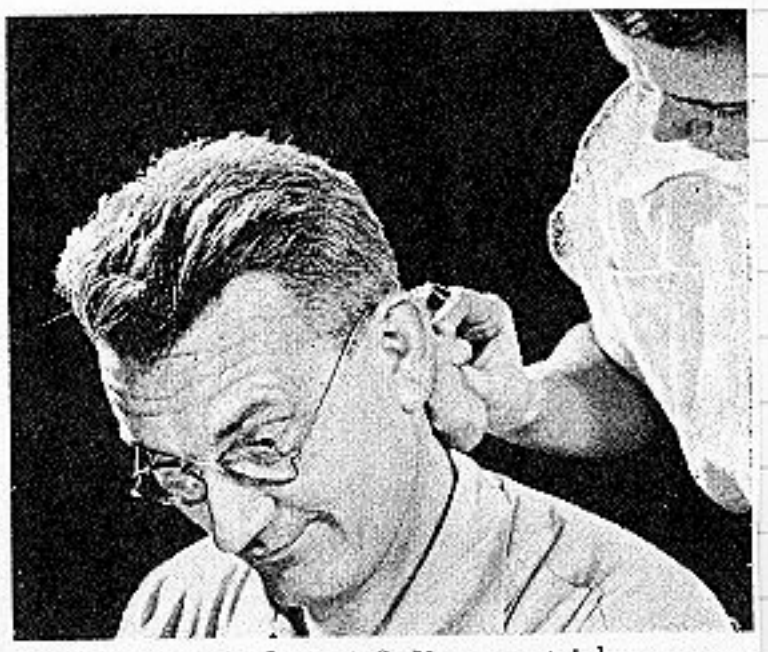


How warm is warm? The rapidity with which your skin gains or loses heat also has a lot to do with what you feel. The hotter your skin, the faster it loses heat and feels cold; the colder it is, the faster it gains heat and feels warm. To see this, arrange three bowls as above. Fill one with hot water, the second with lukewarm water, the third with cold. Stick one finger in the hot water, another in the cold. Then put both in the warm water. The hot finger will feel cold, the cold one warm.



How to flavor your potatoes. Your tongue alone can identify salt, sugar, lemons and quinine, but your sense of smell horns in, too, to give you the flavor of such foods as fruit, strong vegetables, coffee and butter.

Blindfold a friend and ask him or her to bite a thin slice of potato while you wave an onion back and forth near the nose. The potato will taste like an onion.



Hey, it's wet! Or is it? You can trick someone into a feeling of wetness by holding a thin *dry* rubber balloon, filled loosely with cracked ice and water, against the back of his neck. Most physiologists agree that there are only four basic skin sensations: pressure, pain, warm and cold. Wetness, dryness, softness, roughness and tickle sensations are all synthesized from those basic four.

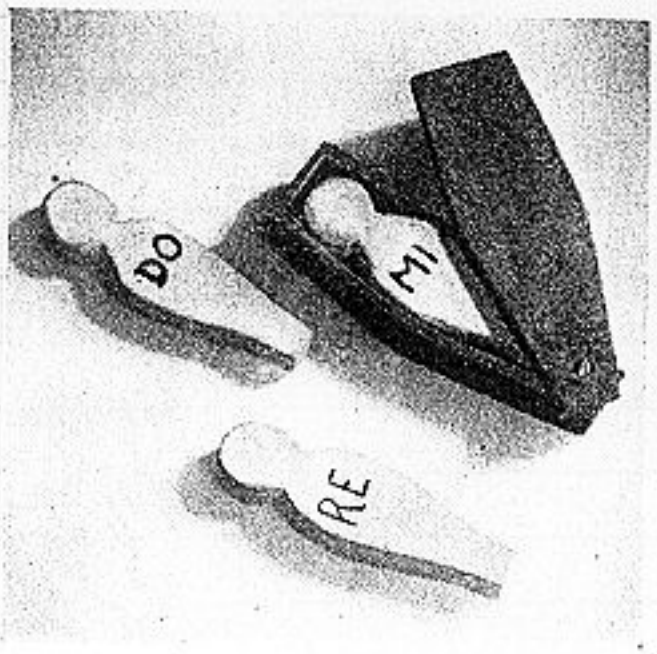


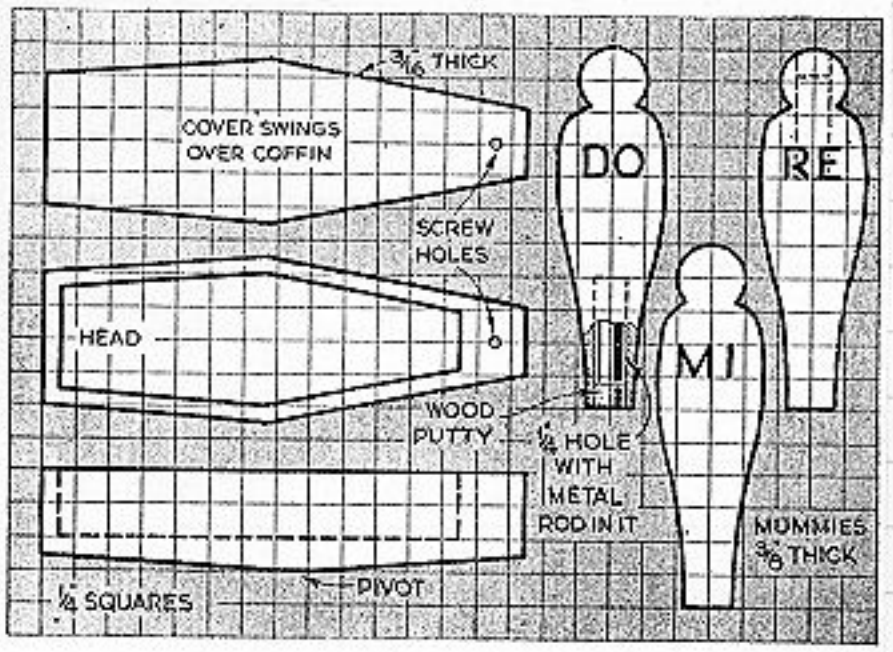
How many points? The acuteness of the sense of touch varies widely on different parts of the body. Tape two toothpicks to a stick and touch both points simultaneously to a blindfolded person's arm. On the back of the arm the points will feel like one, even though they are as much as 1½" apart. On the broad of the back or upper arm, you won't know there are two until they are at least 2" apart. But on the fingertips, two can be distinguished when less than 1/12" apart; on the tongue, two points less than 1/25" apart can be recognized as two.



POPULAR SCIENCE AUGUST, 1944

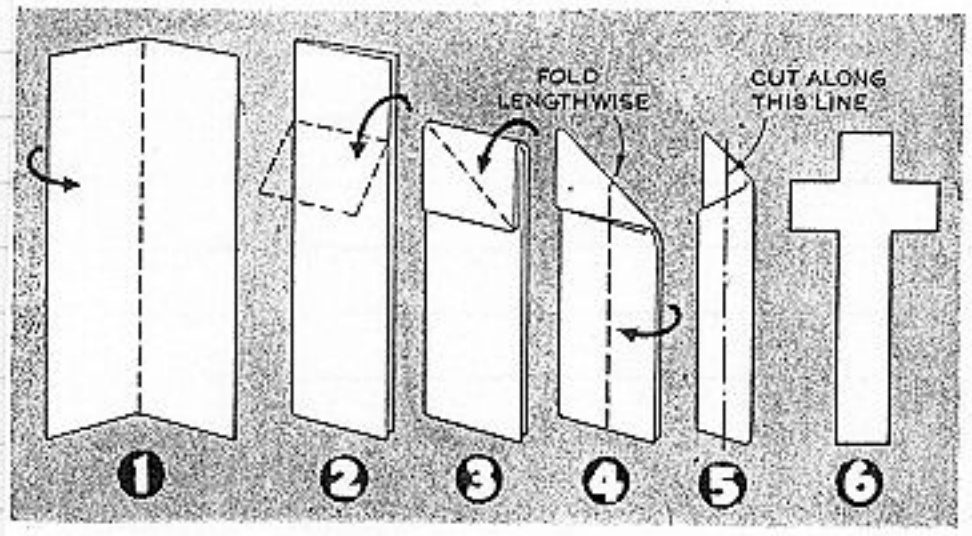
MAGIC YOU CAN MAKE





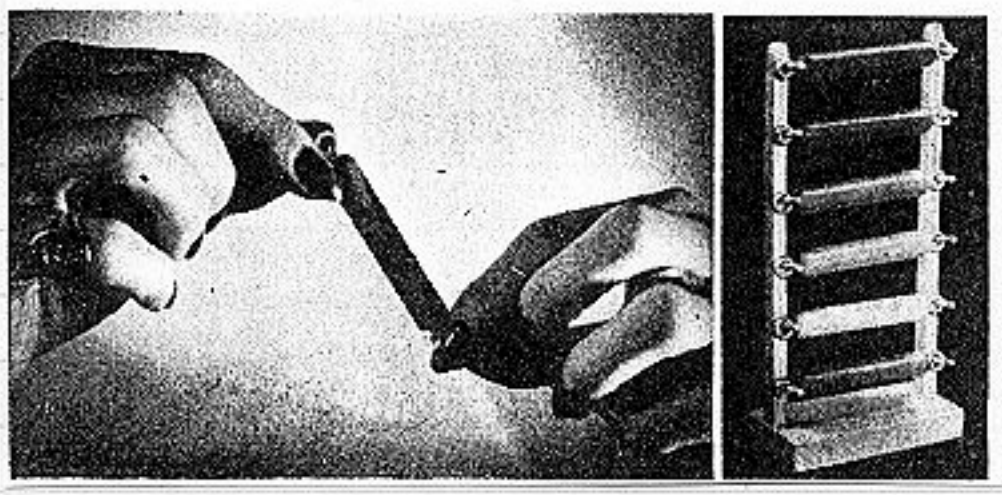
NAMING THE UNSEEN is always a good trick, and an entertaining variation is done with Do, Re, and Mi—three toy mummies that look exactly alike. Have one of them placed within a small covered coffin when your back is turned. Then about face, and name the mummy that has been concealed. Your clue is simple. Do is weighted at his head, Re at his feet, and Mi is not weighted at all. The bottom surface of the coffin is planed slightly at both ends, leaving about ¼" as a level spot at the center. Thus, the balance of the coffin reveals the identity of the mummy within.

The figures are carved from wood ⅜" thick, and fit into a coffin chiseled out to a depth of ½". Iron rods cut from bolts serve as weights. They must be concealed carefully. Wedge them in tightly with toothpicks, putty the holes, and paint over them.



CHALLENGE YOUR FRIENDS to cut a cross from a piece of paper with one slice of the shears—then show them how it's done. Success of the stunt depends on two things: the shape of the paper and the way it is folded. Use a piece about twice as long as it is wide, and fold it as shown in the four steps at the left. When the paper has assumed the shape that is seen in view No. 5, cut it lengthwise through the middle.

DIFFERENTLY COLORED DOWELS hung on a wooden rack are simple enough equipment for a really fine trick. When performing, hold your hands behind you. Have some one give you one of the dowels, the object being for you to name its color. Of course, the dowels look and feel just alike. However, the screw eyes at either end are attached differently. Some are screwed in with wax and turn easily, some are hand tight, others are glued in place and won't turn at all. You must work out a combination for each color and memorize it. For example, the red dowel may have one hand-tight and one fixed screw eye. Use ⅜" dowels and ¼" screw eyes. Hang them on toothpicks inserted ⅞" apart on the uprights of the rack.





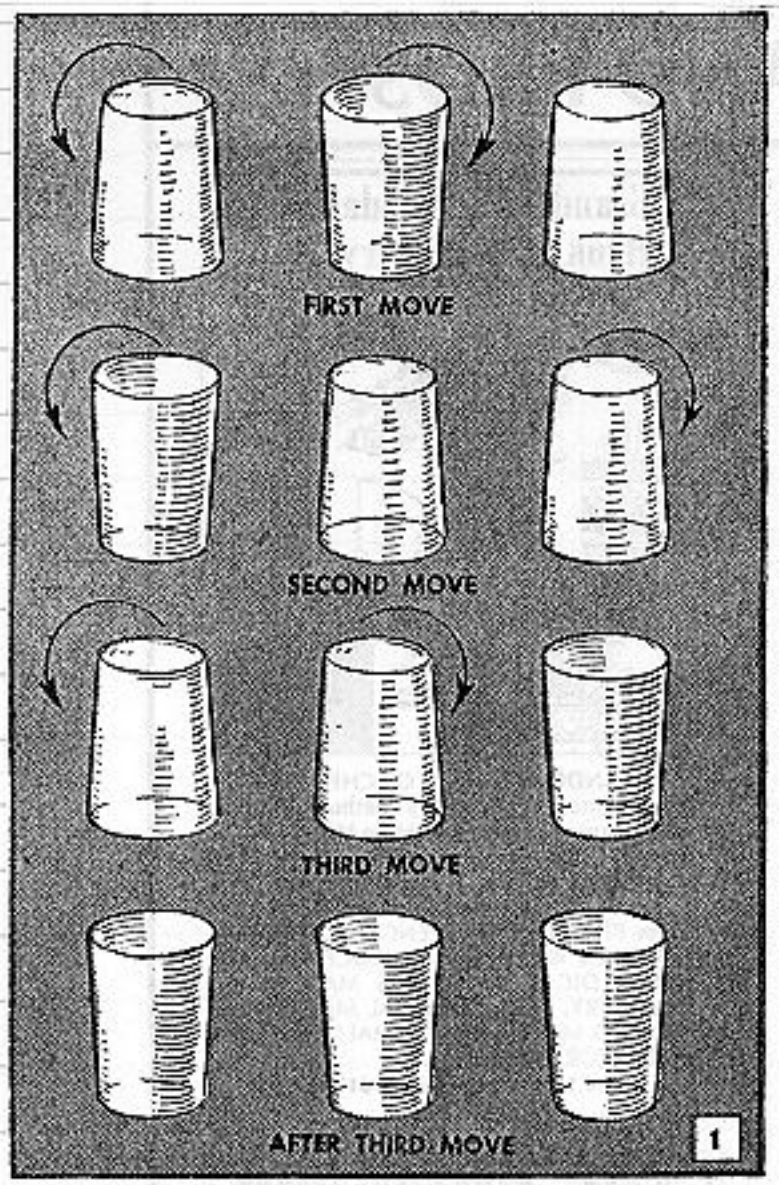
POPULAR MECHANICS AUGUST 1948

PARTY MAGIC

By Bill Turner

WE AREN'T going to show you how to pull a rabbit from a hat as Johnny Jones, professional magician, is doing above, but some of the following tricks are just as mystifying and can be executed expertly with very little practice and concentration. No special apparatus or stage props are needed, as all the stunts are performed with common articles that are always handy. Some of the tricks are real posers and, if skillfully done, will prove just as baffling to your audience as some involved stunts which require special magic equipment.

As a good example, try this stunt, a favorite of Joe Berg, inventor of tricks. It's done with three empty glass tumblers which are placed in a row on a table. Then, asking the spectators to watch carefully, take a glass in each hand and quickly give them both an end-over-end half-turn, Fig. 1. This movement is repeated twice, always turning two glasses at once. Finally, all the glasses are mouth up. Now turn the center glass mouth down and challenge a spectator to try it. But try as he will, the spectator cannot bring the three glasses mouth up by turning two at a time. Here's where you take over, rearranging the tumblers and successfully repeating the performance in a few quick moves. After reading the simple secret below, practice a few minutes and try this trick at the next party. You'll have everybody in the place turning tumblers and scratching his head, wondering how it's done. The idea is to start with the end glasses mouth down and the center one mouth up, but when the spectator is invited to try, the two end glasses are placed mouth up and the center one mouth down. The trick derives its mystery from something besides a mere secret. Its success depends to a large extent on a slick presentation, Fig. 2, and also on skill in deception. This is achieved by planning the talk and action to focus attention on the routine, which keeps the audience watching for an extra turn or some other secret



manipulation that will reveal the trick.

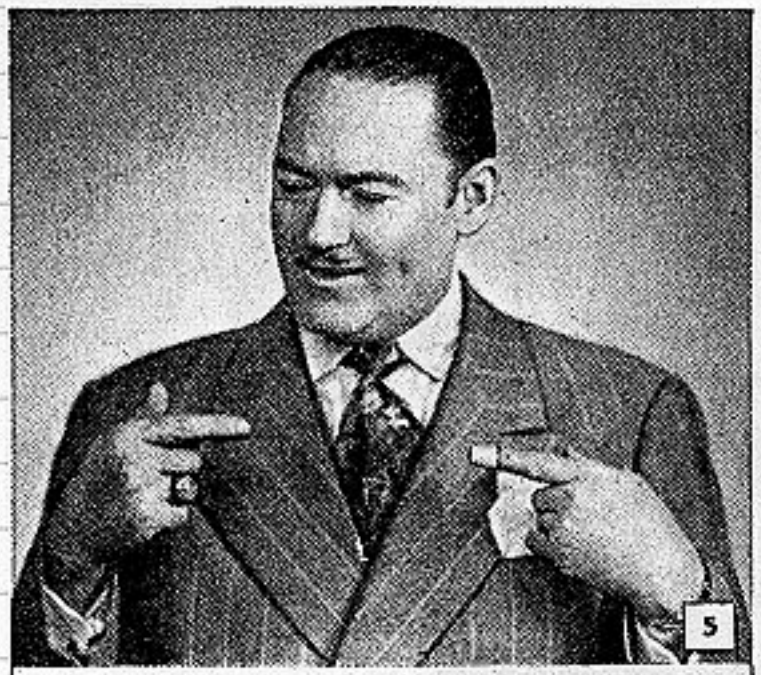
By this time, the guests will be asking for more. So borrow a man's handkerchief and proceed to push a small object right through the cloth without leaving a hole in it. First, place the handkerchief over your left hand, doubled loosely into a fist, and poke a pocket into the center of the handkerchief with the right forefinger. At the same time, the right middle finger is secretly extended. Then the left fingers are opened slightly so that the right middle finger can enter the left fist, carrying a fold of cloth with it to form an opening that is unknown to the spectators. Fig. 3 shows this with the fingers slightly opened and Fig. 4 shows how it appears with the fingers closed. Now pick up a pencil, cigarette, or other small object, and place it in the secret opening, holding it in place with the left fingers. To the audience, it appears that the object has been placed in the pocket. Then say a few words of magic, release the grip of the left fingers, and the object drops through the opening in the handkerchief to the floor. But to the attentive spectators, it appears to pass through the solid center of the hankerchief.

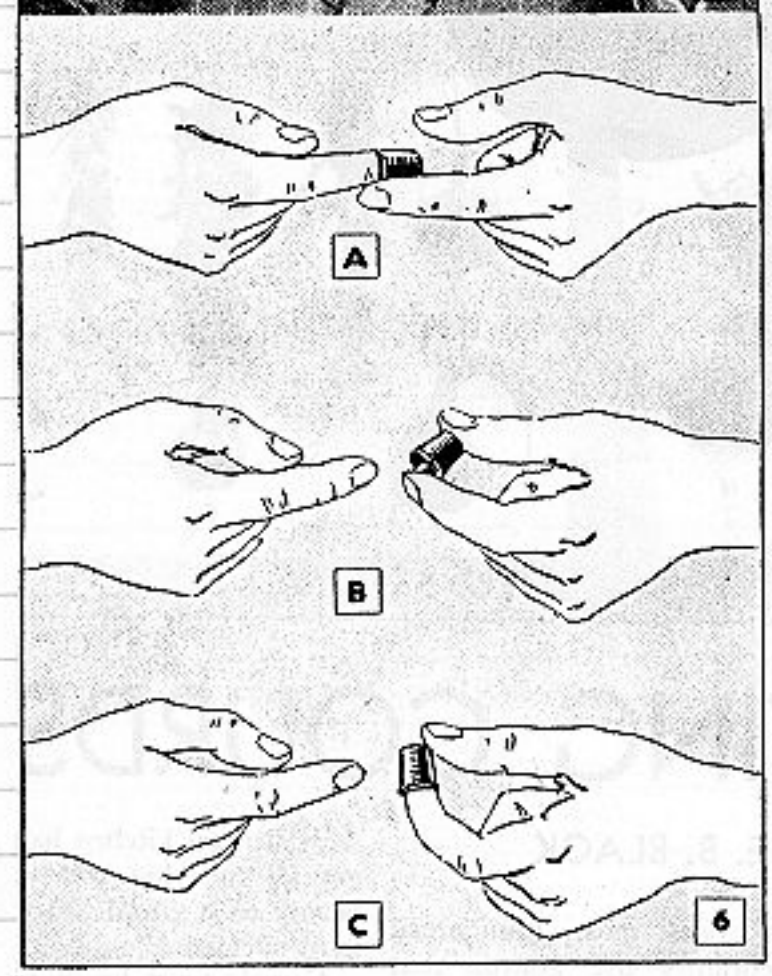
Another trick that calls for quick sleight of hand is shown in Figs. 5 and 6. The sequence of this thimble trick begins with the thimble on the forefinger of the right








5



6

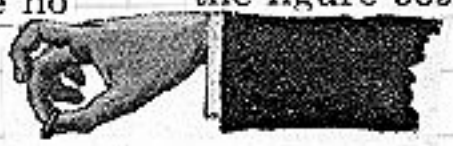
hand. Point this finger to the left and touch the thimble to the end of the left forefinger. Draw the hands apart, rather quickly. Then repeat the action and this time the thimble appears to jump, quite magically, to the left finger tip, Fig. 6, B and C. The deception depends upon easy, swift manipulation of the thimble plus control of the attention of the audience—a technique professional magicians call "misdirection." The last three fingers of each hand are folded loosely into the palms, while the thumbs are held parallel with the first fingers and are kept out of sight of the audience. As the fingers touch, the tip of the left thumb is near the thimble. The first time the fingers are pulled apart nothing happens except that you follow the thimble on the right finger with your eyes. This serves to misdirect the attention of the spectators and is an important part of the deception. Now, moving a little slower than before, touch the fingers again, as in Fig. 6, A. Slide the inside of the left forefinger tip against the thimble and secretly seize the thimble between the left thumb and left finger tip, pulling it off the right finger. Bending the left forefinger slightly, push forward on the thimble with the left thumb, and it will flip onto the left finger quite easily. But be sure to follow the right finger with the eyes just as before, Fig. 5. Thus the spectators' attention is directed to the finger and they never see the flipping motion which transfers the thimble. This one will require practice.

Here are three more party tricks which have not been illustrated because they are so very easy to follow. For the first one, obtain a number of spools of colored thread and select six or eight of these of sharply contrasting colors. With these you can perform a puzzling feat of divination. While your back is turned, have a spectator select one of the spools. Next, have him place this spool in your hands, which are held behind your back, and put the other spools in his pocket. Then, apparently by sense of touch alone, you name the color of the spool you hold. Here's the way the trick is worked. When the spectator has put the spool in your hands, turn to face the audience. Quickly and unobtrusively break off a short length of thread from the spool, wad it up, and insert it under the nail of the middle finger of your right hand. In the meantime, distract the attention of the audience by talking about the strange powers of divination. Even ask the spectator to help by concentrating on the color he selected. While talking, bring the right hand out from behind your back and point a finger at the spectators in a natural gesture. This provides an opportunity to glimpse the color of the thread under the fingernail. Do this very subtly, bringing the hand in line with the eyes so it does not attract the attention of those who are watching every move.

Most tricks should never be repeated, but here's one to perform at the dinner table that becomes more baffling with repetition. If there is a dish of olives, select four of them with the right hand, palming one and dropping three on the table in front of you. Hold the concealed olive in the crook of the second and third fingers, keeping the hand in a natural, relaxed position with its back toward the audience. Then pick up one of the three olives from the table, taking it between the right thumb and forefinger. Place it in the palm of the left hand and close the left fingers over it. Do this quickly but openly so that everyone sees just what is done. Then pick

up another olive and put this second olive into the left palm in the same way as the first. At the same time, secretly drop the palmed olive into the left hand and immediately close the fingers. Then pick up the third olive, saying that you will put it into your pocket. Go through the motions of putting it in the right-hand coat pocket, but palm the olive instead. Then, as the final gesture, open the left hand and drop the three olives on the table, saying that the one placed in the pocket has mysteriously joined the others. As the fourth olive remains palmed in the right hand, you are ready to repeat the trick. Most audiences will give up trying to guess and ask how it's done.

Finally, here's a number puzzler which is rare in that it does not appear to depend upon trick figuring as such stunts usually do. To the audience, there seems to be no possible explanation for the feat of prophecy which the magician accomplishes. Write a number, as explained later, on a piece of paper. Then fold the paper and hand it to a spectator for safekeeping. No one but you knows what is written. Now look over the audience and purposely ask a stranger to write certain figures in a column. These are the number of years he has been married, the year of his birth, his age, and the year he was married. The spectator is asked to add the column of figures and read the total. It will be found that this total and the figure written on the paper are exactly the same. It works this way. The total of the stranger's age in years, birth year, number of years married, and the year he was married is certain to equal twice the figure of the current year. In other words, if the year is 1948, the figure 3896 would be the prophecy.



WHERE IS THE PENNY?

This will mystify your friends if you practice hard and do it well. Offer someone a penny, holding it between the thumb and middle finger, as you see above. Just as he reaches for it, flip the coin up your sleeve—which should be wide and long—and show him your empty hand. Lower your arm, and the penny will fall into your hand again.





MELTING MONEY

For this trick you need a coin, a glass disk the size of the coin, a handkerchief, and a glass of water. Put the coin in the handkerchief (1) and show it to everybody. Then, while you turn the handkerchief upside down, substitute the disk for the coin (2). The disk will tinkle as it falls into the glass (3) and sound like the coin; but when the handkerchief is removed, the coin will not be in the glass.



THIS IS SIMPLE

Pile several coins on your arm as you see above. Then bring your arm down quickly, holding your hand open. With a little practice you can catch every coin—even as many as six.





FUN WITH TRICKS

THE INVERTED TUMBLER

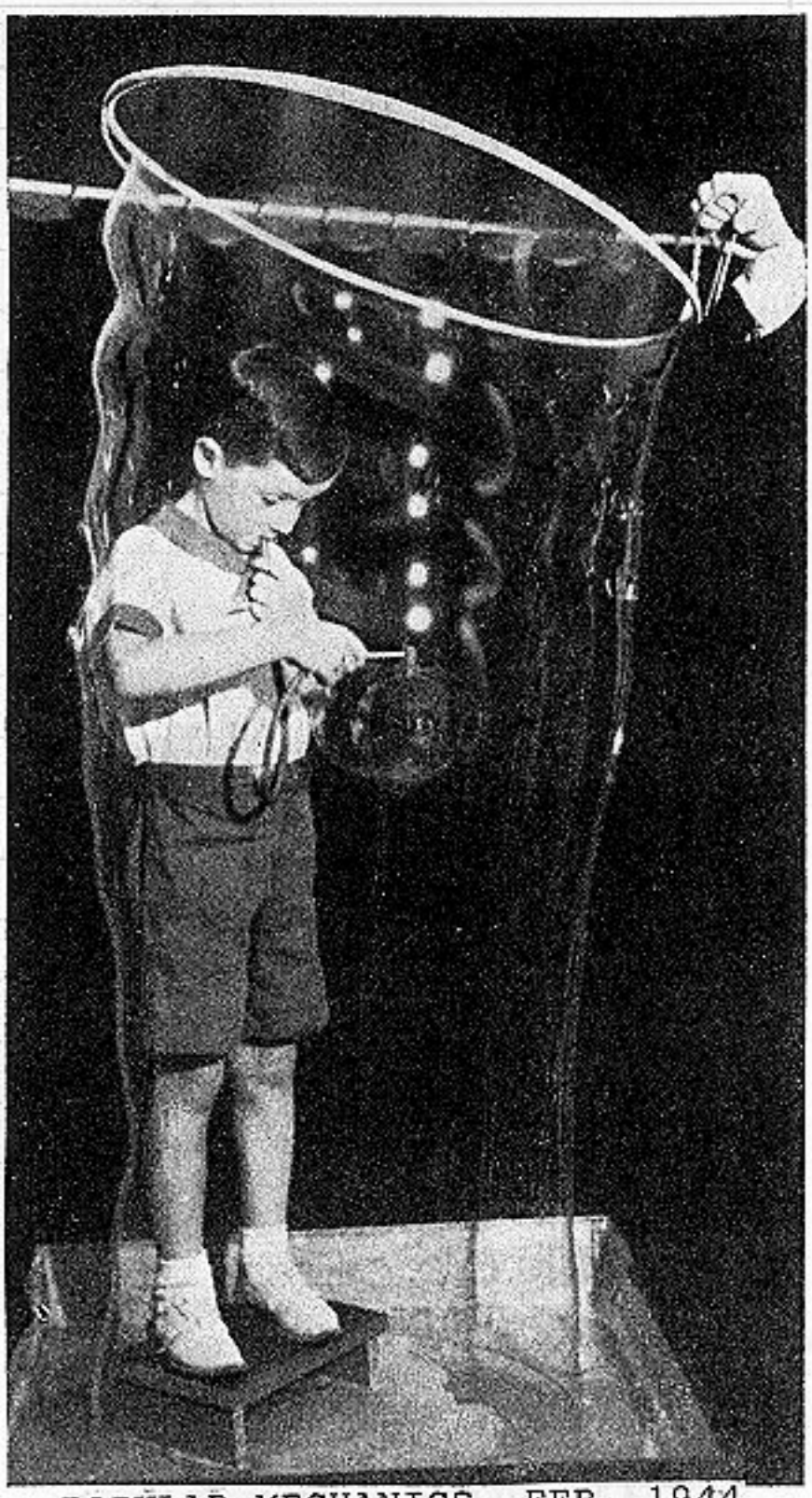
1. Fill a tumbler to the brim. 2. Hold a piece of paper over it and turn the tumbler upside down. 3. Take your hand off the paper and you will find that the paper stays in place—and so does the water!

A GOOD TRICK FOR APRIL FOOLS' DAY

Cut a piece of black paper to imitate spilled ink. Lay it flat on a white table cover and beside it place an upset dry ink bottle. Whoever owns the tablecloth will be greatly shocked!

THE WARNING BENEATH THE EGG SHELL

Mix an ounce of alum with a half pint of vinegar. Then with a fine brush, using the mixture as an ink, write a message—a joke, a prophecy, anything you like—on the shell of an egg. After the egg is boiled in water for about fifteen minutes, the writing will disappear, but your unsuspecting friend who removes the shell will find the message on the hard-boiled egg inside.



POPULAR MECHANICS, FEB. 1944

A quick upward motion of a large ring encases a boy, who is himself blowing a bubble, within a cylinder of soap film. Below, Eiffel Plasterer, an Indiana teacher who has made bubbles a hobby, displays a bubble chain

TRICKS WITH

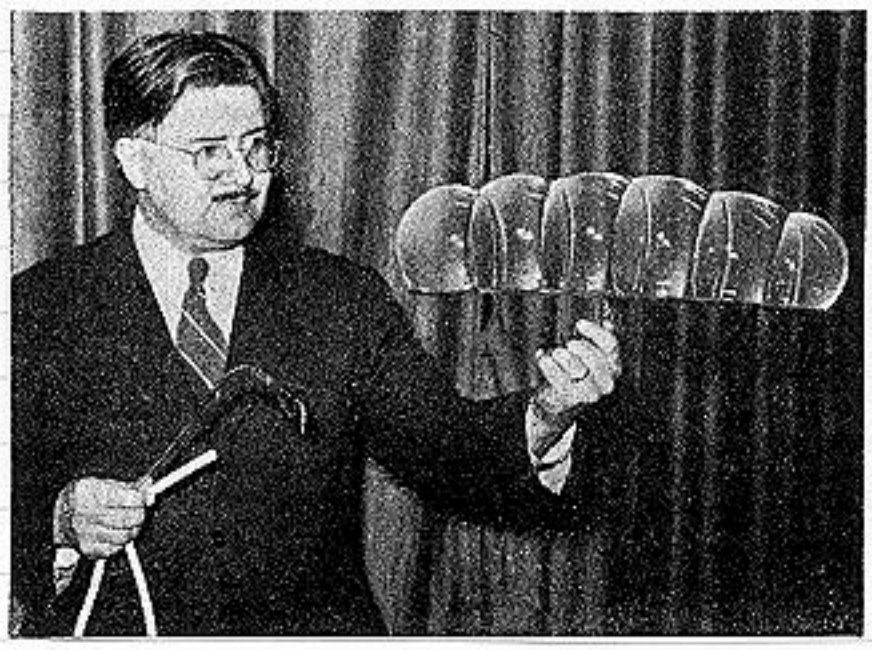
Soap Bubbles

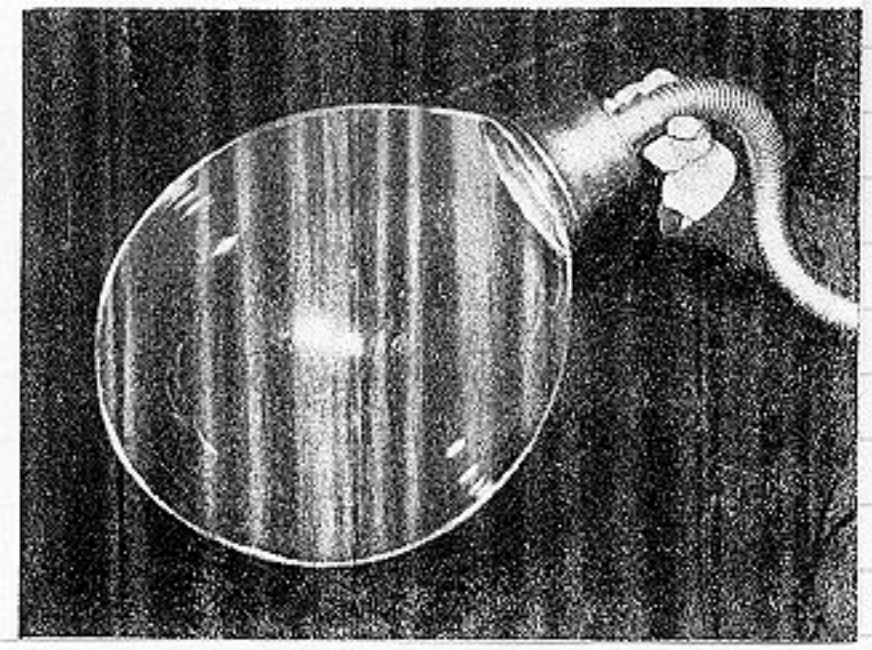
A SPECIAL solution, simple equipment, and a little practice will produce amazing soap bubbles and a whole routine of surprising tricks. Mix 8 oz. of distilled water or rain water, 1 oz. pure Castile or palm-oil soap shavings, and 4 oz. of pure glycerin. Add the glycerin when the soap has dissolved, stir thoroughly, and siphon off the clear liquid which will collect at the bottom.

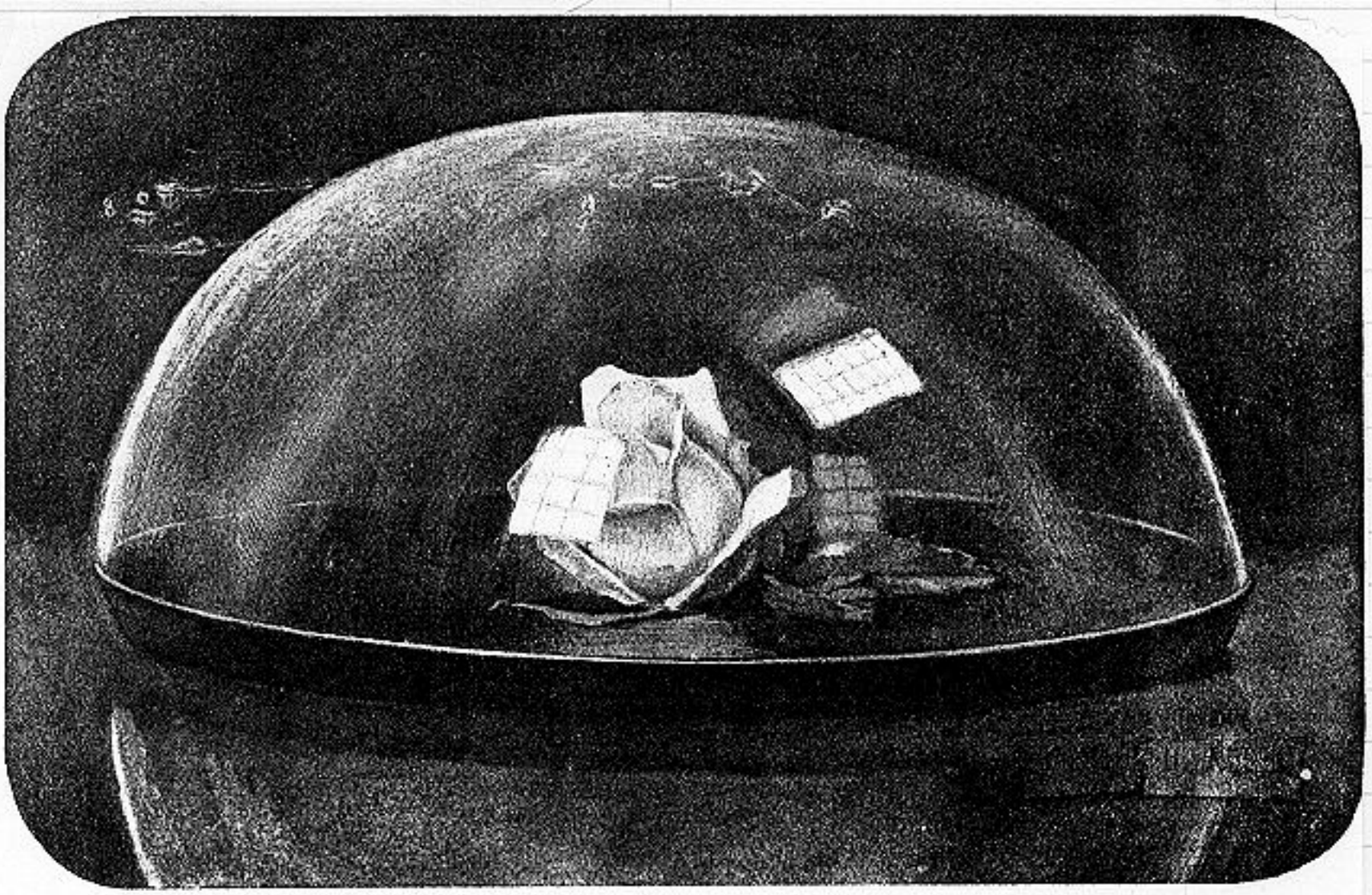
A glass tube 1" in diameter, with the bubble-forming end cut at a 45-deg. angle, will serve for blowing medium-sized bubbles, while a large funnel or bell-shaped reflector will make bubbles up to 2' in diameter. Another way to produce giant bubbles is to bend a wire coat hanger into a large loop, immerse it until a film covers the loop, and then swish it through the air.

By using a hydrogen generator and tubing with a T-shaped fitting, bubbles can be filled with an air-hydrogen mixture; they will soar like balloons and explode if touched with a lighted cigarette. If a loop of fine aluminum wire with a thread tied to it is coated with a film and a gas-filled bubble is placed on the ring, light objects on the thread can be floated in the air.—R. M. LUTHER.

Bubbles 2' in diameter can be made with an old vacuum-cleaner hose attached to a flaring metal utensil. Use glycerin to increase bubble life. Mr. Plasterer has blown one that lasted 180 days







A ROSE IN A BUBBLE.

SAINT NICHOLAS, JULY 1899

A SOAP-BUBBLE MAGICIAN.

By Meredith Nugent.

It had been an evening of continual surprises; and when Philip entered the room carrying a bowl, two long clay pipes, a piece of soap, three cornucopias, and a mysterious-looking pasteboard box, not even the wisest among the children could imagine what this part of the program was to be. Neither were they any nearer a solution after Phil had taken from the box a rose, two dinner-plates, a humming top, a table-knife, two door-keys, several marbles, and a number of nails.

Phil would have been overwhelmed with questions had he not at once eased the minds of his astonished audience by announcing that he was going to show them some new tricks with soap-bubbles.

"Now watch me!" he continued, after having carefully mixed the soapy water until he considered it just right. "I will just blow you some bubbles with one of these long pipes."

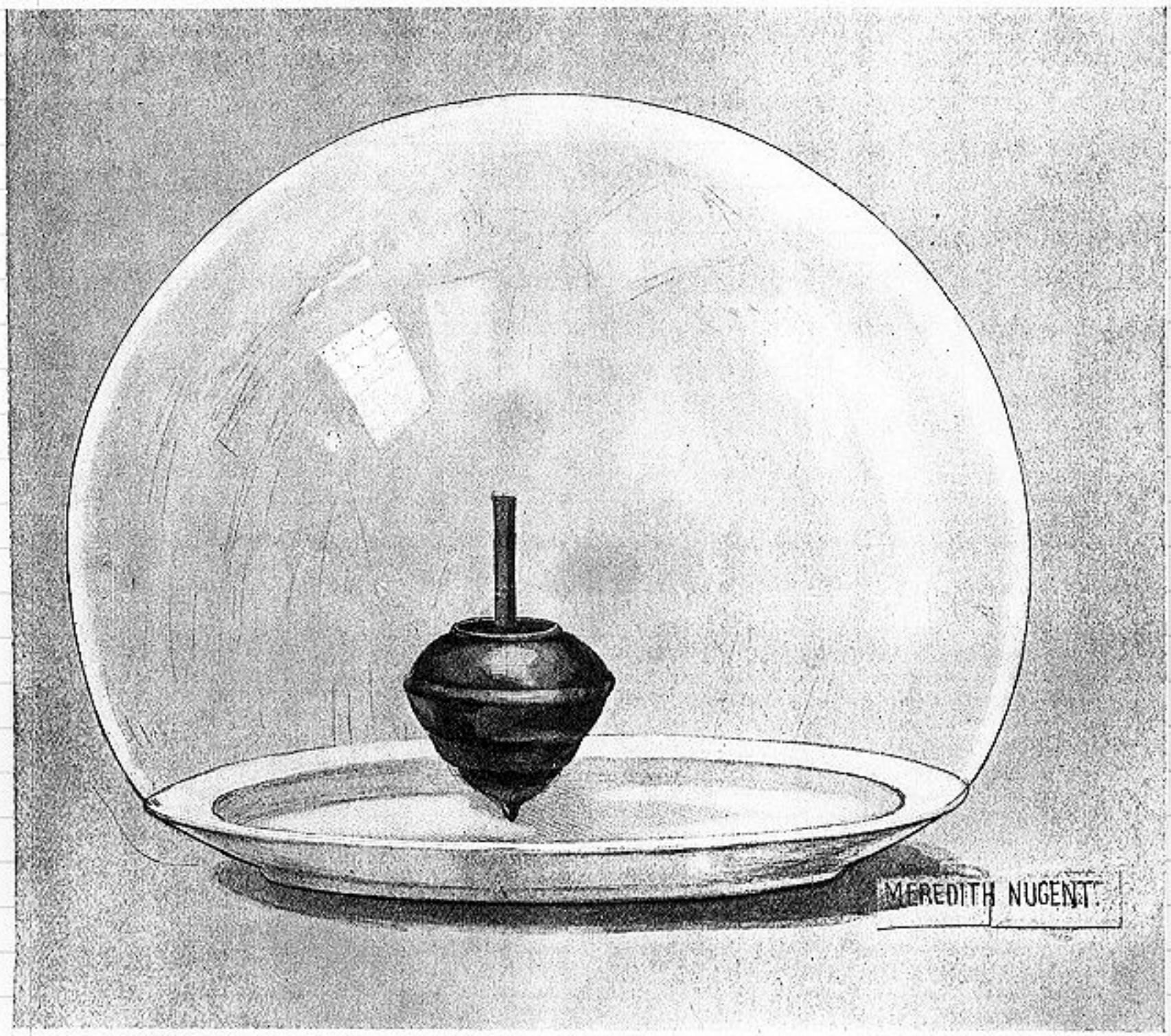
Soon it seemed that the air was full of the shining globes. Satisfied with the result of this trial,—for the object in blowing these bubbles had been to test the strength of the soapy water,—Philip took one of the cornucopias, and blew a bubble so large that the children clapped their hands for joy. He tossed a bubble into the air, and as it slowly descended caught it upon the cornucopia. The next he caught upon the palm of his hand. The next he balanced upon the tip of his forefinger. Still another was caught upon a broad wad of cotton. He held one in graceful poise upon the end of a knitting-needle, and proceeded to play battledore and shuttlecock with it. Three times he tossed this bubble into the air, and three times he caught it, before the beauty burst. With a cornucopia larger than the one he just used, he blew a bubble upon a dinner-plate, completely covering it; then he blew another on

top of the first, but in such a manner that the two united, forming one immense sphere.

Philip thereafter directed his attention to the more striking part of his exhibition, and from this time on his performances were simply amazing. "See that white rose?" he exclaimed, pointing to a beautiful one resting upon a lacquered tray. "Well, I am going to put it inside of a soap-bubble"; and in a very few moments the flower was sphered over by a bubble so large and perfect that it seemed as if made of purest glass. Cries of admiration came from all sides on beholding this beautiful sight. The bubble was a gem in color, and of great size. Carefully timed by a watch, it lasted just two minutes and a half.

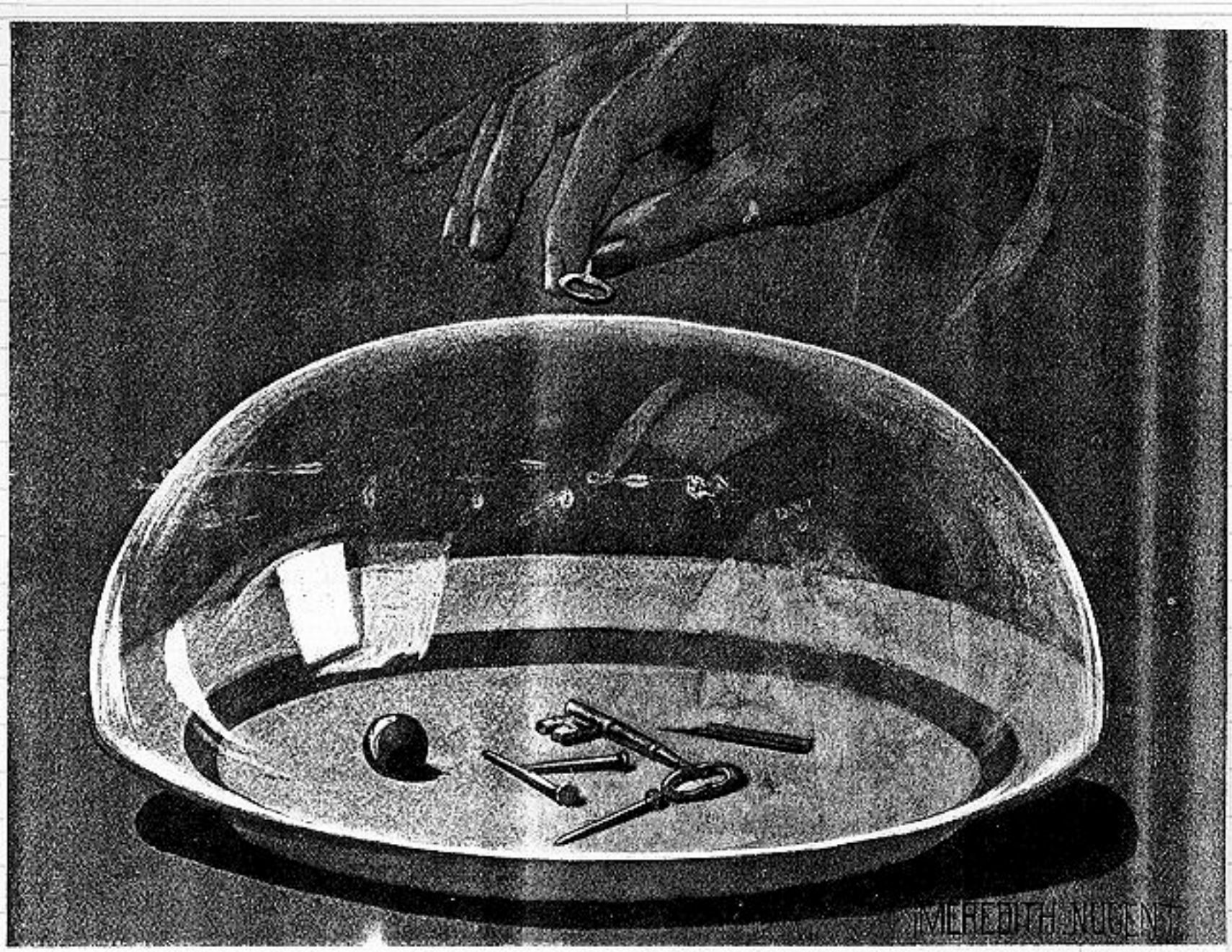
Following this, Phil set the humming top to spinning, and amazed his audience by placing a bubble over that also.

While the top still hummed under its many-hued canopy, Philip blew another bubble, and called the attention of those present to the fact that an old adage said that a bubble would burst as soon as pricked. "But here is a case," he exclaimed triumphantly, "where this old adage, like so many others, is proved to be false." Casting the bubble into the air, Philip passed a knitting-needle completely through it. To add force to his opinion concerning the old adage, the young magician blew a bubble upon a plate, and then dropped a needle through the top of the iridescent sphere without injuring it in the least.



A SPINNING TOP INCLOSED WITHIN A BUBBLE.

Before the childish exclamations caused by



DROPPING OBJECTS THROUGH A BUBBLE WITHOUT BREAKING IT.

this feat ceased, Philip dropped a pen through the film; there it lay in the plate, sure enough; then he dropped another pen through; then a small key; then a larger key; then two nails; and then concluded the remarkable exhibition by pouring some soapy water through, after which the bubble broke. It had stood up under this rough ordeal for a little more than one minute. Certainly the soapy water was never in better condition, but the unusually long duration of the bubbles was due also, as Philip explained, to the low temperature of the room.

As proof of the fact that temperature affected the duration of the bubbles, Philip asked his audience to accompany him into a room which was almost cold. Arrived there, he blew upon a glass plate a bubble that seemed as if it never would burst.

"All put on your hats and coats," was Philip's next direction, "and I 'll show you something about bubbles in a room where the temperature is below the freezing-point."

It was late in November. As soon as the little ones were assembled in this room, dressed as if for a sleigh-ride, Phil blew a bubble very carefully upon a small looking-glass. Twenty pairs of eyes were eagerly fixed upon this glistening sphere, in anxious expectation of—almost anything!

At the expiration of thirty seconds its brilliancy was seen to be greatly dimmed, and by the time fifty seconds had elapsed all transparency had gone.

"There," cried Phil, "is a soap-bubble which will last a year, provided the room is kept cold enough, for that soap-bubble is frozen."

This performance so delighted the children that Phil covered the glass with a whole array of frozen bubbles; then he broke some with a pencil, and fanned the light pieces of ice, which were like tissue-paper, all about the room.

Our young magician now resumed his wonderful entertainment in the warmer apartment. He began by blowing a large bubble upon the lacquered tray; then he blew another bubble inside of this first one. "Two," he called out; and next, as if to amaze his audience completely, he blew another bubble inside of this second one, filling it, as he did so, with smoke.

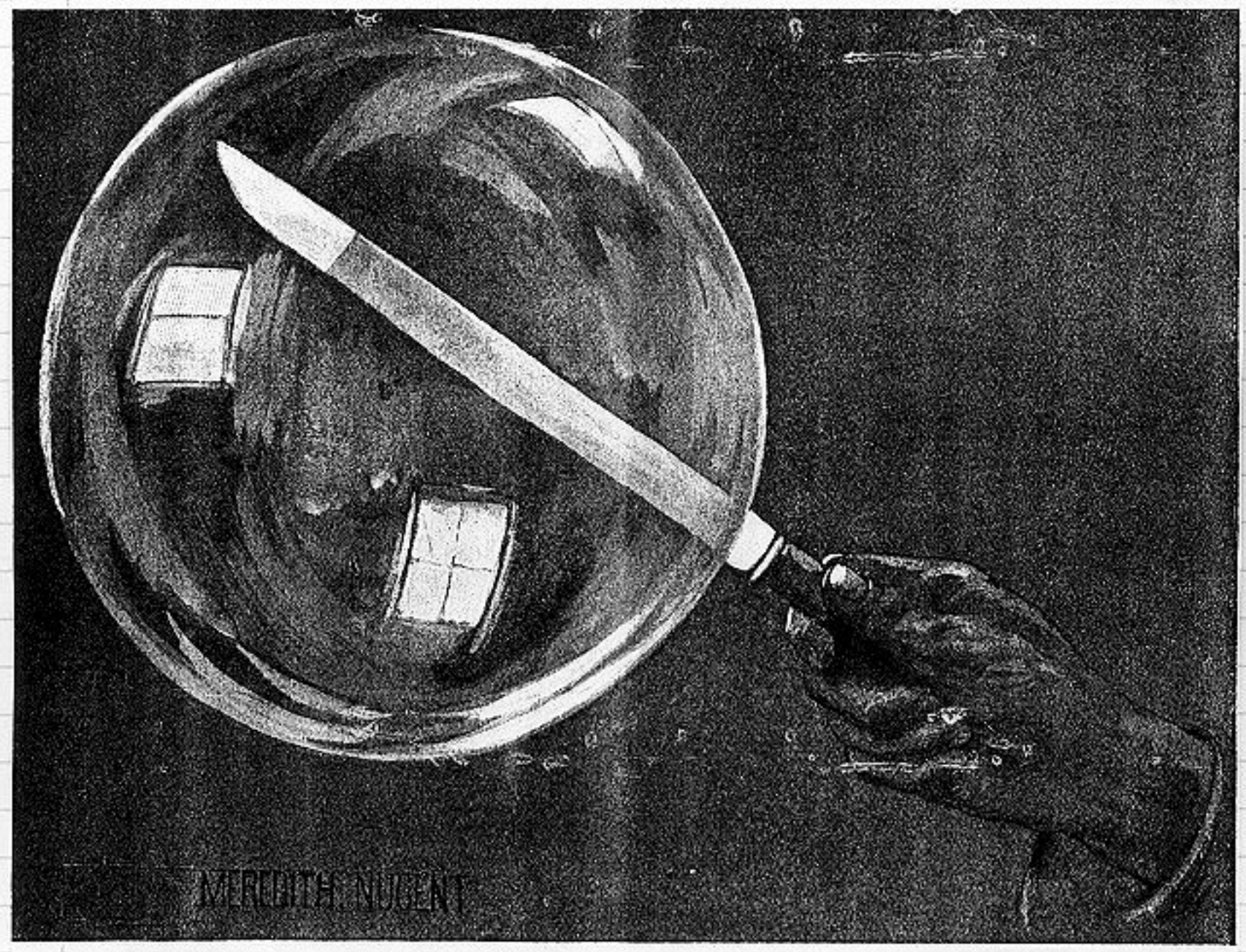
"Three!" shouted the children in unison.

It would be hard to imagine anything more lovely than these three beautiful bubbles, perfect in form, and glistening with all the colors of the rainbow.

Philip was certainly outdoing himself. He had given his friends many pretty surprises, but none of them had ever come near equaling this one. For a while, after this feat, he just simply tossed bubbles into the air, as if thinking of what he should show next. Even this "intermission," as he called it, was not without some strikingly original features; for as one of the bubbles came sailing down, the performer pierced it through with a large table-knife, without inflicting the least injury upon it. He was evidently thinking of the old adage again; for as the next bubble came near to him, he pierced it not only with a knife, but with a fork also. Then, holding another bubble upon the cornucopia, he cut through it in all directions; yet still the bubble remained unbroken.

Phil then, apparently having decided on the next feat, requested that the lights be turned out. When the room was in total darkness, he took a candle from the pasteboard box, and lighted it.

"I am about to show you what I think is the prettiest experiment of all," he said, and began to blow a large bubble upon the plate. The interest, however, was immediately awakened when he placed the lighted candle within a lamp-chimney; and there was a burst

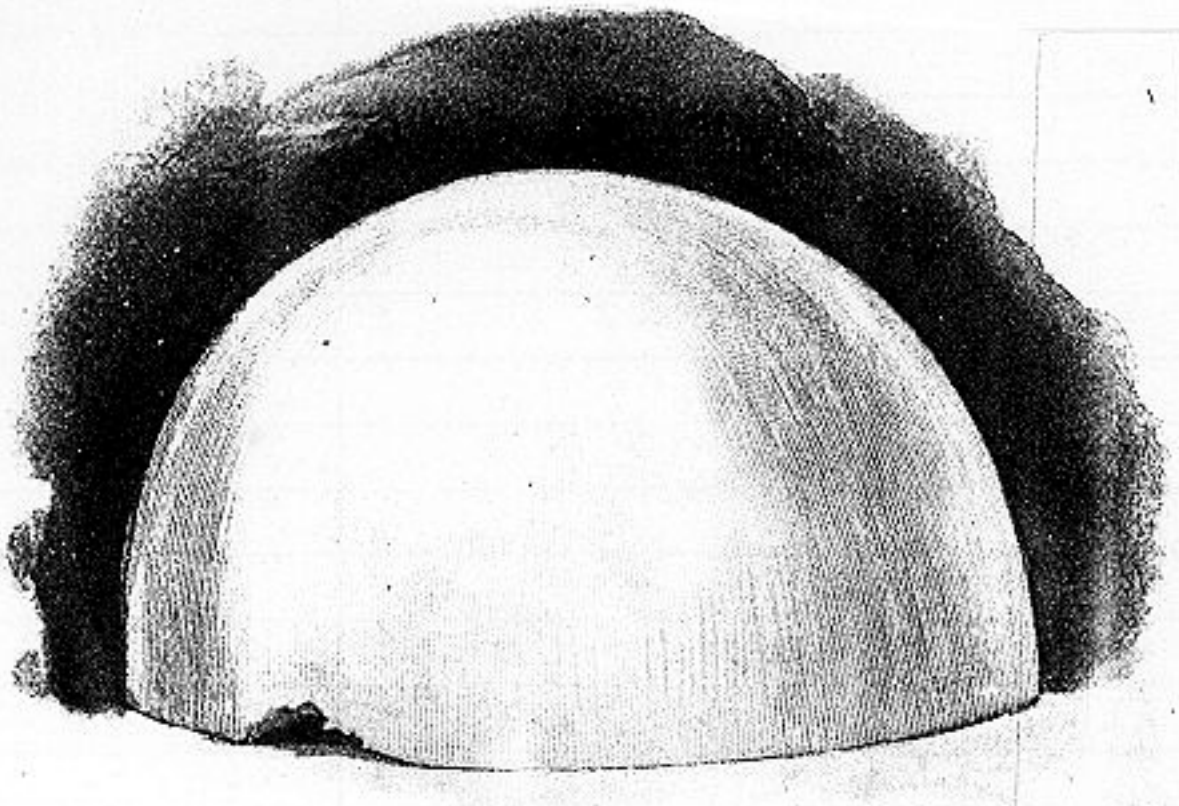


CUTTING THROUGH A BUBBLE WITH A KNIFE.

of genuine enthusiasm as he thrust the chimney that held the candle down into the middle of the great bubble.

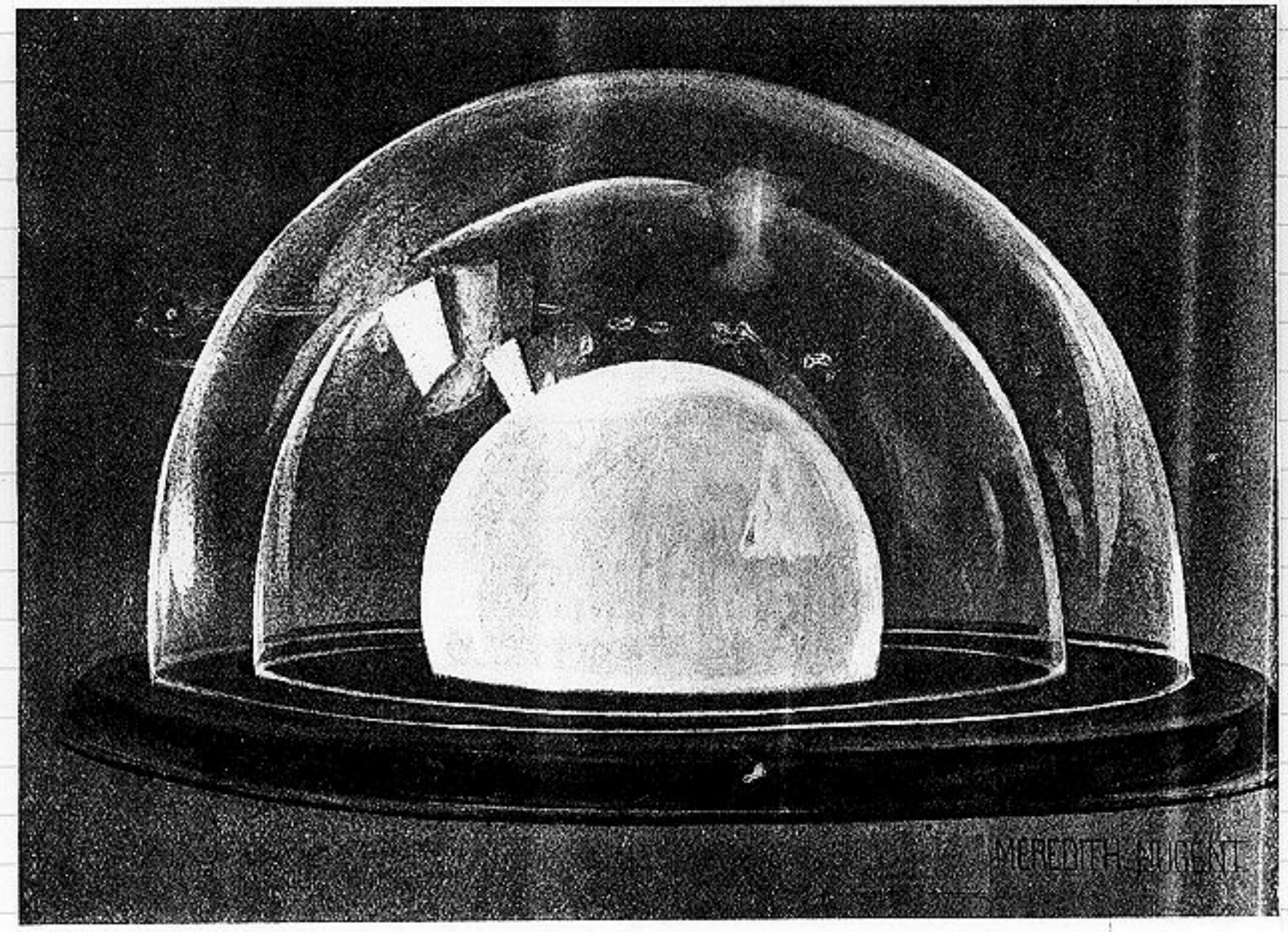
This made a wonderfully pretty sight, and as the rays of the candle-light came glinting through the chimney, Philip's face was seen by all to be wreathed in smiles.

"I must confess," he modestly said, "this performance is all very simple—so simple that any child here may perform all the pretty experiments I have shown you this evening. Some other time I will take pleasure in explaining to you exactly how it is all done."



A FROZEN BUBBLE.

Although Philip had told the children that the candle-light effect was probably the best

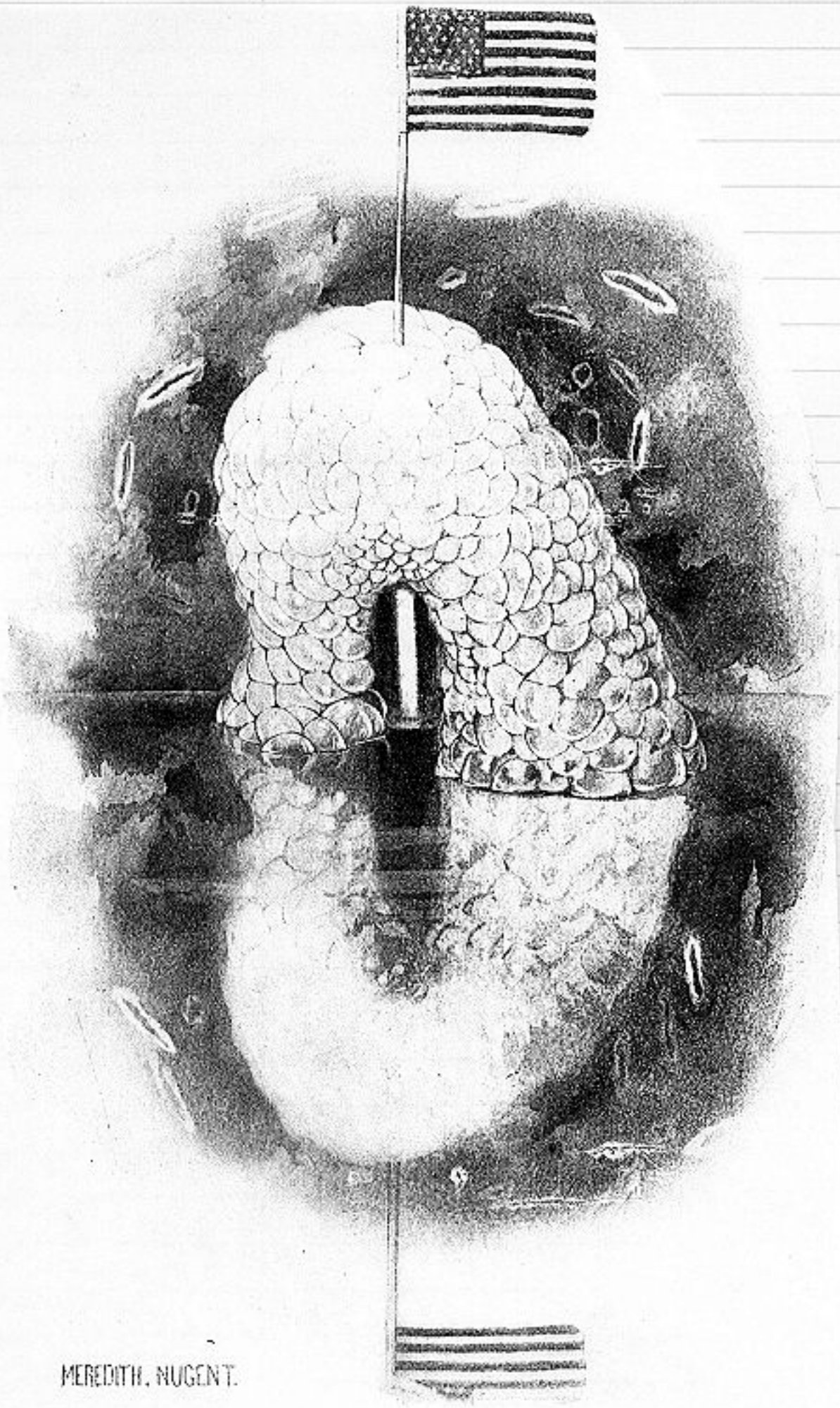


THREE BUBBLES, ONE INSIDE ANOTHER, AND THE SMALLEST FILLED WITH SMOKE.

of his experiments, his crowning triumph was yet to come.

Amid a hushed excitement, he took a tumbler and half filled it with soapy water; then he drew from the pasteboard box a small American flag, which he fastened on a stick supported by a bit of wire so that it floated over the tumbler. Then, putting a long clay pipe into the glass, he called to his uncle, who had been called in especially for this purpose, to blow plenty of smoke through the pipe.

The moment Phil's uncle blew into the pipe there issued from the tumbler an opal stream of wondrous beauty. It consisted of hundreds and hundreds of pure white bubbles, which poured down the sides of the tumbler and upon the looking-glass on which it had been placed. Faster and faster the bubbles rushed out, and higher, too, they mounted now, until, suddenly, it seemed, there burst into view an arch of the most exquisite loveliness.



A SALUTE TO THE FLAG. DRAWN FROM A PHOTOGRAPH.

When the pipe was withdrawn, the children went into raptures over the fairy-like scene; but the prettiest feature was to come.

In a few moments one of the little bubbles broke. A puff of smoke shot forth, forming, as it did so, a dainty, tiny ring; then another bubble broke, and another ring appeared; then the bubbles began to explode in such rapid succession that it became impossible to count the tiny wreaths. This was the crown of the evening's entertainment. "Hurrah for the United States!" shouted Philip. "This is our salute to the flag. Let us all sing 'America.'" And as the little ones raised their voices in joy-

ous chorus, they one and all felt that this was the most surprising evening entertainment they had ever seen.

A few days afterward Philip sent me an account of how he performed his experiments. Here it is:

DIRECTIONS FOR A SOAP-BUBBLE ENTERTAINMENT.

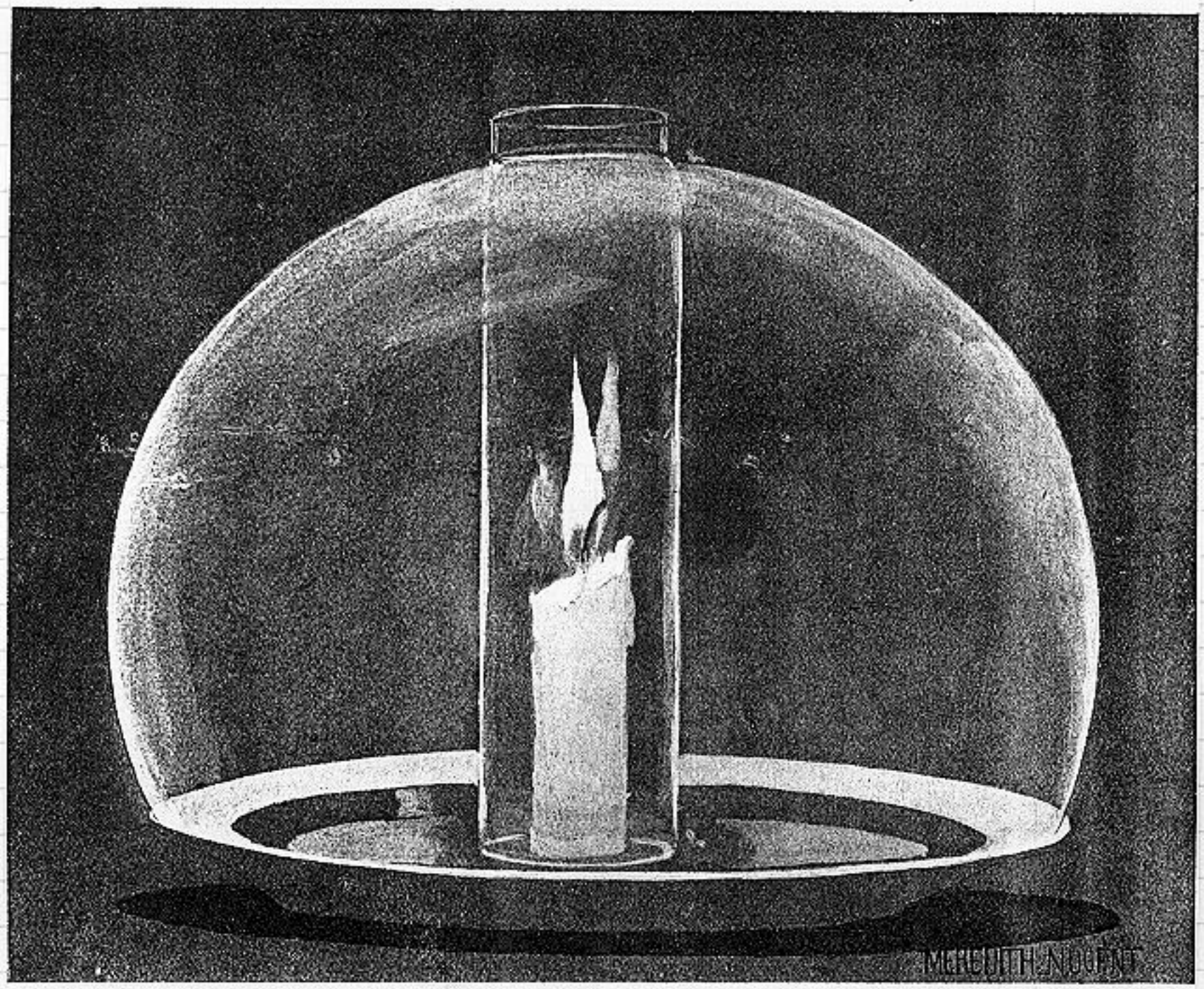
First, make several cornucopias of varying sizes. These should be made of stout wrapping-paper. Cover both sides of paper with paste before rolling into shape. This will insure their being stiff.

Second, take ordinary soap, and rub briskly in half a bowl of water until the proper thickness is reached. To tell when soapy water is right, blow a bubble with a pipe, then dip thumb and forefinger into mixture, and take hold of the bubble with wet fingers. If the bubble gives and does not break, the mixture is ready for use. If the bubble will not stand this test, add more soap or more water until it does.

Third, *take plenty of time*, and never be hurried. Most people fail in making soap-bubbles because they are in a hurry. To blow soap-bubbles successfully, first draw a deep breath, then place your mouth to the pipe or cornucopia, and start the blowing very gently.

Fourth, choose as cool a place as possible in which to make experiments. Bubbles will last *much* longer in a cold room than in a warm room.

To blow the large bubbles: Dip a cornucopia in soapy water until the larger opening is covered by a soapy film; draw a deep breath, then blow slowly into the cornucopia. When the air is exhausted from the lungs, press your tongue over the mouth end of the cornucopia while drawing in the second breath, then blow through the cornucopia as before.



A CANDLE WITH A BUBBLE FOR A GLOBE.

How to put a rose inside of a soap-bubble: Cover

the inside of the dinner-plate with soapy water about one eighth of an inch deep, place the rose in the center, and cover with the cornucopia. Blow gently, while slowly lifting the cornucopia from

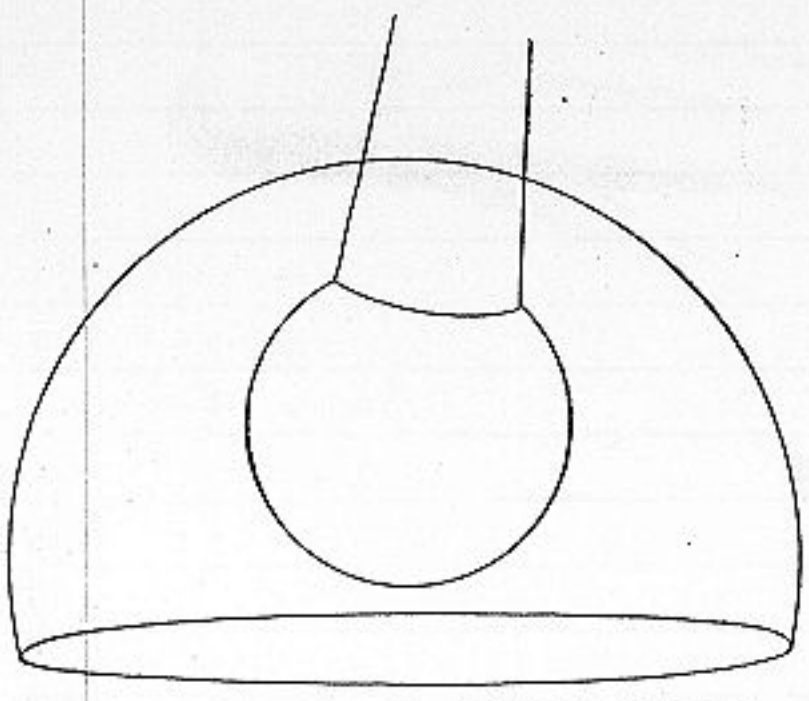


DIAGRAM SHOWING HOW ONE SOAP-BUBBLE IS PLACED INSIDE OF ANOTHER.

plate, as shown in the diagram. Continue to blow until the bubble is of the desired size; then withdraw the cornucopia very carefully.

How to make a top spin inside of a bubble: Proceed in the same manner as in the rose experiment.

How to join two bubbles into one: Blow a large bubble on the plate, then blow a second bubble on top of the first one. If the soapy mixture is of the right consistency, they will unite in one large sphere. Should this experiment fail the first time, try again. No sure rule can be laid down in this case; much depends upon chance.

How to thrust a knife through a bubble without breaking the bubble: Soak the knife thoroughly in soapy water. As the bubble descends, gently pierce it with the knife, as shown in the picture. Hold a bubble hanging from the cornucopia. If the soapy water is in proper condition, the knife may be passed through the bubble in all directions without bursting it. By dipping them previously in soapy water, knitting-needles and numerous other objects may be passed through in the same manner.

How to drop objects through a large bubble: Soak the objects in the soapy mixture, and drop them carefully through the top of the bubble.

How to place a lighted candle inside of a bubble: First soak a lamp-chimney thoroughly in the soapy mixture. Place a small piece of candle inside the chimney, and then light the candle, and slowly put the chimney through the top of the bubble, as shown in the picture.

How to place three bubbles inside one another: First blow a large bubble with the large cornucopia, then dip well into mixture the smaller cornucopia, and blow the second bubble, as shown in the diagram. The third bubble may be blown by passing a clay pipe through both bubbles, after it has been soaked in soapy water.

How to freeze a bubble: Blow a bubble on a plate in a room where the temperature is below the freezing-point (32° F.). The bubble must not be jarred or moved *at all*, or the experiment will fail.

How the "Salute to the Flag" is prepared: Half fill a tumbler with soapy water. Fasten the

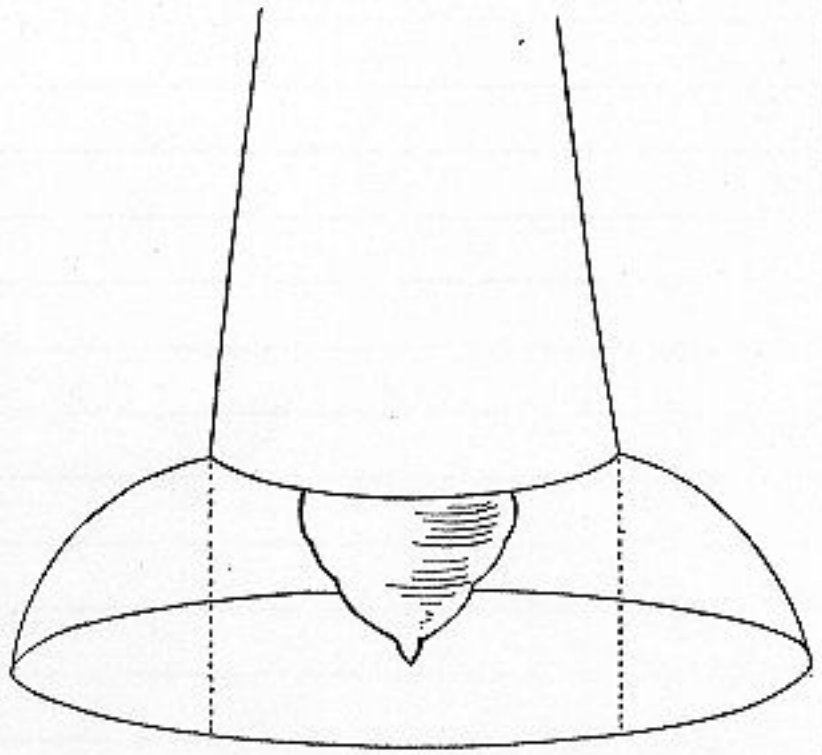


DIAGRAM SHOWING HOW A SPINNING TOP IS PLACED INSIDE OF A SOAP-BUBBLE.

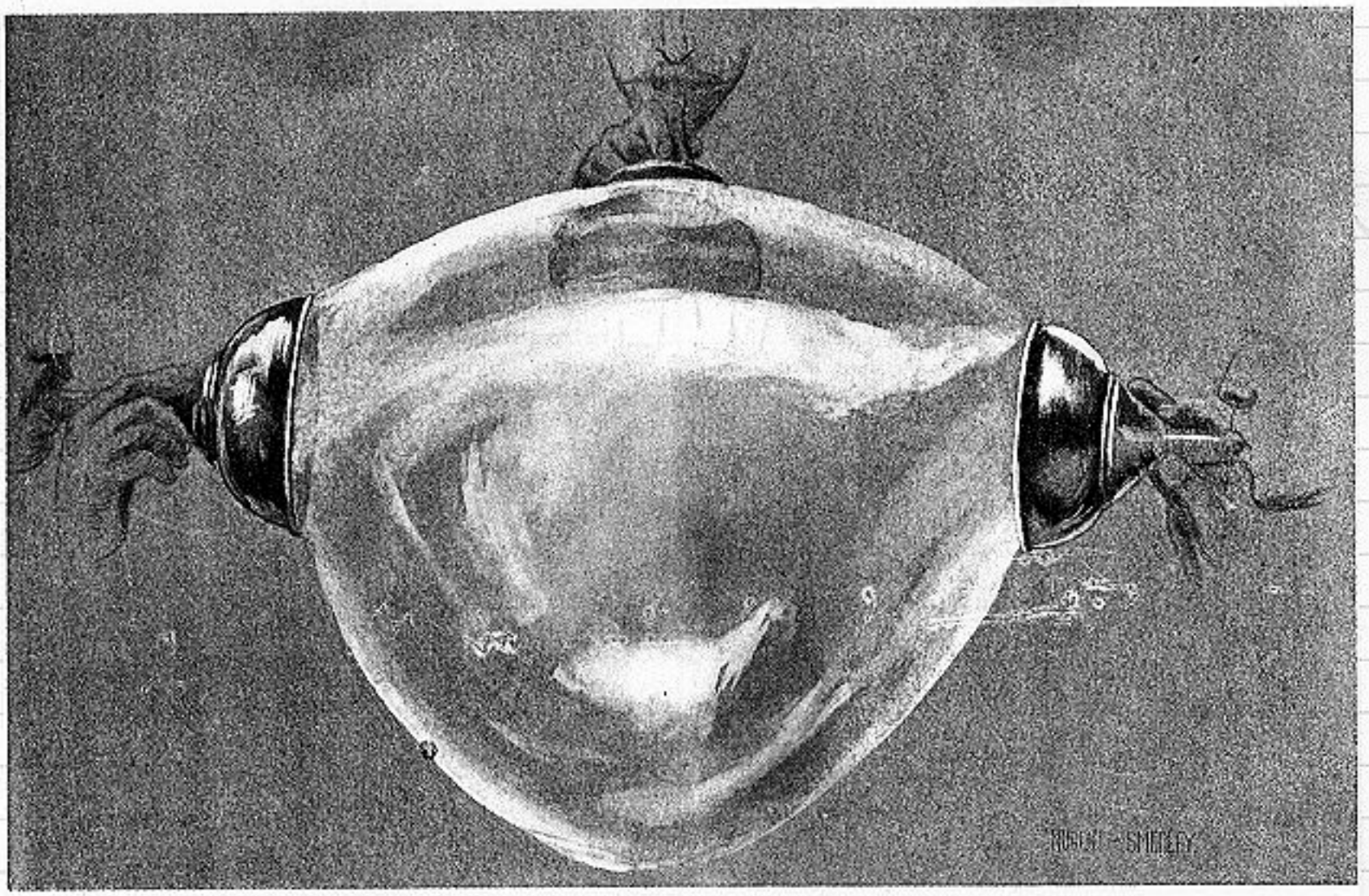
little flag in place, dip the stem of a clay pipe in soapy water, and blow smoke through the bowl-end, when the bubbles will appear as shown in the illustration. This is a very pretty experiment.



PHIL'S SECOND BUBBLE SHOW.

(See "St. Nicholas" for July.)

By Meredith Nugent.



A THREE-CORNERED BUBBLE. (SEE NEXT PAGE.)

The story of Phil's wonderful soap-bubbles spread all over the little New England village; and when he consented to give another exhibition, for the benefit of the Lawton Athletic Club, only Masonic Hall was found large enough to furnish the necessary seating accommodations.

The bubble show opened with much enthusiasm. Bubbles were tossed up, were caught again, were pierced, were thrown in all directions. Little bubbles, big bubbles,—some twice the size of Phil's head,—medium-sized bubbles, all sorts of bubbles, were blown with wonderful rapidity. Bubbles were exchanged, were balanced, were twirled around, were treated so harshly, it appeared at times, that one well might have doubted whether these were made from ordinary soap and water. Why, in the game of "exchange" one bubble was tossed and caught six times!

Then Phil made the audience roar with laughter by comically striking a bubble with his felt hat, so that it bounded toward Harry, his assistant, who in turn bounded it back again. Back and forth this bubble was bounded, until the counting children shouted out in unison, "Seventy-three!" when it burst. Now our magician arranged twelve pretty goblets, while Harry blew bubbles from a sea-shell, into the small end of which a hole had been bored.

"See," he exclaimed, "how much finer and larger these bubbles are than bubbles blown from pipes; and they are more easily blown, too."

Then followed plenty of fun, as the boys endeavored to place a bubble upon each of the twelve goblets. Again and again they managed to cover nine or ten of the glasses; but a bubble seemed always to burst before the twelfth was covered. Finally, by wonderful quickness, they succeeded in achieving this feat.



VICTOR J. SMEDLEY

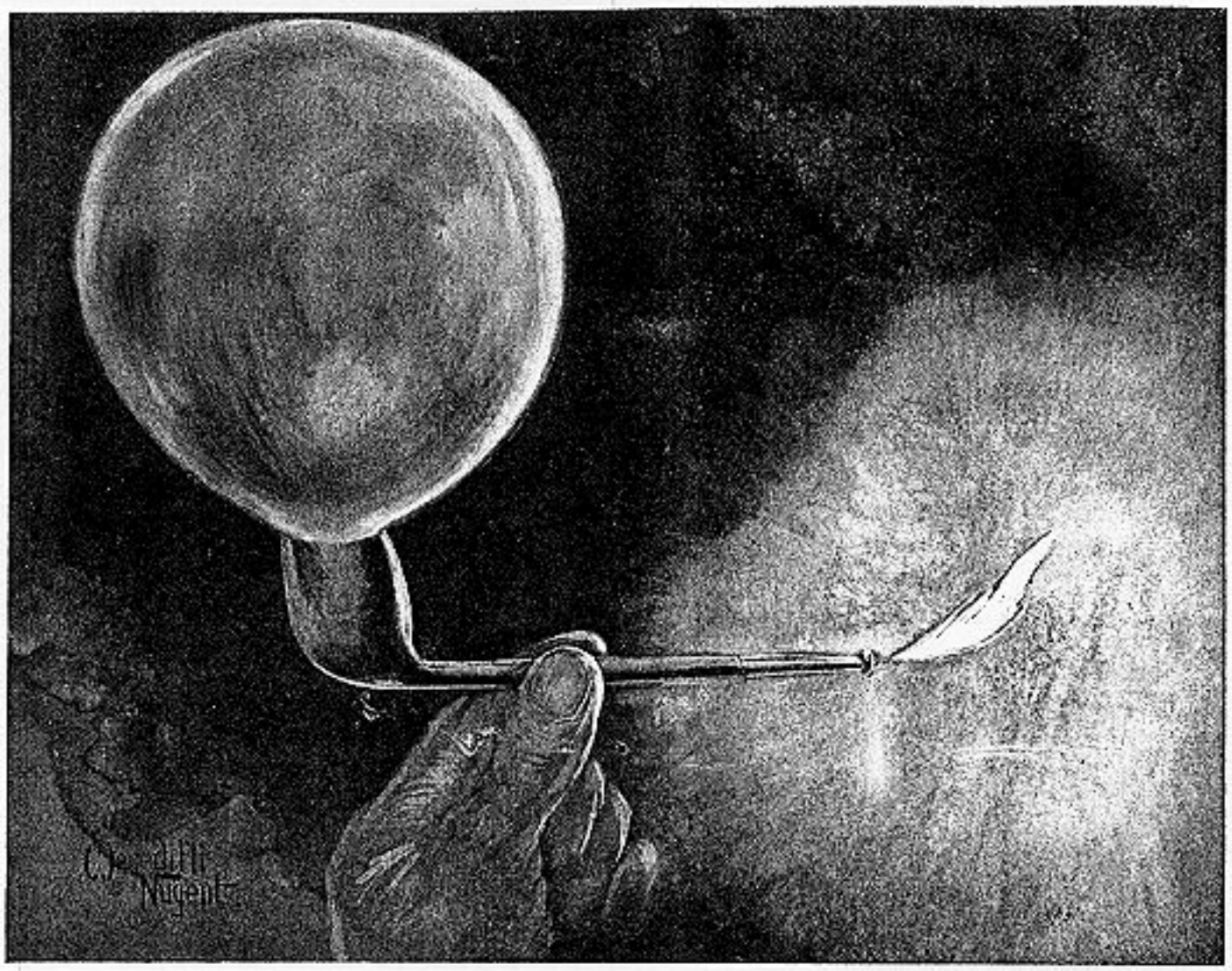
STEAMING A BUBBLE.

Each now took a large funnel, dipped it into the mixture, placed the small end in his mouth, approached the other until the bowls of the funnels were not more than six inches apart, and started to blow. The bubbles slowly swelled out, touched, and on contact united in an instant into one large sphere. Steadily and carefully the blowing was continued, both boys cautiously backing, meanwhile, until a great quivering shape sixteen inches in length had been made.

Resting for a short breathing-spell, Phil asked one of his friends in the audience to come and help him make a three-cornered bubble. The spectators laughed at this, and they were amused again when the boys, assuming purposely comical attitudes, began to blow. Their laughter, however, was changed to wonderment when a great triangular bubble, like that shown in the picture, made its appearance. Before the loud applause that greeted this gigantic bubble ceased, Phil blew a bubble upon a large tray, then he blew another on top of the first; both united. Then he added a third, making the bubble still larger, and fairly electrified his audience by adding a fourth bubble, which joined just as the others had done.

Here was a great bubble, indeed, for careful measurement showed it to be four feet around!

After a few moments' intermission, Harry took a large yellow humming-top, and set it spinning upon a shining tray. Suddenly, without any announcement whatever, Phil placed a bubble right on the whizzing toy. Round and round the top angrily hummed, surmounted by its dome of iridescent brilliancy. How the bubble retained its position was a mystery; but there it clung, not only until the top ceased spinning, but for

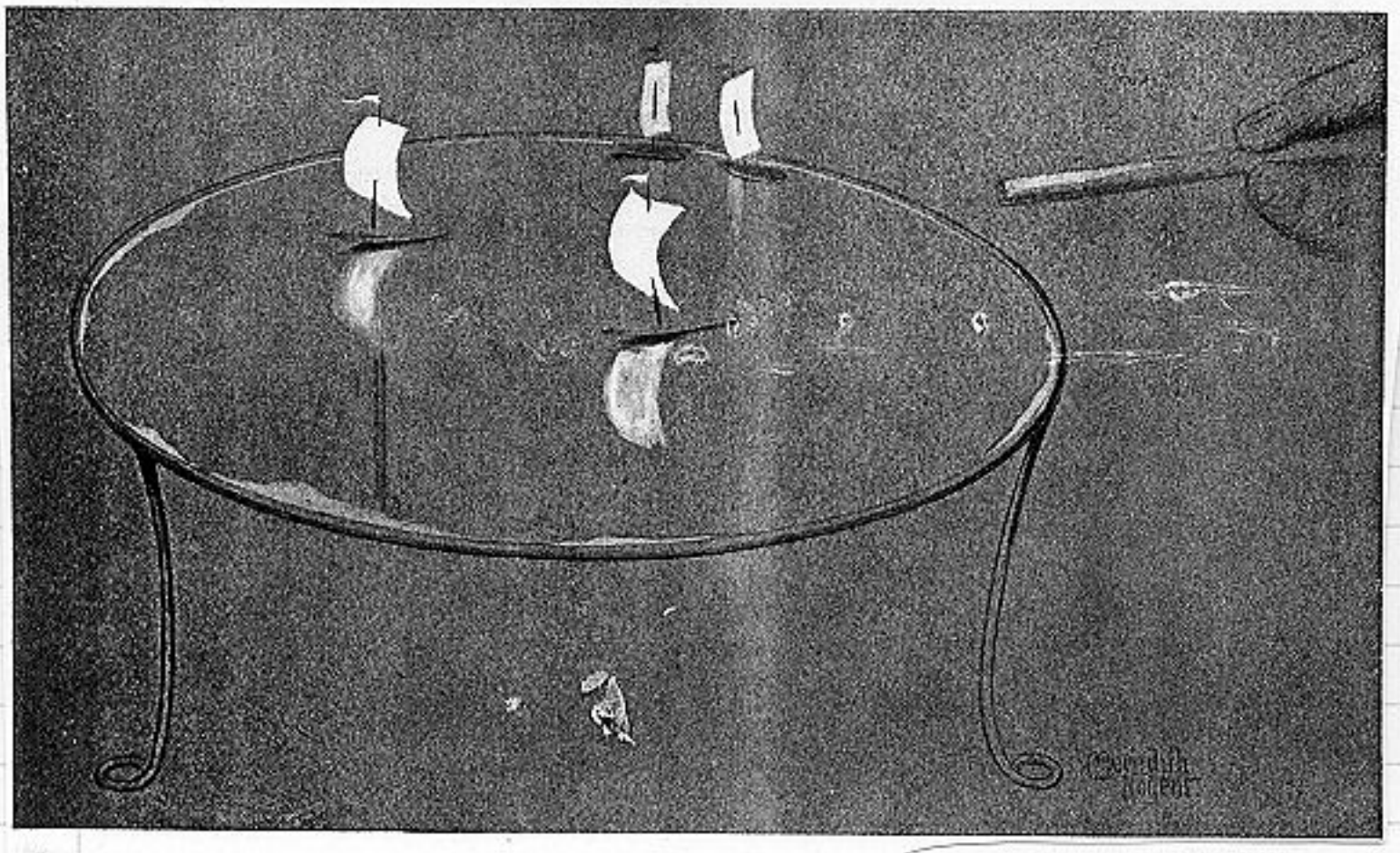


A BUBBLE FULL OF ILLUMINATING GAS.

some moments afterward. Phil followed up this success by making a bubble whirl around ever so rapidly upon an inverted tumbler.

All eyes were now fixed upon our young wizard as he approached the steaming kettle which had been a cause of so much wonderment during the entire evening.

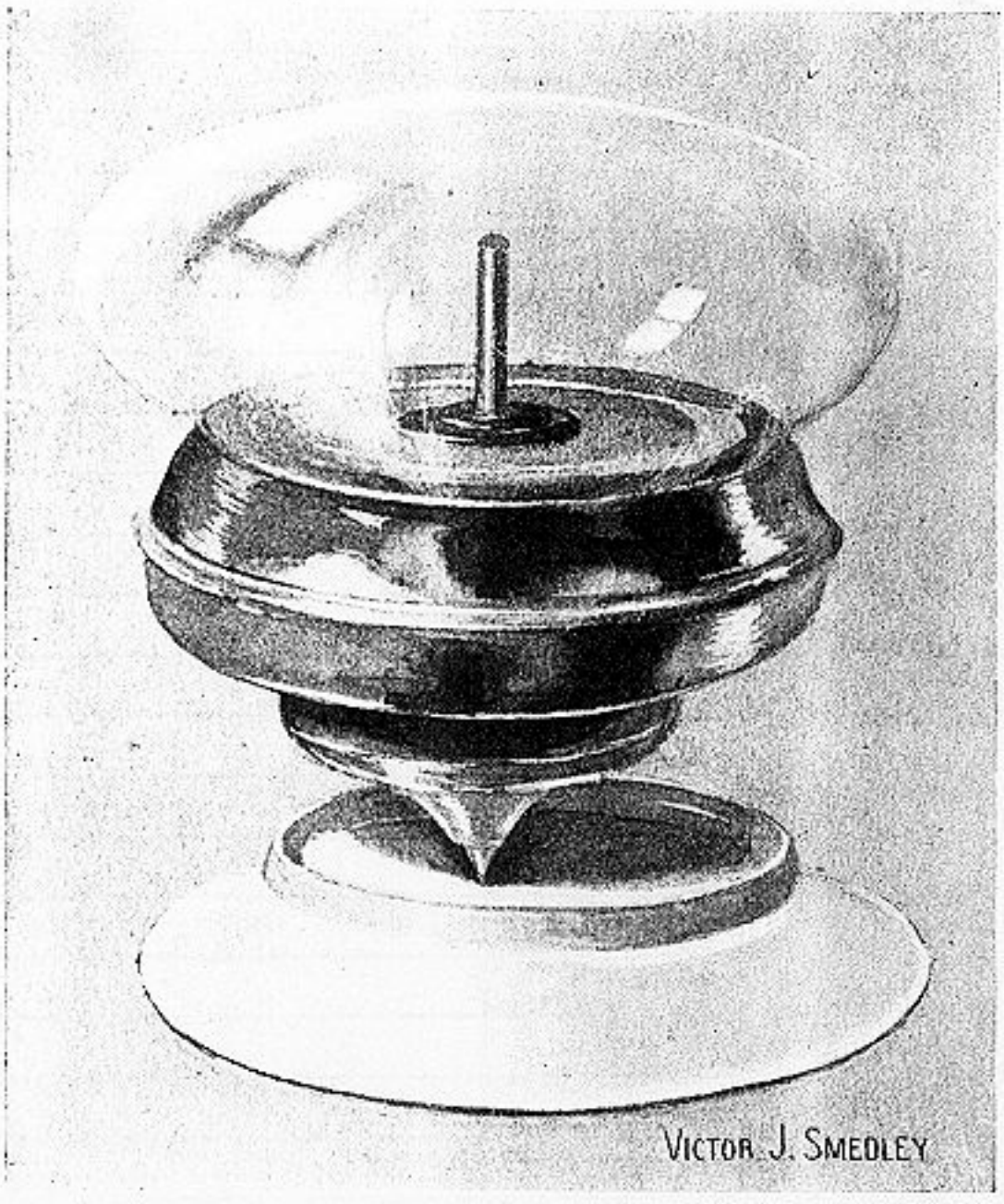
"I want you to see how long this bubble



A FAIRY FLEET AFLOAT ON A SEA OF BUBBLE-FILM.

will last," he said, after having blown one so that it hung from a cornucopia ingeniously fastened over the steaming spout. "You will notice it is thoroughly immersed in steam," he continued. "We shall have time to show you some other interesting experiments before it bursts, I feel certain."

This remark caused much merriment, the audience wondering how long a time Phil really expected this bubble to remain. Our magician, however, was quite composed. He walked slowly to the table, chose a clay pipe, dipped it into the soapy water, thrust the stem into one end of a piece of rubber tubing, the other end of which was attached to a gas-burner, and turned on the gas. As soon as a bubble the size of an orange formed, Phil hurriedly turned off the gas and withdrew the pipe from the tubing, Harry touched its stem with a lighted match, and the result was the pretty effect shown on page 811. The gas-bubble reservoir exhausted, Phil fastened the pipe in the tubing again, and almost immediately there arose from its bowl a whole string of bubbles, preceded by one large one.



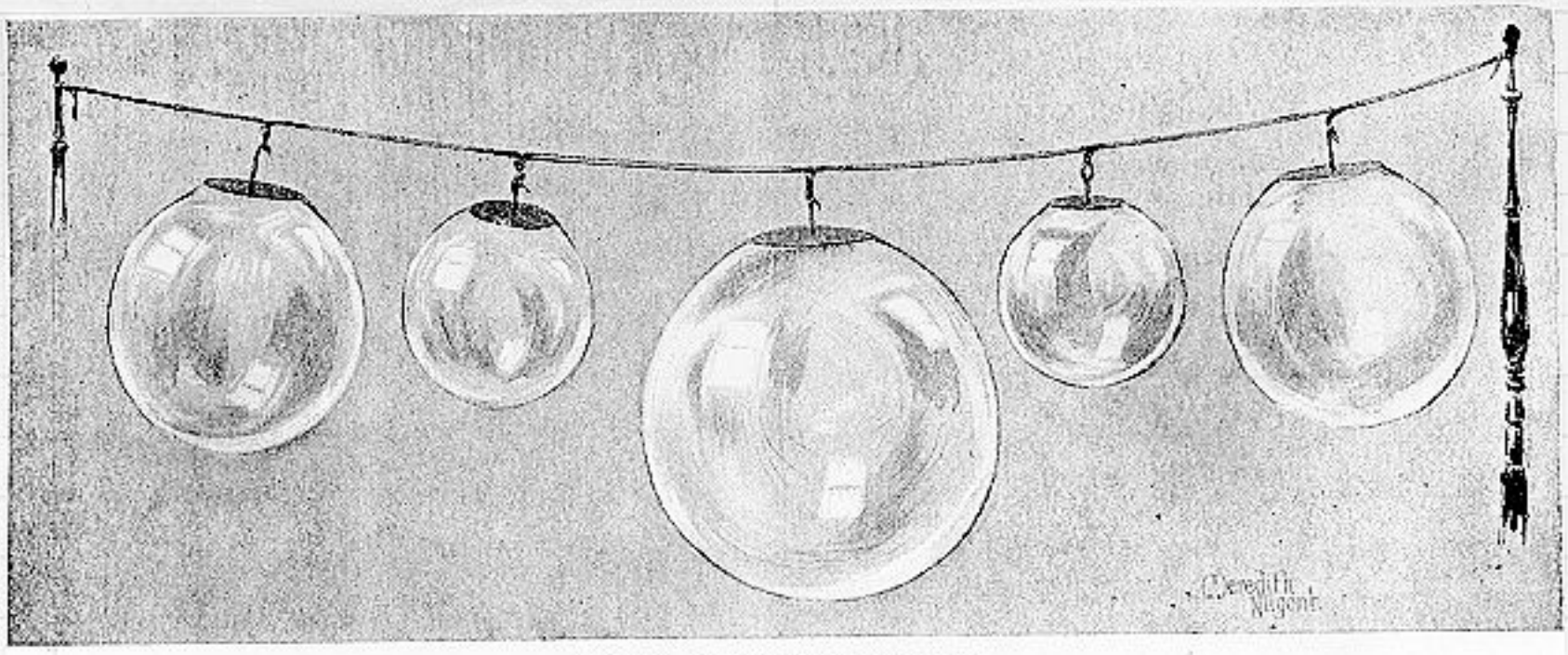
A SPINNING BUBBLE-TOPPED TOP.

Putting the pipe and tubing aside, Phil jokingly informed the open-mouthed young people for the third time that the steamed bubble was still in existence—just as if that fact was not uppermost in every mind! The boys then had a merry time throwing up bubbles and catching them. Phil caught upon his hand four in succession. He deftly balanced some upon the end of his forefinger, and in many instances poked his finger into the middle of one.

"Ten minutes!" the audience almost shouted, when that amount of time had elapsed since the bubble had been placed in the steam.

Their excitement was only amusing Phil, but he pretended to be perfectly oblivious to it all. He thrust the mouth end of a clay pipe well into a large bubble which Harry held on a cornucopia, and then blew a bubble inside of this large one; next he dropped objects through a bubble which had been made to rest upon a plate, as he had done at the previous show; only this time, instead of picking them out again with his fingers, he simply held the plate upside down, and they all came tumbling out without injuring the sphere in the least. He cut a large bubble in halves with a knife, so that there were two bubbles where there had been but one. He played all sorts of bubble pranks; but, do his best, he could no longer keep the attention of his audience from the bubble in the steam.

"Thirteen minutes!" they cried. "Thirteen minutes and a half!" "Fourteen minutes!" "Fourteen minutes and a half!" "Fifteen



BUBBLES AS JAPANESE LANTERNS.

minutes!" "Fifteen minutes and a—" Ah! The bubble had burst after lasting exactly fifteen minutes and a half, while swaying to and fro in the jet of steam.

Before quiet was restored, Phil secretly dipped a little wire ring into the basin of water. As soon as he withdrew it, Harry placed four little ships within the circle, and, hastily seizing a putty-blower, blew the tiny craft about. To the spectators these ships looked as though sailing in the air; and they were not helped to a solution of the mystery when the craft suddenly dropped to the floor.

For once Phil gratified their curiosity with an encore, the only one he had given so far; and this time, after taking the ring from the fluid, he held it at such an angle that all could see it was filled by a soapy film. Harry then placed the ships in position as before, and away the fairy fleet scudded again.

Following this, the boys with wonderful rapidity hung up a row of five bubbles.



FRIED BUBBLES ON THE HALF-SHELL.

The effect was marvelously beautiful, suggesting as it did a Japanese-lantern display.

From a spectacular point of view, this row of bubbles was the most brilliant performance of the evening, and was loudly applauded.

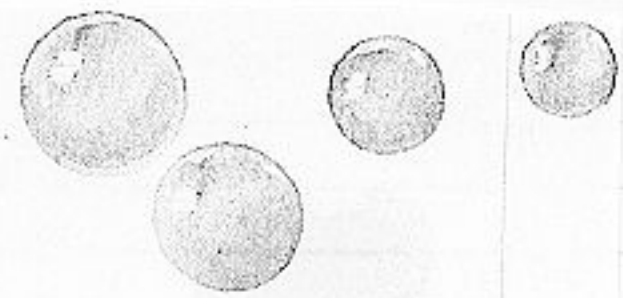
"Now," Phil announced to the audience, "we will play a game of soap-bubble football."

Ridiculous as this sounded, it did not surprise the onlookers in the least, for they were prepared to expect almost anything. Two upright posts were hurriedly placed in position at each side of the stage, each boy took a fan, Phil launched a large bubble into the air, and the fun began. In the opening, luck favored Harry, and he almost succeeded in fanning the great sphere between the two posts on Phil's side of the stage at the very outset of the game. By quick work, however, Phil sent the ball toward the middle of the stage again, and then fanned it so near to Harry's goal that the latter only by the most desperate efforts saved himself from immediate defeat. Back and forth was the globe blown for a little while, until suddenly it mounted nearly to the ceiling. This gave a decided advantage to Phil, who was much taller than Harry, and by a few well-directed strokes of the fan he soon put the iridescent sphere straight through the latter's goal.



HOW A BIG BUBBLE BREAKS INTO FOUR LITTLE ONES.

"Yale wins!" he cried, pointing to his dark-blue necktie.

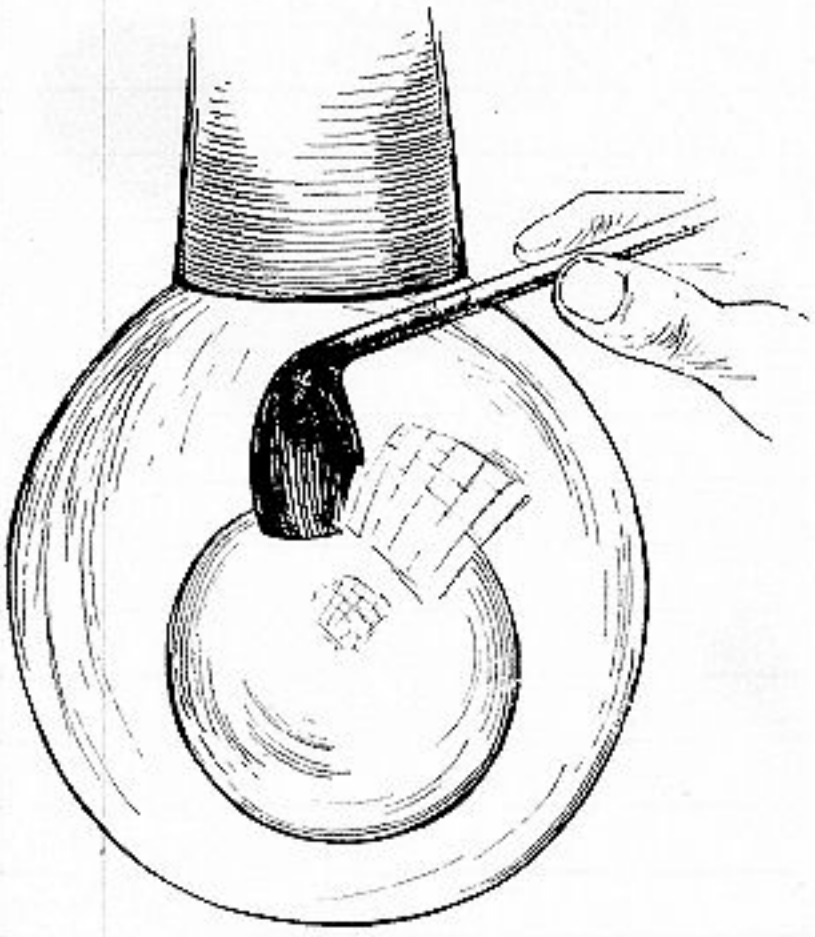


When the wild applause aroused by this novel struggle at football had calmed, Phil's uncle came from behind the scenes, and blew a great smoke-bubble. As soon as this was launched, Harry started fanning again, only a little more vigorously than in the football game. Never did a soap-bubble twist and turn as this one did. Suddenly there was a queer flash of light, and the great bubble disappeared. Yes, disappeared, but only as a large bubble; for floating high above the heads of the boys were to be seen four small smoke-bubbles. The great bubble had broken into four smaller ones, and that, too, without a particle of smoke escaping.

When the uproar which followed this exhibition ceased, Phil drove everybody into convulsions of laughter by rolling up his sleeves, and placing a large frying-pan upon the gas-stove. Harry assisted by half filling the pan with soapy water, and the hissing noise made in consequence was the cause of a shower of funny comments. "Now," Phil began, doing his best to make himself heard, "I am going to fry you a soap-bubble." This was altogether too much for the young people. They had been willing to believe anything Phil might say, but when it came to frying a soap-bubble — no; that was going too far.

True to his word, however, Phil blew a bubble from the cornucopia, and at once placed it right in the middle of the steaming pan. The laughter, bravos, and ringing cheers

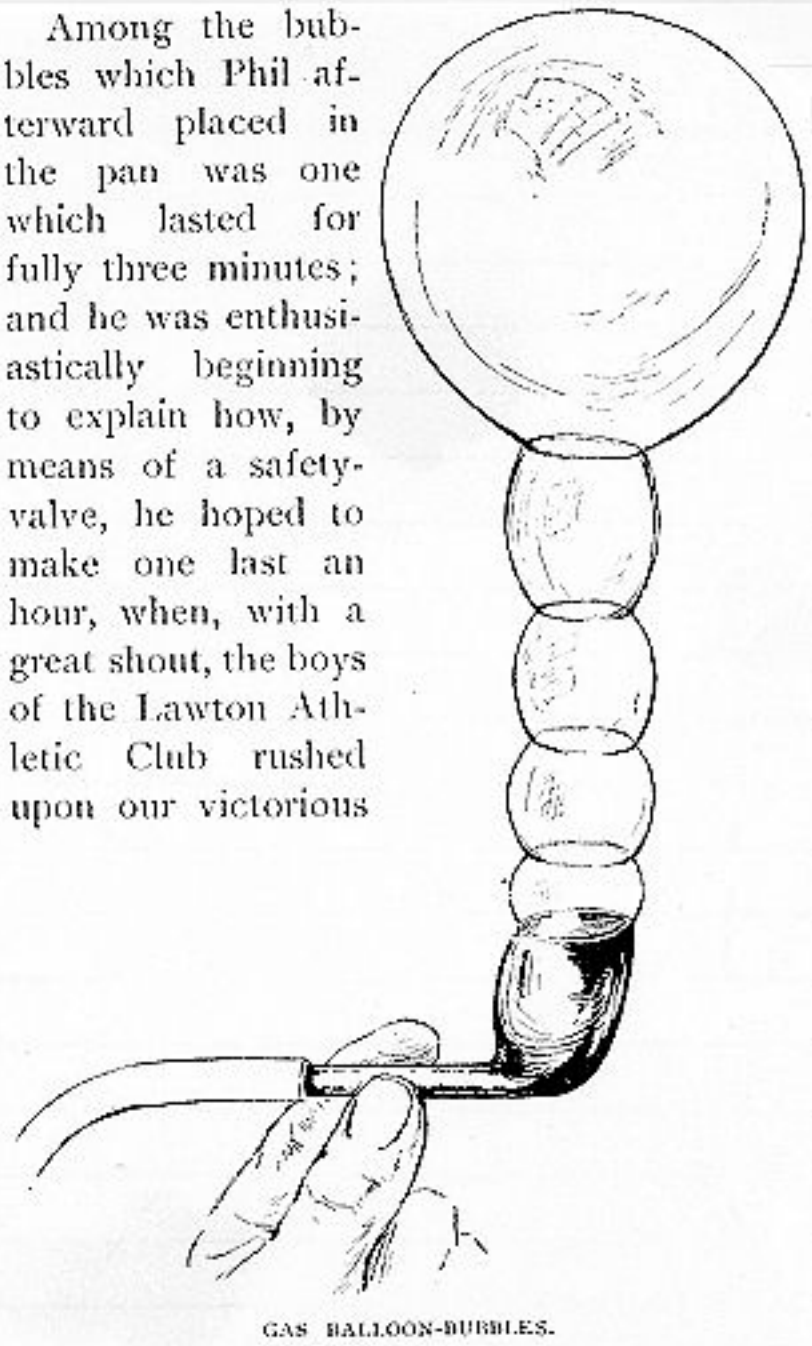
which greeted this performance, cannot be described. The people crowded upon the platform and so overwhelmed Phil with congratulations that it seemed as if our magician would



A DOUBLE BUBBLE.

have no opportunity properly to exhibit this feature of the program. When at last he did get a chance again, it was seen that, while the liquid within the half sphere was boiling quite vigorously, it only simmered outside.

Among the bubbles which Phil afterward placed in the pan was one which lasted for fully three minutes; and he was enthusiastically beginning to explain how, by means of a safety-valve, he hoped to make one last an hour, when, with a great shout, the boys of the Lawton Athletic Club rushed upon our victorious

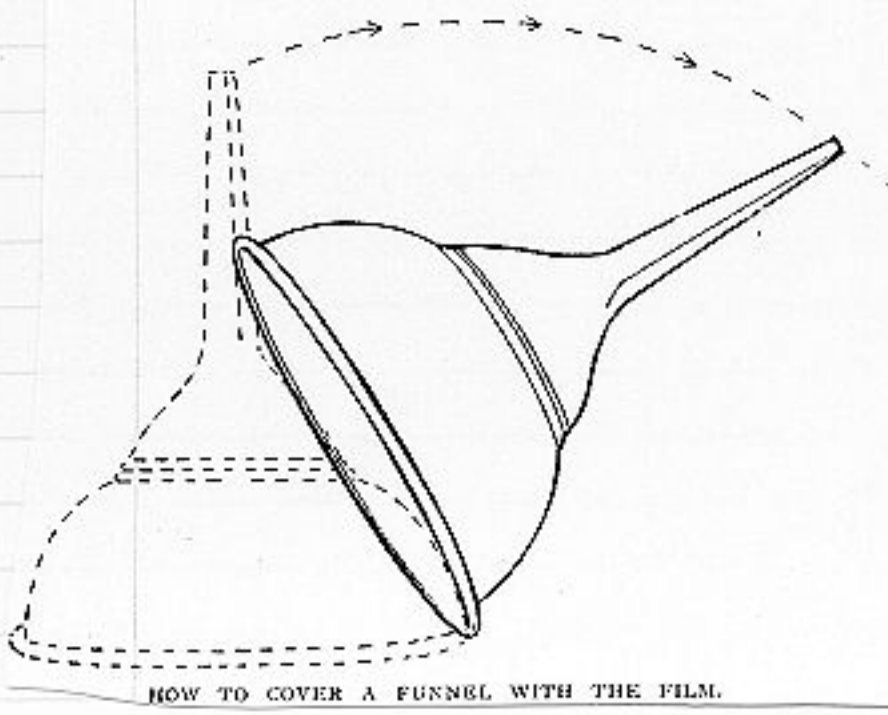


GAS BALLOON-BUBBLES.

magician, lifted him to their shoulders, and carried him from the hall in triumph.

INSTRUCTIONS FOR THE SECOND SOAP-BUBBLE ENTERTAINMENT.

How to cover a funnel, cornucopia, or circle of wire with film: Dip into mixture and lift out very slowly, care being taken to turn the object used in a semicircle to the right, as shown in diagram. Always remove froth and small bubbles from the surface of the liquid before dipping.



HOW TO COVER A FUNNEL WITH THE FILM.

How to place a bubble upon a goblet: Cover the goblet with a film, and place bubble upon it with a cornucopia.

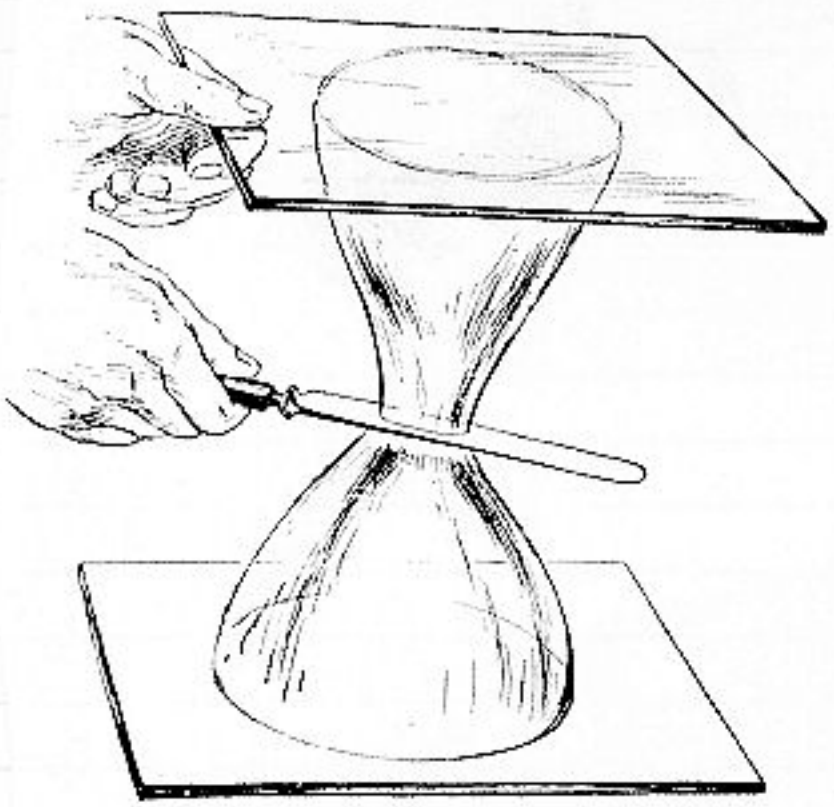
Blowing bubbles from a sea-shell: Bore a hole in the small end of a spiral shell, and dip large opening into the mixture; then gently blow.

Soap-bubble lantern display: From a piece of cardboard cut a number of disks about two inches in diameter. Pierce center of each disk with a short piece of wire. Bend one end of the wire so that it cannot slip off; form the other end into a large hook. Saturate disk thoroughly in mixture, place a bubble upon it, and hang up, as shown in the picture on page 813.

How to spin a bubble: Dip the bottom of

a tumbler in the mixture, then upon the inverted glass place a medium-sized bubble. Blow upon the side of this with a putty-blower or a straw.

To make a bubble last fifteen minutes or longer: Fasten a cornucopia above the steaming spout of a kettle. Then turn spout aside while holding basin of mixture to the end of the cornucopia until the latter is covered by a film. Slowly blow a bubble from this cornucopia about three inches in



BISECTING ONE BUBBLE TO MAKE TWO.

diameter. Put a plug in small end of cornucopia to prevent bubble from decreasing in size. Now place the kettle so that steam from its spout may completely envelop the hanging bubble.

To place a bubble upon a spinning top: Any top with a large, flat surface will answer for this purpose. After spinning the top, pour a little mixture upon it; then blow a bubble with the cornucopia, and slowly lower it until the sphere touches the surface of the whizzing toy. With a little practice a bubble may be so placed easily.

How three persons or more may blow a giant bubble: All who take part should first dip a funnel in the mixture, and after having secured a film withdraw it, as shown in the diagram. Then start to blow gently, being careful that the bowls of the funnels are not more than six inches apart when beginning to blow. If bubbles unite into one upon first contact, the blowing may be continued, care being taken meanwhile to move the funnels farther apart as the bubble grows. Also, follow directions for blowing a large bubble, in July number of ST. NICHOLAS.

Gas-bubble reservoir: Connect pipe with gas-burner by means of rubber tubing. Dip the bowl of the pipe into the mixture, and after this is covered with a film turn on the gas. When a bubble the size of an orange has been formed, turn off the gas, withdraw the pipe from the tubing, and apply a lighted match to its stem.

How to break a large round bubble into a number of smaller ones: Launch a large bubble into the air from a cornucopia, and fan vigorously. If mixture is in a certain condition the bubble will break into smaller ones. No rule can be laid down for this experiment; much depends upon chance. The effect may be greatly heightened by filling the large bubble with smoke.

Gas balloon-bubbles: Connect pipe with gas, as explained in "Gas-bubble reservoir." Fill bowl of pipe half full of mixture; then turn on the gas. To produce a pleasing effect, move the pipe with a rapid, trembling movement of the hand.

The fairy fleet: Make a stand of copper wire, as shown in picture. Cover this with a film. (See picture, page 811.) Make tiny ships of wood shavings; place them carefully on the film, and blow about with a putty-blower.

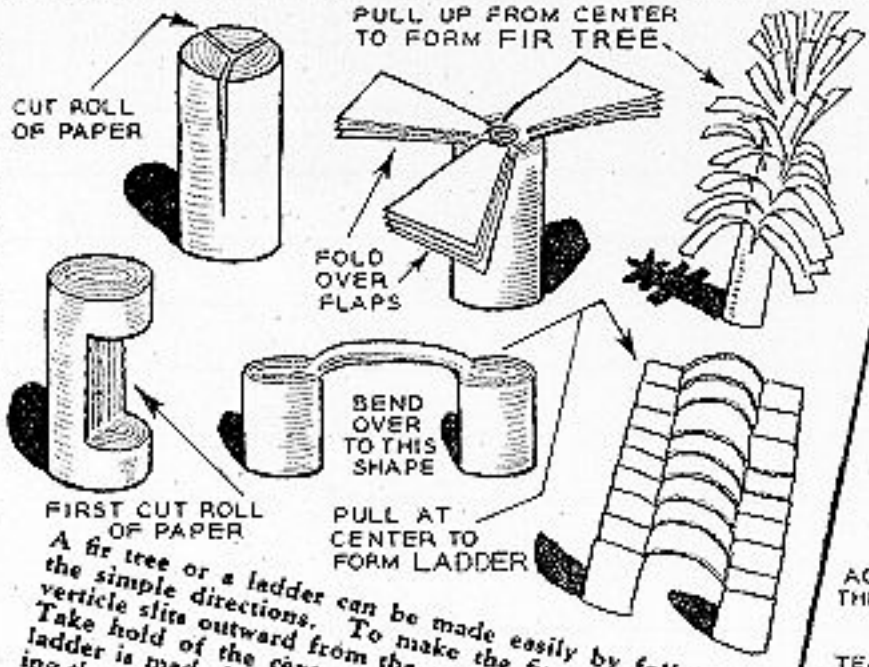
Frying a soap-bubble: Cover the bottom of a frying-pan with the mixture, and when it begins to simmer place a bubble upon the top of the liquid. In a few moments the water within the bubble may be seen to boil vigorously, while the water outside of the bubble-film will be still gently simmering.

Finally, carefully read the directions that were printed in the July number of ST. NICHOLAS before attempting these experiments.

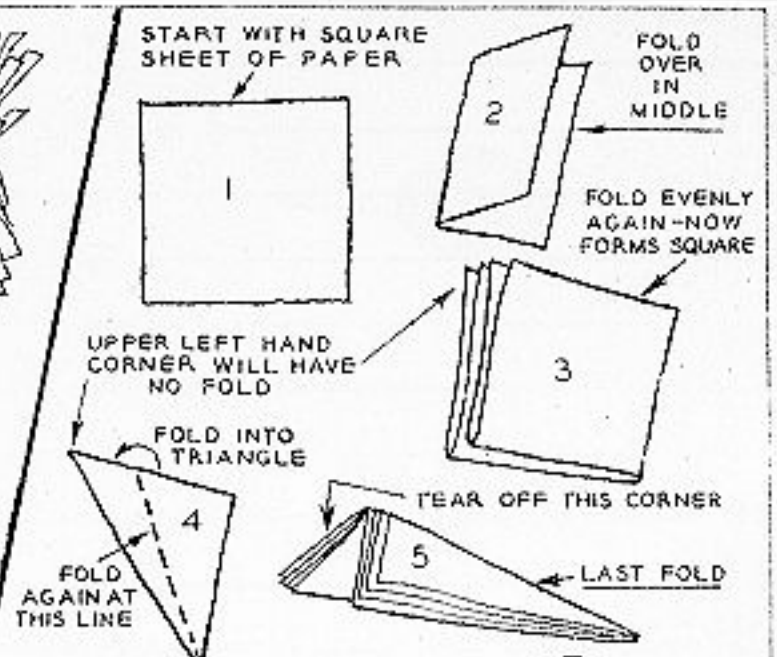


DROPPING OBJECTS THROUGH A BUBBLE.

PAPER



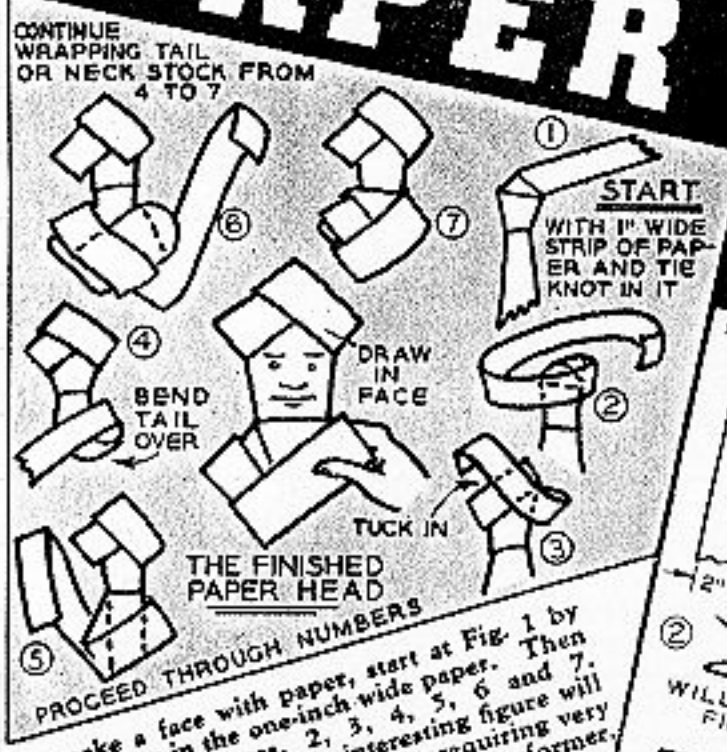
A fir tree or a ladder can be made easily by following the simple directions. To make the fir tree, cut three verticle slits outward from the center of a roll of paper. Take hold of the center turn and pull upwards. The ladder is made by cutting the paper as shown and pulling the top rung upwards. Fasten bottom with an elastic.



MODERN MECHANIX October, 1937

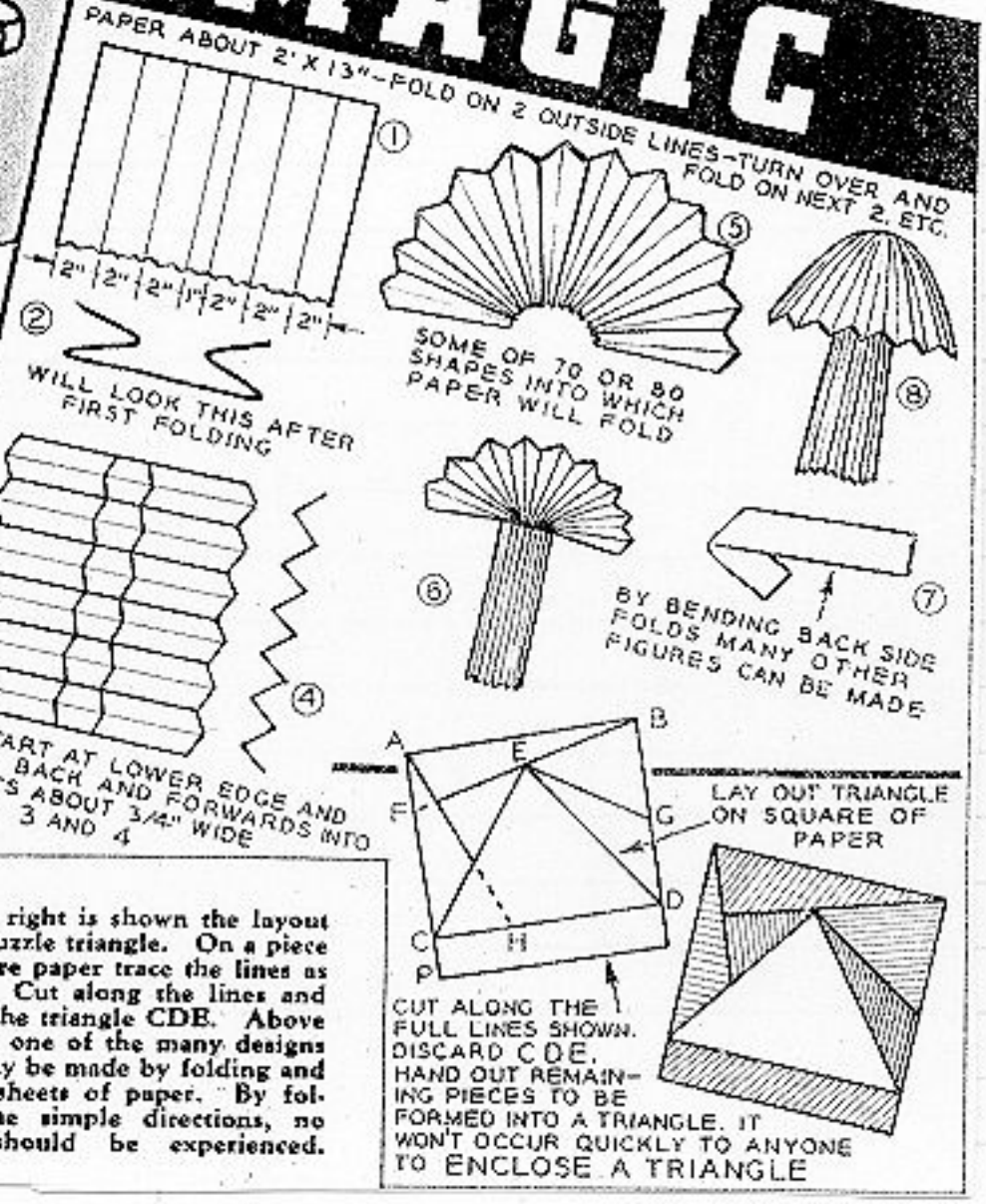
A simple but highly amusing trick is that of making interesting designs from paper. A few folds and tears and the sheet of paper takes on the pattern of a lace doily. The larger the paper, the more intricate may be the design.

MAGIC



To make a face with paper, start at Fig. 1 by tying a knot in the one-inch wide paper. Then proceed with stages, 2, 3, 4, 5, 6 and 7. Pencil in the face and an interesting figure will result. This is one of the tricks requiring very little skill on the part of the performer.

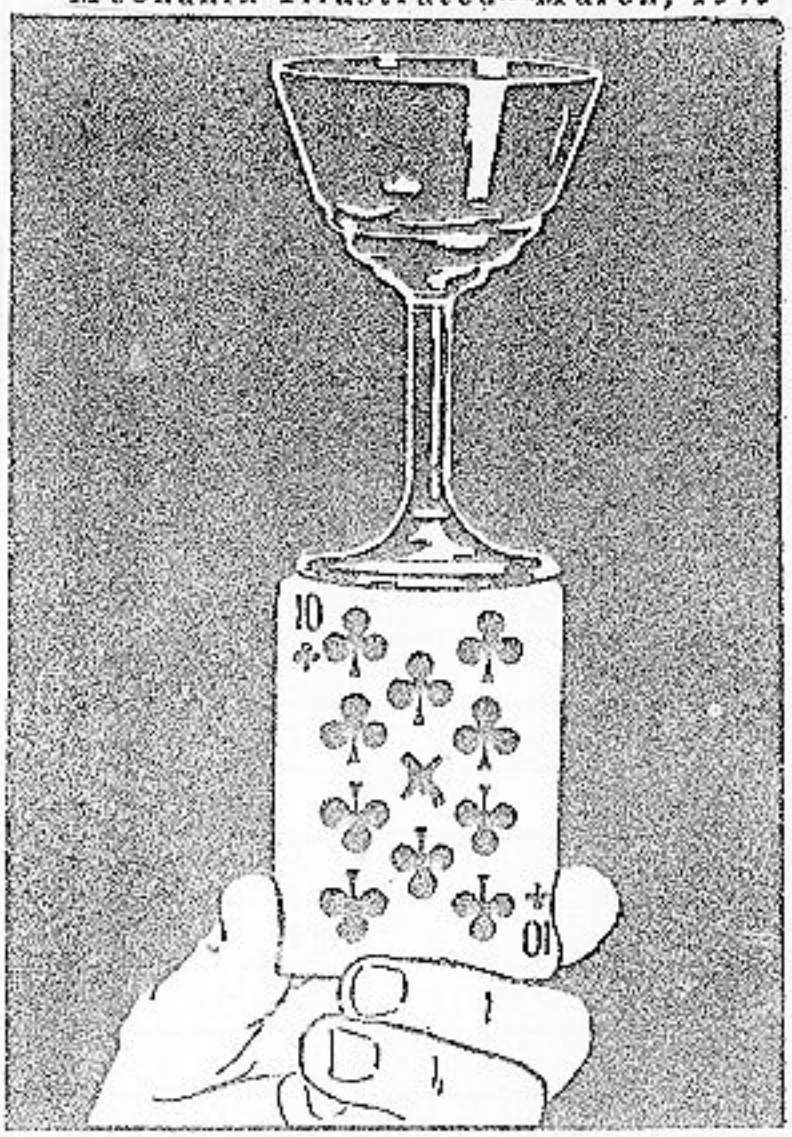


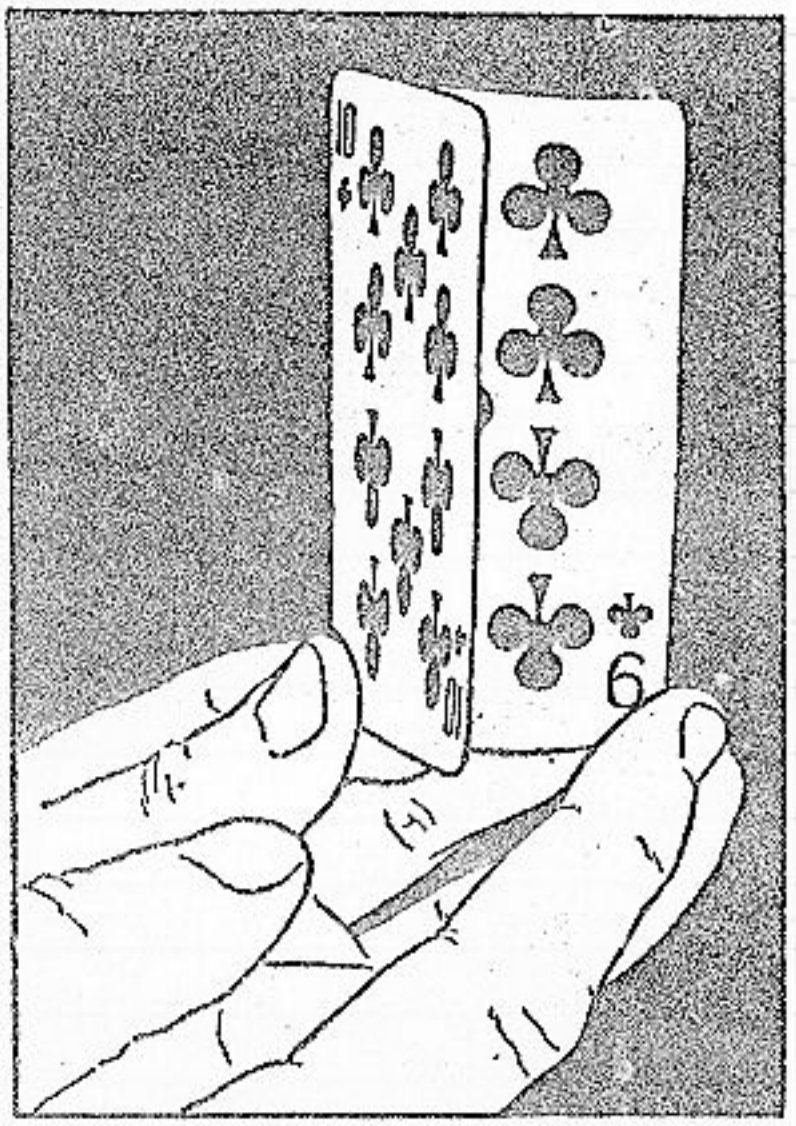


At the right is shown the layout for a puzzle triangle. On a piece of square paper trace the lines as shown. Cut along the lines and discard the triangle CDE. Above is shown one of the many designs which may be made by folding and bending sheets of paper. By following the simple directions, no trouble should be experienced.

LEARN THESE BAFFLING

Mechanix Illustrated—March, 1940



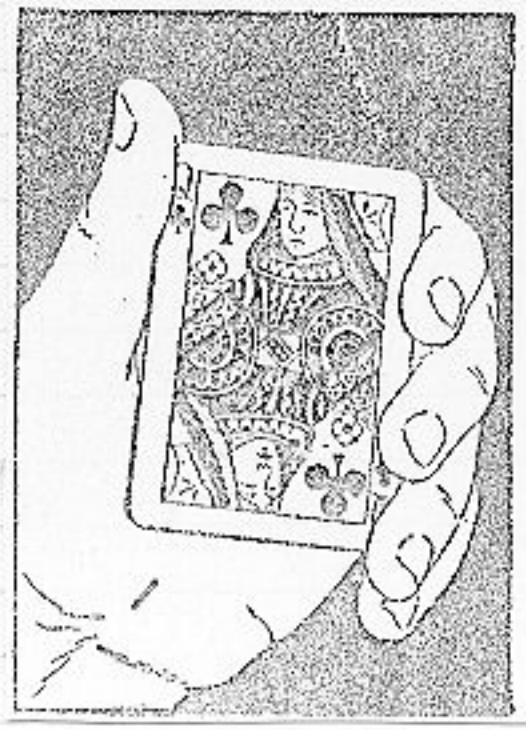


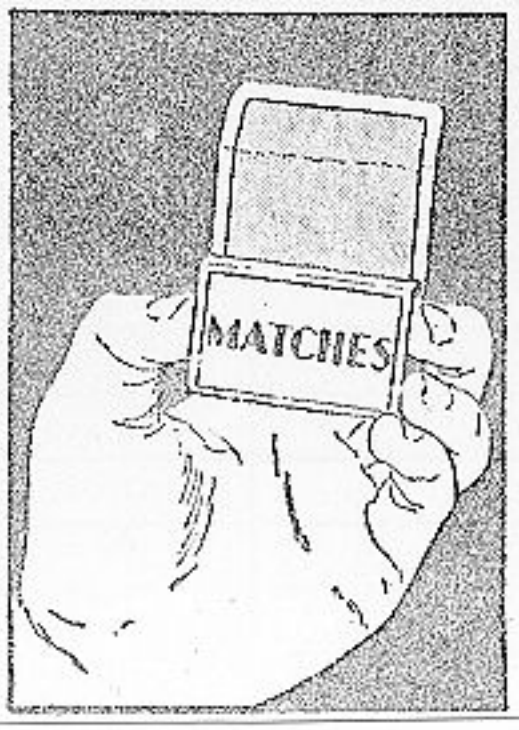
Balanced Wine Glass

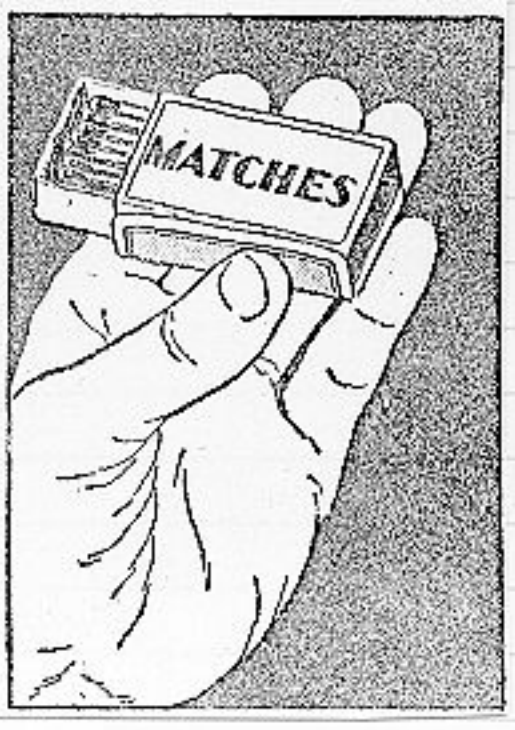
BALANCING a wine glass on the edge of a single perpendicular card appears very difficult. The glass can contain liquid or you may use the full box of cards instead, if you prefer. The card has another entire card partly glued on the rear side, as shown, which cannot be seen by the spectators and lies flat against it when not in use. Thus both sides of the card may be shown to the audience before and after the feat.

Turning Card Into Matchbox

BY MEANS of the clever deception shown below a card can be turned into a box of matches. A matchbox is glued to the rear



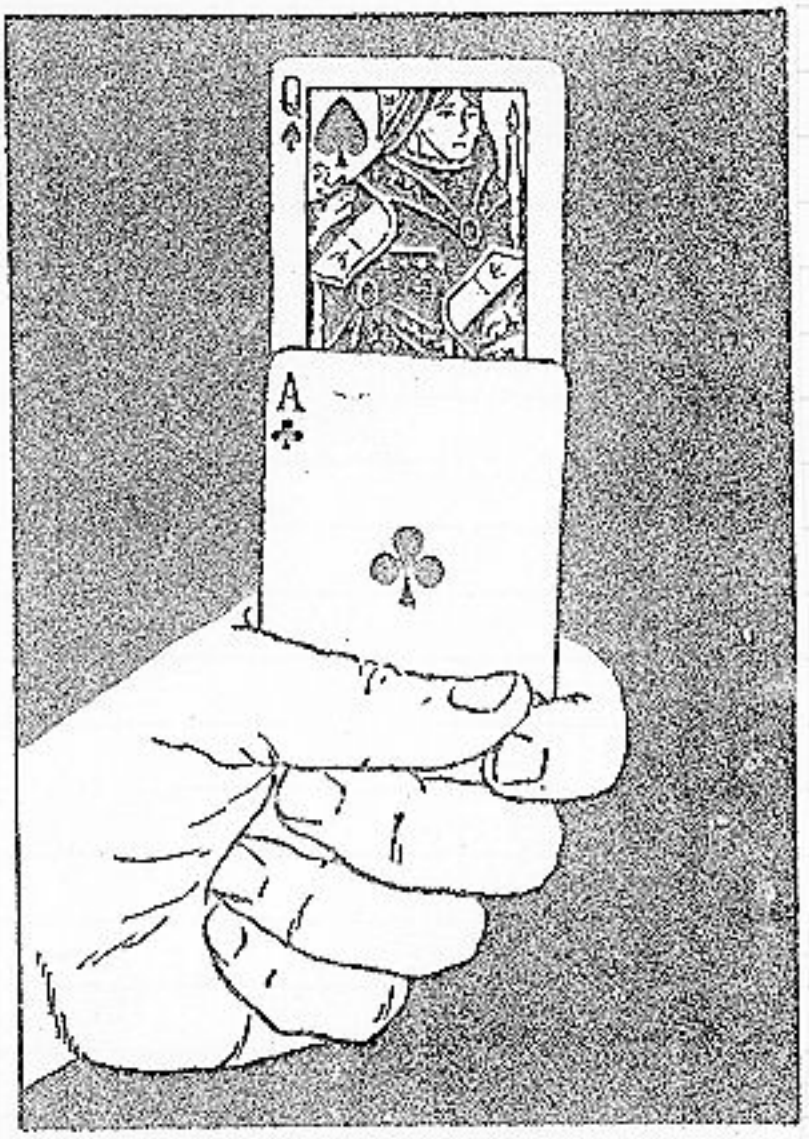




CARD TRICKS

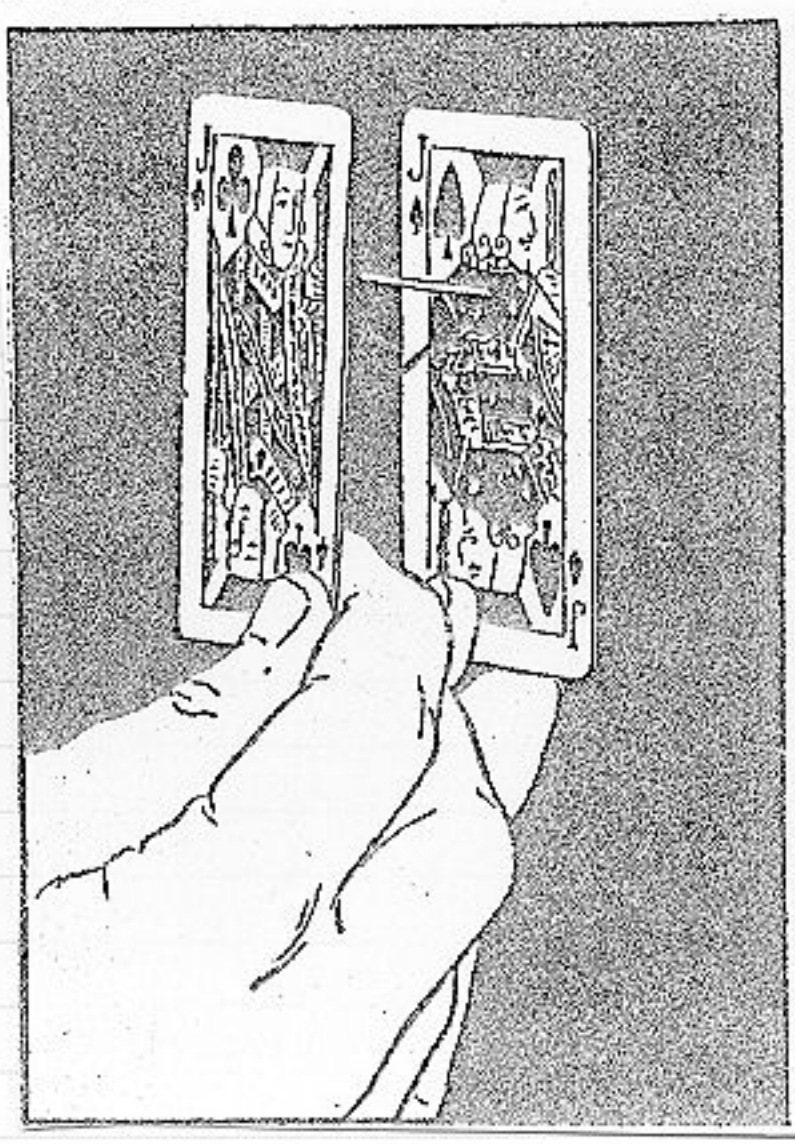
by William C. Turtle

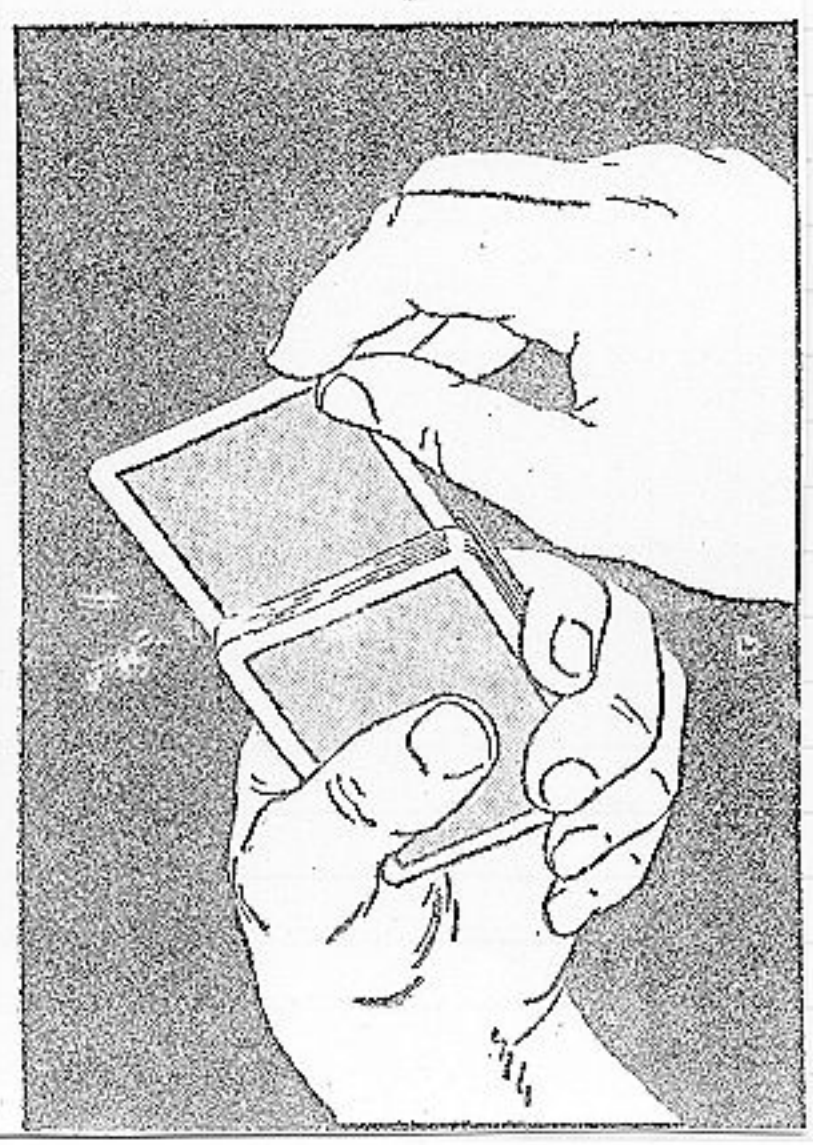
side of the card flush with the bottom edge. To do the trick hold the card in the left hand with the face toward the audience, as shown. Raise the right hand quickly and fold the card around the box, screening the box with the palm. Turn the whole thing over, push out the drawer and light a match. The card cannot be seen at all as it lies flat against the side and bottom of the box. It should be creased beforehand a little in the two places where it bends.

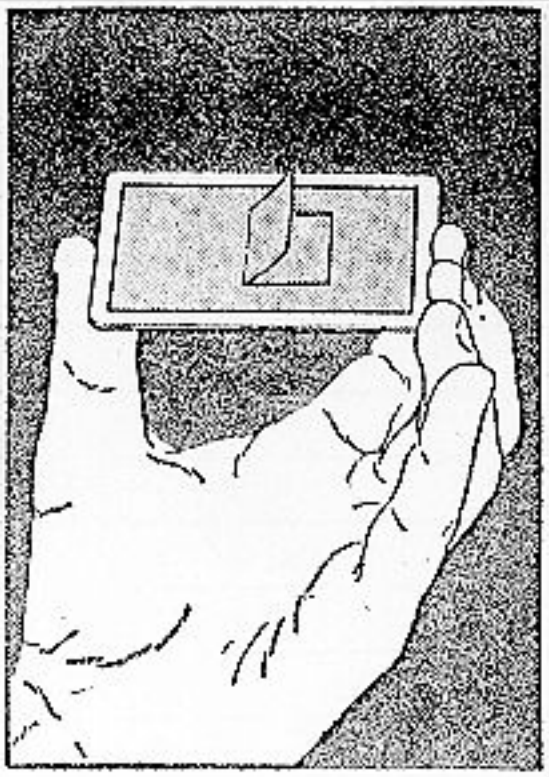


The Jumping Card

SOMEBODY draws a card and you slide it into the deck, held in the left hand. Command the card to jump out and it obeys promptly, to everyone's surprise. The secret of this amusing performance is a rubber band fastened between two cards in the deck, invisible to the skeptical onlookers. Each end of the rubber is inserted in a tiny slit in the card. Another card is then glued to the back of each trick one, securing the rubber and concealing the knots. Hand pressure on the deck regulates the speed at which the card jumps out.

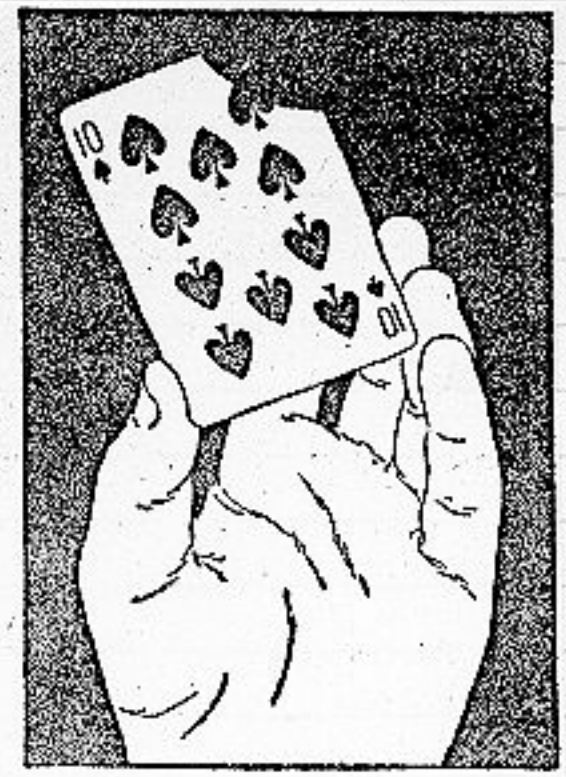


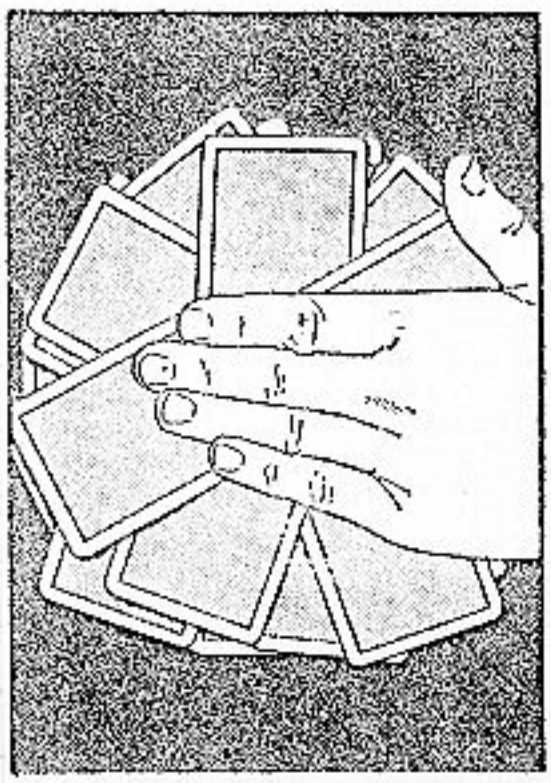




Clinging Cards

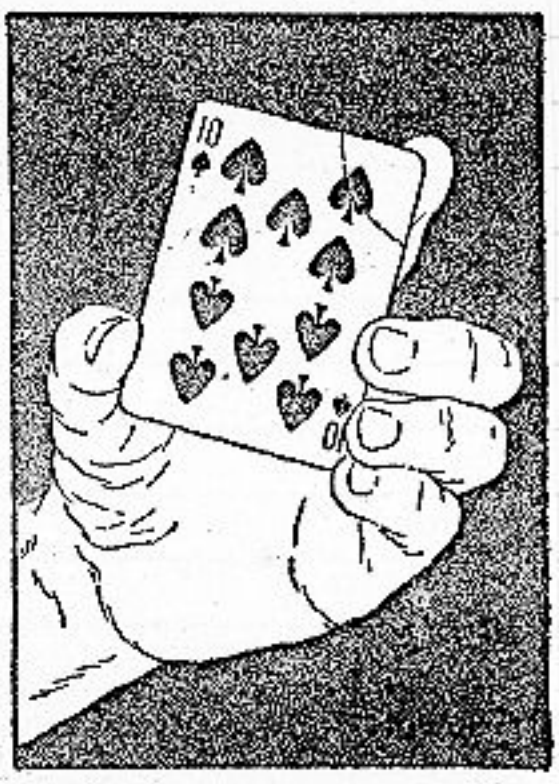
IN THIS trick the whole deck sticks to the palm without any visible support. Make a card with a little flap on the back as shown at left, using two identical cards for the assembly. Place the card and the deck on the left palm with the tab held tightly between the second and third fingers. Lay the deck on a table and scatter the loose cards. Pretend to regather them, tucking them tightly between the "fixed" card and the hand as you do so. You can then raise the entire deck vertically, creating a very puzzling illusion. Tab naturally cannot be seen, so you can show the back of your hand as well.



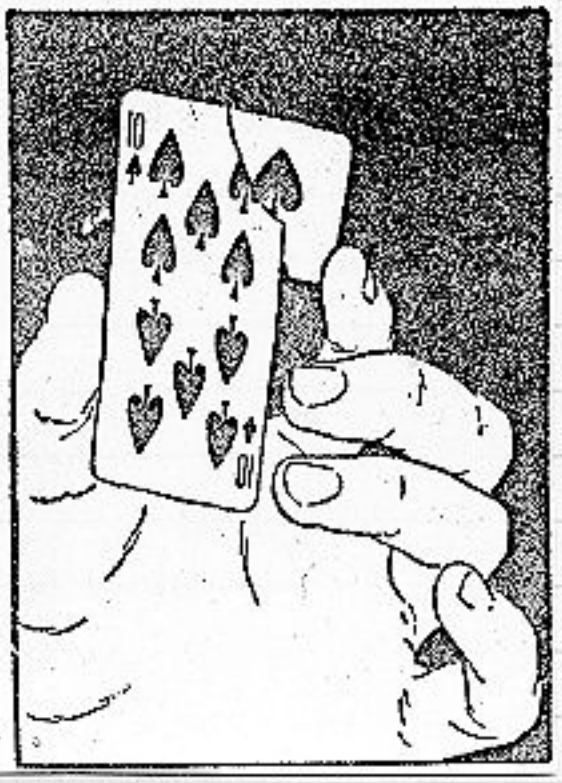


Torn Corner Restored

A CORNER torn off a card and thrown back on again into place! As you pretend to tear the corner off push the flap behind the card out of sight and hold it there with the index finger of the left hand, which is holding the card. Now pretend to throw the piece back into place while the index finger then pushes the flap right up tight back into place and holds it there. The flap may be any size but must match the front card. If you are a little distance away from the spectators you may even turn the card around and let them get a glimpse of the back. They cannot see anything wrong there, before or after the trick. The flap may be a whole card glued on as in the wine glass balanced trick.







The Slipped Card.

Ascertain the bottom card of the pack; hold the cards in your left hand, with their faces downward. Place your right hand upon them, and with your right fore-finger slide them slowly over each other, asking some one to stop any card he chooses, by putting his finger upon it. When he has done so open the pack at that card, but while opening it, make the pass, and bring the bottom card under the one touched. Hold up the cards, and ask the choosor to be sure of his card; hand all the cards to him, and let him shuffle as much as he chooses. Afterwards discover the card in any manner that you prefer. The following is a good plan.

The Nailed Card.

Take a flat-headed nail, and file it down until its point is as sharp as a needle, and the head quite flat. The nail should be about half an inch long, or even shorter if anything. Pass the nail through the center of any card—say the ace of spades—and conceal it in your left hand.

Take another pack of cards, get the ace of spades to the bottom, and perform the preceding trick. When the cards are returned, shuffle them about, and exchange the pierced card for the other. Put the pierced card at the bottom of the pack, and throw the cards violently against the door, when the nail will be driven in by the pressure of the other cards against its head, and the chosen card will be seen nailed to the door. The nail should be put through the face of the card, so that when the others fall on the floor, it remains facing the spectators.

The Recruit Trick.

Take the four knaves, and lay them on the table in a row, and state that these Jacks represent four hawbucks, who wished to be soldiers, but upon examination by the surgeon, two of them were rejected on account of physical disability, while the other two were held. You ask the company to select the two rejected and explain why. The cause is that two of them have only one eye. There is not one in ten who will notice this difference, it being the done in all packs of cards not of Continental make.

To Guess Several Cards Chosen at Random.

Show as many cards to each person as there are persons to choose; that is to say, three to each if there are three persons. When the first has thought of one, lay aside the three cards among which he set his choice. So with the next two persons, and then spread out the first three cards, face up, and above them the next three, and above these the last three, so that all the cards may be in three heaps of three each. Then ask each person in which lot is the card he thought of, and this much known, you can tell the cards, for the first person's card will be the first in the heap to which it belongs, the second's will be the second of that next heap, and the last person the third of the last heap.

To Tell the Card That May Be Noted.

Take several cards, say ten or twelve; remember how many there are, and hold them up with their backs towards you; open four or five of the uppermost, and, while you hold them out, request some person to note a card, and tell you whether it is the first, second, or third from the top; when he has informed you, shut up the cards in your hand, place the remainder of the pack upon them, and tap their ends and sides upon the table, so as to make it seem impossible to find the card in question. It may, however, be easily found thus: Subtract the number of cards you had in your hand from fifty-two, which is the number of the pack, and to the remainder add the number of the noted card, and you will instantly have the number of the noted card from the top.

The Triple Deal.

Take any twenty-one cards, and ask some one to choose one from them. Lay them out in three heaps, and ask the person who took the card in which heap it is. You may turn your back while he searches. Gather them up and put that heap between the other two. Do this twice more, and the chosen card will always be the 11th from the top.

The Three Jacks.

There is a trick often played called "the three jacks." A man will seemingly have three jacks on the top of the pack. He will put the three top cards, which you suppose to be jacks or aces, whichever he shows you, in various parts of the pack. He will then take one and put it near the bottom, and another near the middle, and another higher up, and then let you cut the cards. He then offers to bet that they are all three together in some part of the pack, which they cannot fail of being, as he has three other cards on top of the jacks when he shows you their faces, which he disperses in their stead, not moving the jacks, and the cut only places them in the middle of the pack.

Wizard's Pack of Cards.

Wonderful! Surprising! Astounding! A full pack of 53 cards, beautifully enameled and highly finished, appearing precisely the same as an ordinary pack of playing cards, but by the aid of the instructions given anyone can perform the most wonderful and apparently impossible tricks. Many of the feats exhibited are truly marvelous, and will delight, astonish and amuse a whole audience. Bear in mind that the tricks are not done by legerdemain or sleight-of-hand, but the whole secret is in the cards, and the tricks cannot be performed with any other cards. These cards can be used in all card games, interspersing the playing with tricks that will astonish everyone. We mail a full pack of Wizard's Cards (53 cards) and a book with full and explicit instructions for performing all the tricks, by mail, postpaid, price, 25 cents.

To Ascertain the Number of Points on Three Unseen Cards.

In this amusement the ace counts eleven, the court cards ten each, and the others according to the number of their spots.

Ask any one to choose any three cards, and lay them on the table with their faces downwards. On each of these he must place as many as with the number of the card will make fifteen. He gives you the remaining cards, and when you have them in your hand, you count them over on the pretense of shuffling them, and by adding sixteen, you will have the number of points on the three cards.

For example, the spectator chooses a four, an eight and a king. On the four he places eleven cards, on the eight seven, and on the king five. There will be six cards left. Add to these six sixteen, and the result will be twenty-two, which is the number of points on the three cards, the king counting ten, added to the eight and four.

To Tell the Numbers on Two Unseen Cards.

As in the preceding trick, the ace counts eleven, and the court cards ten each. Let the person who chooses the two cards lay them on the table with their faces downward, and place on each as many as will make their number twenty-five. Take the remaining cards and count them, when they will be found to be just as many as the points in the two cards. For example, take an ace and a queen, i. e. eleven and ten, and lay them on the table. On the ace you must put fourteen cards, and on the queen fifteen. There will be then fifteen cards in one heap and sixteen in the other; these added together make thirty-one cards; these subtracted from the number of cards in the pack, i. e. fifty-two, leave twenty-one, the joint number of the ace and the queen.

Cards Revealed by the Looking-Glass.

This is rather a joke than a feat of magic, but it will create some fun, and may be kept up for some time without being discovered. Take up your position on one side of the room, facing a good-sized mirror or chimney-glass. Make your audience stand or sit facing you, when they will, of course, have their backs to the glass. Offer the cards to be shuffled and cut. Take the top card and hold it up, with its back to you and its face to the audience. As it will be reflected in the mirror opposite you, you will have no difficulty in naming it, or any other card in like manner, till your audience either find you out, or have had enough of the trick.

Circle of Fourteen Cards.

To turn down fourteen cards which lie in a circle upon the table, observing to turn down only those cards at which you count the number seven. To do this you must bear in mind the card which you first turn down. Begin counting from any card from one to seven, and turn the seventh card down. Starting with this card, you again count from one to seven, and turn the seventh card down, etc., etc. When you come to the card which you first turned down, you skip it, passing on to the next, and so on until all the cards are turned. This is a very entertaining trick.

Of Two Rows of Cards, to Tell the One Which Has Been Touched.

You lay two rows of cards upon the table, six or eight in each row. You have arranged with an accomplice that the upper cards, counting from left, signify days, the upper hours. You now leave the room, requesting one of the company to touch a card. On returning, you step to the table and begin to look for the card, when, after a while, your accomplice cries out, as if in mockery, "Yes, you might look for it three days, and never find it," if the touched card is the third card from the left in the upper row. You pay no attention, however, to his remark, but continue to search. At last you apparently lose your temper, and mix the cards together, exclaiming, "The cards are false today!" Then you reflect again, shuffle the cards, place them in two rows, and, after some hesitation, point out the touched card.

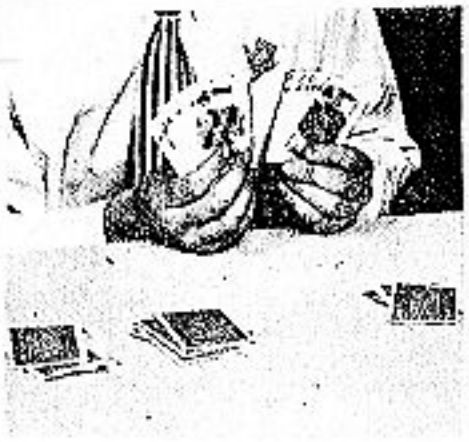
Card Named Without Being Seen.

When shuffling the pack cast a glance at the bottom card, say the ace of spades. Lay out the pack in as many heaps as you like, noting where that one is laid which contains that bottom card. Ask any one to take up the top card of any heap, look at it, and replace it. You then gather up the heaps apparently by chance, but you take care to put the heap containing the bottom card upon the card which has been chosen. You then give any one the cards to cut, and on counting them over, the card that immediately follows the ace of spades is the card chosen.

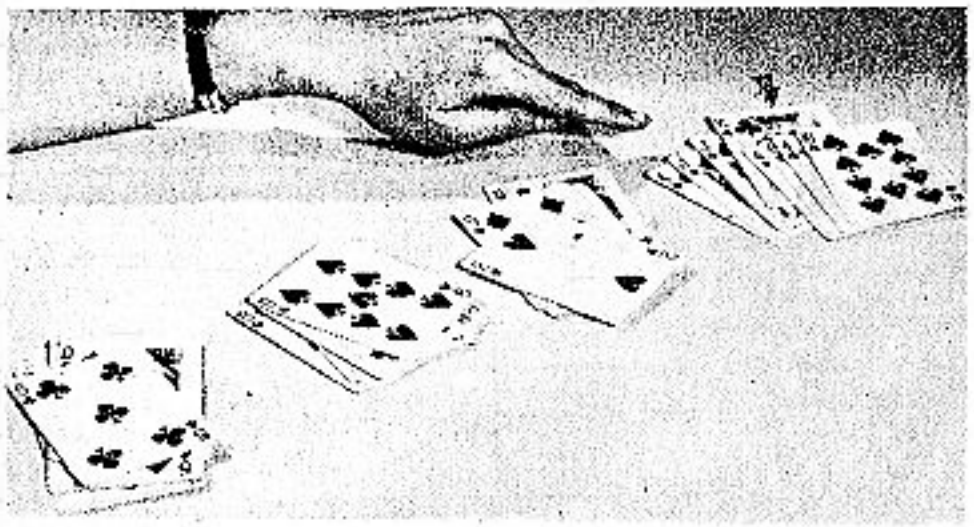
If by any accident the two cards should be separated when cut, the upper card of the pack is the chosen one, and can be picked out with seeming care.

Tricks With Cards.

Containing all the tricks and deceptions with cards ever invented, including the latest tricks of the most celebrated conjurors, magicians, and prestidigitators popularly explained, simplified and adapted for home amusement and social entertainments. The rare tricks performed with sleight-of-hand, by mental calculation, by memory, by arrangement of the cards, by the aid of confederates, by the aid of mechanical contrivances, with descriptive diagrams showing how to make the pass, to force a card, to make a false shuffle, to palm a card, to ruffle the cards, to change a card, to get sight of a drawn card, to slip a card, to draw back a card, to turn over the pack, to spring the cards from one hand to the other, to throw a card Price 25c, postpaid.







POPULAR MECHANICS
DECEMBER 1952

LADY WINDERMERE'S FAN:

1. (a) Deal cards into four piles of eight cards each, placing consecutive cards on different stacks. (b) Select a pile, split it, and show four cards in each hand to spectator who mentally picks one card and indicates the hand it is in. 2. Indicated half is placed under other four cards, one full pile placed on top, two other full piles placed on bottom of deck. 3. Repeat step 1 (a), dealing cards face up, from top of deck. Spectator indicates which pile his card is in. Selected card is fifth from top in pile indicated by him. Speed helps disguise the trick. Cards may also be dealt face down and "fanned" toward spectator

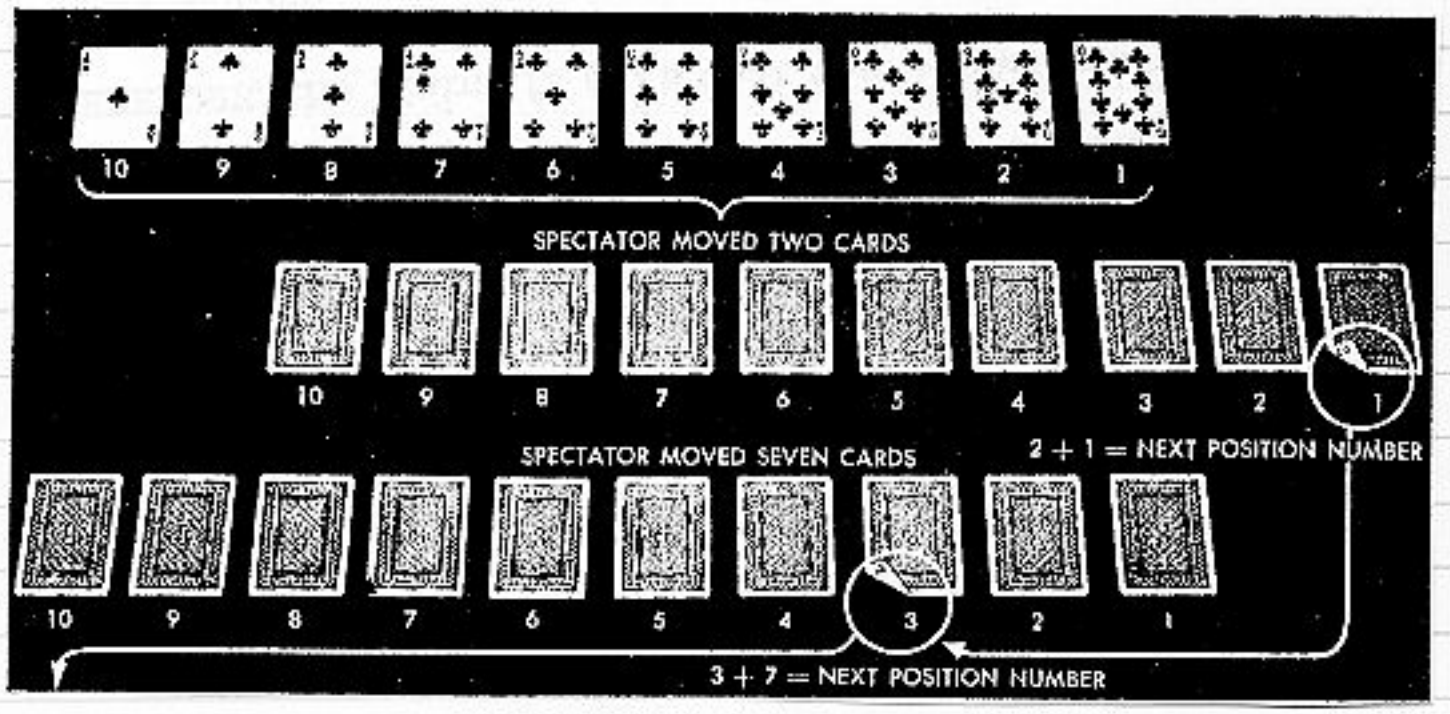


IT'S FUN TO BE FOOLED

. . . but it's more fun to know. And it's easier than you may think. Here are some simple, effective bits of card magic you can perform with a borrowed deck

MERRY-GO-ROUND: If you'd like to pose as a clairvoyant but don't want to waste your time boning up on black magic, learn this stunt. Ten cards are laid face down on a table; when you are out of the room, a friend moves several cards from left to right. Upon your return, you will be able to tell him the number of cards he moved.

1. Lay out first 10 cards of a suit in order of numbering. Notice that position numbers used run in the opposite direction. 2. Spectator secretly moves cards, one at a time, from the left end to right end of row. After first move, number of card at far right is number moved. 3. Its number plus the position number (1) equals the position number of the indicator card after the next move. This formula holds indefinitely. The number of the indicator card plus its position number tells you where to look for the indicator card next time. Subtract 10 if the total sum is over 10. Limit cards moved each time to nine. Cards must be moved in order. Mystery is heightened if cards are face down even at start of trick











WHISPERING QUEEN:

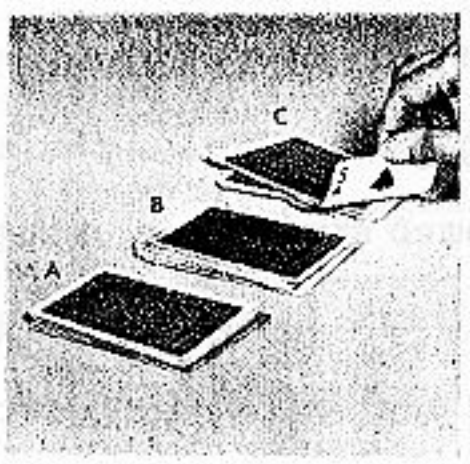
1. Invite spectator to shuffle deck. Run cards, face up, from one hand to other, withdrawing queen of spades who will shortly "whisper" name of selected card. Remember the bottom card. 2. Ask spectator to cut deck into two piles approximately 39 and 13 cards each. 3. Determine his accuracy by counting smaller deck into a new pile, reversing order to bring down bottom card to top. Ask him to note top card of smaller deck, insert it in pack, and shuffle deck. Hold the queen of spades to your ear, pretending that she is whispering mystery card you already know. Then name spectator's card. This trick lends itself well to diversionary tactics. Compliment spectator on his rare cutting ability; maintain patter

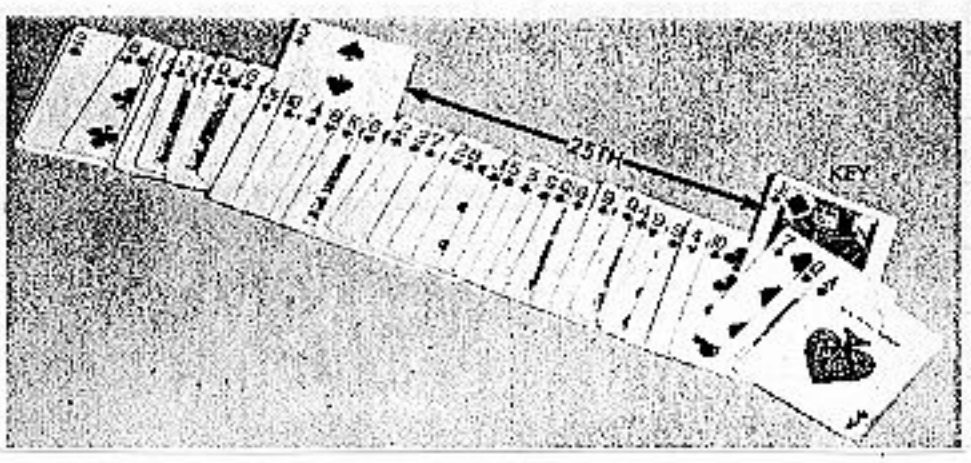
WHISPERING QUEEN: Some tricks are based upon the use of an accomplice. Dishonorable, some say—but in the above case a cardboard informer is your announced helper—and her only real purpose is to allow you to spot the bottom card. It's simple but effective.

26th CARD KEY: Here's a trick that can be repeated and still remain a mystery to some of the most acute observers. Basis of the stunt is the discovery of the key card, which is 26th from the top. The spectator's chosen card is always the 25th one past the key 26th card.







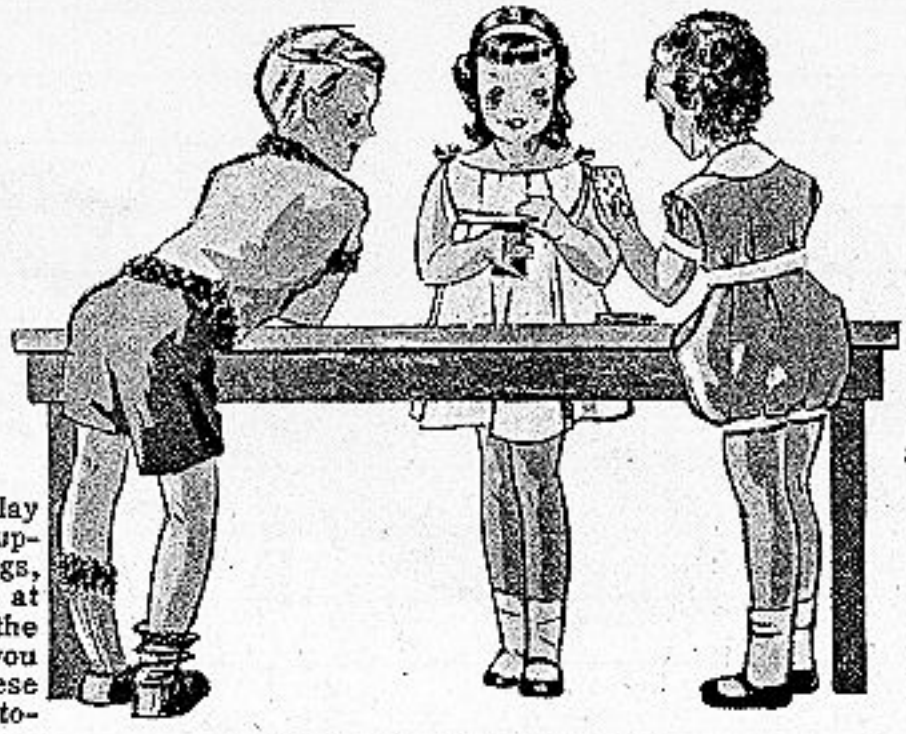


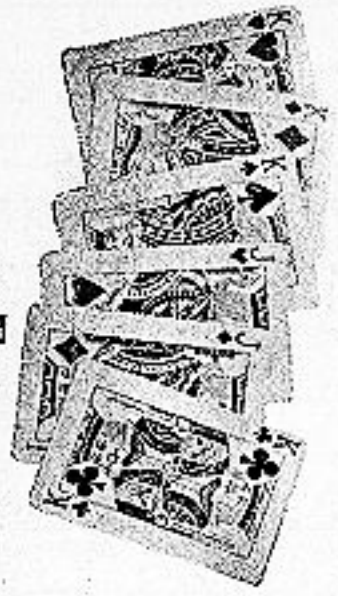
26th CARD KEY:

1. With cards face up, count deck into another pile, remembering 26th card from bottom of new deck. Turn over deck, tell spectator to cut two thirds of deck to make pile B, half of pile B to make pile C. 2. Pile C is shuffled by spectator, who chooses a card and places it on top of pile C. Trickster drops pile A onto C and pile AC onto pile B. Spectator cuts the deck. 3. With deck face up, find key card. Silently count toward bottom of deck. Card 25th past key card is spectator's. If there are less than 25 cards below key, finish count from top. You may learn the identity of the key card by any means at your disposal, of course, but the easiest ruse is to say "I want to make sure that I have 52 cards," then counting them out and making a note of the 26th card from the top. When you're looking for key card, pretend you're actually having difficulty finding spectator's chosen card



When you play the trick of grouping the four kings, you will find, at the close of the trick, that you have all these kings gathered together somewhere in the pack.





This is the order in which the four kings and the two jacks will be arranged at the opening of the trick of grouping the four kings.

CARD TRICKS

GUESSING THE RIGHT CARD

Get someone in your audience to deal out to one person all the spot cards in any suit. Then ask the person holding those ten cards to choose one of them, which shall be passed from hand to hand in the audience so that everyone may see it. Now announce that you will tell them the card if they will tell you the answer to a little sum in arithmetic. First let them secretly square the number of the card they have chosen. Suppose it was a five—$5 \times 5 = 25$. Then let them secretly square the number of the card just above it—$6 \times 6 = 36$—and subtract the first square from the second—$36 - 25 = 11$. Then ask them to tell you the remainder. In your own mind subtract one from that number—$11 - 1 = 10$—and divide the remainder by two—$10 \div 2 = 5$. The dividend will always give you the number of the card, no matter what the card was.

MIND READING

Ask someone in your audience to take twenty-one cards hit or miss out of the deck and deal them out one at a time into three piles, with their faces upward. Let him begin at the left, and when he has dealt out one card for the bottom card of each pile, let him begin at the left again and deal out a card on top of each of the first three, and so on, beginning over again at the left each time till he has dealt all the twenty-one cards into three piles. Ask someone else to choose a card while the first man is dealing, and to remember in which pile it lies. When the dealing is over ask the person who chose the card to point out to you the pile it is in. Now pick up the cards, placing the pile he pointed to in the middle of the stack, between the other two piles, and ask your first man to deal them again, in the same manner as before. Get the person who chose the card to notice again where it falls. When the dealing is over have him show you what pile it is in. Now pick them up again, putting the pile he pointed to in the center of the stack. Do all this still a third time. Then turn the cards over, so that their backs are toward you, and deal off eleven cards. The eleventh card will always be the one that was chosen.

GROUPING THE FOUR KINGS

Remove the four kings from the pack and two jacks as well. Now arrange the four kings in your hand in the shape of a fan, but behind the topmost king place the two jacks carefully squared, so that only the king can be seen. Then hold the fan up to the audience, so that they may see that the four kings are really there. Now square the fan together; the little pack of six cards will have a king on top, then the two jacks underneath him, and then the three kings at the bottom. Now place these six cards on the top of the full deck, and holding the deck with its face to the audience, so that the spectators may see the king, say, "Ladies and gentlemen, I am now going to separate these kings. The first one I shall remove and place on the bottom of the pack." Turn the cards face toward you and put the top card at the bottom. "The next king," you now will say, "I shall put a little higher up in the pack"—and without showing the face of the card to the audience, you will remove the top jack and let the spectators see you insert it near the bottom of the deck. "The third king," you continue, "I will insert higher up in the pack." Whereupon, with the faces of the cards still toward you, you remove the second jack and insert it in the deck near the top. "The fourth king," you now say, "I will leave on top of the pack," and you turn the deck toward the audience for them to see the king that is really there. You now have, in reality, three kings at the top and one at the bottom of the deck. Now ask someone in the audience to cut the cards. That will bring the four kings together. Take the cards, work rather hard pressing the deck, and then hand it to someone with the remark that if he will look, he will find that you have gathered all the kings together into a group.



HOW TO TELL FORTUNES

People always like to have their fortunes told, no matter how thoroughly they may realize that it is all a hoax. Here are some directions which will make you an expert, provided that you will exercise a little imagination in making your predictions fit the person. And you may be perfectly sure that the fortunes you tell will be just as likely to come true as those told by a professional fortune teller!

But try to think up things that will sound true and will please your victim.

Deal out 13 cards face up and lay them down to form a circle. Then deal three cards face down inside the circle. Now proceed to interpret the thirteen cards; the suggestions below will be of help to you, but do not be tied to them. When the 13 cards have been read, turn up the other three and interpret them.

CLUBS

Ace—Great success socially. King—A dark man will come into your life shortly. Queen—A dark woman will come into your life shortly. Jack—A popular young man you know is not to be trusted. Ten—A popular young woman you know is not to be trusted. Nine—Do not sacrifice business for social reasons; it will bring about failure in both. Eight—You will soon attend a party. Seven—If you receive an invitation within the next week, think it over before you accept. Six—Neglected correspondence should be attended to during the week. Five—An attempt will be made to bribe you to reveal gossip passed on to you; pretend you know nothing and save yourself a lot of trouble. Four—A cautious act will increase your popularity. Three—A letter which you expect is lost through carelessness of the writer. Two—You will shortly receive an invitation to join a secret society or club.

DIAMONDS

Ace—You will achieve wealth by hard and honest work. King—A wealthy man will take an interest in your work. Queen—A wealthy woman will take an interest in your work. Jack—A man will offer you a good business opening shortly. Ten—Financial gain as the result of a lucky investment. Nine—A rather expensive article which you will hesitate to buy will save you money. Eight—Do not be afraid to work hard now, even though you receive no immediate reward. Seven—You will sell something and make a large profit. Six—Business undertakings on the sixth day of the next month will be lucky. Five—You will inherit something of value. Four—Do not make purchases of value without expert advice. Three—An unexpected recovery of lost or stolen property. Two—Keep your ideals; they will bring you happiness and success in life.

HEARTS

Ace—Lifelong happiness with the one you love. King—A blond man who secretly admires you will be a staunch and sincere friend. Queen—A blond woman who secretly admires you will be a staunch and sincere friend. Jack—A blond young man holds you as his ideal; be careful not to disillusion him. Ten—A gift of jewelry will be given to you soon. Nine—You will soon be able to do a service for someone, thereby gaining a loyal and sincere friend. Eight—You will soon meet or hear from an old friend. Seven—You will soon receive a letter from a friend you thought was lost. Six—Someone will do you a personal favor for which you must take care to express your appreciation. Five—You will take a long trip soon, probably by auto or train. Four—You will hear of the marriage of a close relative. Three—A situation will arise soon in which you will have to choose between sentiment and business. Two—Someone you dislike and distrust is wrongly judged; you should develop a feeling of friendliness toward that person.

SPADES

Ace—A severe loss. King—Death of a male acquaintance. Queen—Death of a female acquaintance. Jack—A dark person mistrusts you. Ten—You are doomed to work hard for a living. Nine—Your marriage will be unhappy unless you cultivate patience and unselfishness. Eight—Unless you are careful you will lose a friend through selfishness. Seven—You should be more cautious and save more money. Six—Your temper will get you into trouble very soon unless you are careful. Five—Be warned of an arrest. Four—You will lose a cherished gift unless you are careful. Three—Take better care of your health or you may suffer a severe illness. Two—Jealousy will lead you into a serious situation unless it is checked.



CARD TRICKS

THE TURNED CARD

Let one of your spectators draw any card he chooses from the deck, which you will hold face down. While everyone is busy looking at the card he has drawn, you will turn the lowest card in the deck so that it faces in the opposite direction from the rest. Turn the deck over quickly, and it will still look as if the pack were held face down—but no one must see any of these maneuvers. Now let the person who drew the card put it back into the pack—face down, of course. Ask one of the audience to cover your hands with a large handkerchief for just a moment. Under the handkerchief the top card in the pack is turned in the right direction again and the pack is turned over. Now remove the handkerchief and let the spectators pass the cards about, so that they may marvel at the fact that the card one of them drew has turned quite over in the pack!

HOW TO WEIGH A CARD

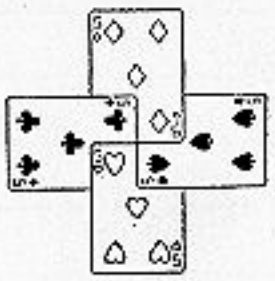
Hand a deck of cards to someone in your audience and ask him to select a card and show it to the other spectators, though not to you. Then take the card from him and seem to weigh it face down in your hand; and as you do so, make a mark upon the edge of it with your thumb nail—not too deeply, but distinctly enough for you to see or feel it without too much trouble. Now give the card back to the person who holds the deck and let him shuffle it in with the rest of the cards. He will now hand the cards to you one at a time, and you will weigh each one in your hand with solemn face. When you see or feel the mark on the edge of the card, you will find that card of just the right weight, and will hold it up to the audience for verification.

FINDING A CARD IN THE PACK

For this trick you should have two full packs of cards, both of the same pattern. Arrange them so that all the black cards are in one pack and the red ones in another. There will be nothing to show that the two packs are not perfect. Now while you conceal the black pack, let someone draw a card out of the red pack, but be careful not to exhibit the faces of the pack. While everyone is looking at the drawn card, quickly exchange the red for the black pack. Then have your friend insert the card in the black pack and let him shuffle them as much as he will, requiring only that he be professional about it and not exhibit any of the cards. When he has finished, you will take the deck, and without showing it, will look it through and pick out his card, the only red one in the pack. This trick may be played with a single deck of cards by separating it into two halves, one half containing the black cards and the other the red, but of course two full packs are better for mystifying the audience.

PASSING A CARD THROUGH THE DECK

Hold up the seven and eight of hearts perfectly squared, so that you will seem to be holding only the eight of hearts (see cut). Now lay the seven and eight of hearts—which your audience believe to be only the eight—on top of the deck, which of course is held face down. In plain sight of everyone take the top card off the deck and without allowing its face to be seen, place it on the bottom of the pack. Say "abracadabra" or any other magic word that takes your fancy, and turn over the top card of the deck. It will be the eight of hearts, which has passed clear through the deck.



THE FOUR FIVES

Get a friend to take the four "fives" out of a deck of cards, and then tell him to arrange them so that only four spots can be seen on each card. The picture will show you how he should do it.



CARD TRICKS

MAKING A CARD FALL FROM THE DECK

This trick may be combined with any trick in which a card is "guessed," and it may also be performed as a trick by itself. In that case you ask someone to choose a card, look at it and show it to the other spectators, and then hand it back to you. Without looking at it, you put it back in the center of the pack, letting them see you do so. But be careful not to push it all the way into the pack. Now stand up in front of your audience and holding the pack face down, pull the card halfway out of the pack, meanwhile shielding it from view behind your partly closed hand, which holds the cards. Then let the pack fall about three feet to the table or the floor. The card will fall clear of the rest—probably face up.

A CARD PUZZLE

If you have a friend who likes to do puzzles, give him this one to work. Take all the kings, queens, jacks, and tens out of a deck of cards, and ask him to arrange them so that there will be a king, queen, jack, and ten of a different suit in each one of the horizontal and perpendicular rows of the square and in each one of the diagonals.



GENUINE MAGIC

Counting the ace as high, discard everything in the deck below the seven. Then lay out the remaining thirty-two cards face up in four piles, each pile containing, without regard to suit, an ace on the bottom, then a king on top of the ace, next a queen on top of the king, then a jack, then a ten, and so on down to the seven, which will be on the top of the pile. Now pick up the packs, one on top of the other, beginning at the left; that is, put the left-hand pack on top of the one next it, those two on top of the third, and all three on top of the fourth. Hand the deck to a spectator and ask him to cut it as many times as he likes, always keeping the cards face upward and making only one cut at a time—or, in other words, always piling the cards after each cut before he makes the next cut. When he is satisfied that the cards are properly cut, deal them out, one at a time, into eight piles, beginning at the right and dealing only one card to a pile at a time. If you have followed all these directions carefully, you will now have all the cards of the same value in the same pile; the aces will all be together, the kings together, the queens, the jacks, etc. The order in which the piles are arranged will always be the same, so if you memorize that order you can always pick up a card of any denomination your audience may ask for. That is, if they demand a seven or an ace or a ten, you will always know in just what pile to find it. One of the interesting things about this trick is that it seems as much like magic to the performer as it does to the audience.

A DELICATE SENSE OF TOUCH

Take a card from the deck, and without looking at it hold it up to the audience, with your thumb on the lower edge of the card and your finger on the top. Now, with your left hand, feel the card carefully all over; but meanwhile bend it with your right hand just enough for you to get a hasty glance at the lower corner where the suit and number are marked. Then name the card for your audience.



CARD TRICKS

READING A CARD WITH YOUR FINGERS

Remove five or six cards from the top of a pack and turn the whole group so that their backs will be toward the backs of the rest of the pack. Now hold up the pack just an instant so that these five or six turned cards will be facing toward you and the other cards toward the audience. Note the card facing you. Now put the cards behind you, pretend to shuffle them, and place the card that was facing you on the other side of the pack, so that when you hold the deck up again it will be facing the audience. With all the hocus-pocus you like, feel this card as you hold it toward the audience, and finally tell them what it is. Meanwhile you have been taking note of the card facing you. Now put the cards behind you again, pretend to shuffle them, and as before, shift the card you just saw to the front of the pack. Feel its face carefully and then tell the audience what it is, while you note the card now facing you. Do this with each of the cards you have turned.

FORCING A CARD ON A SPECTATOR

Never do this trick more than once at a time, and then rush it through as fast as you can. Occasionally your subterfuge will be seen through and exposed, but as a rule it will go off smoothly. You will see that it is just a matter of "heads I win; tails you lose." Take a card—let us say the ace of spades—from the deck, as if by accident, and handing it face down to one of your spectators, ask him to place it on the table without looking at it. Now tell him that you are going to force him to choose that card out of all the fifty-two cards in the deck. Begin by saying, "Now there are two colors in the deck, black and red. Which do you choose?" If he says, "Black," proceed at once to the next question, for he has chosen the right color. But if he says, "Red," then say, "That gives *me* the blacks, doesn't it?" Of course he will agree. Then go on very quickly to your second question: "Now in the blacks there are two suits, spades and clubs. Which do you choose?" If he says spades, proceed to the third question at once. If he says clubs, say, "That gives *me* the spades, doesn't it?" And when he agrees, hurry on to the third question: "Now each suit has thirteen cards, but for convenience let us say there are sixteen. Which half of the spades would you then choose, the upper or the lower eight?" If he says the lower, hurry on. If he says the upper, say, "That gives me the lower eight," and then hurry on. "Now of the lower eight, which do you choose, the upper four or the lower four?" If he says the lower, hurry on. If he says the upper, make your little speech as above, and then say, "Of the lower four which do you choose, the upper two or the lower two?" When the upper two have been eliminated after the usual fashion, say, "Of the lower two, which do you choose, the upper one or the lower one?" If he says the lower, say, "See if you haven't it in your hand." If he says the upper, say, "Then that leaves the lower to me," and stretch out your hand for the card. Speed and a confident manner are everything in doing this trick—and you will probably find it easier with the ace of spades than with any other card.

DETECTING A TURNED CARD

You can perform this trick only with a deck in which the picture cards have a narrower margin at one end of the card than at the other. Place three or four of the picture cards so that all the broad margins point in the same direction. Now ask a spectator to turn one of the cards around while you are not looking. You can easily tell which card he turned by looking for the one that has a narrow margin at the end where the margins of all the other cards are broad. If your friends try to mystify you by not turning any cards, you will find that out, too. And if you have a good memory, you can place the borders in any position, memorize the direction of the narrow margin on each card, and note when one of the cards has been shifted.



CARD TRICKS

THE LOST ACE

The success of this trick will depend upon the apparent carelessness with which you will seem to lay down on the table the four aces out of a deck of cards. You will need to practice this a good deal, for there really are not four aces, but only three aces—of clubs, diamonds, and spades—together with the nine of hearts. But two cards are laid on top of the four spots along either side of the nine of hearts, so that it looks like the ace of hearts. The real ace of hearts you put in your pocket before you began to do the trick.

When everyone has seen your "four" aces, shuffle the four cards into the pack, and handing the deck to one of the spectators, ask him to shuffle it, too. Then tell him to find the four aces. Of course he will find only three. Then you will produce the fourth ace from your pocket!

SLIPPING A CARD FROM THE DECK

To perform this trick smoothly and convincingly takes a little practice, for you must have your fingers trained to do just what you tell them. First, let someone in the audience take a card from the deck and show it to all the spectators. Then have him place it on the bottom of the deck. You will hold the deck up before the audience so that they may all see that the card he chose is on the bottom and nowhere else. Now pretend to take it off the bottom and put it somewhere in the middle of the deck—in reality you will remove the card next the bottom, as we have shown in Fig. 1. The card that was chosen will still be on the bottom. Now holding the deck between your thumb and first finger, in the manner which we have shown in Fig. 2, get someone to strike the cards a hard blow. All the cards will fly from your hand save one. That one will be left in your hand, as shown in Fig. 3, and it will be the card that was chosen.



FIG. 1



FIG. 2



FIG. 3

READING A CARD FROM ITS BACK

Many card tricks depend on the magician's ability to divert attention from himself at just the right moment. This is not hard to do, once you learn how. Make a joke at the expense of one of the members of the company—everybody will turn to see how he takes it. Speak to the cat or dog. Ask someone to raise a window shade. Anything will do, if it just gives you an instant when no one's eyes are upon you. To do the trick we are about to describe, you must find a chance to look at the top card in the deck. Then when everyone is settled, divide the deck into four piles, which you lay along in a row. Of course the card you looked at will be on top of the first pile. Let us suppose that card is the ace of hearts. Now point to the top card of the pile at the other end of the row and say, "This is the ace of hearts." You will pick it up without exhibiting it, so no one will know that it is quite another card—say, the king of spades. Now point to the top card in the next pile and say, "This is the king of spades." You will pick it up and find that it is the seven of clubs, perhaps. Now point to the next pile and say, "This is the seven of clubs"—and pick it up. Let us say that it is the eight of diamonds. Point to the first pile you laid down and say, "This is the eight of diamonds." You will, of course, pick up the ace of hearts. Hastily slip the ace of hearts into your hand next the king of spades and show the four cards to the audience. They will see the cards you named, in the order in which you picked them up.

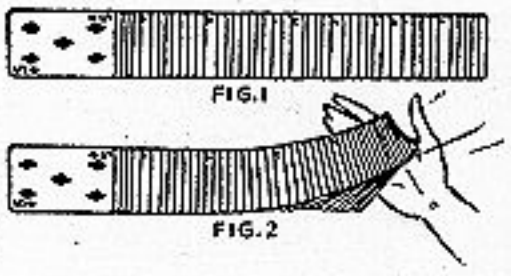


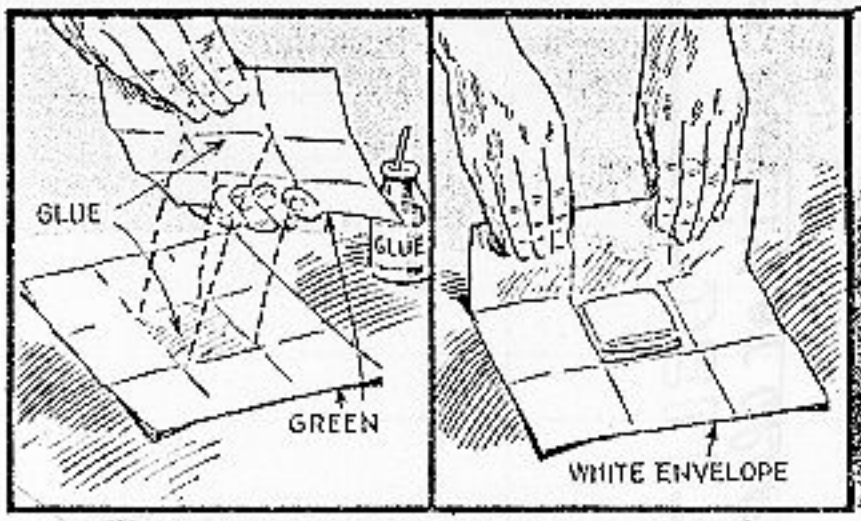
FIG. 1

FIG. 2

A CLEVER SCOOP

Lay out the cards in a long row, as shown in the figure, so that only a fraction of each one shows. They should all be face up. A little practice will teach you how to pick them all up with a single gesture. Put your hand under the last card, the one that lies on the table, and bend it toward the right a little. Then, with a light, quick sweep of the arm, scoop them all up into your hand. All the cards will fall into place with a continuous, wavelike motion. This is one of the tricks that look quite amazing to spectators, though it is simple enough for anyone who has the patience to perfect himself in it.

This Disappearing Coin Trick Is a Real Poser



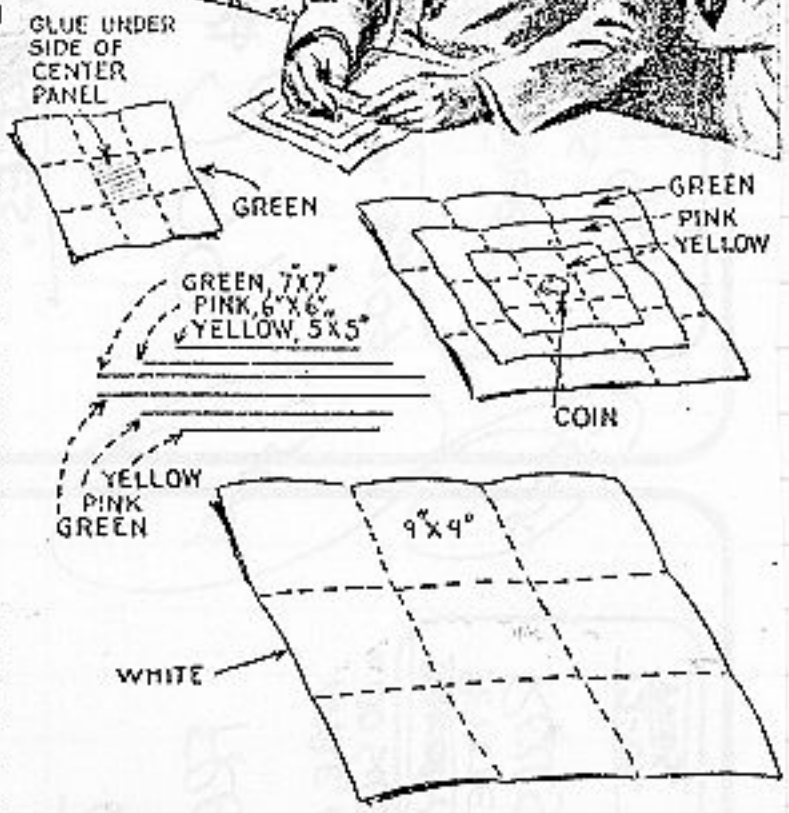


POPULAR MECHANICS JAN., 1939

Here's a little trick to remember for the next party. A coin is wrapped inside of three small sheets of paper, one over the other. Then, keeping the wrapped coin right before your eyes, the performer shows you how completely the coin is wrapped and even allows you to pinch the paper for assurance. Next, he lays the paper on the table, unwraps it carefully in full vision of spectators, who are amazed to discover that the coin has disappeared entirely, seemingly right through the paper without even leaving a hole.

And now to explain just how it's done. Cut seven squares of colored paper to the dimensions shown—two yellow, two pink and two green; the largest and last one being white paper. Crease the sheets to fold as indicated by the dotted lines, place the two green sheets back to back and stick the center panels together with glue. Place the green sheets on the table with one pink and one yellow sheet on top, and fold each envelope, starting with the yellow one which should be inclosed in the pink one, and so on. When the folds are completed, reverse the packet so that the unfolded green sheet is uppermost and repeat the process. You now have two packets of folded envelopes but the green ones are glued together through the center panels so that the assembly appears as one package. With this inclosed in the white envelope you are ready for the performance. Placing the packet on the table, you borrow a coin. Ask the donor to observe the date so that when you return it he will see it is the same coin.

Unwrapping the envelopes, and leaving them in the order shown, place the coin in



the center of the smallest envelope and refold them separately as before, but, before finishing by inclosing in the white envelope, give the green packet an extra turn which will bring the empty assembly of envelopes uppermost. This extra flip of the package will not be noticed by the spectators as your folding is accomplished by turning each envelope over in its turn. Now unfold the sheets. The last and yellow envelope will be found empty. To make the coin re-appear, simply re-fold the envelopes and repeat the turning of the packet after the green one is closed.

—G. E. Hendrickson, Argyle, Wis.

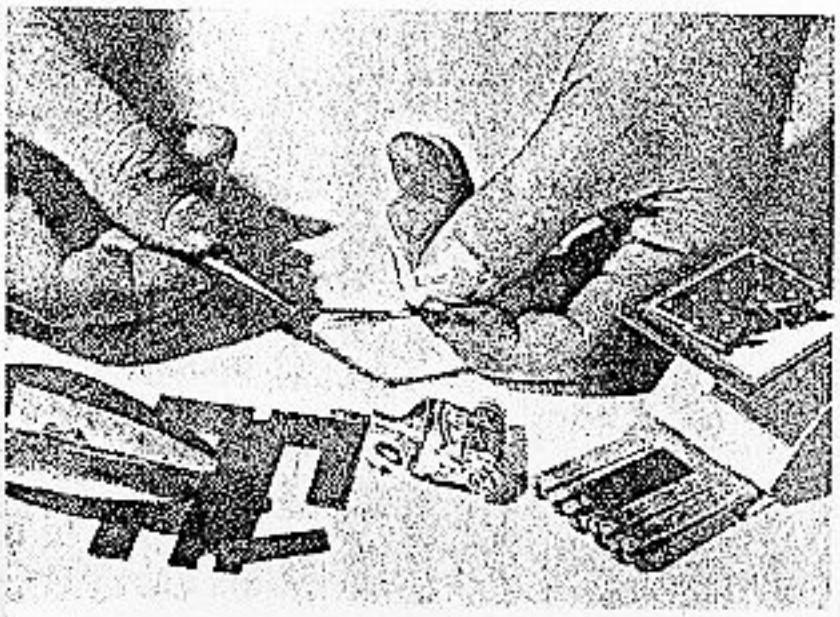
¶A quickly vanishing red ink can be made by dissolving a small quantity of phenolphthalein in strong ammonia. Writing done with this ink disappears a short time after it has been exposed to the air.

MYSTIFY WITH MAGNETS



These are a few sensational tricks with which you can fool even the "wise guy."

The bases of magnetic toy dogs are excellent for these effects.



by Ken Murray

THESE tricks are particularly suitable for amateur presentation because they require little or no skill—each illusion practically working itself because of the unique magnetic principle employed. Although you can carry all of them in one pocket with convenience, they are not in the pocket-trick class because each is exceptionally startling and inexplicable. Practice each illusion several times privately so that the "moves" become natural, and then you can fool successfully the wisest member of an after-dinner or club audience and soon acquire a reputation as a sleight-of-hand artist.

Mechanix Illustrated March, 1943

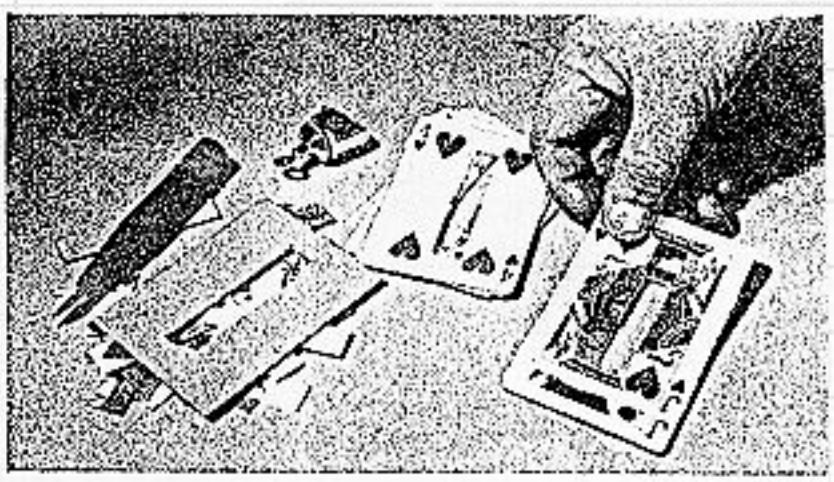




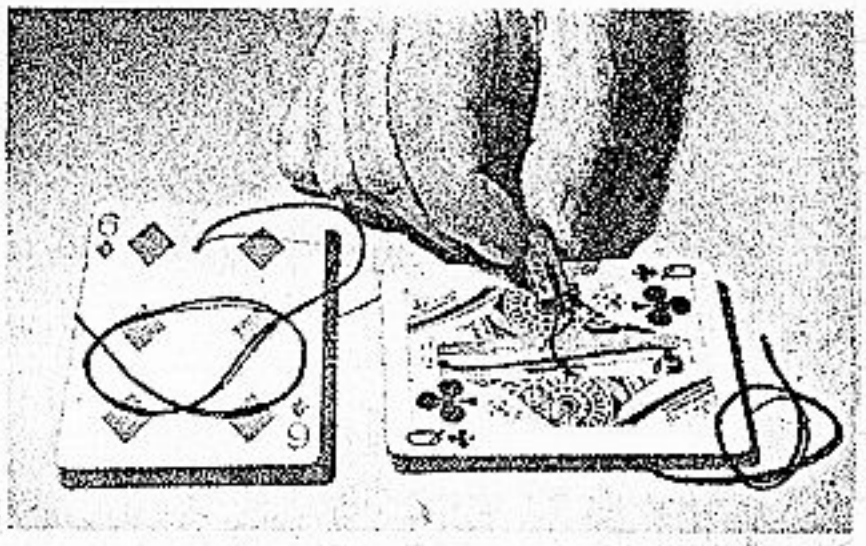
Above: For "Penetrating Match" trick, narrow strip of thin iron is embedded in paper match. Magnet is fitted in place in match book. *Left:* When match book and coaster have been removed, one match is seen to have penetrated the bottom coaster. *Below:* The performer is apparently able to select envelope containing the Canadian nickel by smell.



The cord is pulled through the holes in a deck of cards to show it is apparently continuous, yet deck can be cut in two.



Above: Cards with openings are glued together to form two thin packs. Each contains a magnet. *Below:* How magnet and cord are placed in position. Rivet serves as pulley.

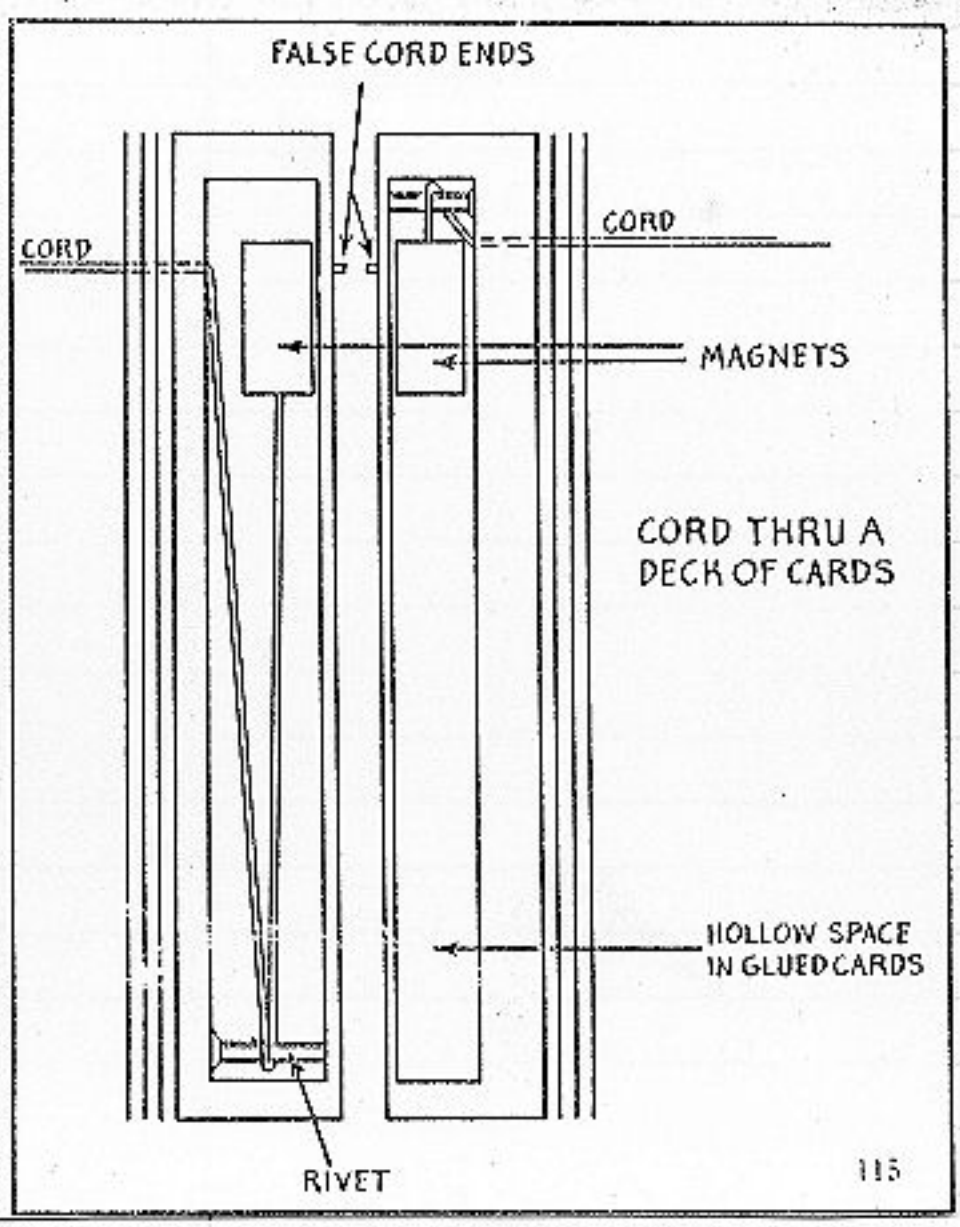


Each effect makes use of one or two tiny magnets. "Alnico" (alloy metal) magnets, which pack a lot of power in a small package, are best. In most cases the same one can be used for several tricks. The small magnetic dogs, sold in department and novelty stores, have bases which are excellent for the purpose. These are variously known as "Hot Doggies" or "Snooty Pups." The cost is generally 10 cents each. The illustration shows an assortment from which the magnets have been removed.

The Penetrating Match

A book of paper matches is taken from the pocket and two of the matches removed and placed on the table and covered with a cardboard or plastic beverage coaster. The match book is placed on the coaster. The latter is lifted so that another coaster can be dropped over the matches. Now you apparently have an arrangement of two matches covered with two coasters with the match book on top. Lift off the match book and then the top coaster. Underneath the latter and on the bottom coaster is one of the matches, which seemingly has penetrated through the coaster itself!

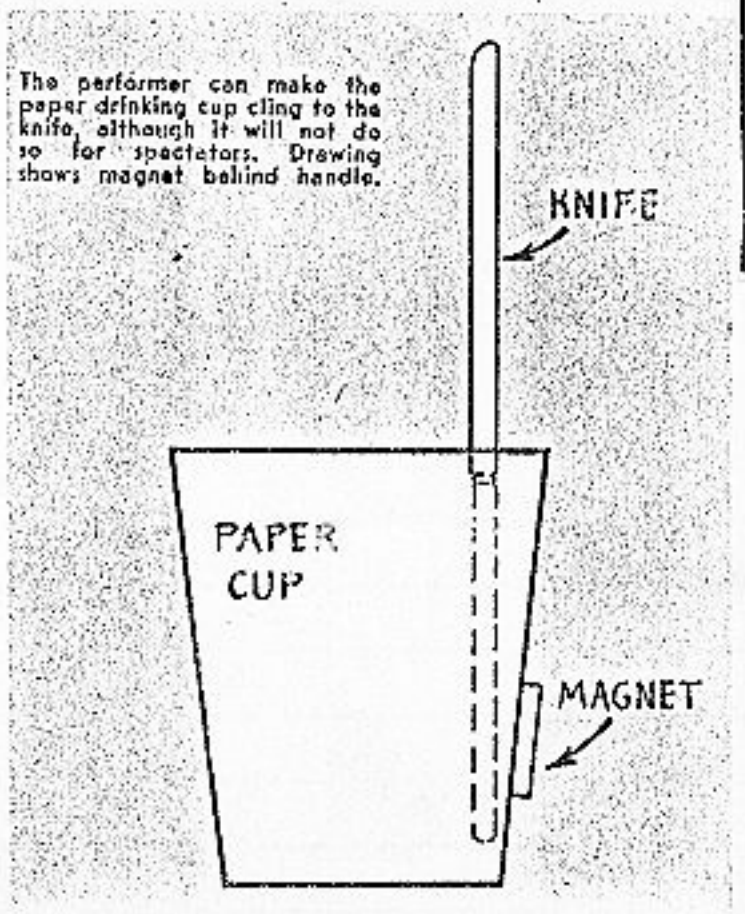
This trick is startling and you must try the above moves to fully appreciate it. It works it-



The drawing shows positions of the two magnets and strings when halves are joined.



The performer can make the paper drinking cup cling to the knife, although it will not do so for spectators. Drawing shows magnet behind handle.



HOW MAGNETS WORK

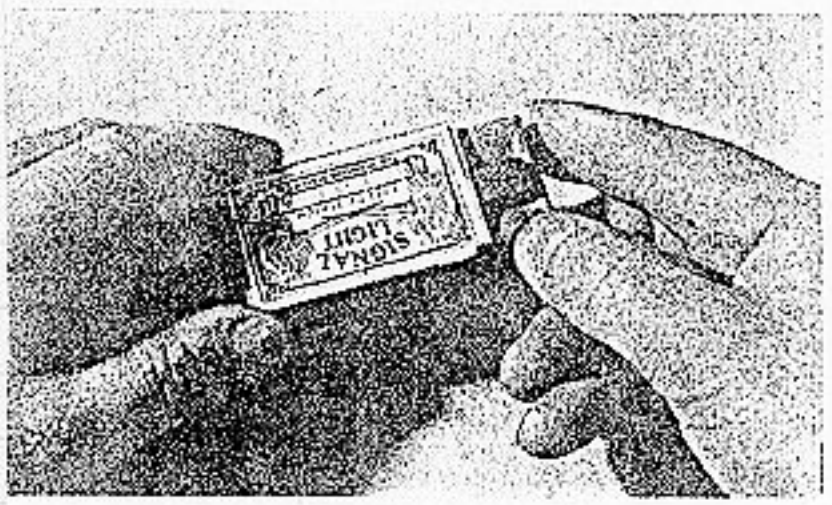
A magnet is a piece of iron or steel which has the ability to draw to it other pieces of similar metal. Natural magnets, found in iron ore deposits, are called "lodestones." These are irregular in shape while manufactured magnets are usually made in the form of bars or horseshoes. When a bar magnet is suspended by a string tied to its center, one end will point to the Magnetic North Pole of the earth and the other will point to the Magnetic South Pole. This is the principle of the magnetic compass. The ends of the magnet are also called poles—north and south respectively. About the poles there exist magnetic lines of force which compose the "magnetic field." These lines of force cause magnetic attraction.

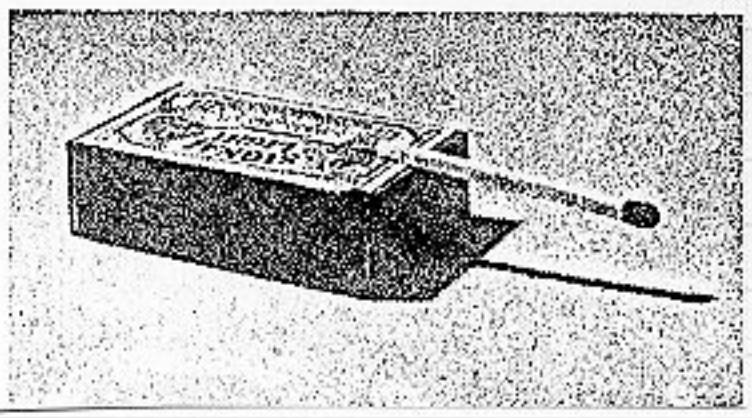
A piece of iron may be magnetized very easily by stroking it with another magnet or by placing it in a coil of wire through which a direct current is flowing. When a magnet is broken, each separate piece becomes a magnet. It may be demagnetized by heating or striking with a hammer.

All matter is composed of tiny particles, called "molecules," which fit together like bricks in a wall. When iron or steel is magnetized, its molecules (which are tiny magnets themselves), line themselves up with their north poles pointing one way and their south poles pointing the opposite way. Demagnetizing consists in shaking them up and scrambling them.

Permanent magnets hold their magnetism for a long time and are made of hard steel. They are used in compasses and electrical measuring instruments. Temporary magnets, made of soft iron, are used in telegraph instruments, simple motors, doorbells, etc. (Further information on magnets may be found in The School Shop section on page 141.)

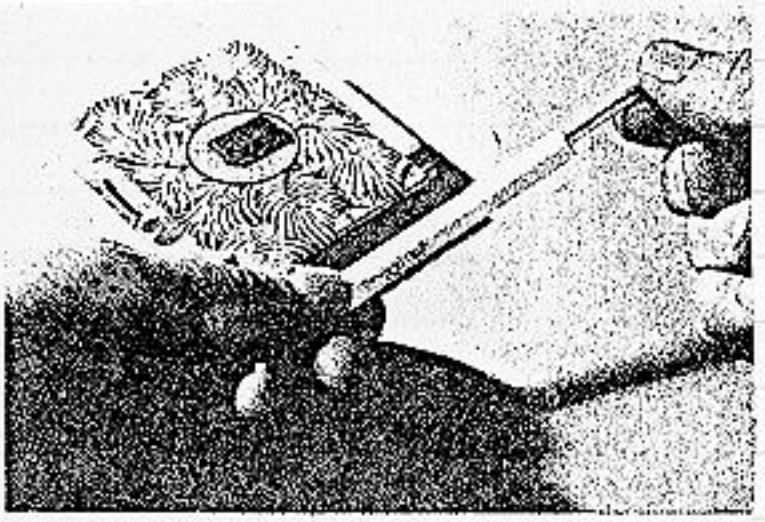
self. Three matches are removed from the back row of the match book to accommodate a magnet, which is cemented in place. One of the paper matches is split, a narrow and very thin strip of iron (or a piece of steel needle) is inserted and the match is pasted back together again. Ordinary plain match are the ones used. When you place the first coaster and match book over the matches, the prepared match clings magnetically to the underside. Lifting this coaster also lifts the match and the second coaster is placed over the unprepared match. Before lifting the top coaster, remove the match book. This is one of the few tricks that can be repeated with little chance of detection, and it becomes more and more puzzling to your audience. Have a spare book of matches on hand in order to make a switch if anyone should wish to examine the material afterwards. Make your moves rapidly and no one will ever get wise to them.





Above: Magnet is inserted beneath match box drawer. *Right:* Piece of steel needle in match will balance it on box.





Left: "Sliding Glue" is the reason why the cigarette clings to the deck of cards. *Above:* A steel needle in cigarette and magnet held back of card is secret.

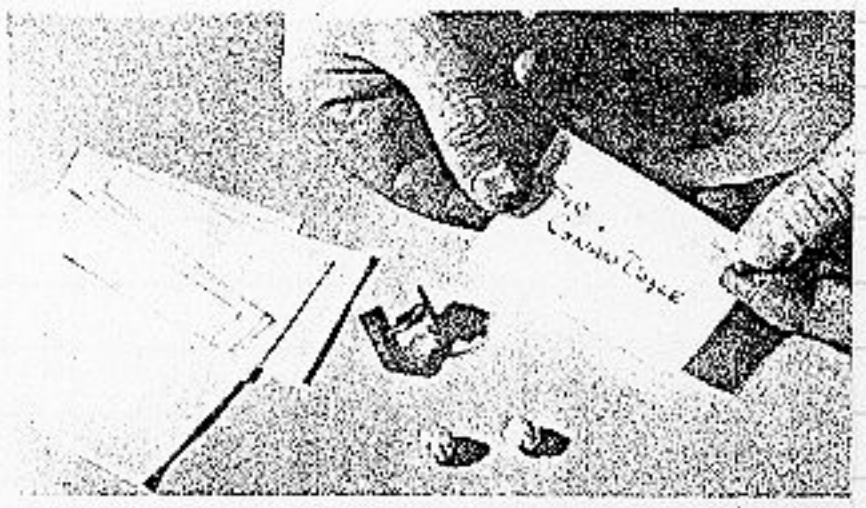
Sense of Smell

Distribute small coin envelopes to the members of your audience and have each one seal inside his envelope a nickel. One should be a Canadian nickel; the others United States coins. When the envelopes have been shuffled and handed to you one at a time, you can instantly determine which envelope contains the Canadian nickel merely by smelling it. At least, that is the misleading explanation you give. In reality you have a magnet clipped between two fingers. The Canadian nickel is the only one that will be attracted by the magnet because it contains a small percentage of iron. Another miracle has been performed!

Cord through a Deck of Cards

Here is another of those rare tricks you can do over and over again—your audience becoming more mystified each time. The principle is really very clever. A little preparation is required but the trick is worth it. The effect consists of a cord threaded through a hole in a deck of cards. When you pull one end of the cord, the other end shortens, and vice versa. However, at any time you can separate the deck into halves, holding them wide apart and showing that the cord is severed. Replacing the halves together, the cords pulls through, back and forth, exactly as if it were whole.

The drawing shows how the deck is prepared. Use any old





Above: For "Dead or Alive" trick, steel bearing is rolled in slip containing the name of the dead person. A magnet and ring does the rest.

The "Rising Card" effect is shown at the *left*. When cards are touched with a pencil, selected card will rise.

Each card is split for short distance and steel wool is cemented inside as at *right*. Magnet is in end of pencil.



deck—the older the better—and cut an oblong opening in each of about 40 cards. Glue these together in two books of 20, and glue a plain card to one side of each book. At one end of the opening in each of them, cement a small rivet. One magnet, with the end of the cord cemented to it, is placed in the slot or opening in each book as in the sketch. A cover card is then glued over the opening in each. The other cards are punched for passage of the cord. Glue very short pieces of cord to each of the inside cards so that it will appear that the cords are severed. When the deck is held together you can pull either of the cords and the other cord will be shortened, due to the fact that the two magnets will follow each other inside the openings. You can separate the deck as often as you wish and the action will continue when the halves are placed together again.

The Buoyant Drinking Cup

Magicians like to float things in the air with the greatest of ease and if you wish to do a little after-dinner floating, nothing could be easier and more mystifying than this particular levitation. Required props are a paper drinking cup and a steel dinner knife, both ordinarily available. When you place the handle of the knife inside the cup, the latter clings tenaciously, and you can carry the cup around the room by this improvised handle, to the wonderment of all. The audience will find nothing sticky about the cup or knife; moreover, they cannot duplicate the feat no matter how hard they try. There is a good reason. When you pick up the cup in your left hand, in the palm is one of the small magnets. This is held naturally against the outside of the cup. The knife handle is placed opposite the magnet, the two cling together and the cup floats. Allow the magnet to drop back into your hand before passing the cup and knife for examination and trial.

The Acrobatic Match

The match in the photo is a very good acrobat for it can hold itself off balance with only one end resting on the edge of a match box. You will need to switch match and box after exhibiting the trick because a length of fine needle is embedded in the end of the match stick, and one of the small magnets is fitted underneath the bottom of the match box drawer.

Sliding Glue

This trick is known to a few amateur magicians and it has been given the name of "Sliding Glue." The reason is apparent. Three or four playing cards are held in one hand and a cigarette placed on the face of the front one. It adheres as if glued in place. *Now* the performer slides the front card from the remainder, but instead of continuing to cling to it, the cigarette remains in the same position, even after all but one of the cards have been slid from underneath it. It should be mentioned that a special glue is not required. Instead, push a short, heavy steel needle inside the cigarette. With two fingers hold one of the tiny magnets at the back of the cards. The cigarette will cling and your audience will be much impressed.

Dead or Alive?

Do the names that dying persons leave behind them have an aura, an almost imperceptible influence that makes them different from the names of living people? Suppose, for instance, that a number of names of live persons are written on separate slips of paper, which are then crumpled into little pellets, and the name of a dead person treated likewise and the pellets well and fairly mixed. If you were to pass your hand over them, you'd expect nothing untoward to happen, unless you were familiar with this trick. In that case, even were you blindfolded, one of the pellets would leave the others and appear in your hand. Unrolled, it would be found to have on it the name of the dead person.

Mystic aura or not, it is simple to do if you take care to roll up a tiny steel ball bearing when making a pellet of the dead person's written name. On one finger wear a ring having one of the small magnets attached. It will attract the "dead" pellet from any number of unprepared "live" pellets when your hand and the ring are brought near. Take care to dispose of the steel bearing as you unroll the slip of paper.

The Rising Card is a very simple trick. In effect, a spectator chooses a playing card and returns it to the deck. The deck may be shuffled. Holding the deck in one hand you merely touch it with the end of a pencil and immediately the chosen card rises, following the pencil out of the deck.

The pencil should be a large one—as in the case of some mechanical pencils—so that a tiny magnet can be concealed inside the end cap, making the latter highly magnetic. With a sharp knife, gently and carefully slit open one end of each playing card, inserting the knife between the piles. In this space put one or two strands from a wad of new steel wool; then cement each card end down and place it under weights so that the operation will not be visible afterwards.

The cards may be in any order but the treated ends must all be together. After a card is selected, reverse the pack. When the one card is returned, it will be reversed with respect to the other cards. Hold the deck loosely when touching it with the magnetic pencil and, regardless of where it is in the deck, the selected card will be attracted and will cling sufficiently to the pencil to rise from the pack.

Tricks for Amateur Conjurors.

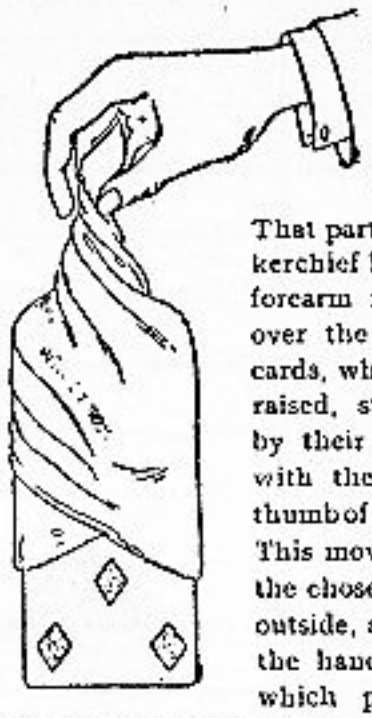
CARD READING. Any deck of cards are thoroughly shuffled and three elastic bands placed all around cards by any one to put edges all evened up, yet the performer takes pack face downward in right hand and reads the cards off one at a time. This is easy to perform and hard to detect On the ring finger of the right hand wear a broad, plain bright ring You can now see right into the ring, as it were, and easily see the diminished card slips, which will at once tell you the name of the bottom card You will be surprised to see what you can do by practising this card effect.

ARTIFICIAL LIGHTNING Provide a tin tube that is larger at one end than it is at the other, and in which there are several holes Fill this hole with powdered resin, and when it is shaken over the flame of a torch, the reflection will produce the exact appearance of lightning.

INDIAN DUCK TRICK A little tin or earthen pan, or sometimes half a cocanut shell, supported on three stones, is filled with water, on which is sprinkled a red powder, rendering it practically opaque. A little duck of wood or porcelain is placed upon the surface, where it at first floats, but at the command of the performer suddenly dives, remaining submerged until again ordered to rise. This very ingenious trick depends upon the fact that in the bottom of the vessel there is a minute hole, through which passes a hair. One end of this is attached to the duck: the other remains at the disposal of the performer, and is attached, by means of a pellet of wax, to his hand or wand. When he wishes the duck to dive he pulls the hair; when he desires it to rise he relaxes the pull. There is naturally some amount of leakage through the pinhole, and to cover this the performer takes care, when filling the pan, accidentally to spill a little water The ground is thus already wetted the fact that it gets a little more is not noticed.

TO PASS A CARD THROUGH A HANDKERCHIEF. A card is freely chosen, and after due note has been taken of its suit and value it is returned to the pack and, having been brought to the top by means of the "pass" is palmed and handed with the same hand to some one in the audience to be shuffled While this is being done obtain the loan of a handkerchief from some obliging specta-

Next request the person who shuffled the cards to place the pack, face upward, on the center of the handkerchief, by which means it is very naturally brought immediately over the concealed card



That part of the handkerchief lying on the forearm is then bro't over the face of the cards, which are then raised, still covered, by their hinder end, with the fingers and thumb of the left hand This movement leaves the chosen card on the outside, at the rear of the handkerchief, in which position it is completely concealed by bringing the opposite sides of the handkerchief round to the back in the act of concluding the operation of folding up the cards The pack is then screwed up tightly and the position of the whole reversed (see illustration) Now hold up the handkerchief by the four corner's and on gently shaking the card will gradually appear, presenting to the onlookers the effect of being gradually forced thro' the handkerchief.—*Amateur Conjuring.*

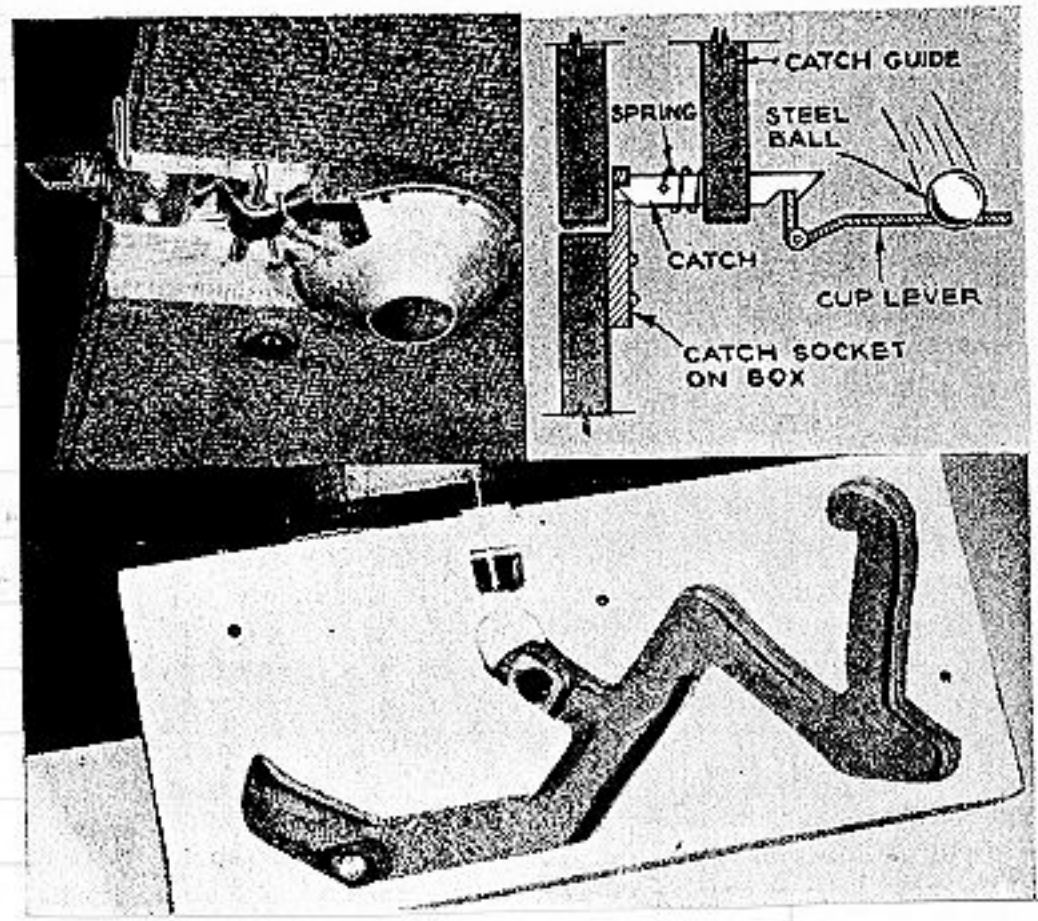
THE MAGNETIZED CARDS This is a very effective trick and one that may be presented at close quarters without fear of detection. The operator, having satisfied the company that his hands are free from preparation, places the palm of left flat on the table. He next inserts a number of cards, one by one, between the hand and the table, and continues doing this until a complete circle has been made of about one foot in diameter. This done the hand is raised, when, to the surprise of all, the cards adhere to the palm and may be moved about in any direction without fear of any falling. Finally at the word of command the cards fall to the ground, when everyone can examine them as well as the hand of the performer. The secret lies in the use of a pin or needle, which is passed through the skin at the root of the second finger. When properly inserted this should lie on a line with the finger The first card is placed between the point of the needle and the fingers, the second between the eye and and those already in position, the remainder being fixed up in the same manner. Finally, after the hand has been raised and turned over, one or two cards are added to conceal the means of retention, after which the whole may be passed right under the eyes of a spectator without any fear of the secret being discovered To dislodge the needle, thus causing the cards to fall to the ground, you have merely to press lightly with the tips of the fingers.

BITING NAILS IN TWO. This is the greatest accomplishment of the strong man in the circus, and one that has a particular charm for the boys. The men who do this never use the common steel nail. They use cast iron ones, whose grain makes them break more easily. Nor are the nails bitten in two by the teeth, as is commonly supposed, but they are simply broken by the strength of the fingers. To bite a nail in two put the thumb of your right hand under the nail near the middle, with the index finger on top of the nail at the end. Then put the other end of the nail between the teeth on the left side of the mouth. Push down sharply and strongly with your index finger, and crack goes the nail. If you do it quickly your audience will think you have bitten it off, but you haven't. Try this with a lead pencil, so as to get the knack of it, before trying the cast-iron nail.

SMOKE FROM TWO EMPY PIPES. Two empty and clean clay pipes are passed around for examination and ostensibly proved to be unprepared. The bowls are then placed one over the other, when the performer, by simply inserting one of the stems in his mouth, commences to blow clouds of smoke from the pipes. The solution of the mystery is as follows A few drops of hydrochloric acid (spirits of salts) are placed in one of the pipes, while the other is similarly treated with ammonia The union of the two chemicals produces a thick vapor, which has all the appearance of smoke produced from tobacco. A good combinaiton trick may be performed by preparing a glass tumbler and the bottom of a tea plate, as above described; the plate is then placed over the tumbler, the whole being covered with a handkerchief. The smoke so mysteriously produced from the pipes may now be caused, apparently by some occult means, to find its way into the closed tumbler.

Wizard's Boxes





POPULAR SCIENCE MARCH 1953

Pinball puzzler. The loud rattling noise which this wizard's box makes when it is shaken invariably leads unfortunate experimenters to jounce it around like a tambourine, convinced that something is bound to let go. An irregular track for a steel ball or marble is provided under the box lid, with a single channel leading to a small cup. When this cup is depressed, it withdraws the lid bolt, freeing the top of the box. Until you know the trick, no amount of work will jockey the ball into the right groove and the cup. Make the track for the ball of ¾" plywood, backed by smooth-surfaced wallboard. A flashlight reflector will make an excellent shield for the depressed cup.

Secret locks, based on principles of physics, engineering, chemistry and metallurgy, will puzzle your friends until you show them the simple tricks that release the lids.

You Can Build

By Prof. A. M. Low

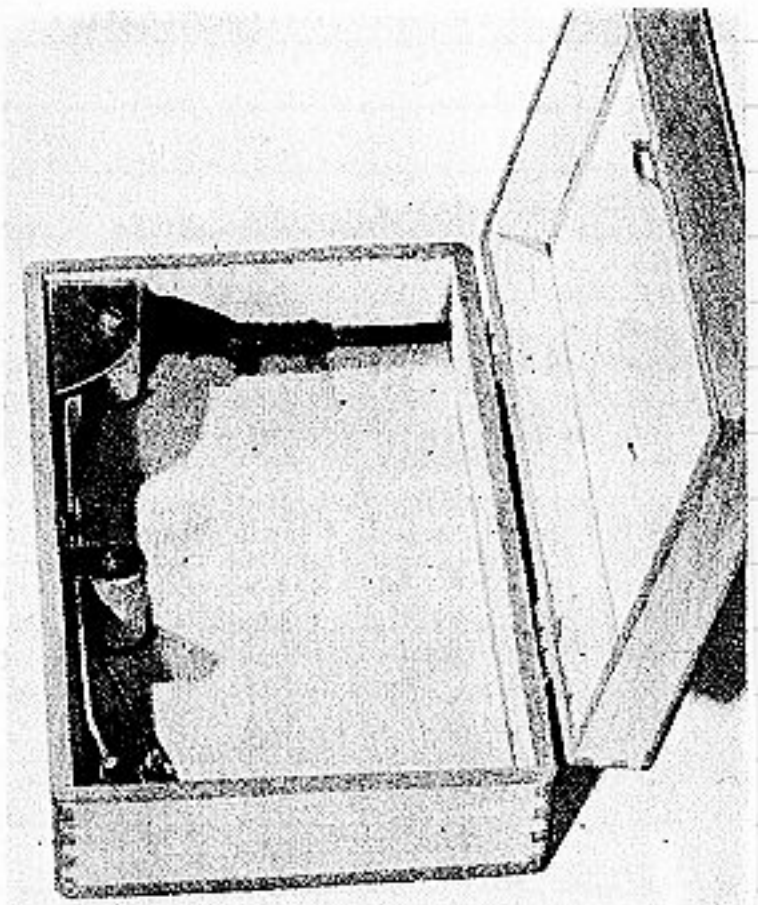
BOXES which cannot be opened without a knowledge of their unseen locking mechanisms probably originated in China many centuries ago. The ancient Egyptians may have used them. And the Borgias refined the design to reward the successful puzzle fan with a lethal shot in the thumb.

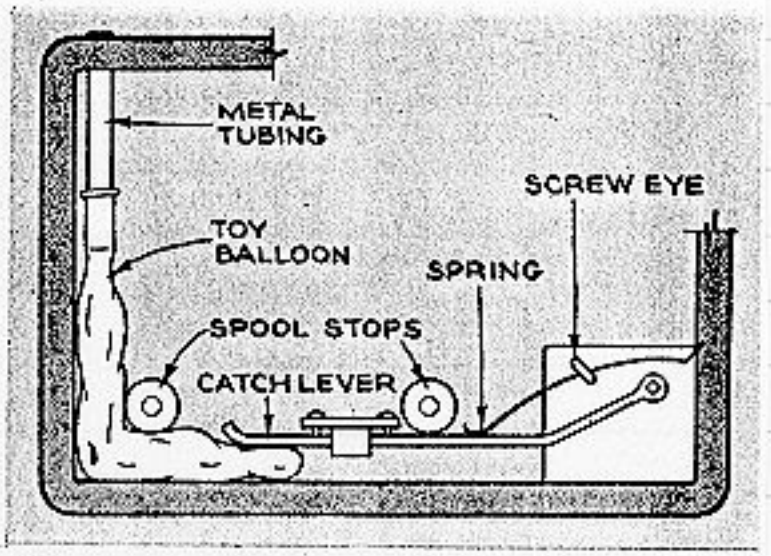
Today, spring-loaded daggers are out, but the trick box is still a parlor menace. Your friends can probe and rattle the eight little wizard's boxes pictured here for hours on end without discovering the simple devices which release their lids.

Unlike most Chinese boxes, which are made with one particular part of a pattern that must be pressed or slid into place before the lid can be raised, these boxes depend upon a mixture of physics, engineering, chemistry and metallurgy for their operation. Patience and a good memory will not open them; the solution calls for the kind of intellectual exercise which makes a puzzle really novel.

There are innumerable variations of the designs I have outlined. During the last war those who were engaged in the manufacture of booby traps learned how many trick devices can be used. One of the simplest of all bomb boxes was detonated when a globule of mercury closed a circuit as the box was lifted or tipped in some particular direction. A wizard's box could be opened by using a similar globule of mercury to feed current to a solenoid or magnet. Here, of course, the contact wires would have to be carefully placed, to avoid accidental releasing of the lid. Or a penny might be used to close a circuit from a battery inside the box to a magnet, simply by threading two lead wires through a side wall. You can even make a box that opens only for a certain musical note by basing the lock on a reed which responds to that note.

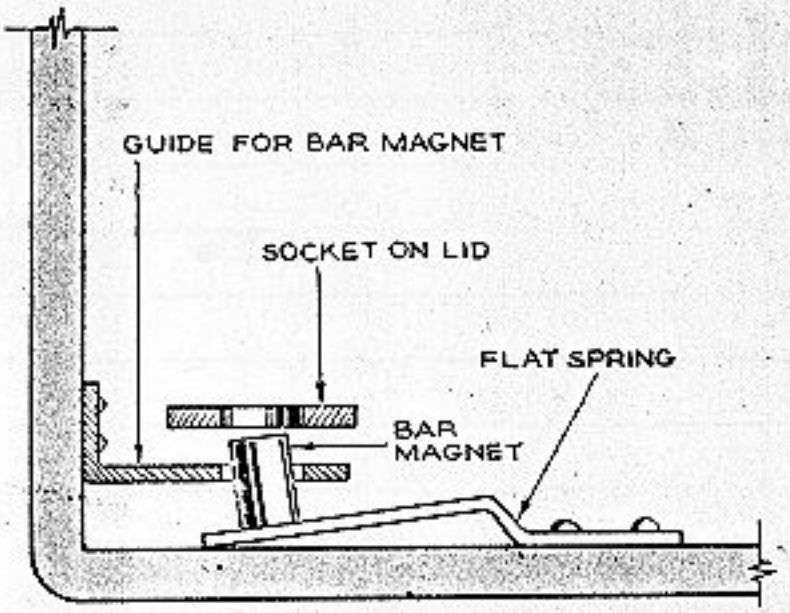
Try your hand at one of these wizard's boxes; they will pay off, both as craft projects and as entertaining puzzles.



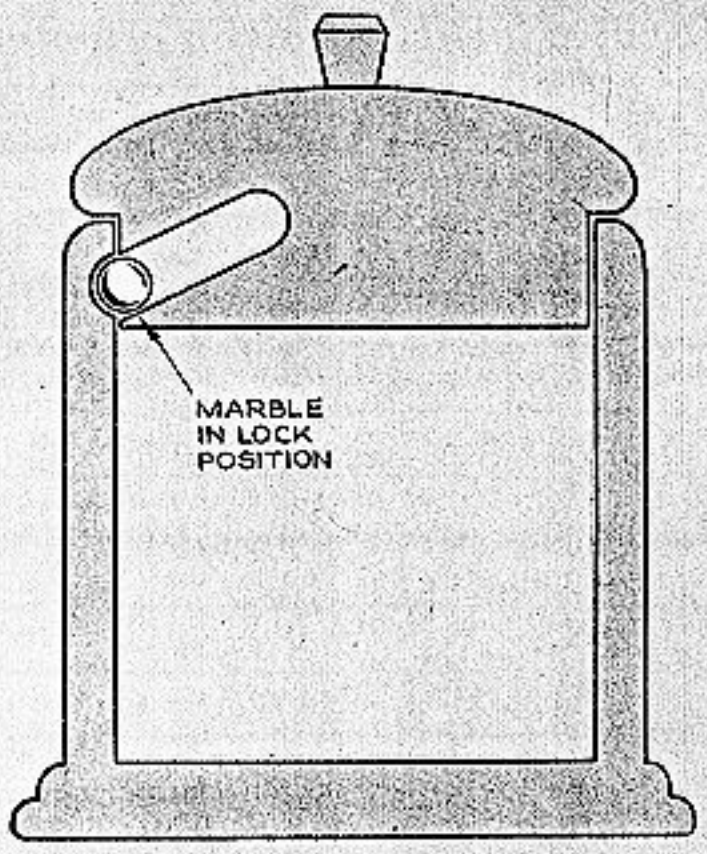


Pneumatic release opens this brain teaser, which calls for a few pieces of brass stock, a weak strip of spring steel, a small metal tube and a toy balloon. By breathing through a minute hole in one corner of the box, you inflate the balloon, causing a spring-backed lever to withdraw a catch from a latch plate attached to the lid of the box. Spring adjusts by turning the screw eye, must be just strong enough to deflate balloon.

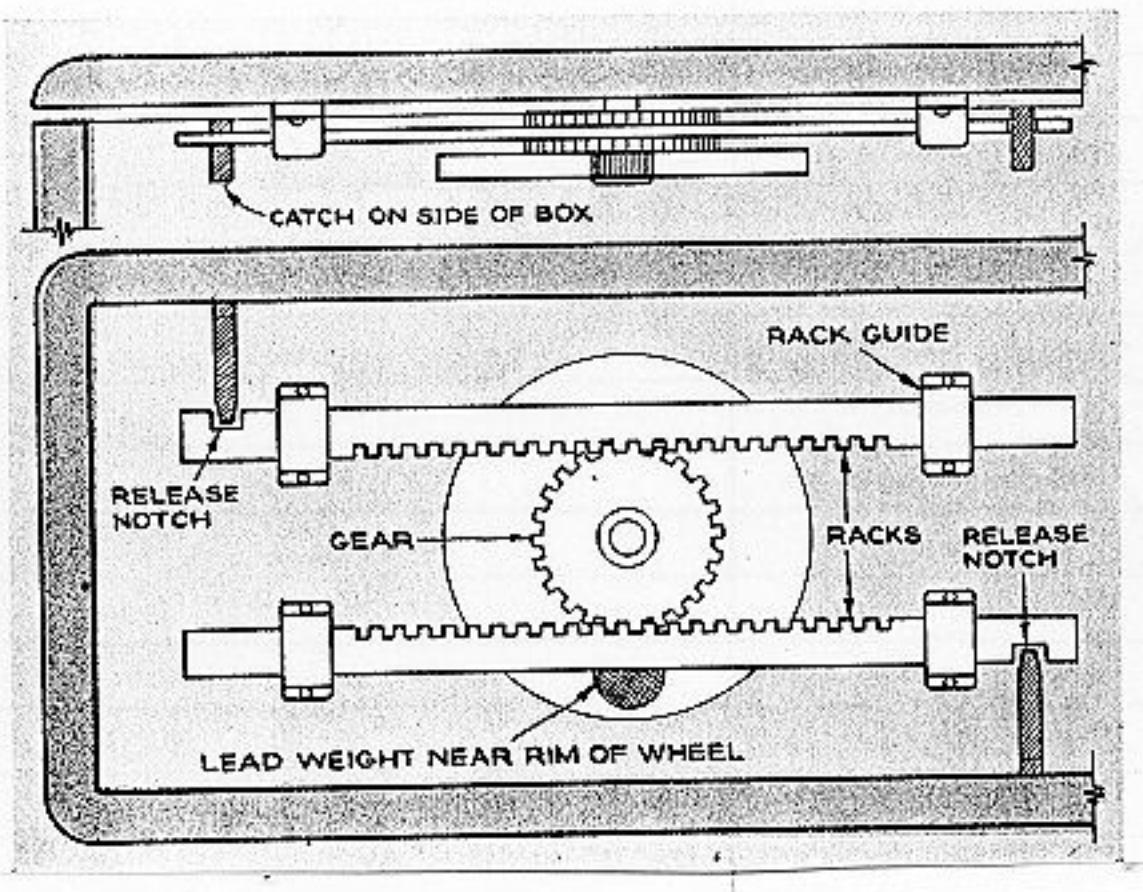
Magnets, marbles, and metal that melts at 70° keep the lids on these four boxes. Weighted wheels lock the other two.



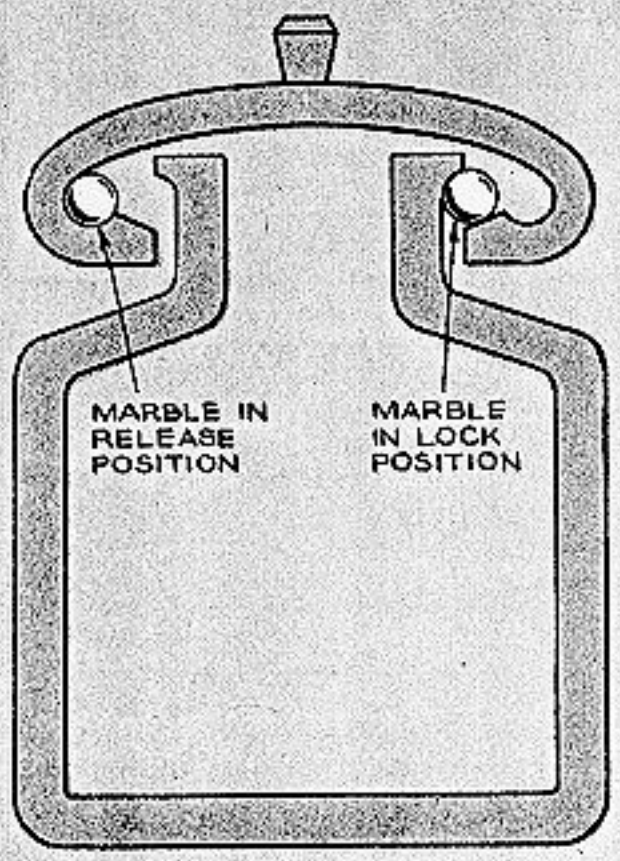
Key without a keyhole opens this magnetic baffler. A small bar magnet forms the catch. It is attached to a thin strip of spring brass that normally presses it through a nonmagnetic guide and into a nonmagnetic socket attached to the lid of the box. In this position it is close enough to the side of the chest to draw back from the brass socket when a small piece of iron is placed against the outside surface of the box. An old iron key is a good releasing agent; you have only to fit it to an imaginary keyhole and the lid comes free. A variation would be to use an iron bar as the catch, and a magnet for the key. Use a small but strong Alnico magnet in either case and brass or aluminum for the other parts.



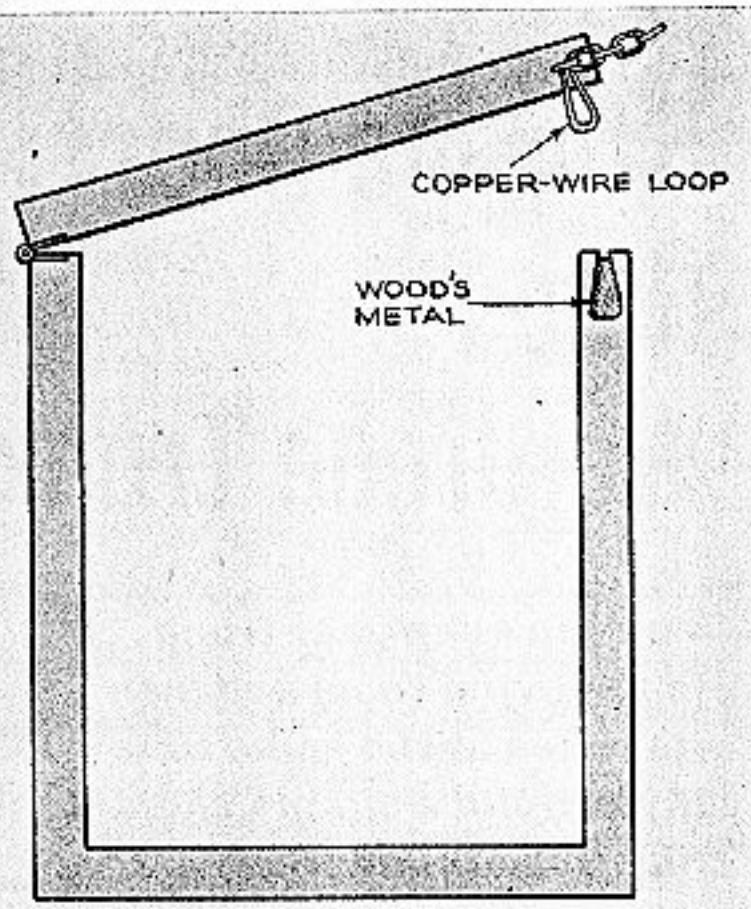
Gravity locks this cylindrical container—a natural for the craftsman with a yen for lathe work. The body of the box is turned with a hemispherical groove near the top. The lid is a second turning, having a deep setback section which fits into the neck of the box. A hole is drilled at an upward angle into the side of the setback, and a marble inserted in this hole will drop part way into the hemispherical groove, locking the lid in place. For anyone familiar with the mechanism, it is a simple matter to tilt the box in the right direction, allowing the marble to roll into the lid where it no longer serves as a catch. Sand the marble channels well so that it will roll freely without catching at any point.



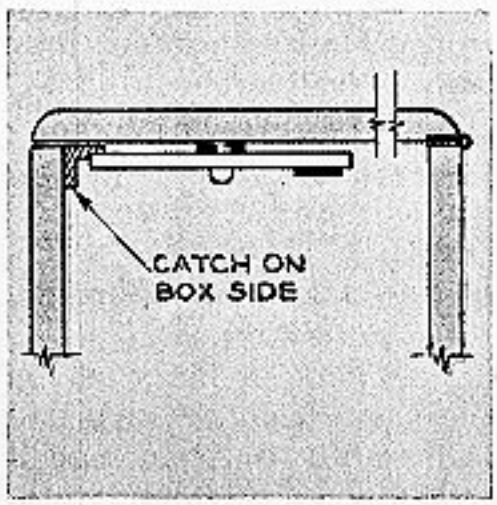
End-over-end motion does it. The mechanism on the lid consists of a small gear wheel, interacting with two racks. Near the end of each rack is a notch, and at a certain point in their travel these notches clear a pair of catches in the box. A small weight near the rim of a disk attached to the gear wheel causes the gear to rotate when the box is flipped over. To open the chest, it must be rotated until the racks reach one limit of their travel and then revolved a known number of times in the reverse direction. Rack teeth can be shaped with a jeweler's file to mesh with a clock gear.



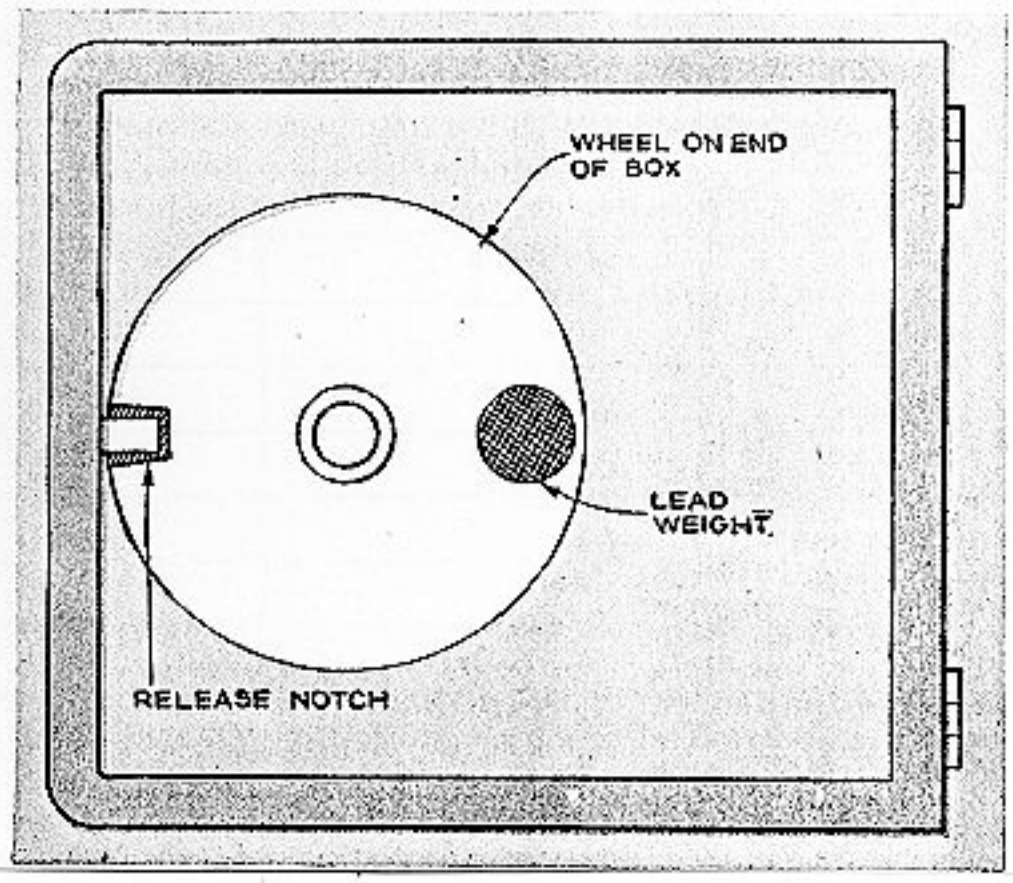
Centrifugal force releases the top of this canister which, like the gravity box, can be used to hold cigarettes or candy. An ideal project for the metal worker, it uses two or three marbles, placed in a groove in the lid, to hold that member in position. If the box is shaken, the marbles jog out of the groove and then roll down between the lip of the box and the sloping lid flange. A glance at the diagram shows how this locks the lid in place. A quick twirl of the box forces the marbles back up the flange and into the groove. Presto! You can now help yourself to another bon-bon. As with other boxes, be careful all parts are smooth and free-acting before you close it for the first trial.



Thermal tripper-upper. Few wizard's boxes are simpler to build and more difficult to open. The successful puzzle fan must place a lighted match or cigarette lighter to the two small extensions of twisted copper wire which project from a small hole in the lid of the box before the catch can be released. Actually, the wire extends in the form of a loop into a globule of low-melting-point metal poured in a small, undercut hole in the rim of the box. Wood's metal, which melts at about 70°, is an ideal locking alloy. Additional, blind wire extensions will add to the puzzle fan's confusion but are hardly needed. Heat is of course necessary when you wish to relock the box for another occasion.



Variation of the end-over-end box has a weighted wheel on the lid. A release notch at one point on the circumference of the wheel clears a catch on the side of the box. Obviously the lid cannot be lifted unless the box is tilted at exactly the right angle. Make sure the wheel runs true and free. END



How to Make a Treasure Box

Seemingly Inexhaustible Receptacle of the Hindu Magician an Easy but Clever Trick

It is not difficult to make a Hindu treasure box, which to the onlooker seems to form an inexhaustible receptacle. The treasure box really consists of two boxes, one fitted closely inside the other. The magician makes no secret of the fact that it is made in two sections, one acting as a sort of shell for the other; in fact, he begins proceedings by taking the treasure box apart in order that the spectators can see both sections. The outside cover is open at one end so that it can easily be seen that it is empty. After the spectators are satisfied the treasure box is put together and then all sorts of sweetmeats, toys and other trifles are taken from it. At any rate, the treasure box may again be shown empty and immediately afterward the work of taking out treasures can recommence.

The Hindu magicians make their treasure box in two sections, because the spectators are grouped all about the performer in that country, consequently his work is viewed from every point.

If the spectators are placed only in front of the magician the outer section of the treasure box may be dispensed with.

Figure 2 shows the smaller or inside section drawn almost, but not quite, out of the larger or outside section.

Figure 1 shows two pieces of board fastened together at right angles.

The boards of which Fig. 1 is made must be of the same thickness as the boards of which the smaller section of the treasure box is made.

The two boards of which Fig. 1 is made must be exactly the same size.

A part is cut away from the back of the smaller section of the treasure box, as shown in D, Fig. 2. This must be just the size of one of the boards of which Fig. 1 is made.

It can be seen now that if Fig. 1 is hinged on each end of the line F to the bottom of D, Fig. 2, then when B, Fig. 1, swings down, A, Fig. 1, will form a back to the smaller section of the treasure box; and when A, Fig. 1, lies flat in the bottom of D, Fig. 2, B, Fig. 1, will form a back to the box.

The dotted square shown at B, Fig. 2, shows the position which B, Fig. 1, will occupy when A, Fig. 1, forms a back to the box, as indicated by the dotted line A, Fig. 2.



E, Fig. 2, is the lid of the smaller section of the box.

The bonbons, flowers, etc., are placed between the two boards A and B, Fig. 1. When it is desired to show the box empty the board B is allowed to swing back into the box C, Fig. 2.

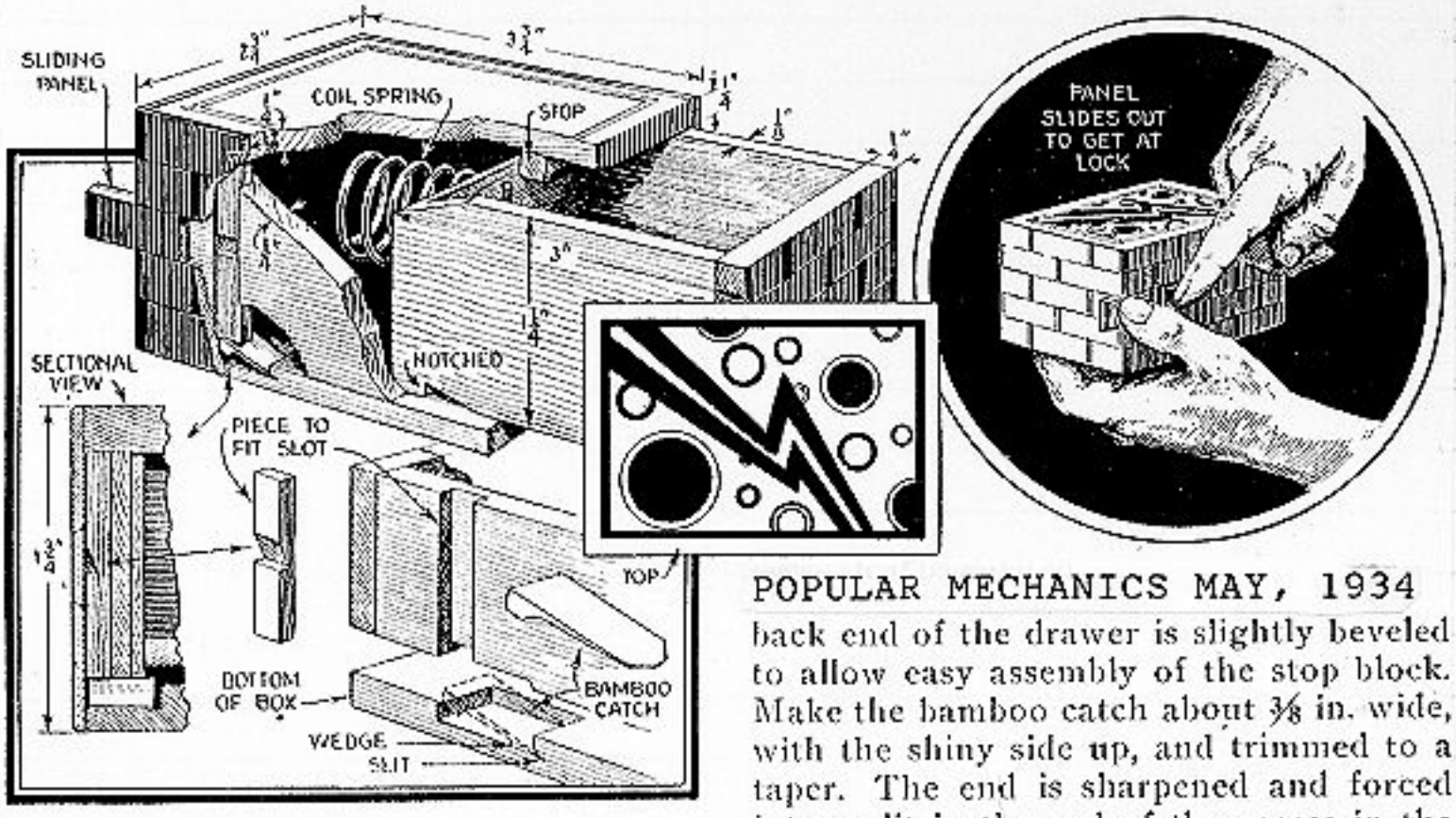
The inside of the boxes is painted black, which makes it impossible to detect the presence of the double back.

If it can be arranged to have the spectators all in front the larger of the two boxes can be dispensed with, as its only use is to hide the board B when it is necessary to show the box empty.

As the smaller section of the treasure box is kept facing the spectators, it would itself hide the board D, providing no one is behind the box.

If the larger or outside section of the box is dispensed with the magician, while he is showing the box empty and attracting attention to it with his right hand, may replenish the part B with his left hand either from his pockets or from a shelf under the edge of his table. This enables him to make the apparent capacity of the treasure box as great as he chooses.

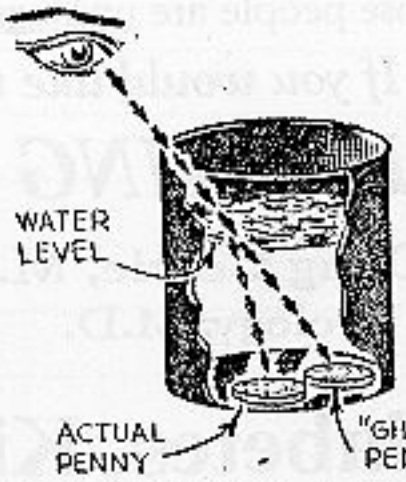
A Sliding Panel Conceals Lock of This Box



POPULAR MECHANICS MAY, 1934

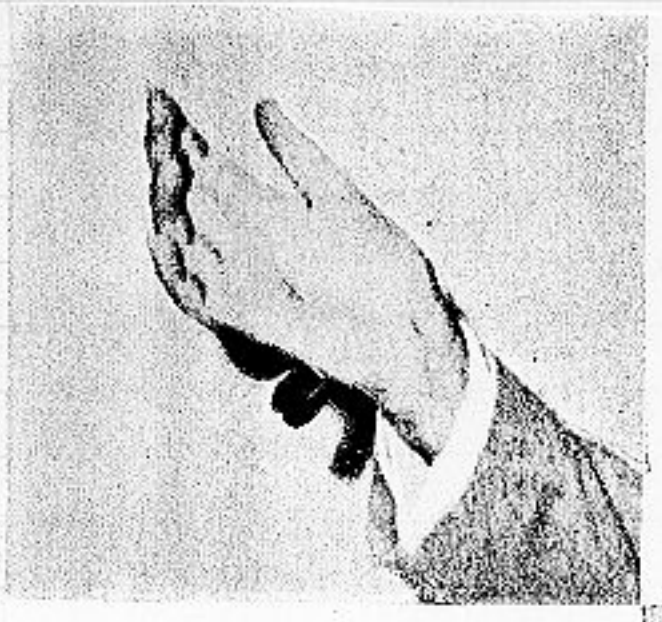
Besides being useful to keep stamps, change, cigarettes and other small valuables, this trick lock box will baffle your friends, but once the secret is learned the drawer pops open at a touch of the finger. The key is concealed behind a small sliding panel, and if your workmanship is neat this particular panel will never be suspected. Decorate the sides in a sort of checkered effect to conceal the outlines of the secret panel. This can be done by giving the entire box a ground coat and then painting the selected design in black or other colors. For the top, which has no hidden mechanism, use some confusing design that will detract from the sides. A rich yellow background with black figures will be very effective, especially if touched up here and there with gold. The box is made in the conventional manner except for the side containing the locking mechanism. This side is built up of ¼-in. stock with a 1/16-in. piece glued over it. The former is slotted to receive the key block, which is notched for the finger nail. This block depresses a bamboo catch, which disengages the notch in the drawer, permitting the coil spring to force the drawer outward. A stop is glued on the underside of the top, as shown in the cut-away drawing, to prevent the drawer coming out entirely and revealing the secret. The back end of the drawer is slightly beveled to allow easy assembly of the stop block. Make the bamboo catch about ⅜ in. wide, with the shiny side up, and trimmed to a taper. The end is sharpened and forced into a slit in the end of the recess in the bottom of the box. A small tapered block is glued beneath it to keep it above the floor of the box until depressed. When the unlocking mechanism has been tested out to your satisfaction, glue on the 1/16-in. covering piece, first having fitted the sliding panel.

Ghost of a Penny Trick of Refraction



• Refraction, or bending of light rays upon obliquely entering a medium of different density (air to water), creates a mirage. Place penny on bottom of an opaque container. Back away so eye just misses edge of coin. Add water carefully and penny's "ghost" comes into view. How's that for making money?—F. E. Ebel.

¶Insulation can be removed from enameled wire by drawing it between a folded piece of sandpaper.



Mystify your family and friends with

Homemade Hocus-

A professional magician introduces you to the fine art of conjuring with some baffling tricks that any novice can quickly master.

POPULAR SCIENCE OCTOBER 1954

1 HALF-DOLLAR VANISHES in effective bit of amateur magic. "I'm going to take this coin and put it here in my left hand," you say, flipping it into air. You miss the catch, and the coin "accidentally" bounces from your hand, as above, and falls to the floor. "Oops, sorry . . ." and you stoop as if to pick it up, going right on with your spiel meanwhile.



2 SECRET OF TRICK is that you only *pretend* to pick up coin. To get away with it, hold up other hand and focus attention on it by talking about it. Turn each side and point out it is empty. A joke aids the misdirection: "Of course," you quip, "the hand is completely unprepared and has no trap doors or detachable fingers."

IN EVERY conjurer's bag of tricks there are a few that anyone could do without practice, if he only knew the secret. From my own repertoire I have taken those that follow. You can make the simple accessories needed, and learn to perform them, in half a day.

Perhaps you have supposed that sleight-of-hand performers baffle you because "the hand is quicker than the eye." Actually most magic depends, not on speed, but on misdirection—the art of making you look the wrong way at the right time.

My favorite trick uses pure misdirection to make a coin disappear. As if by accident, you drop the coin. Divert the spectator's attention as you reach down for it, and you keep him from seeing you only pretend to pick it up. Thus you have created the illusion that the coin is in your hands. Show they are empty, and it "vanishes."

Once you know the secret, does this seem too transparent to fool anyone? Don't be misled. In eight years as a professional magician I have performed this trick thousands of times without once being detected! So can you, if you follow the directions on these pages.

How can so simple a deception succeed? Note its timing. When you drop the coin and feign retrieving it, an onlooker suspects nothing because he thinks your



3 AS IF YOU HAVE COIN in right hand when you stand up again, feign transferring it to left hand, which you close tightly. Opening right hand, you show it is empty, "proving" you put coin in left hand. Actually it is still on floor, but gestures with hands have drawn attention from it. To conceal it, step on it casually, without looking down.

Pocus

By Tom Gaston





4 NOW THAT ONLOOKER is convinced your left hand holds the coin, you say, "So you can be assured that I do not use my sleeves, will you please just hold my wrist throughout the trick?" You make a show of grinding your fingers against your palm, as if you were crushing the coin into nothing.

5 COIN IS GONE! Open one finger at a time. Spectator above thinks others may hide coin, until all are raised. Give her time to start wondering about the back of your hand, then show it to her.

trick has not yet begun. By the time he watches you closely, and holds your wrist, he's already been tricked. And you take care not to tell him beforehand that you will make the coin vanish. That is the first rule of magic: *Don't reveal in advance what you are going to do.* For all the spectator knows, the coin may change color, become an egg or sing a song; its disappearance catches him off guard.

He will begin looking for an explanation, but the coin is safely hidden beneath your foot. Go on to another trick, or wait and give him a few minutes to forget all about your having dropped the coin. Then offer to tell him how you made it disappear. You flipped it into your sleeve, you say, before you let him grasp your wrist.

"It passed up my left sleeve," you explain, "across my chest, and down my right trouser leg into my shoe. You look as if you doubt me. I'll prove it." You snap your fingers. "The coin has now passed through the sole of my shoe, and is under my right foot." Wait for him to challenge you. He will, in short order. "You still don't believe me? Watch closely." Slowly you draw back your foot and reveal the coin lying there. Just watch the bewilderment on his face!

For a baffling pocket trick, pry loose the bottom of a

Here's another way to make a coin vanish:



DISAPPEARING DIME, held between thumb and forefinger *(a)*, is tethered to middle finger by invisible loop of hair. Flick of fingers throws it to back of hand *(b)*, where it hangs out of sight *(c)* while audience is shown empty palm. This is called flash magic.

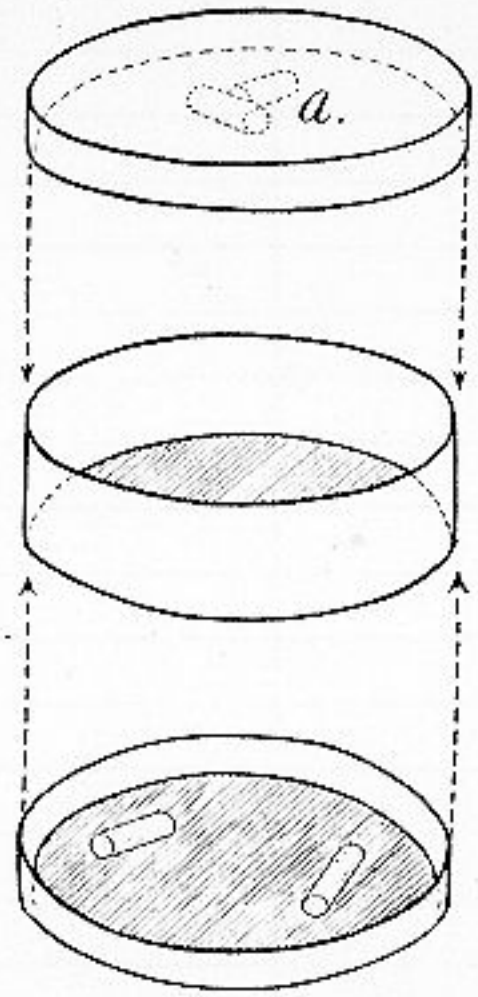
drum-shaped thumbtack box so that it slips on and off just like the top. Steam the label off the top, or paste an identical one on the bottom, so that top and bottom look exactly alike. Glue two small corks inside one of the lids, making sure that no glue shows. Put two similar corks in the box, loose; fit on both lids, and you are ready.

Lift the lid to which the corks are glued. The two loose corks are seen. Close the box, blow your magic breath on it, lift the lid again, and the two corks have become four! Repeat the act, and again there are only two corks. Of course, you have secretly turned over the box each time.

Go through this sequence only once. For the second rule of magic is: *Never do the same trick more than once in an evening.* Learning what to watch for, a spectator might catch on. Put the cork trick in your pocket before anyone thinks of asking to examine the box, and go on to another stunt.

For instance, announce that you have a "sex indicator," that will tell the sex of a person whose palm is beneath the device. You produce a small object tied to an eight-inch length of thread—I generally use a toy skull or horseshoe, but a finger ring or pebble would do as well. Hand it to someone in the group, instructing him to hold the loose end of the thread and let the small weight swing freely like a pendulum. Tell him that over a man's hand, it will swing straight back and forth; over a woman's hand, it will describe a circle.

Strangely enough, so it will! Knowing what it's supposed to do, the man holding it will *subconsciously* swing it just as you have described. He'll swear in all honesty that he is not doing it deliberately, and will be the most amazed person of all.



MAGIC CORKS become two or four at will, in this thumbtack box with a loosened bottom. Two corks are glued at *a*; two others are loose. How many the spectator sees depends on whether you lift top or bottom lid of box.

Or try this quickie stunt at a party: There ought to be confetti for the occasion, you say, and you'll see what you can do. You reach upward, rub your fingers together, and multicolored confetti floats through the air!

To prepare the trick, make a hole as large as your finger in each end of a white egg. Blow out the contents, wash the shell thoroughly with bright-colored dye or water color, and let it dry. Fill it with colored confetti and paste red tissue paper over the holes. When ready, drop it in your sleeve.

Show your hand empty. Then drop it to your side while you are talking about confetti, and the eggshell falls into your waiting fingers. Keeping it hidden behind your hand, reach into the air and pretend to grab something. Gaze intently at your upraised hand, crush the eggshell with your fingers, and let the confetti stream past their tips. Since the pulverized shell falls to the ground with the confetti, your hand will be empty.

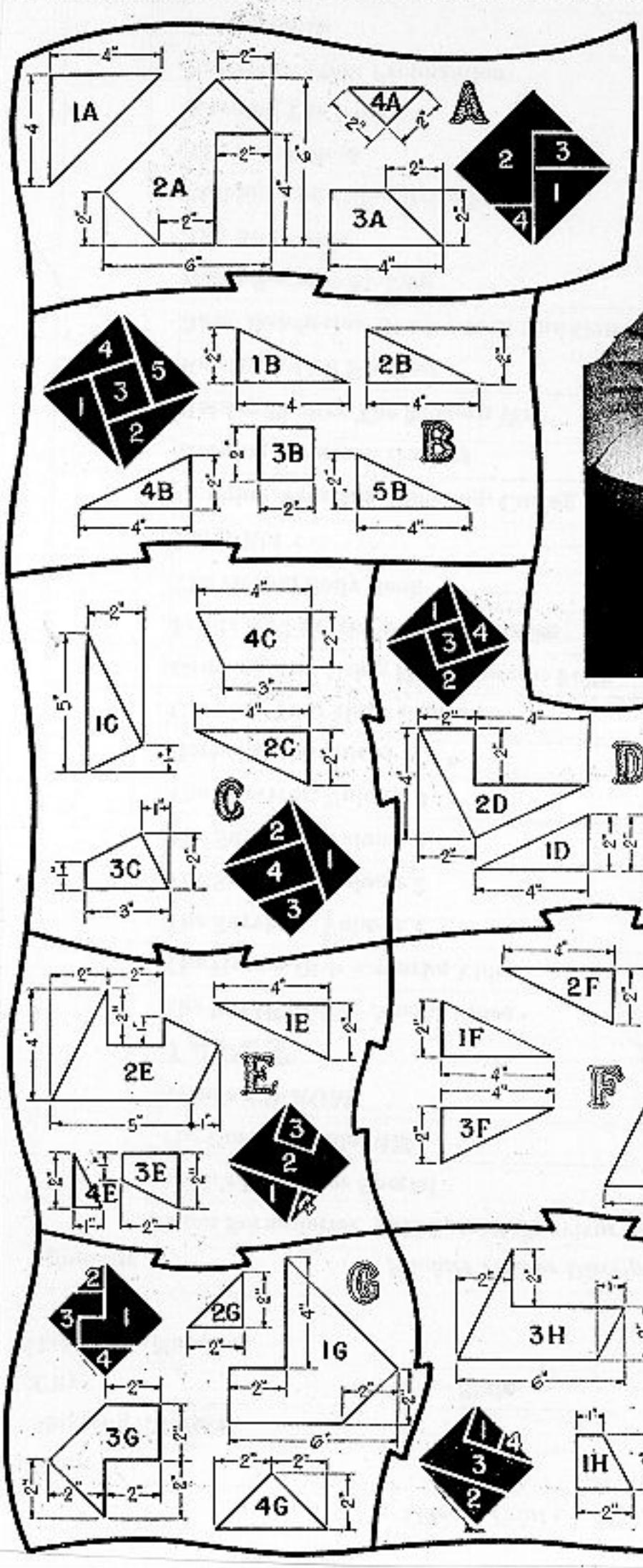
Tricks in which objects appear and disappear without any covering handkerchiefs are called "flash magic." Here's a flash way to make a coin vanish. Make a loop of a six-inch strand of human hair. Stick the ends to a coin with wax. Insert your middle finger in the loop. Show dime held between thumb and forefinger. Quickly flick coin between fingers. Then spread them wide. The coin drops from sight behind your hand. To an onlooker, it just vanishes.

END

EIGHT TRICKY PUZZLES IN SPARKLING PLASTIC

POPULAR SCIENCE NOV. 1946

Here Are Eight Simple-Looking Puzzles That Will Prove Easier to Make Than to Solve. Sheet Plastic Either Clear Or Colored Can Be Used. Parts Are Cut on a Scroll Saw





FOR AN easy way to show off your craftsmanship, and entertain your guests in the bargain, just make up one of these provocative puzzles and leave it in a prominent place on a living room table. You will soon see that no one is too young or too old to try solving what appears to be a very simple block puzzle.

There are eight separate puzzles on this page. Seven of them consist of only four pieces which can be arranged to produce a square. One of the puzzles takes five pieces. While almost any material can be used for each puzzle, colored or clear plastic will be the most appealing. If all eight puzzles are to be made, some provision will have to be made to distinguish the pieces of puzzle A from those of B, C, and the others. One method is to use a different color of plastic for each puzzle. Another method is to engrave the letter A on all pieces for puzzle A; mark B on all pieces for puzzle B and so on. Before laying out the various pieces on the plastic, it is best to prepare full-size paper patterns and then arrange them on the plastic so as to reduce waste to a minimum. The pieces can be made from leftover odds and ends or an entire puzzle can be laid out in a square.

After the patterns have been arranged and glued to the plastic, the pieces are cut to shape on a jig saw or by hand with a coping saw. The paper can be removed from the sawed pieces with clean water. Saw marks are removed from the edges of the plastic with a file and No. 4/0 sand-paper. A buffing wheel charged with jeweler's rouge can be used to polish the edges.—*Dr. Harry Langman.*



STATIC IS A HAZARD in the presence of a flammable liquid or vapor. The sparks can cause a fire when you dip or rinse clothing in gasoline or volatile cleaning fluid. Sparks produced by combing hair have ignited shampoos.

You can demonstrate this danger. Have a friend stand on inverted glass jars to insulate him from the ground. Give him a metal spoon and rub the back of his jacket briskly with a vinyl-plastic phonograph record. Then have him hold the spoon near a few drops of carbon disulphide in a metal bottle cap supported on an upturned cake tin. A spark will jump to cap, firing the fluid. *(Caution: keep open bottle away from flame.)*

POPULAR SCIENCE JANUARY 1952

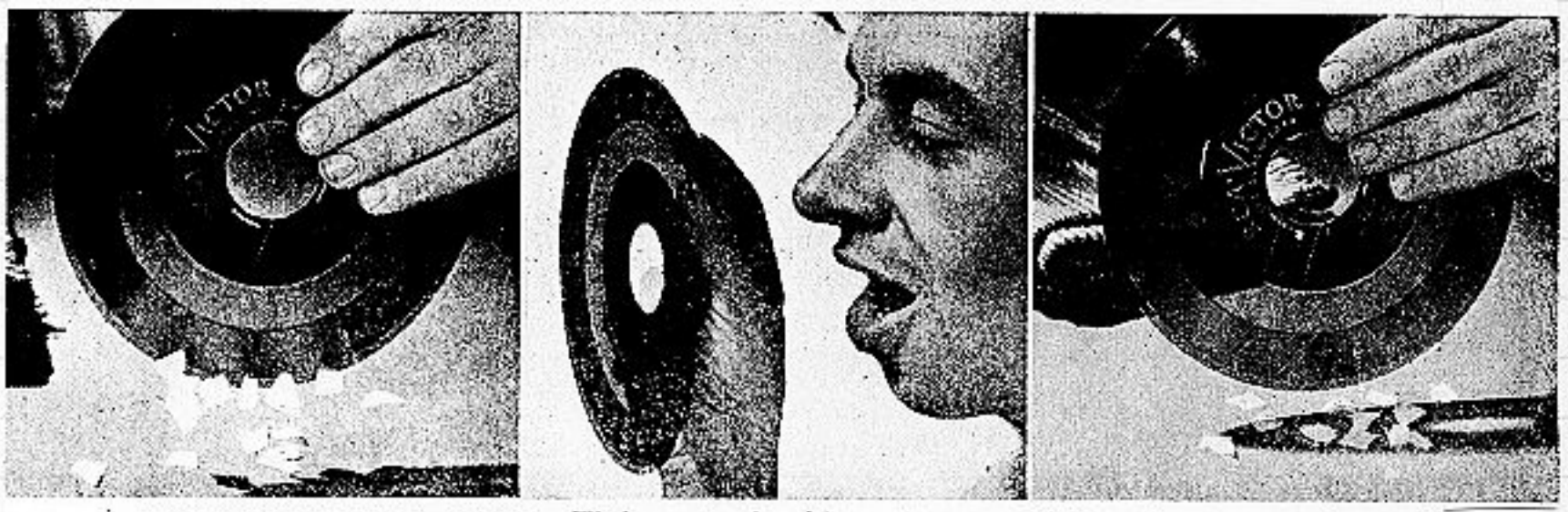
Sparks from Your Fingers

Static is annoying at this time of the year. But these experiments put it to work for an evening's fun.

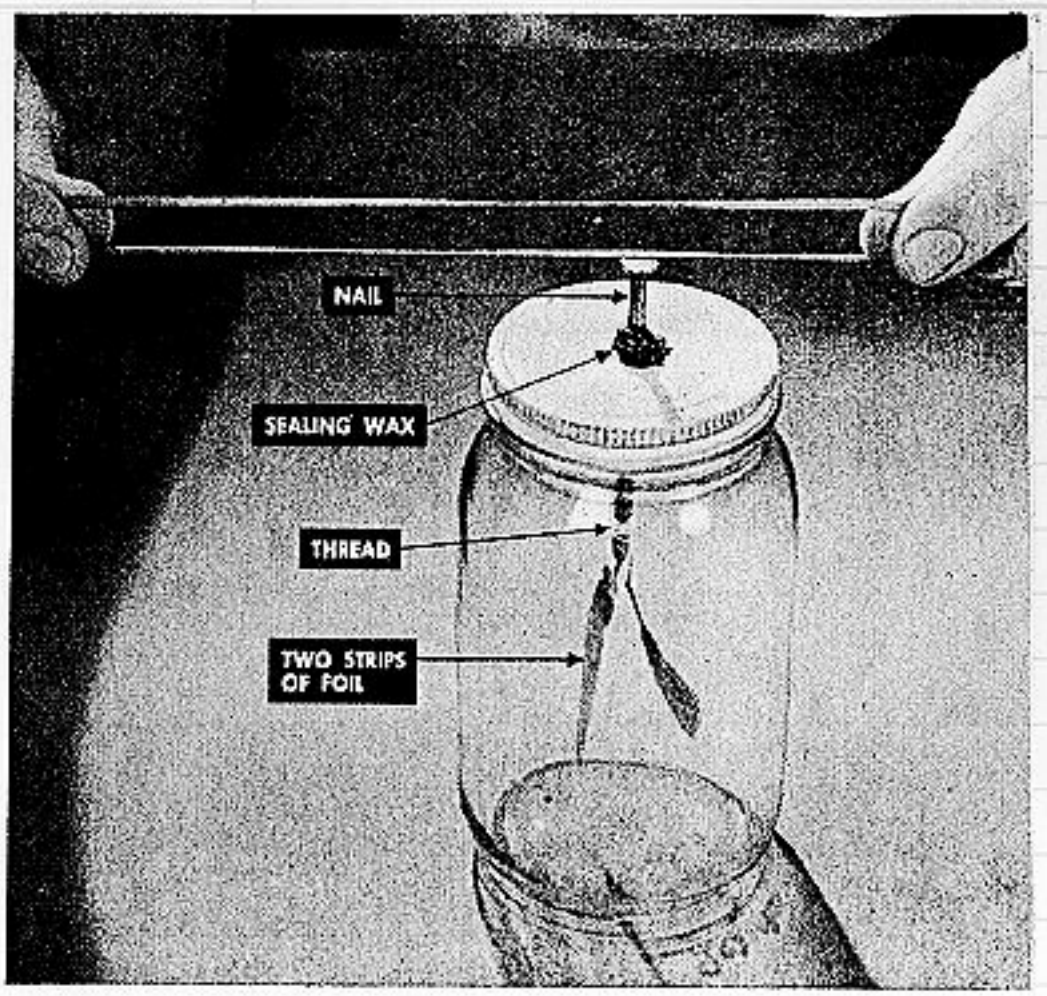
By Kenneth M. Swezey

ANY way you look at it, static electricity is a nuisance. It causes unwelcome dust to hug your phonograph records. Its snapping spark makes you jump if you touch metal while riding on plastic seat covers. It brings crackles from your radio. And, worst of all, it can touch off a fire or explosion if conditions are right.

This is the favorite time of the year for static to play its pranks. In January, low indoor humidity leaves surfaces dry, and static charges build up. In June weather, high humidity spreads a film of conductive moisture, draining away the static as fast as it forms.



MOISTURE ELIMINATES STATIC. With a vinyl record and scraps of tissue paper you can prove it. Rub record with wool cloth and hold it near paper scraps. They will jump to record (left). Then remove paper and blow your moist breath over surface of record (center). Now rub record with wool cloth again and try to pick up the paper. You'll find you can't (right). This time the static has drained away through your hand.



WHY TIRES MAKE STATIC. While you drive, tires and tubes are constantly flexing. This stretching and contracting of rubber charges it with static. One result may be crackles in your car radio. The mere making and breaking of contact between tires and road also build up a charge. An electroscope like this one will show how rubber produces static. After stretching a rubber band, draw it across the electroscope knob. The farther you draw it, the farther the tin-foil leaves will spread apart. Next discharge the stretched band by drawing it across a grounded pipe. Let band contract, and draw it again over knob. Leaves will come together. Contraction also charges band, but charge has opposite polarity.

If you understand static, you'll have a better chance of forestalling its tricks. Here is a series of experiments to show you what it's up to.

What is static? It usually is the result of separating two substances that have been in close contact—a comb from your hair, a belt from a pulley. While the objects are in contact, free electrons pass from one to the other. After they are separated, the object that has lost electrons carries a positive electric charge, the other a negative charge.

If the object is a good conductor, the charge leaks off to the ground as fast as it forms. If the object is an insulator, the charge may attain an amazing value. When you comb your hair on a dry day, the potential behind the crackle may reach 10,000 volts. Your car may build up a 40,000-volt charge from rolling along a dry road.

Friction is one way of producing close contact. But actual friction is not needed to produce static. For instance, a thoroughly dry photograph is charged with static when you peel it off a ferrotype plate.

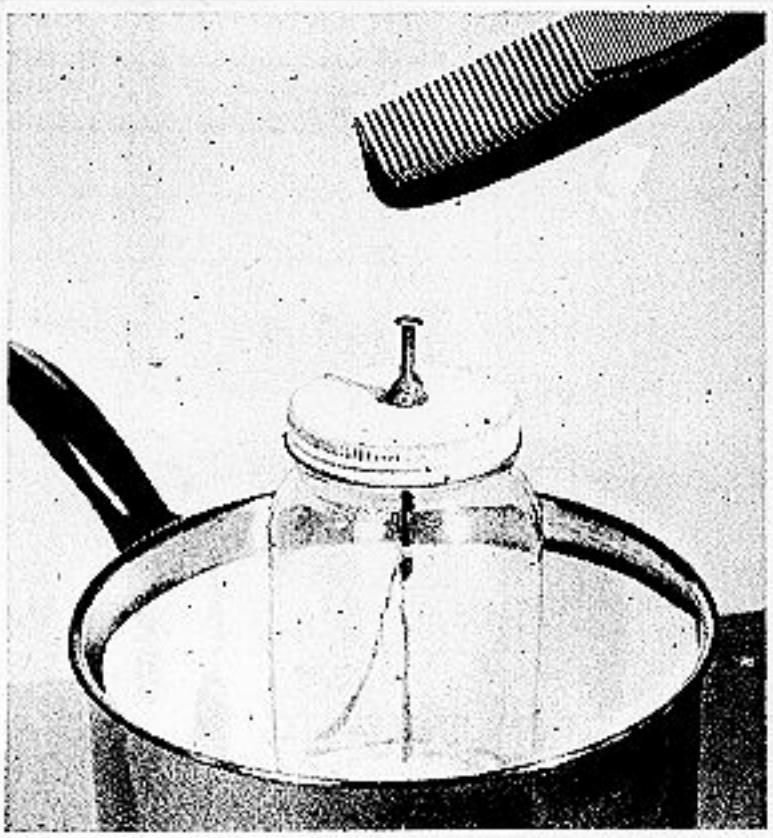
How to eliminate static. An antistatic powder is now in common use in automobile inner tubes. Made of a conductive material such as carbon black, it is blown into the tubes to help drain off the charge built up by flexing. Some inner tubes have an antistatic lining.

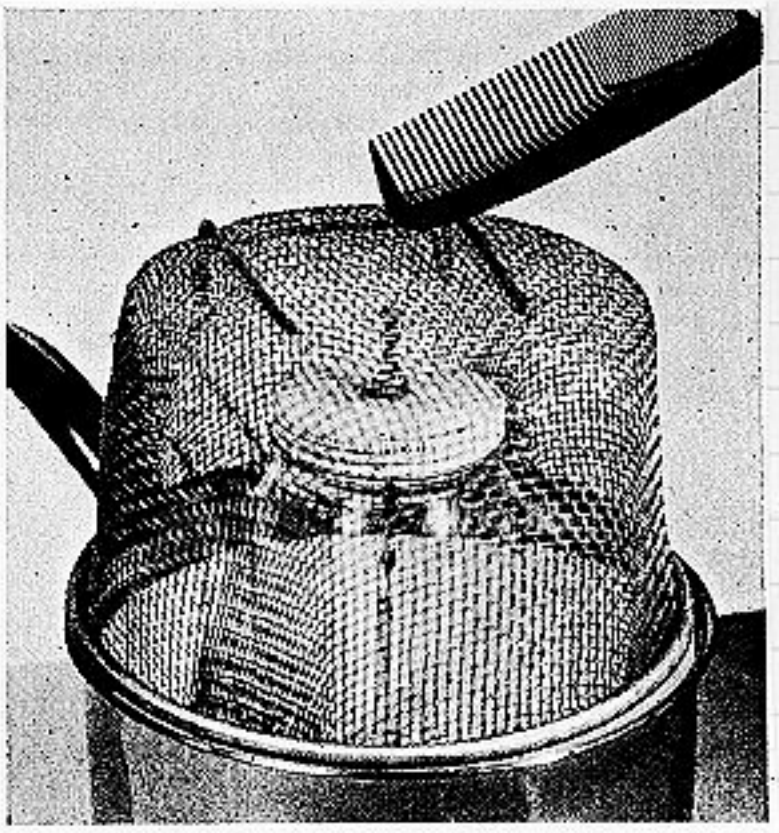
Because moisture drains off static, humidification is a common method of static elimination. Extra moisture may be supplied to

STATIC IN PRINTING PLANTS. You may have seen small gas jets near the paper where it leaves a press. These flames have the job of eliminating static from the paper.

The homemade electroscope will show how this works. Charge the electroscope by pulling a comb through your hair and touching it to the electroscope knob. If you now bring a candle near the knob, the leaves will come together. The static is discharged because chemical action in a flame produces ions, electrically charged molecules. Ions of opposite charge to the static neutralize it.







WHERE TO HIDE FROM LIGHTNING. The best spot is inside an enclosure made of conducting material—an auto or steel-frame building. Since lightning is basically just static grown up, you can demonstrate this with a kitchen pot and wire strainer.

Set the electroscope in the pan, run a comb through your hair to charge it, and bring it near the knob. The foil leaves will separate, showing they are charged. Now discharge the leaves (by bringing a candle flame near them) and cover the electroscope with the strainer, being careful that it doesn't touch the knob. Bring charged comb near the knob. The electroscope will not be affected, for the strainer shields it.

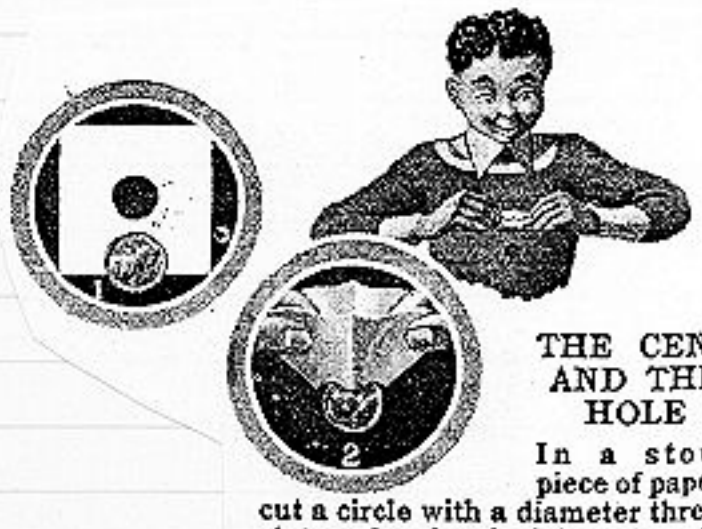
the air (from which it will condense) or applied directly to the surfaces.

Vinyl records, plastic seat covers and leather substitutes used for upholstery are subject to static because they repel water. Static-eliminating solutions to be wiped or sprayed on such materials generally consist of a water-attracting substance such as ethylene glycol or glycerine plus a trace of a conducting chemical, sometimes just common table salt.

To remove dust from vinyl-plastic records without electrifying them further by rubbing, some manufacturers suggest that you wipe them with a soft cloth that is just barely damp.

How to make an electroscope. For some of the accompanying experiments, you will need an electroscope. You can make this from a glass jar, its metal cap punched with a ½″ hole, a large nail, thread, sealing wax and foil from a chewing-gum wrapper. The paper rubs off the foil easily after soaking in alcohol. The nail must be well insulated from the jar cap by the wax. An accompanying photo shows the assembly.

Any charged body brought near the knob (the nailhead) of your electroscope will cause the foil leaves to repel each other and fly apart. If you touch the body to the knob and then remove it, some of the charge will remain on the leaves, holding them apart.



THE CENT AND THE HOLE

In a stout piece of paper, cut a circle with a diameter three-sixteenths of an inch less than the diameter of a penny. Ask anyone to pass a penny through the hole without touching the penny or tearing the paper. When he has given it up, fold the paper exactly across the center of the hole. Ask someone to drop in the penny, and when it is resting just above the hole, bend the corners of the paper slightly upward and the penny will fall through.

Try These PARTY MAGIC Stunts

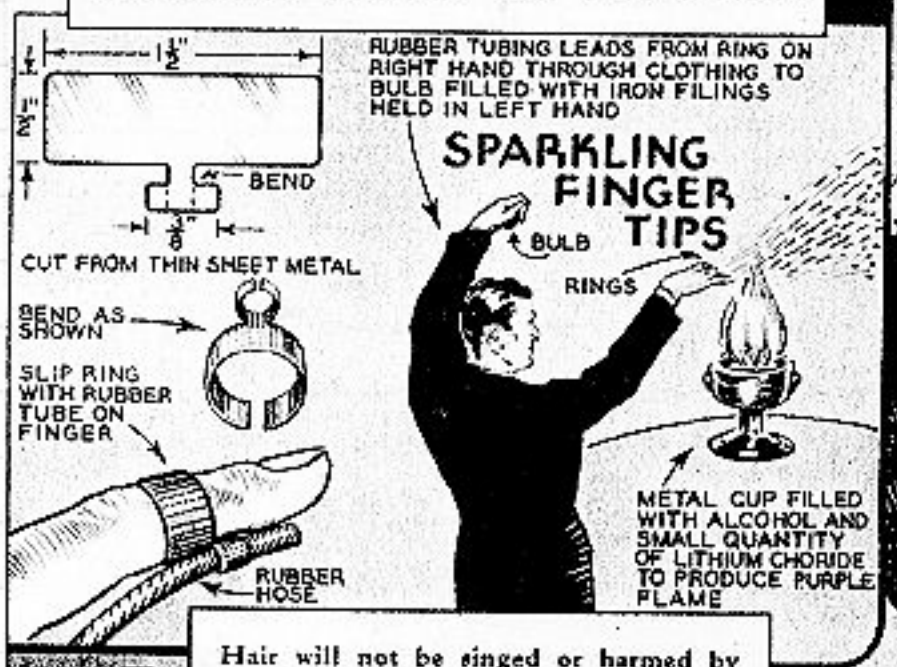
MODERN MECHANICS, OCT. 1935





The amateur magician arranges four candles as shown above, lights the first two, then fires a blank pistol. This puts out the first two, but lo! the second two are now burning. Another shot extinguishes these. The secret —warm air from the pistol ignites the phosphorus grains pressed against wicks of the last two candles. Perform trick quickly to prevent spontaneous ignition.

The magician touches a match to liquid in a metal cup, then waves right hand near purple flame to make finger tips sparkle mysteriously. Secret is illustrated below. Iron filings are blown into flame by rubber tube.



Hair will not be singed or harmed by contact with flame if first soaked in the solution described below. Many spectacular fire demonstrations are possible.

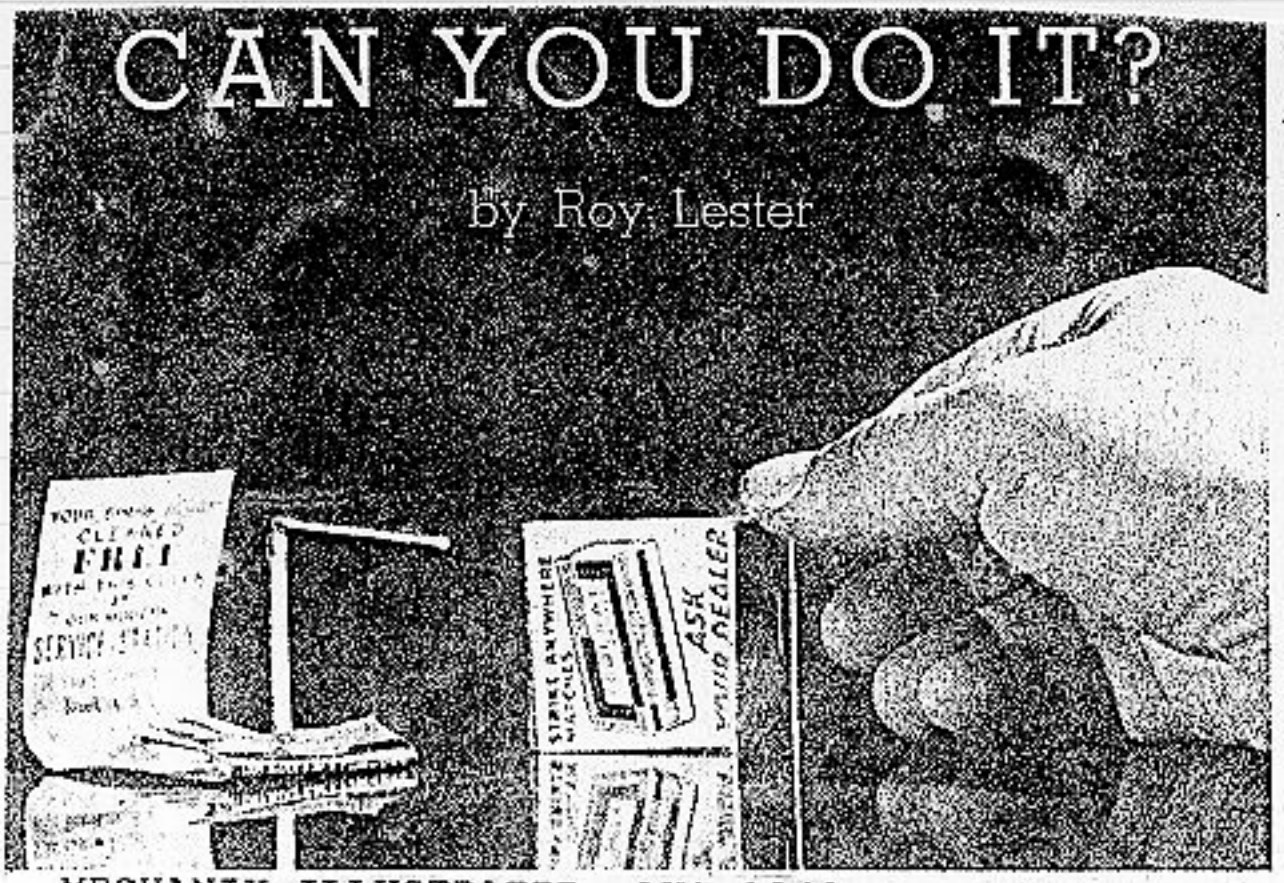




To show that you can make water burn, add a few drops of sulphuric acid to a tumbler of water, boil the mixture violently for five minutes (to give to the room the atmosphere of a chemical laboratory), then add a few drops of amylacetate, a colorless liquid, allow to cool, and pour into a kerosene lamp. The wick will burn! The secret—amylacetate floats on water and burns like kerosene. Water is not changed.

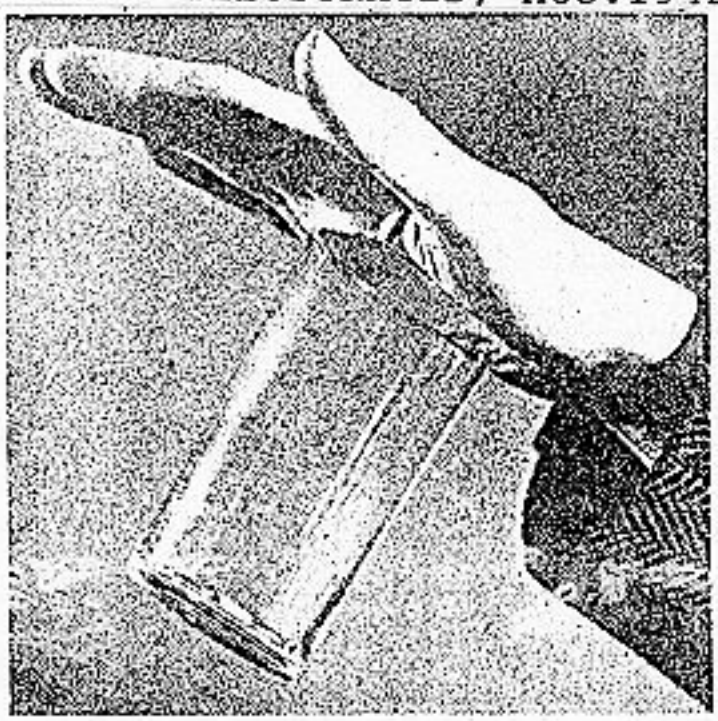
CAN YOU DO IT?

by Roy Lester



Know how to make a safety match defy gravity like this? Simple—fold a match perpendicular, support the base of the defier with a match book. Light the heads with a third, then almost at once blow out the flame. Remove the support and the match will remain horizontal, the charred heads clinging.

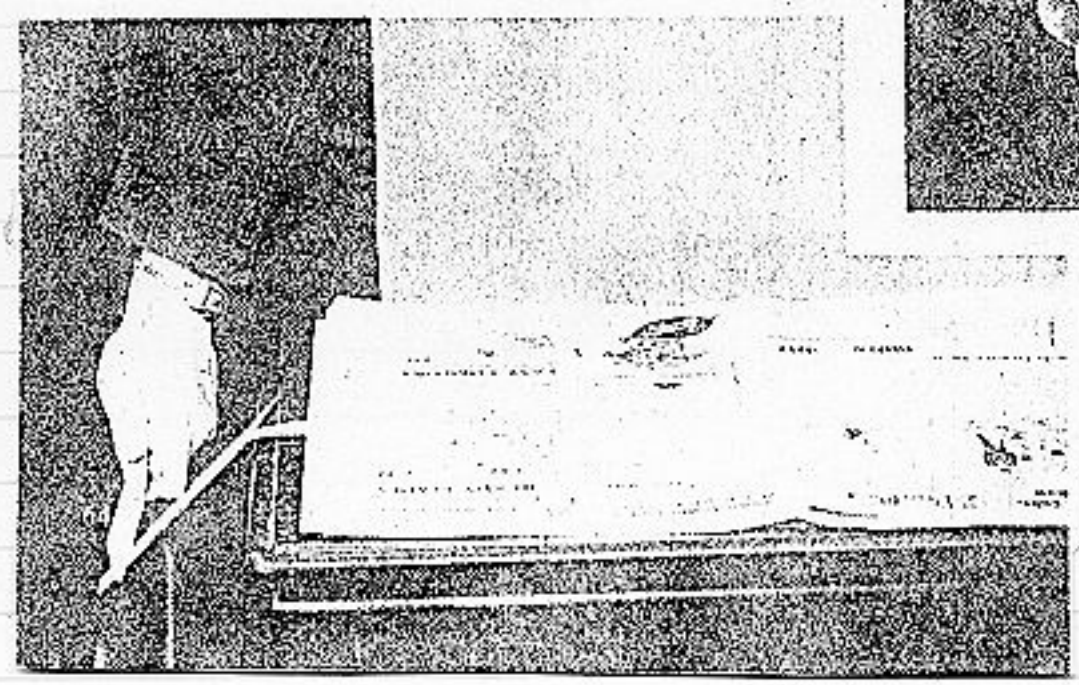
MECHANIX ILLUSTRATED, AUG. 1942



Drop a lighted match in a tumbler, cover tightly with your palm. Flame, exhausting oxygen, goes out and the vacuum created draws in skin. Glass hangs to the hand securely.



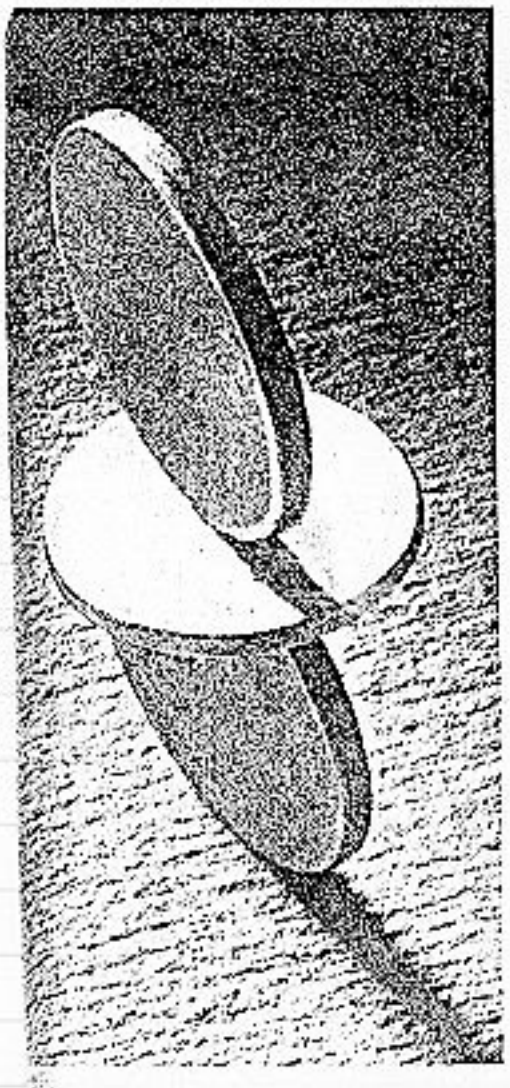
Coin dance. Place wet coin on bottle's mouth, grasp bottle. Hands' heat expands air in bottle, causing the coin to lift.

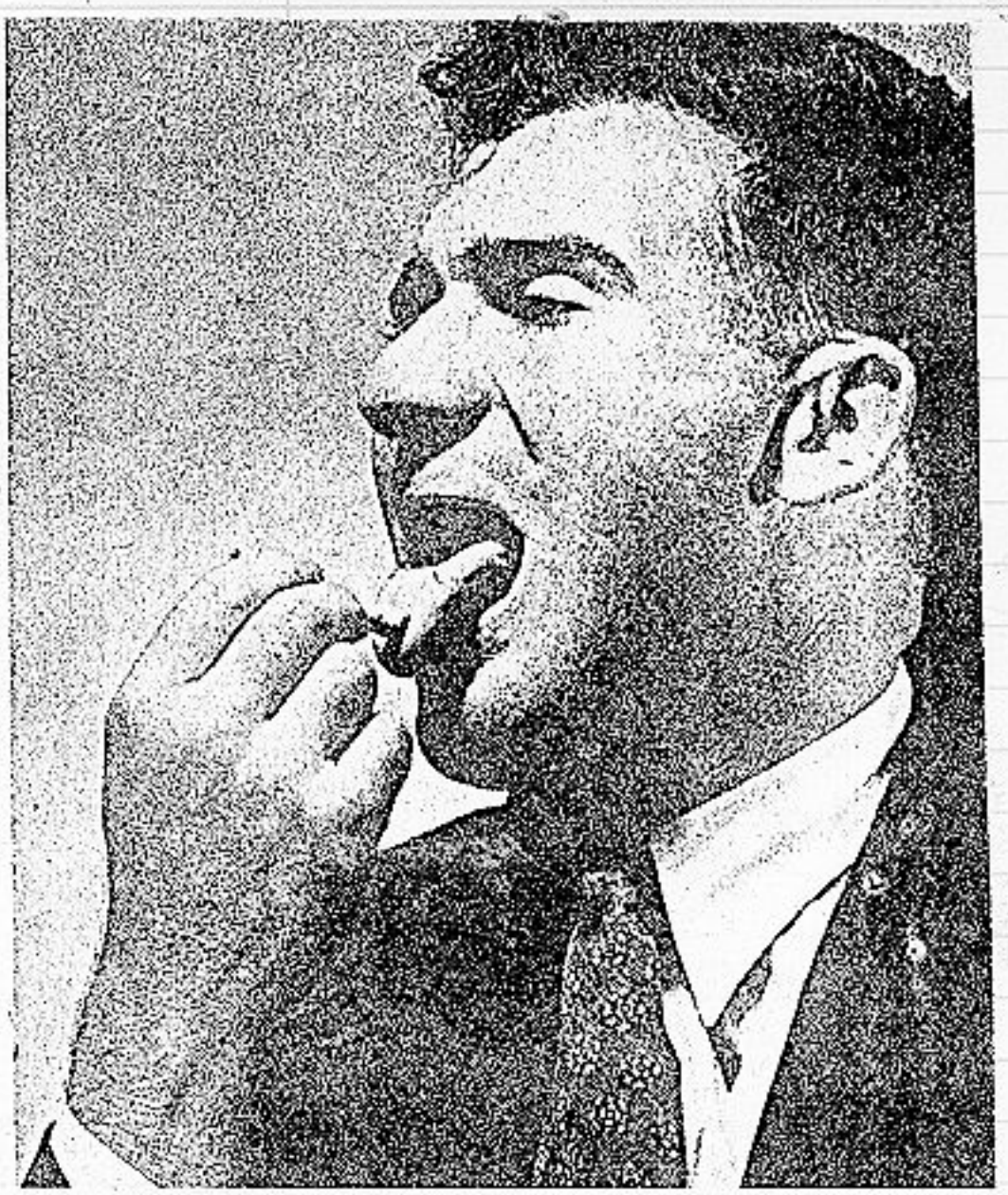


Lay ruler over table edge, cover with newspaper, strike it. It'll break because air pressure on paper holds ruler end.

Baffling but easy tricks for bar and parlor fun—and profit!

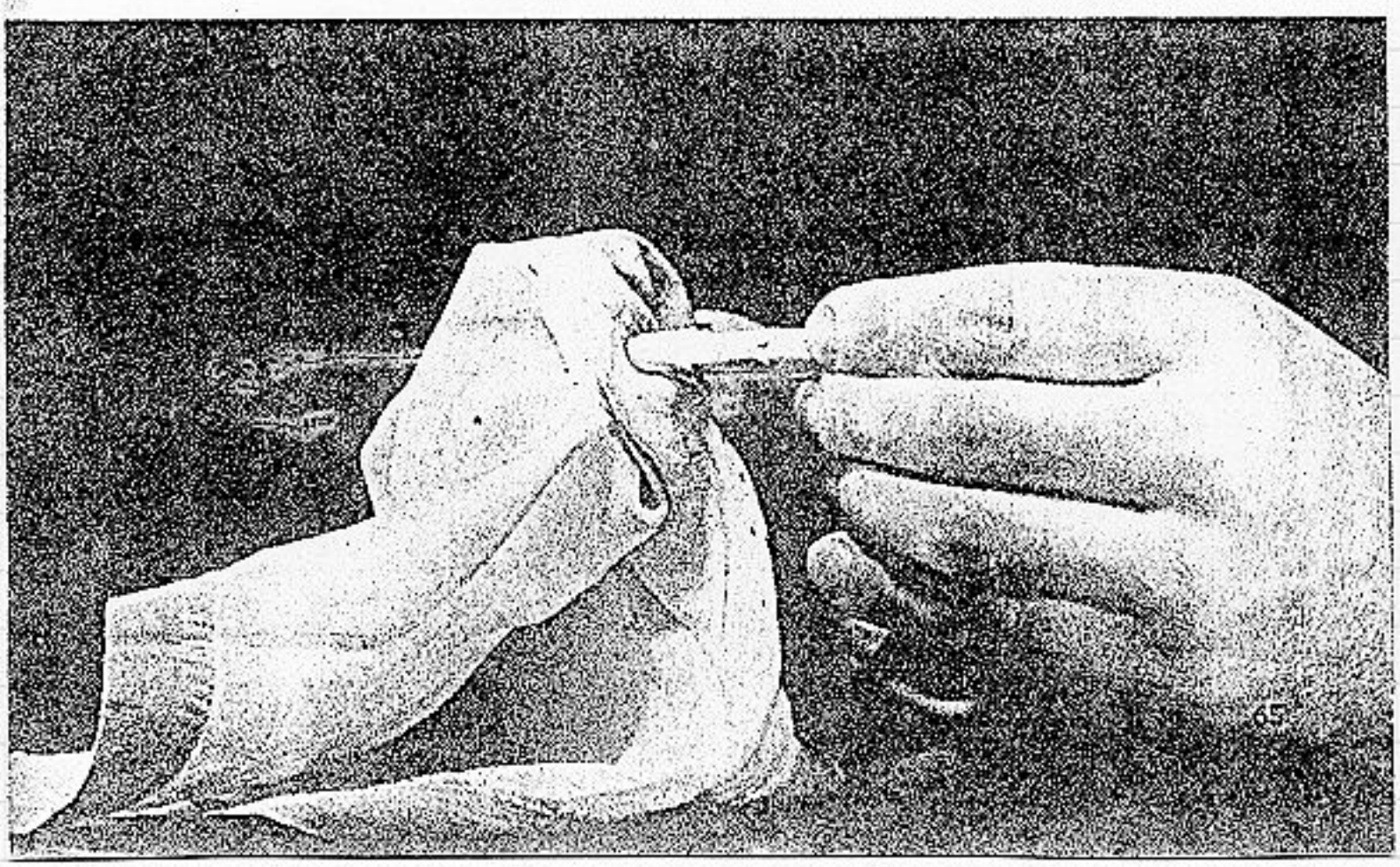
Below: Hands steady? Try balancing a nickel on edge, then put a dime across it, and another nickel. (Slugs are shown, due to laws regarding representation of money.)

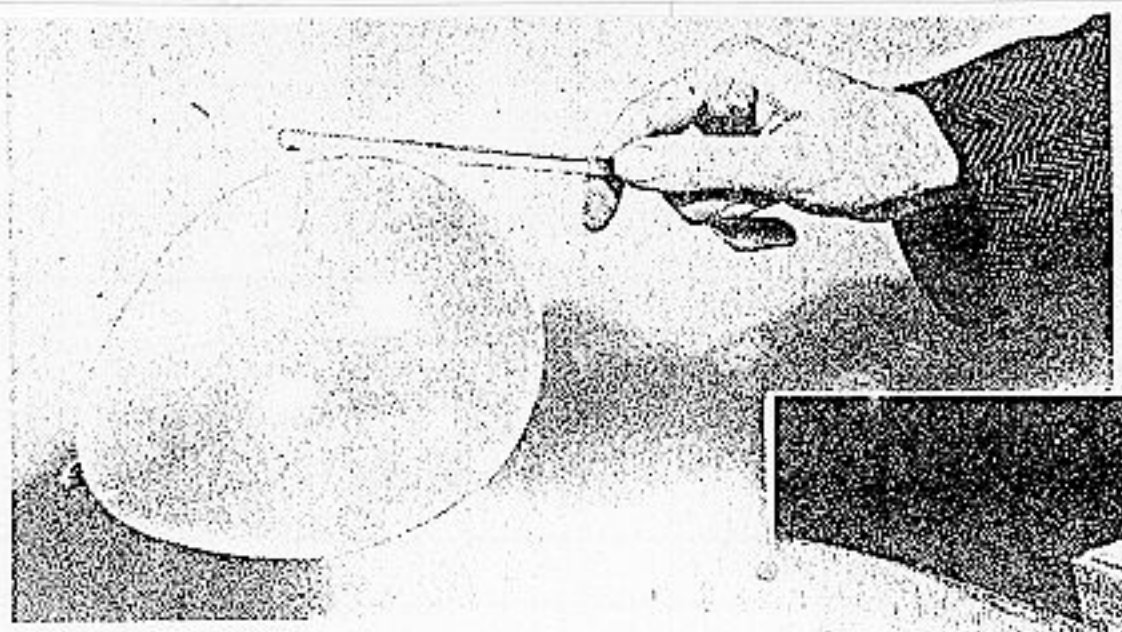




Ouch, butting a cig that way hurts! Not if you know the trick of coating the tongue thoroughly with saliva first. Dampen out the cigaret glow gradually.

Stub a cigaret in a napkin without burning it? Sure. Put a half-dollar underneath first. The metal coin absorbs the heat, prevents its affecting the cloth.

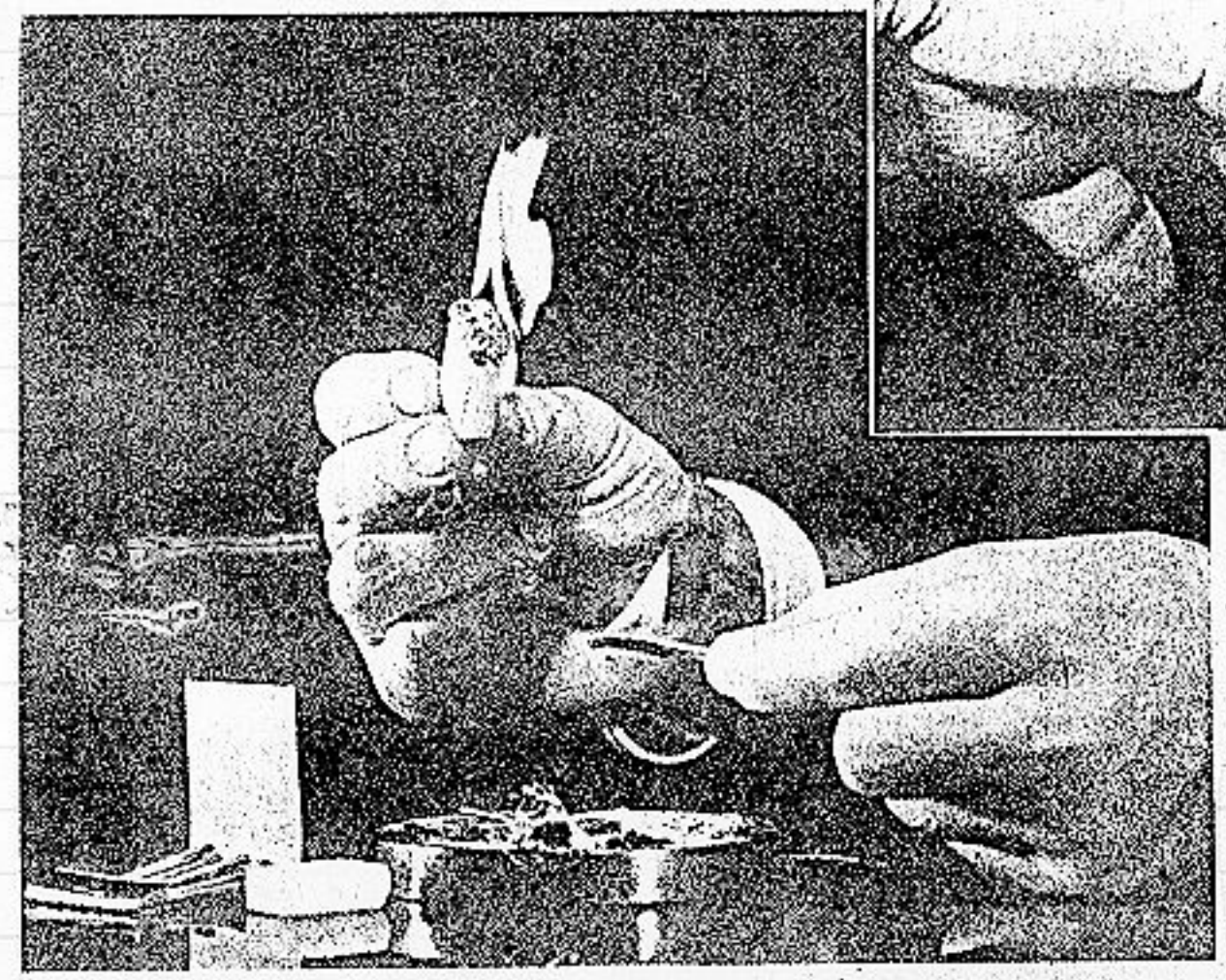




Above: This trick is a sure magnet for attention: rub a glass rod on your suit, do the same with an inflated balloon. Placed together, the rod will act as a magnet for the balloon.

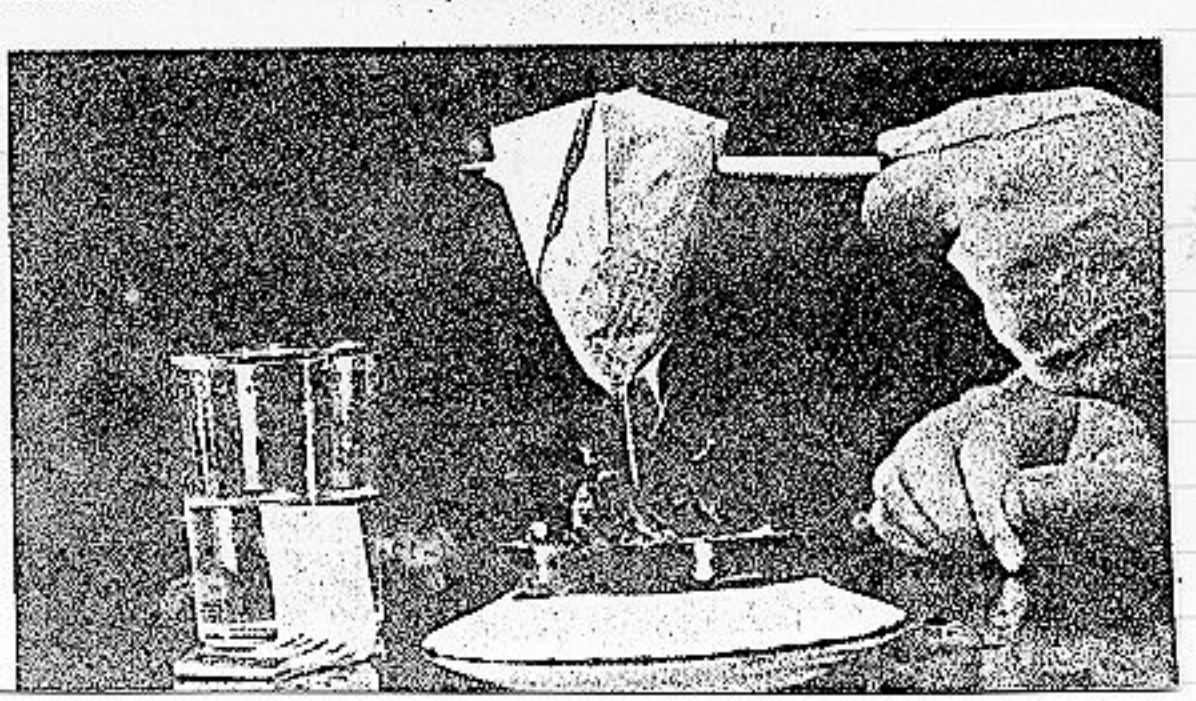
Below: Lay a match box on the back of your hand and close the cover so it pinches the skin. Bending fingers will cause box to stand or lie down. No, there's no pain.





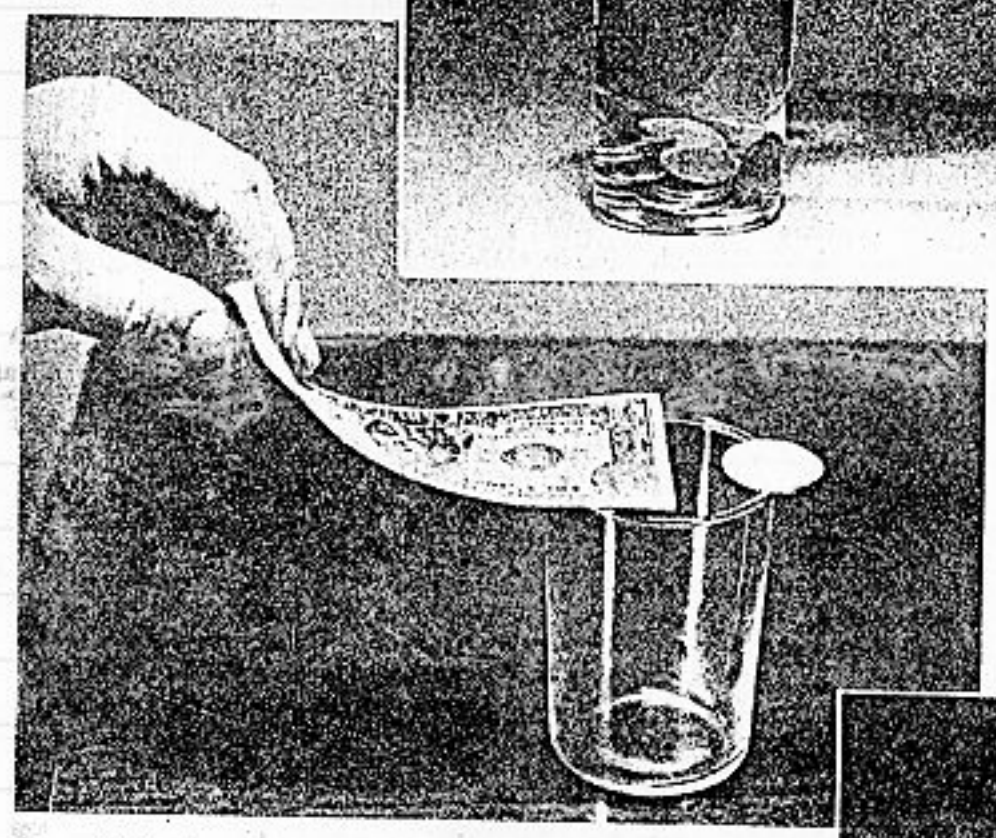
Left: Don't try this unless you cut two lumps from tomorrow's ration. Cigarel ashes on sugar act as a catalyst, enabling it to burn. Normally, it won't.

Right: Ever boil water in a sheet of paper? Easy: fold it into a cone, suspend it from a pencil over heat, which the water absorbs before it can act on the paper.

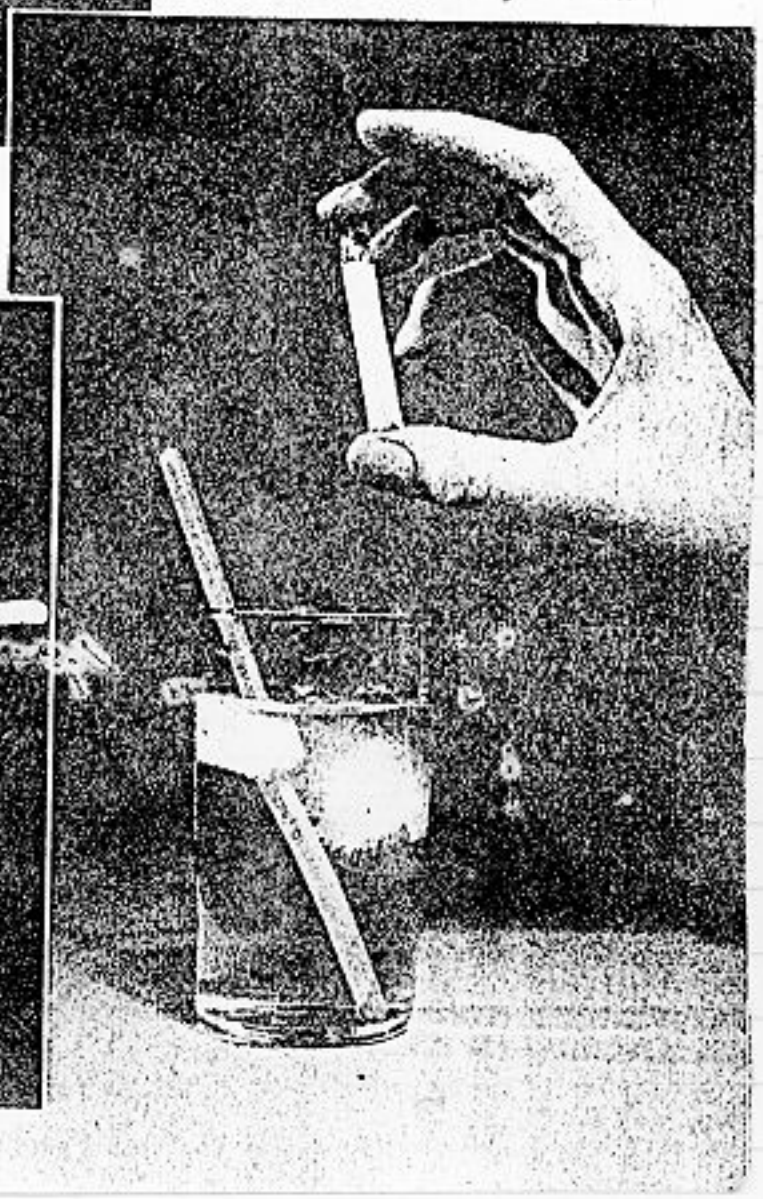




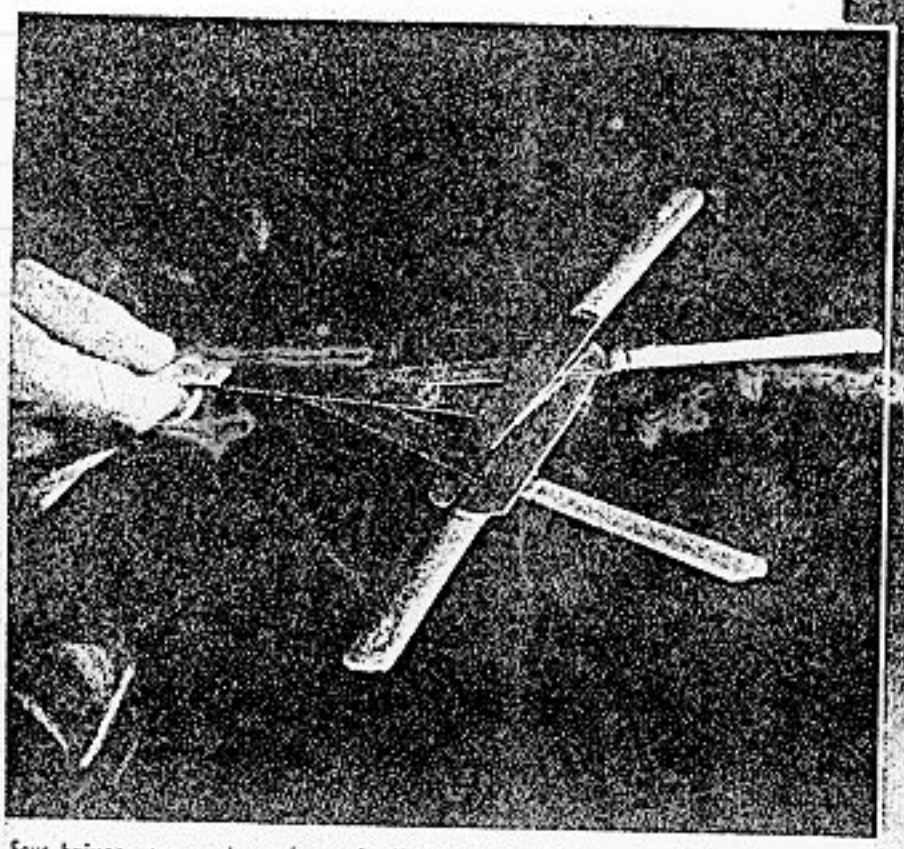
Right: It can't happen, you'll say. Ah, but watch. Into a tumbler full of water you can drop as many as 40 nickels (slugs here) without overflow due to the property of nickel of making water adhere closely to the surface. It's a sure bet!



Below: Hold your thumb and forefinger around an iced drink until very cold. Then you can pick up a cigaret like this without feeling the fire.

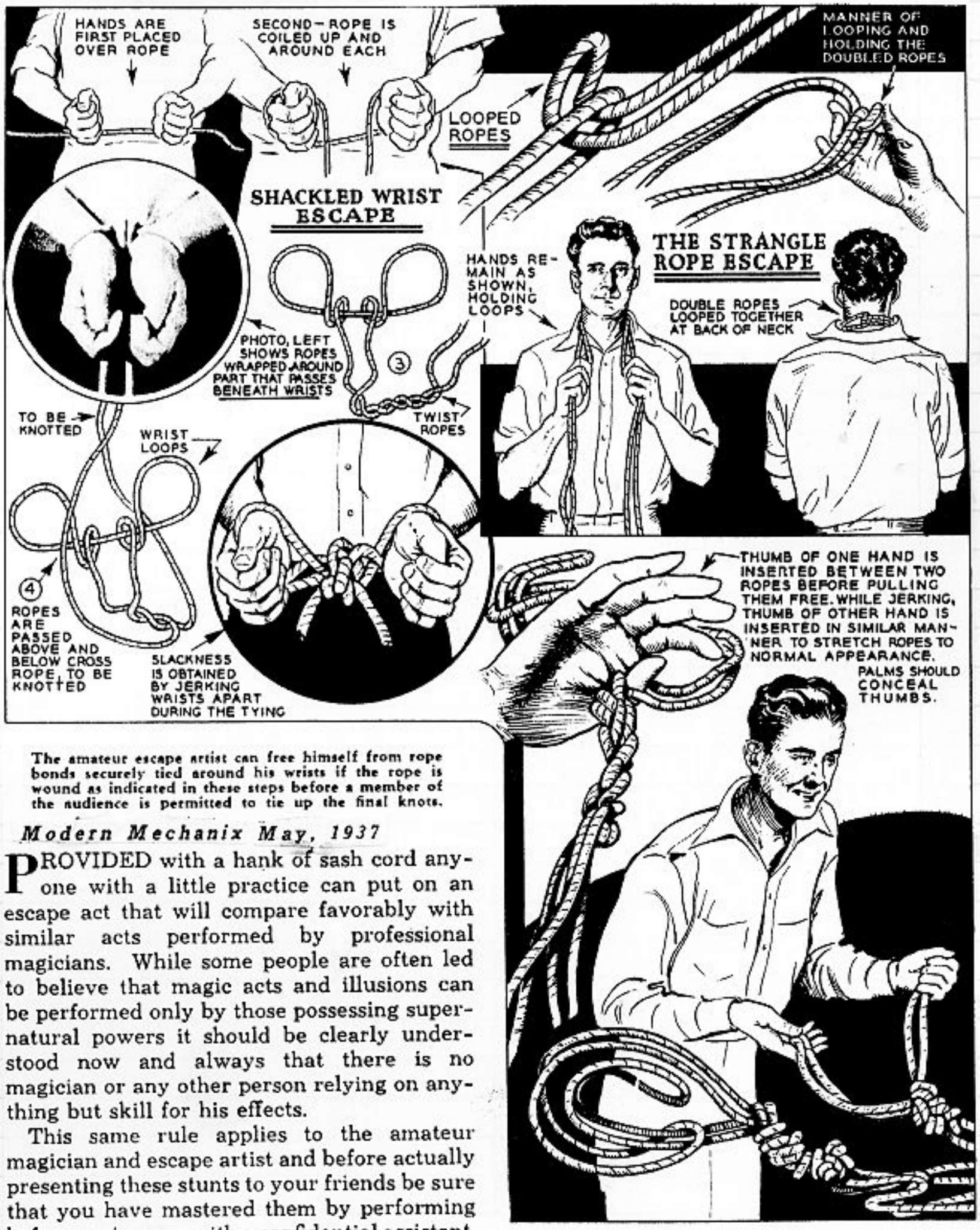


Above: This is a law-abiding trick: the law of inertia is always abided by. Lay a dollar bill over the mouth of a tumbler and balance a coin on it over the rim. Jerk the bill away. The coin will remain.



Four knives arranged as shown in the photograph can be picked up with another slipped into the group as indicated. Even if you fail it, this'll enliven that dull period that develops after dinner.

ROPE STUNTS FOR THE



The amateur escape artist can free himself from rope bonds securely tied around his wrists if the rope is wound as indicated in these steps before a member of the audience is permitted to tie up the final knots.

Although a double rope around the performer's neck apparently passes completely through it, when the ends are pulled by spectators, the rope actually is a double loop locked in the center with thumb and forefinger.

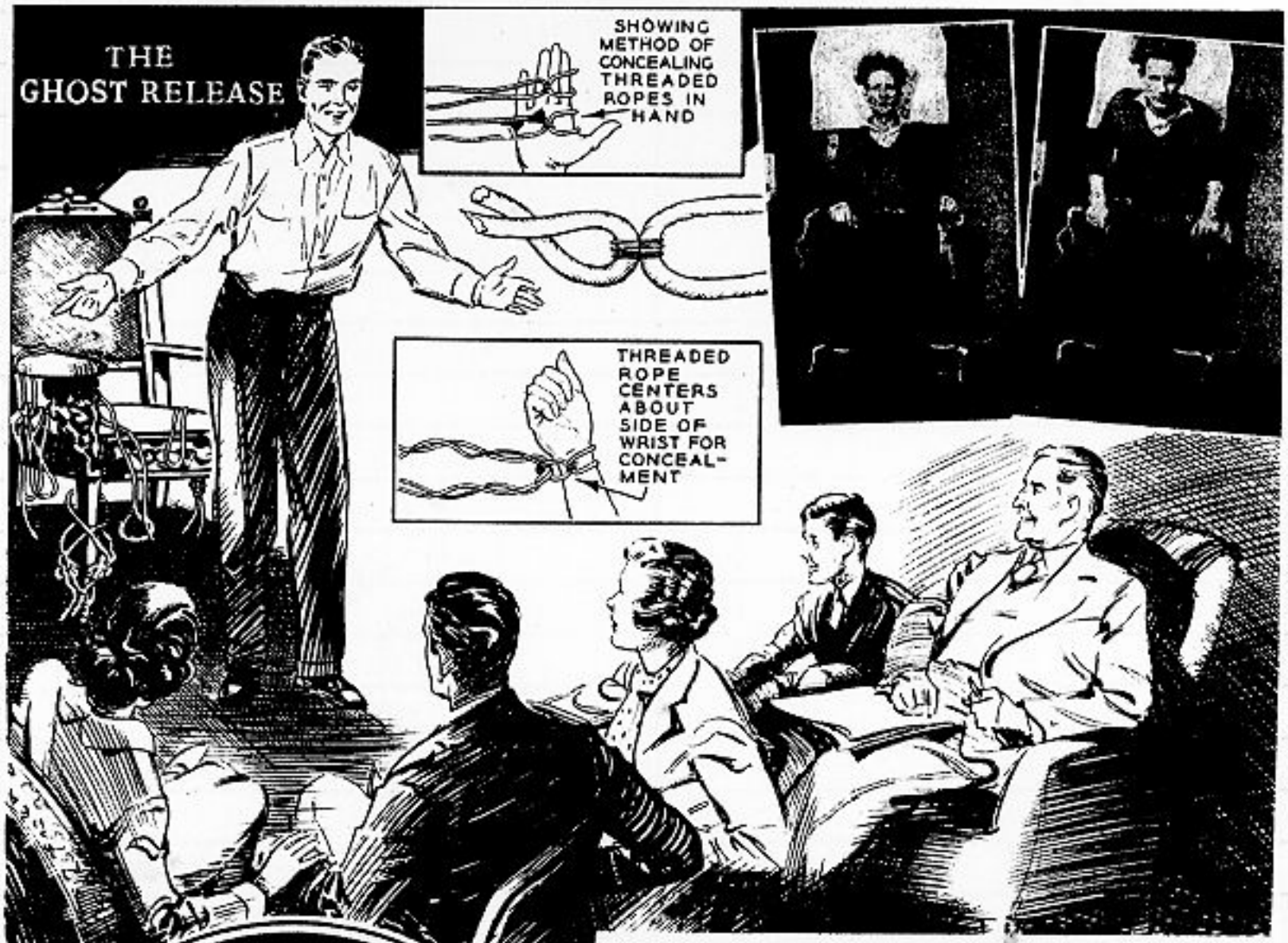
Modern Mechanix May, 1937

PROVIDED with a hank of sash cord anyone with a little practice can put on an escape act that will compare favorably with similar acts performed by professional magicians. While some people are often led to believe that magic acts and illusions can be performed only by those possessing supernatural powers it should be clearly understood now and always that there is no magician or any other person relying on anything but skill for his effects.

This same rule applies to the amateur magician and escape artist and before actually presenting these stunts to your friends be sure that you have mastered them by performing before a mirror or with a confidential assistant.

A very good stunt for beginning an escape presentation is the "Shackled Wrist Escape." Offer a spectator a length of sash cord and instruct him to tie up your hands by wrapping it around your wrists and bringing it

AMATEUR "Escape" ARTIST



While apparently bound securely to a chair with doubled rope escape is simple since the ropes are secretly joined together with thread. The joints are concealed from view so that detection by the spectators is almost impossible.



Although members of the audience are allowed to bind the performer with a one hundred foot coil of sash rope the escape, which involves no trickery, is simple. The performer depends upon human nature for its success.

down between the hands then wrapping it around the bottom cord as described in the accompanying illustrations. After doing this, permit the spectator to knot the cords as often as he likes so long as he is satisfied that you are securely bound. Now turn to the audience and announce that you will free your bonds before they can count to ten. Saying this, turn your back to the audience and jerk your wrists. The cords will now be sufficiently loose so that you can free your hands in a moment. Like many escape stunts, this one depends upon the method used in tying the knot.

"The Strangle Rope Escape" is one of the most effective rope tricks ever devised and unquestionably the simplest to perform. Here the performer makes it appear that after he has been securely bound around the neck with a double rope he allows two spectators to grasp each end of the double rope and

apparently pull it completely through his neck. The illustrations on page 94 show how this illusion is performed. Two ropes of equal length are folded in the center and the loops interlocked by applying pressure with the thumb. The performer walks forward with the ropes, concealing the loops in the palm of his hand, and allows the spectators to securely tie the ropes around his neck. The looped portion should be placed at the back of the neck and held in place with the thumb and forefinger. The audience will not be suspicious of this if you mention that you are protecting your neck from possible friction burns from the rope.

At a given signal have the spectators pull the rope and at the same time release the pressure on the loop, hooking your finger on one of the ropes so that you can quickly gather both loops and hold them up to your audience. Performed in the proper manner the rope actually appears to pass through your neck.

The "Ghost Release" is another simple but very effective stunt in which the performer permits himself to be securely tied to a chair with double ropes passing around his wrists, ankles and waist and after allowing spectators to inspect his bonds frees himself in a split second. In this stunt the ropes are prepared in much the same manner as the rope used in the "Strangled Rope Escape" except that the loops are tied together with cotton thread having the same color as the sash cord. The ropes, after being tied in the middle with thread, are carried out on the platform by the performer, who conceals the joints in his closed hand so that they appear to be just two ordinary lengths of rope. Tie the first knot yourself so that the joints are not visible, then allow the remaining knots to be made by members of the audience. To make your escape simply give the ropes a sharp tug to break the threads and pick up the pieces of rope, brushing off the strands of thread. Spread each loop so that the impression of the thread does not reveal the secret and pass the sash cord around in the audience. Since each of the jointed sections forms a perfect loop, detection is impossible.

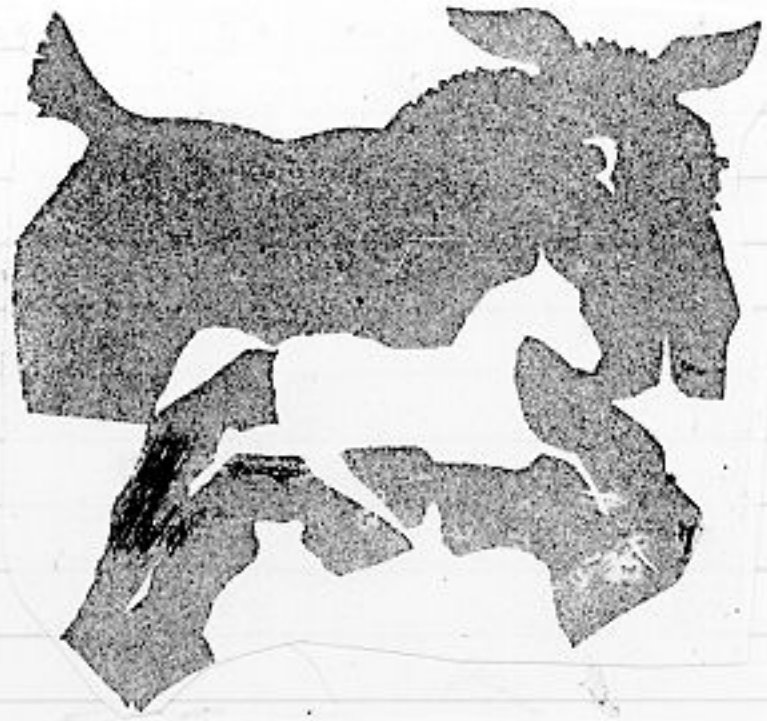
For the concluding stunt the magician depends entirely upon human nature and not on trick knots or splices as in the previous escapes. In the "Shackle Wrist Slip" the performer comes forward with a one hundred foot coil of rope and allows half a dozen people to assist in tying him up in any manner they care to choose.

Have the spectators start by tying your wrists with one end of the rope and then proceed by tying you around your arms and waist so that the rope winds in a rather wide "X" formation. When spectators are winding the rope around your body and tying you up securely insist that they work fast. Be sure that one person doesn't do all the work. The more people involved, the better and quicker are your chances for escape. By remaining moderately rigid during the tying-up operation, you will be able to free yourself in a few minutes simply by wriggling out of the rope wound about your waist and untying the knots in the remaining rope. One person may be able to tie you up securely, but never a group of people as you will discover when you try this clever stunt.

All of the escapes described here can be mastered without difficulty and will provide plenty of live entertainment for a party or social gathering. Mastering the various types of knots such as described in Scout Handbooks will prove valuable if you intend to devise similar stunts of your own.

CAN SOME ONE FIX THIS HORSE?

This puzzle was run in Popular Mechanics Nov. 2, 1902. At that time they had 17,000 subscribers. Probably many of their readers went insane trying to figure it out. They printed the names and addresses of only three who were able to solve it.



You wouldn't suppose that the three parts composing this ungainly-appearing beast could be cut out and re-arranged so as to be the likeness of a smart-looking trotting pony, yet such is a fact, according to the Harness Review. The three pieces composing the picture should be cut out and re-arranged without folding. The answer, it is said, is perfectly satisfactory and the finder cannot fail to recognize it when the problem is solved. Millions of copies of this puzzle have been scattered throughout America, but very few have succeeded in working it. We would be glad to hear from the first of our readers who succeeds in obtaining the correct solution.

SOLUTION ON PAGE 86

THE WELL-BEHAVED MATCH

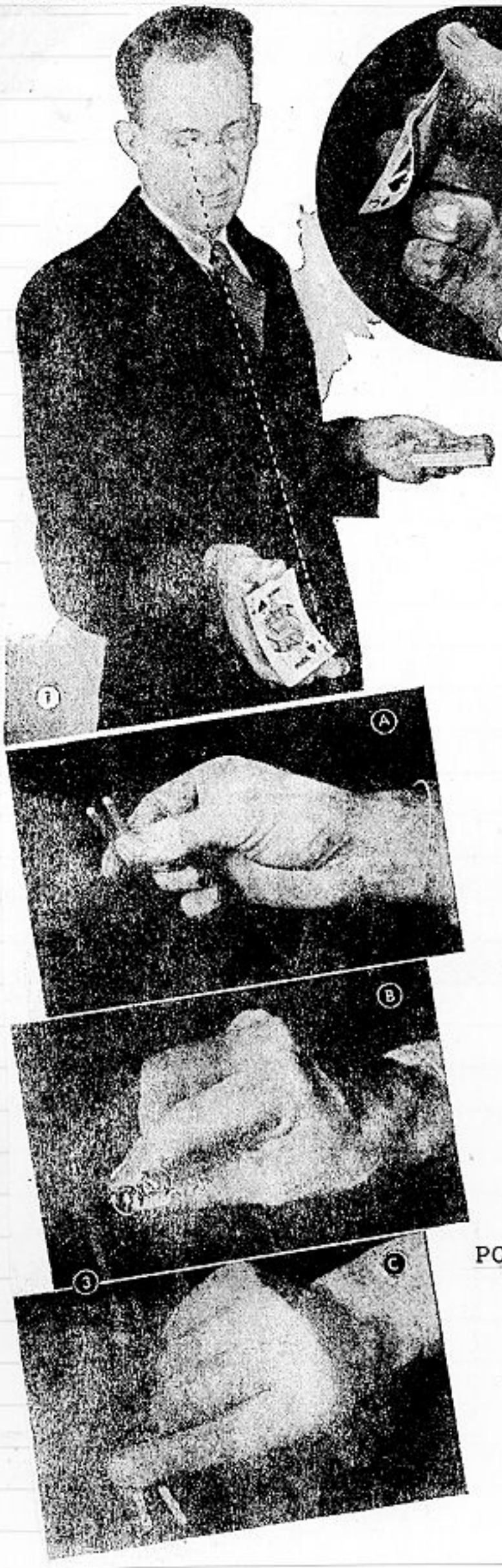
Secretly break off the tip of a match and press the slivered end firmly down on your finger. Everybody will think that you are very clever to be able to balance the match.





BLOOD WILL TELL!

Stand with your back to a table and tell someone to put a penny and a dime in any position on the table, and to raise one arm above the head and let the other arm hang down. Then say, "Place the upraised hand over the dime and the other hand over the penny." You can always tell which is the dime hand and which is the penny hand, because the blood will be drained from the hand that was in the air, while the other will be as red as before. Naturally the longer you keep your man waiting with one hand up and one down, the more marked the difference in color will be and the easier it will be for you to guess.



Here's SIMPLE TRICKS

ALTHOUGH mystifying in effect, most magic tricks are easy to execute and depend mainly on the skill and dexterity of the performer for success. The illusions shown here do not require elaborate paraphernalia, but they should be well rehearsed before they are tried out. In addition to manual ability, a line of patter is considered a necessary accompaniment as it serves to distract the observer's attention as well as add to the amusement value of the occasion.

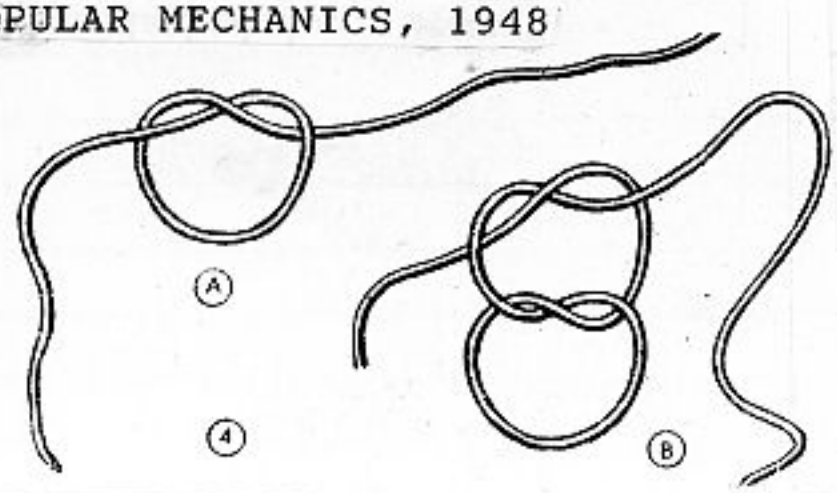
Effect: The first trick, Figs. 1 and 2, is card reading. The performer shuffles the deck and asks someone to select a card and place it on the bottom of the deck. Then, without looking at the card, he tells the audience what it is, in this case the jack of spades. As a variation, instead of putting the selected card on the bottom of the deck, it can be held in the left hand while the rest of the cards are held in the right hand. Then members of the audience can continue selecting cards from the deck which are read as the performer places them in his left hand, face toward the audience.

Method: The secret, of course, is the way in which the cards are held. If held as shown in Fig. 1 and tilted, Fig. 2, it is possible to see one corner of the face of the card while seeming to glance elsewhere.

Effect: Two paper matches of the kind that come in matchbooks are held between the thumb and forefinger, detail A of Fig. 3. A flip of the wrist and the matches, which had white sticks, now have black ones.

Method: The matches must be prepared beforehand. One side of each is blackened with a pencil. When they are shown to the audience as in detail A the white side is

POPULAR MECHANICS, 1948



How It's Done
TO AMAZE YOUR FRIENDS

toward the observers. Then the hand is snapped down, details B and C, meanwhile rotating the matches, detail B, so that when the hand is returned to its original position, the black side is seen.

Effect: This is the knot that unties itself! Starting with an overhand knot, the magician proceeds to make the knot increasingly complex until, tiring of the whole procedure, he grasps the ends of the cord, pulls, and the knot unties itself.

Method: The manner in which the knot is made is given in details A, B, C and D of Fig. 4. Start with an overhand knot, and following, tie a square knot. Keep the knot loose so the additional figure eight shown in detail C may be made. When this is done the knot can be untied by pulling on the ends.

Effect: You can be "laughing up your sleeve" while blowing up your sleeve. In this trick a lighted wooden match is held in one hand and extinguished by blowing up the sleeve of the opposite hand, Fig. 5.

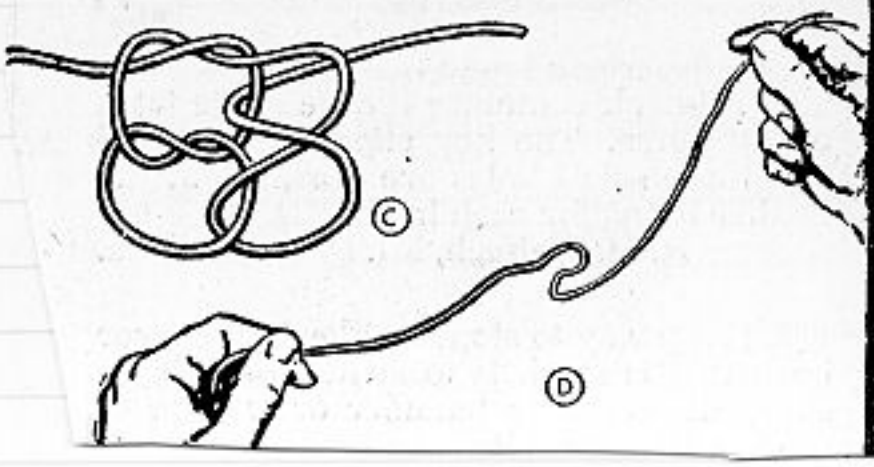
Method: Fig. 6 shows how the match must be held to accomplish the trick. When held between the two fingers with the thumbnail against the end of the match, it's easy to flick the match slightly, just enough to extinguish the flame, while pretending to blow up the opposite sleeve.

Effect: Take an apple with an unblemished skin and offer to bet that there is a coin inside. When sufficient interest is aroused the fruit is cut with a table knife to reveal a coin.

Method: The knife is prepared previously by fastening a coin to the blade near the handle with beeswax. This side of the knife is not seen. When cutting the apple, wedge the two halves apart and quickly slip the coin off the knife onto the apple. Then complete the cut and show the fruit and money.

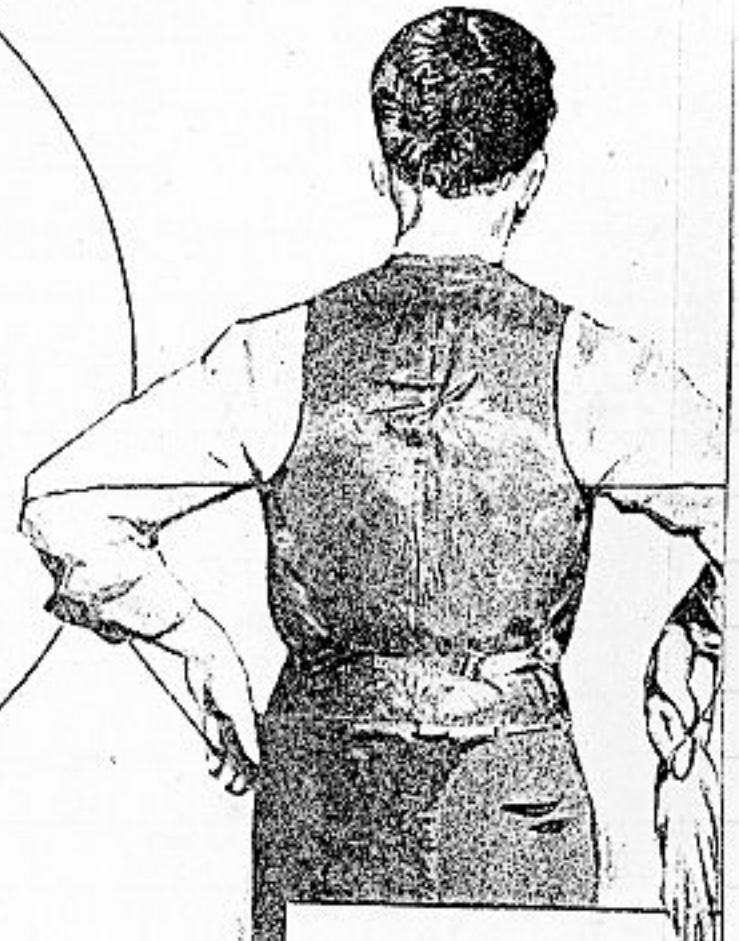






Black Thread

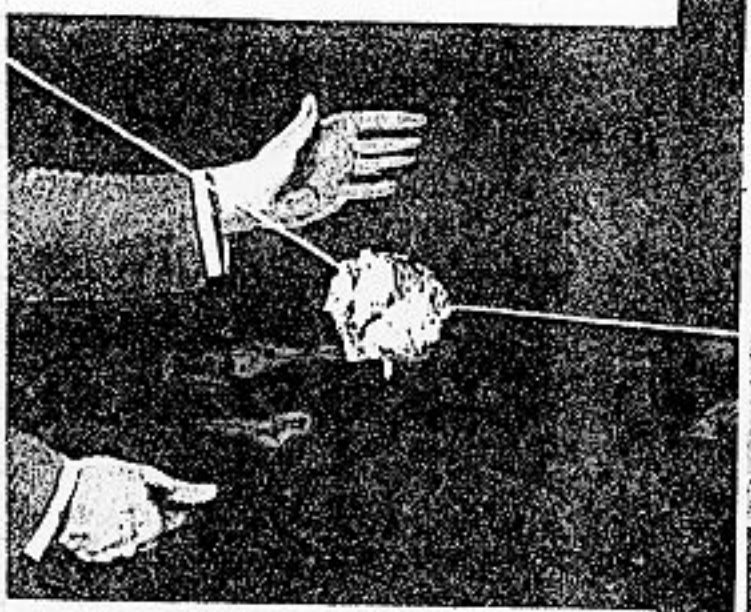




MODERN MECHANIX, OCT. 1936

THE FLOATING HAT

In this simple, but very effective stunt the magician walks to the center of the platform and places his hat upon his head. Then waving his wand about the hat he bows slowly to the audience and lo, the hat remains suspended in mid air! To perform this clever illusion you'll need a spool of No. 70 or No. 80 black silk thread. Stretch two strands across platform about 6 inches apart and a few inches higher than your actual height and anchor them securely to the walls. When the hat is placed on the head the threads naturally support it. Perform this stunt before a black curtain or dark wall.



THE SUSPENDED PAPER BALL

Picking up a newspaper the magician tears off a sheet and crumples it. He holds the ball of paper in his outstretched hand and waves his wand over it. The ball rises to meet the wand then follows it. To put on this illusion stretch a thread across the stage and to one end tie a rubber band fastening the elastic to a nail driven in the wall. Have an assistant hold the other end so that he can pull the cord back and forth and up and down.

VANISHING THE KERCHIE

Rolling up a handkerchief which
secured from a member of the a
ence the wizard pushes it into
palm of his hand then with a snap
the fingers it vanishes into thin
To present this stunt a length
black cord is required. Run the
through the vest in the manner sh
and attach one end to the thumb
the left hand then put on your
To the free end of the cord tie a h
made by bending a straight pin to
proper shape. When the handk
chief is received from a spectator
the hook through one corner w
you are rolling it into a ball.
the given time pull sharply on
cord with your left hand and
kerchief will vanish up the coat sle



THE ENCHANTED TABLE

Seating himself before a card tabl
the magician makes a few magi
passes and the table tips on one sid
and rises to meet his hand. Th
table remains standing on two leg
Before sitting down have a length o
heavy black thread with hooks ben
from pins attached to each end.
Attach the hooks to the trousers
then adjust the table so that one o
the legs rests on the thread. It i
only necessary to spread the knees

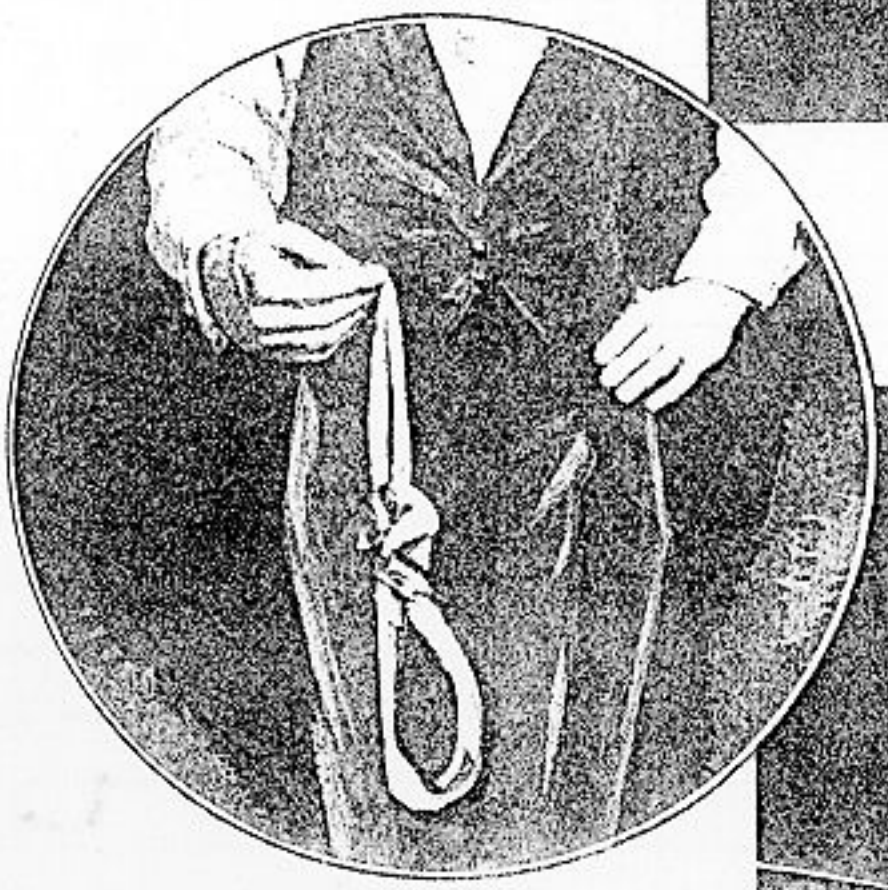
Magic Tricks



A spool of black silk thread, several pins and one or two handkerchiefs are all the materials needed to perform these puzzling feats of magic. The stunts are simple enough for any child to perform and yet complicated enough to prevent detection by spectators. The tricks described provide an evening's entertainment.



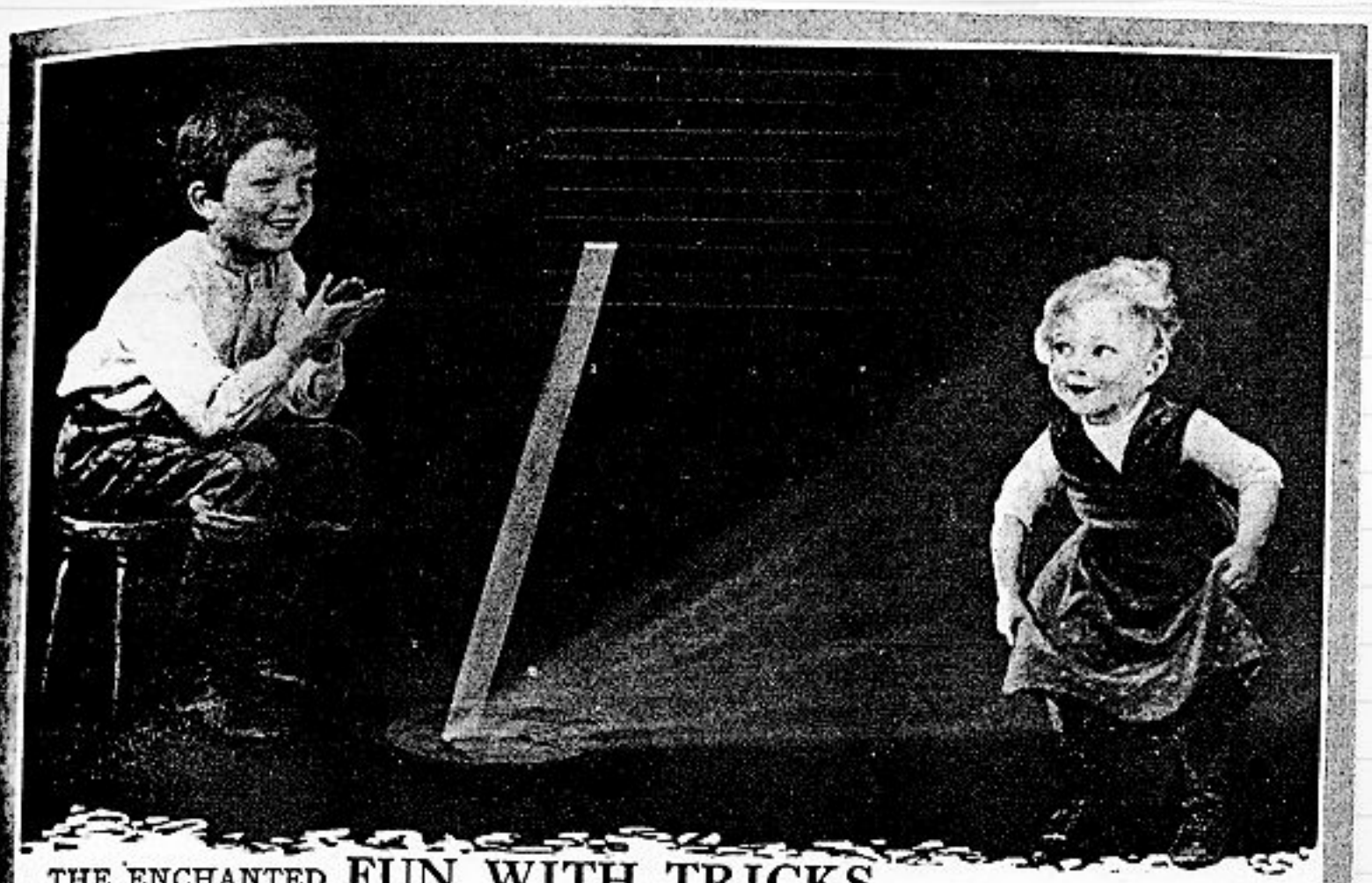
LAPEL FLOWER FROM THE AIR
Snapping his fingers and touching his wand to the lapel a white flower appears. This illusion requires only black thread and an artificial flower. The flower is attached to the end of the thread and the thread, itself, pulled through the buttonhole in the lapel. The flower is then placed under the armpit and the loose end of thread held in the same hand as the wand. A sudden jerk and the flower flies into the lapel.



THE EDUCATED SERPENT
Picking up a length of silk the magician proceeds to tie it into a loose knot. Then holding it up by the end he announces that his silk snake will untie itself at his command. Upon command the silk does just this to the amazement of the audience. To present this interesting trick requires only a length of black thread, a matchstick painted with black ink and a strip of silk cloth with a colored tab sewed to one end to indicate the "snake's" head. After allowing the audience to examine the silk he ties it into a slip knot and carefully hooks the thread to one corner. The black matchstick attached to the other end of the thread is let fall to the floor. Stepping on this the magician pulls gently on the handkerchief and the "snake" unties itself.



THE ELEVATED HANDKERCHIEF
The trickster ties a handkerchief into a loose knot and tosses it into the air only to have it drop to the floor. He opens the knot, ties it again and throws it up once more. This time it remains elevated and follows the wand. This illusion is similar to the paper ball suspension. The first time the knot is tied in the handkerchief no attempt is made to fasten it to the thread, but the second time the magician makes certain to tie the knot around the thread.



FUN WITH TRICKS

THE ENCHANTED ACE

Put an ace of hearts on the table. Take a large piece of cardboard and put it on the left side of the ace, as you see the boy doing below. Let your nose touch the paper, so that the right eye sees the ace but the left eye cannot. Stare at the ace for two minutes; then close the eye which has been



looking at it and you will find that you can see the ace with the left eye—even though you know that it is on the other side of the cardboard! Now remove the ace of hearts altogether and open your right eye. You can still see the card.

THE SERPENTINE DANCER

Allow a beam of sunlight to pass through a hole in a shutter or blind. Place a pan of water with a mirror in it where the beam falls, and direct the light on a "dancer" who is standing in front of a white background. If you stir the water the figure will begin to dance and will be lighted up by all the colors of the rainbow.



THE CANARY IN THE CAGE



Draw light diagonal lines on both sides of a piece of cardboard, and run a cord through each end of the cardboard at the center point. Draw a bird on one side of the cardboard, with its feet where the diagonals cross. On the other side draw a bird cage. Then spin the card rapidly and the bird will be in the cage!

A TIGHT SQUEEZE FOR ANY EGG

Take a hard-boiled egg and peel off the shell. Then take a vase or milk bottle which has a mouth slightly smaller than your egg, and put a flaming bit of paper at the bottom of it. Put your egg on top, and before you know it, the egg will be inside the bottle!

BUT NOT ON THE RUG!

Try to crush an egg held with the ends touching your hands in the position shown below. If the egg is solid with no cracks, it can't be done; but if you hold the egg long end up, the trick is very simple—and also very messy!





THE ACROBATIC PIN

Make a small hole in a card, and hold it up to the light with the hole level with the eye. Hold a pin, head up, in front of the hole and look at it steadily. You will see the head of a pin upside down on the other side of the card.

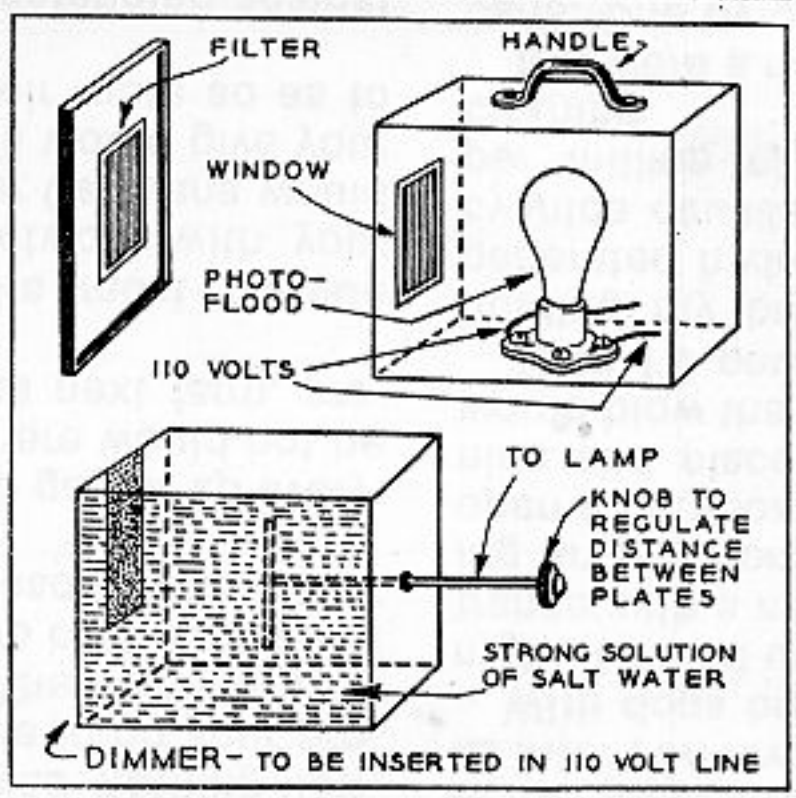
BLACK LIGHT MAGIC

By MAXWELL REID GRANT

Startling and beautiful experiments in fluorescence can be performed under ultraviolet ray with the aid of the simple equipment described here.



Masks or "skulls" coated with fluorescent paint glow weirdly when bathed in invisible light.



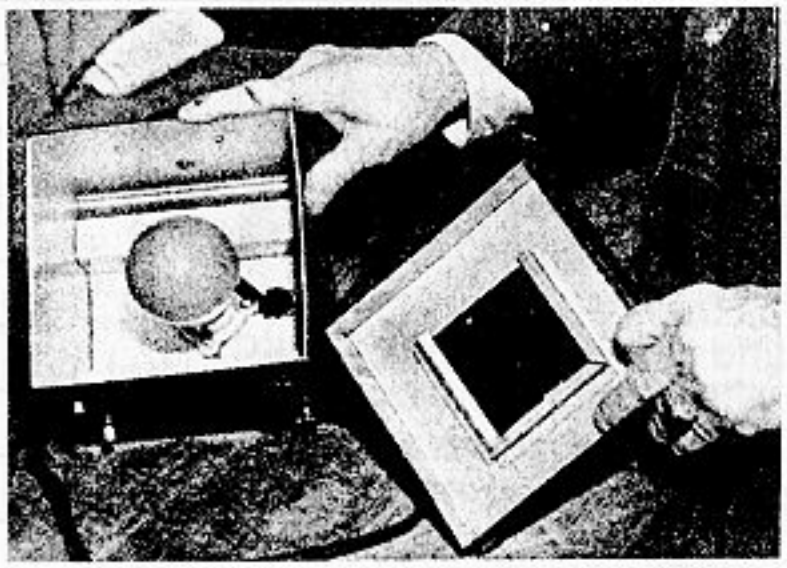
Mechanix Illustrated—May, 1939

WITH a simple homemade "black light" lamp you can perform startling experiments with fluorescence, the queer phenomenon which police are using to detect forgeries, expose altered documents, reveal faint bloodstains, or trace currency secretly marked with invisible ink. Your generator is an ordinary photoflood bulb, placed in a box with a window covered by a filter to mask off the visible rays. The filter should be a Corning Glass Company's Red-Purple Ultra No. 587, designed to absorb visible light so it will not drown the glowing fluorescent effects. Ordinary colored glass will not do, as it absorbs most of the ultraviolet. A good filter will cost from sixty-five cents to five dollars, depending on the size; 3½-in. is a good size and may be bought for about two dollars. Black light can be put to practical use in many ways. Beans and many plant seeds fluoresce only if the skin is unbroken, making the sorting of imperfect ones quick and certain.

Some laundries now are using machines which stamp clothing with waterproof marking fluid visible only under ultraviolet light, avoiding ugly black stains on linens. By alternating white and ultraviolet light, pictures may be made to appear and disappear at will. Photography in a nearly darkened room is possible with judicious placement of the "black light" sources, and if your hobby



Marking laundry with fluorescent ink. Such marks show only under ultraviolet light, thus keeping the garment unmarred.



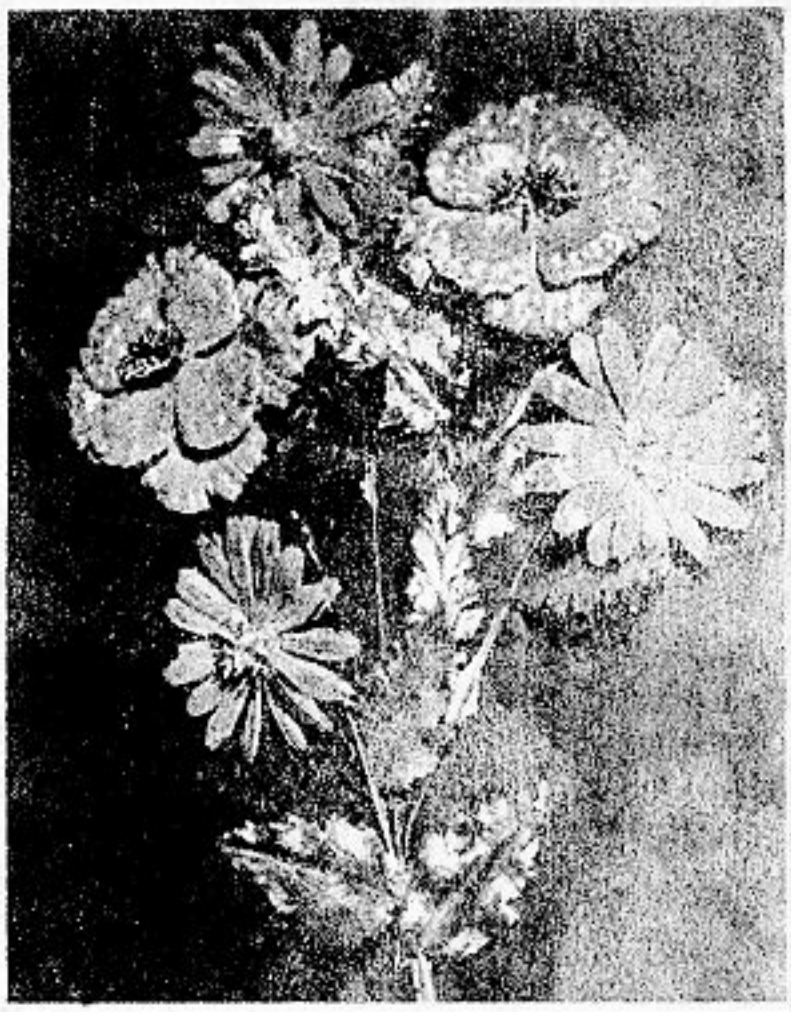


Common drab stones and minerals glow with a gorgeous display of color in front of the magic lamp.



Artificial flowers, their fluorescent-painted petals emanating soft radiance under the ultraviolet.

At left: Photoflood lamp in a box with correct filter is the simple source of "black light."



The same artificial flowers as those below, but photographed in ordinary white light.

is magic, you will find the possibilities of new illusions virtually endless.

In the dark, many rocks that appear drab in daylight show streaks of bright pink, orange, green, violet, or yellow under the invisible rays. Certain minerals that can scarcely be identified by the eye will appear outlined in glowing colors under ultraviolet light. Tungsten ore, amber, barite, some calcites, telurite, rhodamine, sphalerite, and willemite are among the most responsive. Gems also may be studied advantageously by fluorescence. Synthetic rubies invariably fluoresce a light color, while real rubies are a distinctive deep wine red. Pearls show colors which depend entirely upon the waters where they were cultivated, those from the same water always showing the same color.

Dissolve an aspirin tablet in water, and you have an ideal invisible ink, glowing under the ultraviolet lamp with a bright green brilliance. Vaseline, mineral oil, many kinds of glassware, certain fabrics and cosmetics, reveal weird beauty. Add a little quinine to the water in which flowers are kept and you not only keep them fresh for a long period, but also cause the water in the vase to fluoresce a dark blue. For this purpose the

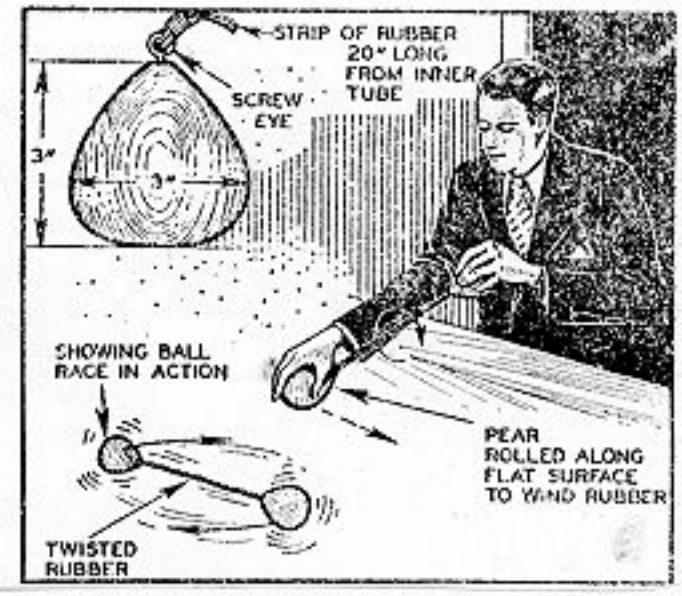
black light generator may be replaced by a single two-watt argon blow bulb, costing fifty cents. Concealed behind the flowers, it will keep them illuminated continuously at a cost of less than a cent per hundred hours. It makes a striking ornament for a dark hall corner.

Many paints and practically all aniline dyes have fluorescent properties—which, however, can be determined only by actual trial. Tested fluorescent paints may be bought in kits of assorted colors. In larger quantities, fluorescent lacquers, varnishes, and dyes also are available. By ingenious application of these materials, combined if desired with fluorescent cosmetics, spectacular effects are possible. Special face powders enable you to appear white under ultra-violet, or black under red light—a startling transformation accomplished instantly by the quick flick of a switch. For Halloween parties, a chamber of horrors can easily be produced, with skeletons and grinning skulls touched up with fluorsecent paint, leering hideously when the lights go out. Wire a dimmer into the circuit to permit the "horrors" to materialize gradually. A wire-wound rheostat, or a pair of movable plates immersed in salt water, will serve the purpose admirably.

An oil painting or a dime store picture may be touched up to undergo surprising changes when white light is replaced by ultraviolet. Cut out the picture, mount it on cardboard or wood; place behind it a sky scene done with fluorescent paints; between the two place your black light generator and you have a night scene silhouetted against a beautiful sunset or moonlit sky. When possible, so arrange the subject matter that the lighter colors are farthest from the light, the dark ones nearest. For example, in a day scene with bright sky and dark foreground, put the lamps at the bottom; but in a night scene, with dark sky and the stars coming through and with lighter foliage in the foreground, place the lights at the top. A part to be accentuated will benefit by having the lamp close to it. In general, backgrounds should be good reflectors of white light, such as pure white lacquer or very bright sprayed aluminum.

Dancing Wooden Pears Surprise Guests

TURN out two pear-shaped wooden balls on your lathe, connect them with a rubber strip, and watch them perform! Starting slowly at first, the pears chase each other round and round, reversing a few times and perhaps even rolling over each other to finally come to rest. Before cutting off the pears, sand them well and varnish. Place a small screw eye in the small end of each, and connect together with a 20″ long rubber band. To wind up, roll one pear along table while holding the other.—Dale Van Horn.





HOW TO MAKE WATER RUN UPHILL

Put a lighted candle about three inches long in a pan filled with three inches of water. Then put a glass over the candle, as you see in the picture above. The water will rise in the glass above the water line of the pan. As long as it has oxygen the candle will burn, and as long as the candle burns the water will rise.



HERE, PENNY, PENNY, PENNY!

Did you know that pennies could walk? Place a penny on a table on which is a table cover. Above it place an inverted glass set on two lead pencils, as you see in the picture above. Now begin scratching toward you on the tablecloth just outside the glass and the penny will come creeping out!



MAGIC

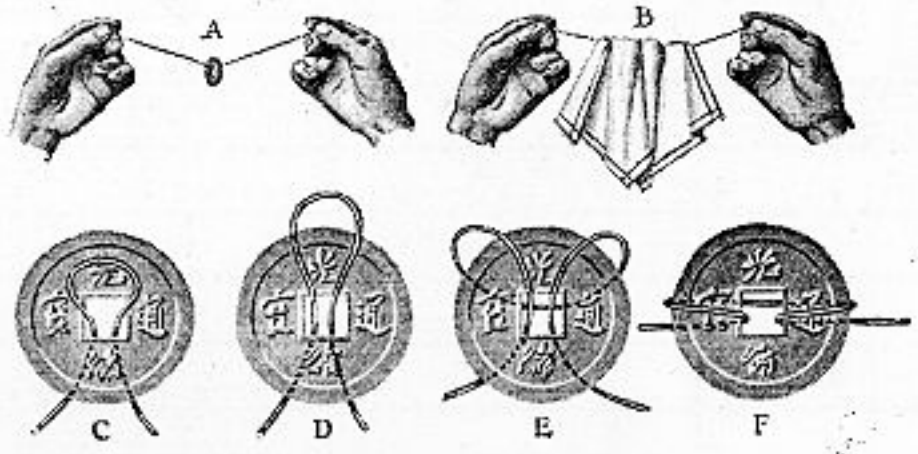
MAGICAL CUPS

For this trick, besides the quick hand a conjurer always needs, you must have two handleless cups, with straight sides and bottoms sunk about ¼". Turn them upside down, and on the sunken bottoms glue some birdseed. The cups will then look as if they were right side up and full. When doing the trick, have a bag of the same seed. Show your audience that the cups are empty, but do not let anyone come dangerously near you. Now dip one cup in the seed as if to fill it, but instead turn it upside down, so as to show the glued seed. Now put it under a hat, but as you do so dextrously turn it right side up again. Now place the other cup, which is empty, under another hat, but turn this one upside down, so it will look full. Finally say some magic words, remove the hats, and show the people that the cups have changed places.

THE PICTURED NAIL

This trick requires an extraordinarily strong magnet, a bit of preparation beforehand, and the faithful help of a friend. Make a large frame, taller than your friend is, and cover it with paper as you would a screen. Then set the screen up in such a way that your friend can hide behind it—with the magnet. When the audience has gathered together, draw on this screen a picture of a nail or hook. Then borrow a key or a key ring from someone—it must be something that a magnet will attract—and offer to hang it on your pictured nail. This will be easy enough to do, provided that your friend holds the magnet just back of the "nail," where it can attract the key through the paper.





CHINESE COIN TRICK

Any kind of coin with a hole in it will do, but you must have two exactly alike. Palm one coin, that is, conceal it in your hand. Pass the other, and a piece of string, around for inspection. Let some spectator slip the string through the hole and hold it, an end in each hand (A). You promise to take the coin off the string while he holds it so; but it is a dark Chinese trick and you must work under cover. So borrow a handkerchief and throw it over the string (B). Under it move the coin a little to the left. Then attach the palmed coin to the center of the string as shown in the pictures: draw a loop of string through the hole (C, D), slip the loop over the edge of the coin (E), and draw it taut (F). The string has to be rather slack for this. But now ask the spectator to tighten it, at the same time closing your hand over the first coin. Pretending that he is not doing it right, take the left end of the string, as if to show him, and as you hand it back slip your hand off the left end with the first coin in it. Now take off the handkerchief. The string across the coin will look like a knot you have been tying to make it all the harder to remove the coin. With a flourish, grasp the coin in one hand, slip the loop back over its edge—and the trick is done.

THE TRAVELING COIN

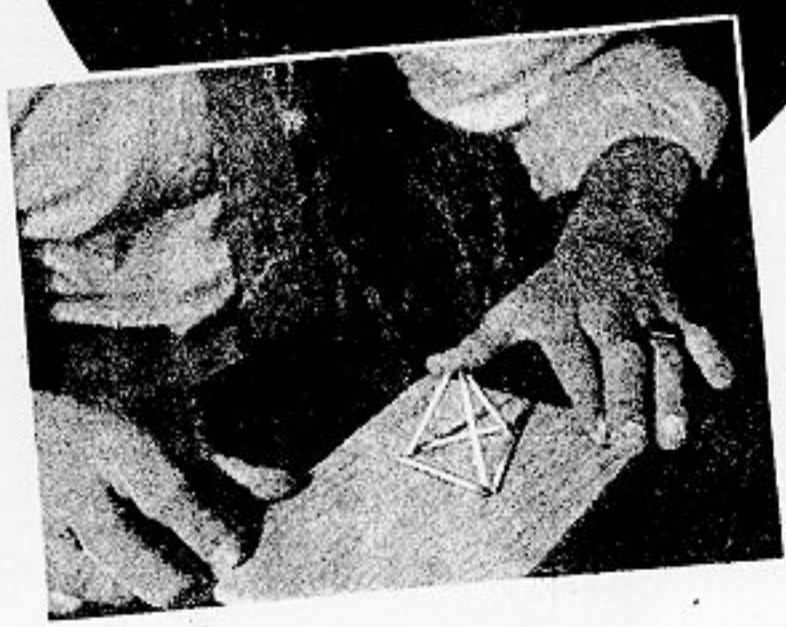
Find a hair from 10 inches to a foot in length: On each end put a dab of magician's wax and stick each dab to a separate button on your waistcoat—this is no trick, you see, for a girl! Borrow a coin from the audience, and secretly press it against one dab of wax so that the wax will come off the button and stick to the coin. Now drop the coin in a goblet. Making magical passes to distract attention, slowly move the goblet away so that the unseen hair draws the coin up the side.





TRICKS WITH

Modern Mechanix September, 1937



Top—"Take-Away", a simple match game in which you are always the winner. Circle—Forming 2 triangles with 5 matches, and 5 triangles with 9 matches. Above—Making 6 matches form a total of 4 triangles is a really clever stunt.

HERE are several easy tricks you can master in a few minutes and use to surprise and entertain your friends. They are good stunts for parties and when guests drop in for the evening.

Hand some one five matches and ask him to form two triangles with them. Hand to another person, nine matches and ask him if from them he can make five triangles. These two tricks are quite easy as the accompanying illustrations indicate. You make a single triangle with three of the five matches, then form another triangle with the remaining two on the base of the first. The same procedure is followed with the nine match, five triangle trick. To get the fifth triangle you of course, count the large triangle formed by the four smaller ones.

Another even more interesting triangle trick to form four triangles from only six

matches. You first form a triangle from three matches. With the other three you form the other three triangles. A rough surface is best since the smooth top of a table will cause the standing matches to slide. A bit of glue touched to the match heads will cause them to adhere.

Take-Away Matches is a dandy game. It is so perplexing, yet so simple to those who know the rule, that the results are often very amusing. For try as he will, your opponent cannot win until he too knows the rule.

Lay out 15 matches evenly spaced on the table. The object of the game is to make your opponent pick up the last match. One, two or three matches can be removed at a time. The rule or secret is to have 13, 9 and 5 matches remain when it is the opponent's turn to move. Either man can start. If you can work it down in any event so that 5 matches remain when it's your opponent's turn, you will have him beaten. This rule to follow is so subtle that unless your competition knows it, too, you can win every time.

Two matches are required to perform this Magnetic Match trick. Some practice is of course necessary before you too, become proficient. You simply flick the match with the second finger which causes the other match to jump. Interest and mystery will be heightened if you bring the match over some metallic object and work out a bit of patter to go with the trick.

Another simple, but very effective match trick, which anyone can perform, present the optical illusion of one match passing through another. Grasp a match, one in each hand, between the index and forefinger, so that they interlock. By practice, learn to re-



Above—This magic wand, containing soap in one end and sugar in the other, attracts or repels floating matches. Left—How "magnetic" and "pass-through" tricks are performed.

lease the finger tension on one match so that the other can pass under it without detection. One end of the match will adhere to the fingers sufficiently so that the passage of the one match between the bottom of the other and thumb will not be detected.

Some amusing results can be had from the fact that soap will repel small floating objects while blotting paper or cubed sugar will attract them. This action is due to a film which spreads over the water when the soap touches it. The sugar on the other hand, or the blotting paper, absorbs water and draws anything floating, toward the substance.

Fortune telling with this method will have to resort to replies of "yes" or "no" or such silliness as "Does Frieda like Johnny?" Roll up a piece of blotting paper and fasten with rubber bands. In one end insert a small piece of soap, in the other cubed sugar. The performer lays two matches on the surface of water causing them to come together or move away, depending upon which end of the "wand" is brought in contact with the water's surface.

FUN WITH TRICKS



HOW WELL CAN YOU CHEW?

To do this trick properly you must learn to arrange your string so quickly that your friends cannot catch you doing it. A string about three feet long should be looped as in Figure 1 and held, with loops concealed, as in Figure 2. Now ask someone to cut the string where your hands meet and then let the string drop, as in Figure 3, to show that it is indeed cut. What it really looks like, of course, is shown in Figure 4, but the loop is hidden by your finger. Now put the string in your mouth and chew and chew—then pull it out all chewed together again. You will have to keep the little piece in your mouth until nobody is looking.



THE ELUSIVE COIN

Set a coin on the edge of a table and placing your left hand over your right eye, try to knock the coin off with your right hand. If you keep your eye level with the table and get about an arm's length away from the coin, you will find that you are dabbing away at nothing but thin air.

KICK THE MATCH BOX

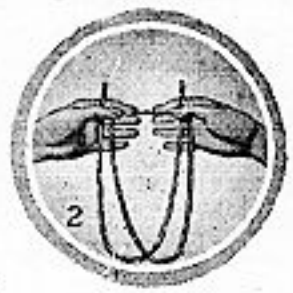
It sounds simple enough; you merely kick at a match box. Mark a line on the floor and place a match box in front of you exactly three lengths of your foot away from the line. Then, with one foot toeing the line, try to kick the match box. You may be able to do it and you may not! But remember that the rules for this game do not allow you to score if you lose your balance, or if you move the foot you are standing on.



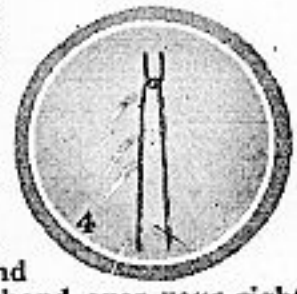
APRIL FOOL!

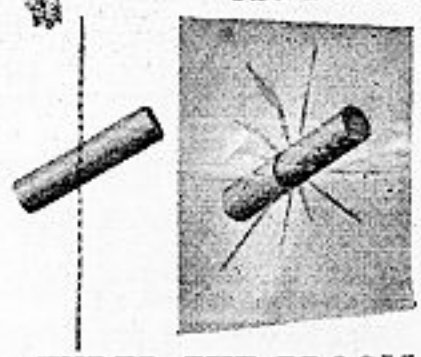
Saw a stick on the bias and glue the two pieces on either side of a window-pane (see below). The cracks are streaks of soap.











UNDER THE BROOM

Place the end of a broom handle against the wall and, holding it as the boy is doing below, try to pass your head under the broom. It can be done, but it is not easy.





FUN WITH MAGIC

For this trick everything must be black—your coat, the table cover, and the curtain that you must hang just behind you. Place your table in a doorway, and in the inner room station your assistant, out of sight of the audience. Fasten one end of a long black thread to the wall of the inner room and give your assistant the other end. Borrow a handkerchief in the audience, and as you announce that with your wand you can make the handkerchief become a living, obedient creature, tie a number of knots in it, with one knot around the thread. Your assistant will do all the rest by jerking the invisible thread. Your handkerchief will rise and dance at the command of your wand, and will even tell fortunes.



Cut through a rubber band and fasten one end of it to a pin whose point has been bent back to make a hook. Fasten the other end of the rubber to a safety pin which you will pin inside your sleeve near the shoulder. Now pull the loose end down to your cuff and hook the end of the pin over your cuff with the point projecting outward. When you rub a thin silk handkerchief down over your cuff, it catches hold of the pin and pulls it away from the cuff. Let the handkerchief go, and the whole thing will vanish up your sleeve.

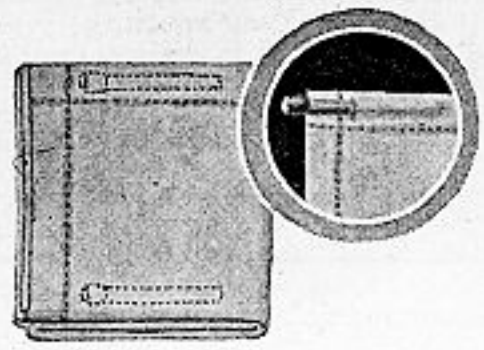




In the middle of a handkerchief you have spread out on the table place a piece of money. Cover the coin with the four corners of the handkerchief and show plainly that the coin is still there. But see to it that you have placed a small piece of wax inside the first corner—as shown above. Press the wax down on the coin and then take up the handkerchief, first by one side and then by this corner, and shake the handkerchief vigorously, detaching the coin and wax meanwhile.

Slip a match into the hem of an ordinary handkerchief—as shown at the right. Draw the handkerchief carelessly from your pocket, spread it out, and ask a friend to lay a match on it. Fold up the handkerchief and let him seem to break the match up inside the folds—but let him really break the match in the seam. Then show him his match—whole!

Put a little glue around the top of a tumbler and place the glass upside down on a sheet of white paper. When the glue has dried cut the paper away carefully around the outside of the tumbler. Now with a sheet of stiff paper make a cylinder a little larger than the glass and twice as high. Lay on the table a sheet of paper exactly like the kind you glued over the glass. Put a coin on the paper and say that you will make it disappear. Then pick up your cylinder with the glass inside it and invert both over the coin. Remove the cylinder, leaving the glass. The paper on the top of the glass will cover the coin. Put the cylinder back over the glass and lift both. The coin will reappear.



DINNER TABLE MAGIC

LET'S start right in. Here's a bowl filled with oranges. Here's a large napkin. The performer offers the fruit bowl to a spectator. The spectator is to take any orange. He is to put his initials on it. While this is being done, the performer picks up two or three of the remaining oranges and drops them into the napkin which he holds by the four corners to form a baglike receptacle. The selected orange is dropped in alongside the other three. The bag is thoroughly shaken. Nevertheless, by merely placing the bag to his ear and "listening in," the performer locates the marked orange and picks it out.

Really, it is a remarkably simple case. You see, the fruit bowl originally held eight oranges. Four of these were minus the little pip on the outside end of the core; the other four were completely furnished with one each of these little buttons. Does it get any clearer? Of course, the



POPULAR MECHANICS
JAN. 1932

Top, Picking a Marked Orange from a Napkin-Full; Center, a Clever Trick with Sherbet Glasses; Below, Using a System of Words to Find a Hidden Egg, Orange and Apple

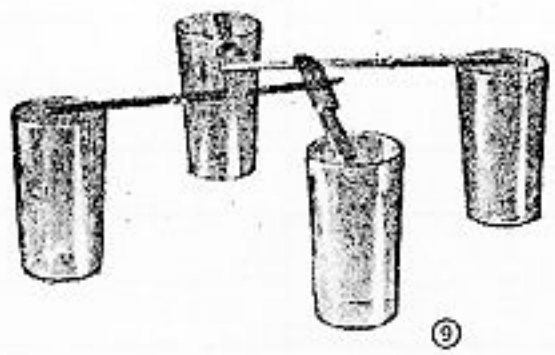

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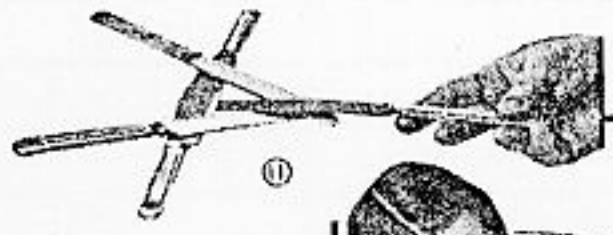
⑧

steady hand, and you pour the contents of the lower glass into it. A gentle gurgle, then, as you tilt your head back and imbibe the liquid. It's as simple as all that.

You should like this next little experiment. It has to do with an apple, an egg, an orange and a plate containing exactly twenty-four crackers. If you haven't the crackers, you can use poker chips; and if you haven't the egg, you can substitute something else. At any rate, the performer turns his back or leaves the room, and, during his absence, three spectators take possession of the properties, one taking the apple, another the egg, and a third, the orange. These are hidden out of sight. The crackers are still on the table. The performer faces the spectators. He gives one cracker to one of the spectators, two to another, and three to the third. He makes no mention of the fact, but this automatically labels the parties in the case by numerals 1, 2, and 3. The performer again turns his back or leaves the room. He instructs his audience before leaving, or, while his back is turned, as follows: "I want the person holding the apple to take just as many crackers as I gave him. The person holding the egg will take twice as many crackers as I gave him. The person with


⑨


⑩


⑪

spectator is given a free choice. Then, if he chose a pip, you put three plain oranges in the napkin; if he selected a plain orange, you put two or three pipped oranges in the bag. After that, it is simply a matter of prowling around a bit to relocate the orange the spectator selected.

Here's something: You take two sherbet glasses. You fill one of them with liquid. You place the other glass over it, making the setup look like Fig. 3. The idea is this: Can you transfer the contents of the lower glass to the upper glass, and then drink it? You may use one hand only, and this must not touch the upper glass. As you will agree after looking at Fig. 4, it's dead easy. You simply take the rim of the upper glass between your teeth and lift the glass from the table. A



⑫

Top, Illustrating a Trick with Water Glasses; Below, Some Table-Top Engineering Stunts

the orange will take four times as many."

"All ready?"

"All ready."

Entering the room, the performer quickly notes the number of crackers remaining in the bowl. And then, of course, he tells who has the apple, who has the egg, and who has the orange.

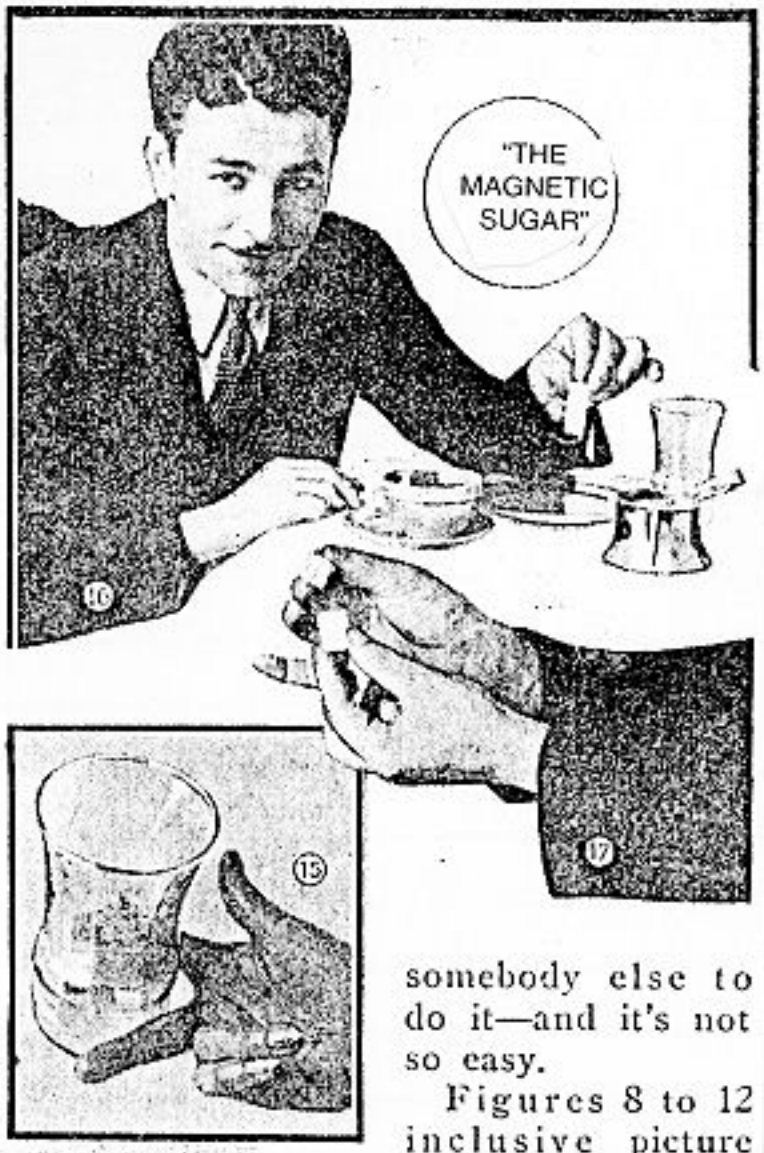
There's really nothing to it. You merely consult the little table shown in Fig. 5. If there is one cracker left, you immediately think of the word "aero." And the order of the vowels, A, E and O (apple, egg and orange) will check with the numbered order of the spectators, 1, 2, and 3. That is, the first person will have the apple; the second, the egg, and the third, the orange. If four crackers were left, the word would be "pergola." And the order would be, egg, orange, apple. And so on—but don't try to figure the reason why!

Consider this: Here's a circle of eight glasses. All of the glasses are standing



Top, "Magnetizing" Two Lumps of Sugar with Butter; Below, a Simple Water-Glass Trick

mouth up. The problem is to start at any glass, count one, two, three, four, turn that glass over, and continue until seven of the glasses are turned over. The rules are simple. You must always count up to four, and then turn the fourth glass over. You can start on any glass, but you cannot start counting on a glass after it has been inverted. The solution is quite simple, merely a matter of going around the circle, counting four, skipping one glass, and then counting four again until the seven glasses are turned over. But invite



somebody else to do it—and it's not so easy.

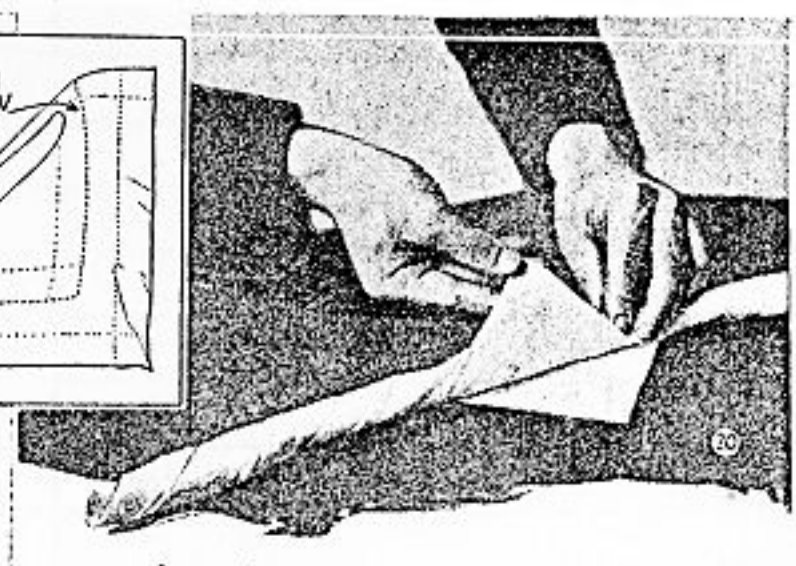
Figures 8 to 12 inclusive picture some little stunts in table-top engineering. The four-way bridge in Fig. 9 is quite substantial and will support a plate of the wife's best biscuits. The manner of lifting two knives with one is made clear by Fig. 10. Four with one is really simpler. Two other knives, six in all, can be lifted by adding the fifth and sixth knives to the arrangement shown in Fig. 11.

Here's one to fuss around with: Get a fair-sized glass and try to pick it up with two fingers, as pictured in Fig. 14. If the glass is the proper size, you will find this rather difficult, the glass constantly slipping away from the spread of the fingers. But if you turn your hand over and spread the two fingers as in Fig. 15, you will find the levitation quite simple.

Did you know that sugar was magnetic? Fact. And if you want two lumps for your coffee, all you have to do is to touch one lump with another and then convey the pair to your cup, as pictured



An Easy Stunt with a Napkin and a Knife That Surprises Even the Performer the First Time



in Fig. 16. Of course, no one is supposed to know that you have dabbed a small pellet of butter on the underside of the "magnetic" lump. And, since you immediately drop the lumps into your cup, no one can ever prove it.

This last little stunt is rather unusual in that you can play it on yourself the very first time: Take a napkin and fold it diagonally across the center, or rather a little off-center, keeping the short fold underneath, as in Fig. 19. Place a table knife along the folded edge, as shown, and roll the knife inside the napkin. Continue rolling until the two ends come out even as in Fig. 20. Now for the magic. If you were to grip these two outside ends and lift up so that the napkin would unroll, wouldn't you be surprised to find the knife really and truly inside the napkin, as in Fig. 18, and not merely alongside the fold? Well, that's just exactly what happens. But—we would bet a nickel and make money you'll be from Missouri until you try it.



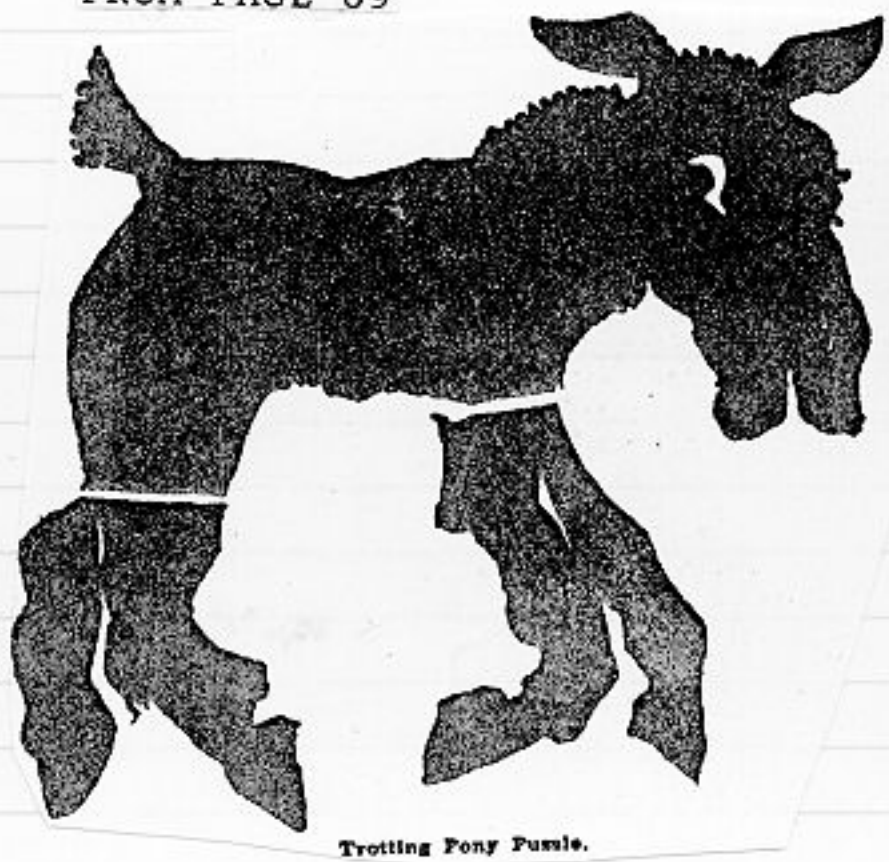
THE HERCULEAN STRAW

A straw is very frail, but if you use it properly it can lift a heavy bottle. To do this you will have to bend it into the position you see above; this makes it very strong. Engineers use this principle in constructing strong steel supports.

HOW TO BALANCE A TEACUP

This takes practice. Push a cork firmly into the cup handle and then place a fork with its prongs sticking into the cork and its handle under the cup. With patience you can balance all three on the point of a pencil.

FROM PAGE 69



Trotting Pony Puzzle.

MAGIC YOU CAN MAKE

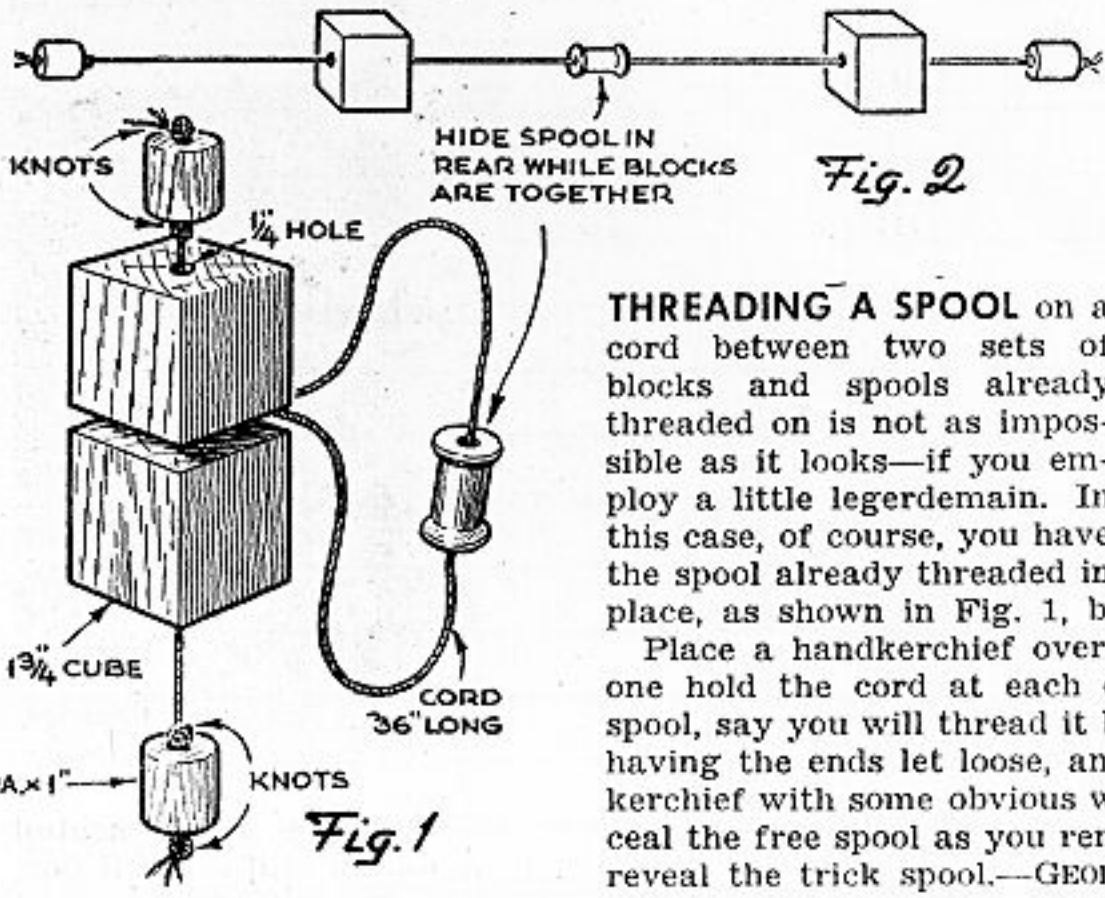


Fig. 2

Fig. 1



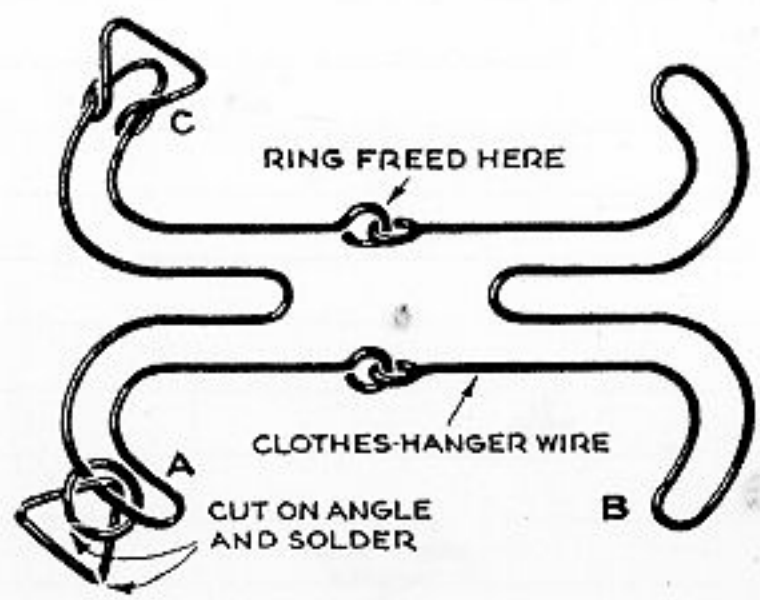
THREADING A SPOOL on a cord between two sets of blocks and spools already threaded on is not as impossible as it looks—if you employ a little legerdemain. In this case, of course, you have the spool already threaded in place, as shown in Fig. 1, but concealed by the hand.

Place a handkerchief over the trick and have someone hold the cord at each end. Then produce a free spool, say you will thread it between the blocks without having the ends let loose, and place it under the handkerchief with some obvious working of the hands. Conceal the free spool as you remove the handkerchief, and reveal the trick spool.—GEORGE BARR.

POPULAR SCIENCE OCTOBER, 1945

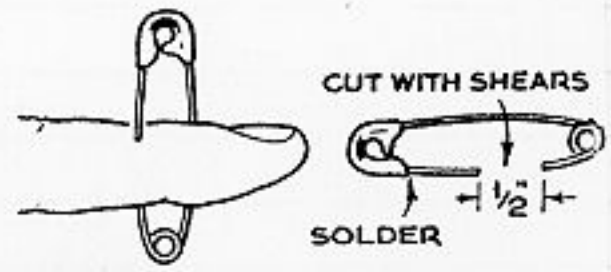
WIRE PUZZLES are always fascinating, partly because so many people can try them without succeeding. To remove the ring on this puzzle, first spread out the hinged crablike H-form and arrange the stirrup, ring, and triangle as shown in the drawing at right.

Now fold over the right side on the hinges so that *A* and *B* meet. Then pass the ring over both the ends and on up and around the loops and lower hinge, working it up to point *C*. There, if the stirrup is pulled out as shown, you can by-pass it and free the ring at the top hinge. Reverse the procedure to put the ring back on the wire.—G. B.





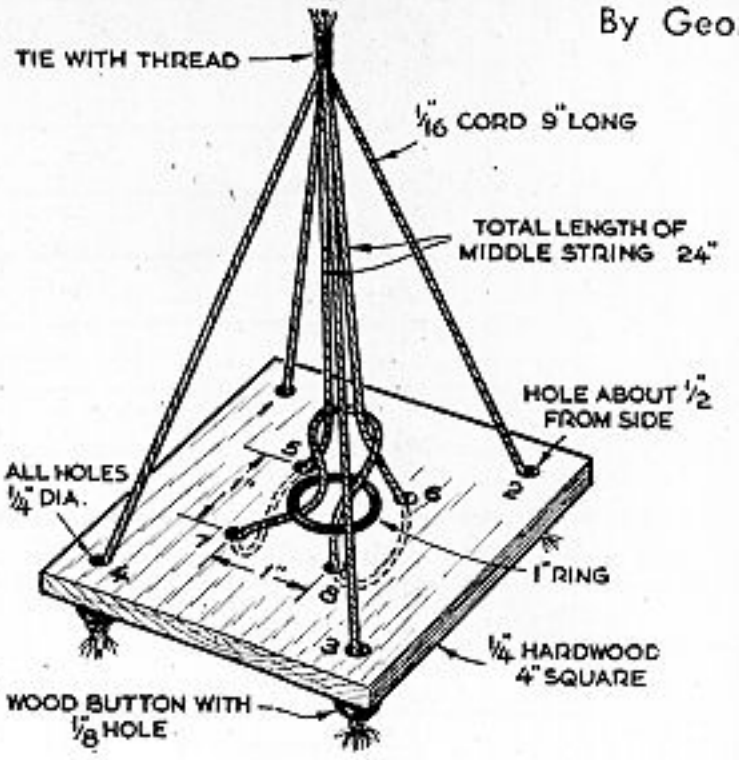
THIS MAY TAKE HOURS, but with a definite plan you can put the elongated beads into the thimble in two minutes flat—sometimes. Use a small baby-food jar and about 10 beads. The difficulty comes in getting beads past the thimble lip, so turn the jar upside down and then on its side, maneuvering the thimble toward the bottom. If even one bead goes behind it, start over.—G. B.



IT LOOKS PAINFUL, this pin shown stuck through a finger—actually it is done without harm. Solder the point of a safety pin to its catch, and next cut ½" out at the center with wire cutters or a hacksaw. Slipped on a finger, the pin then appears to stick through.—G.B.

MAGIC YOU CAN MAKE

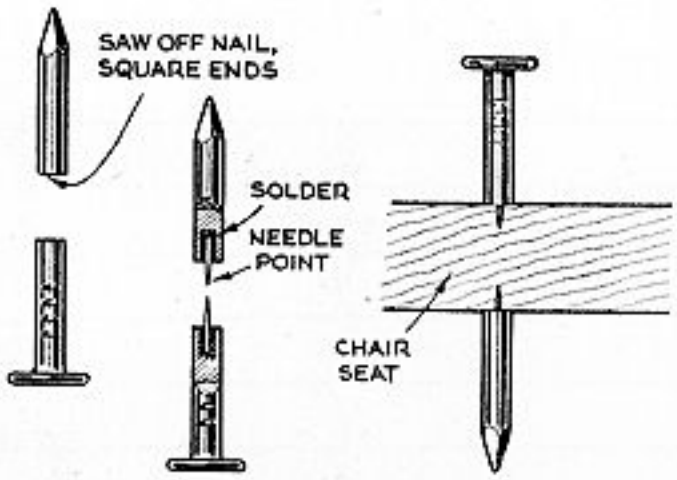
By George Barr



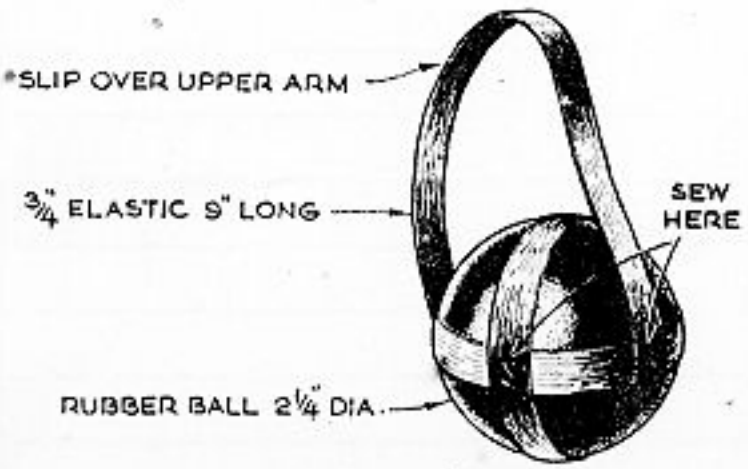


TAKE THE RING off the cord in the puzzle shown at left, and you will have solved the granddaddy of all string puzzles. Try building it before you read the solution and see how long it takes you to get the ring off. You'll understand why it can cause such anguish! Be sure to bevel all holes and shellac and wax the wood.

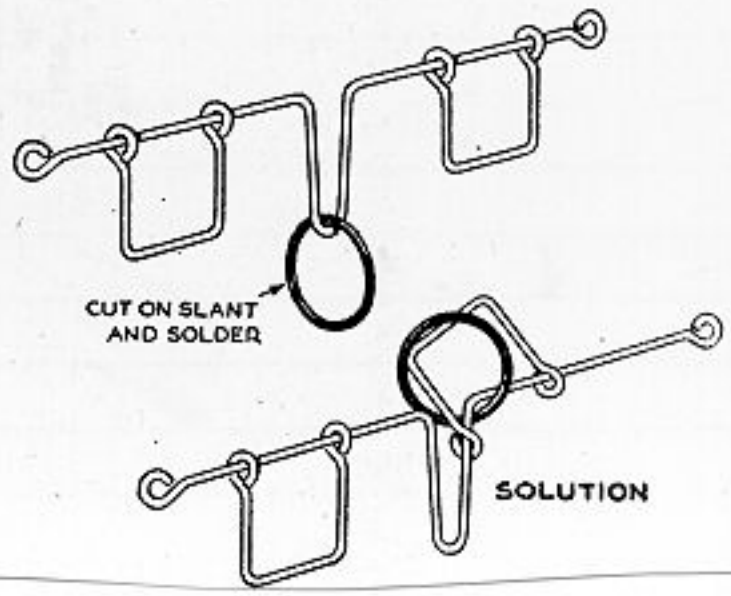
Here's how the puzzle's worked: Pass the looped end of the long middle cord through hole No. 1, slip it over the button there, and draw it back through the hole. Repeat for holes Nos. 2, 3, and 4, and the loop will then be outside all the cords. Don't let the cords tangle.



IF YOU'RE GOOD AT DODGING while you do your explaining, you can try this one with a big nail hacksawed in two, drilled, and fitted with projecting needle points. Stick the needle points in a chair seat or table—not one that needle pricks will harm—and call the owner's attention to the nail "someone has driven through." You also may have to do some dodging after you explain!



HALT YOUR PULSE at will and watch your friends—or your doctor—gasp! It's best done with a little showmanship—and a small rubber ball held by a harness under your armpit. Hard pressure does the trick. Inject the showmanship by bringing up the subject of Indian mystics and suspended animation. Assert that you, too, can stop your pulse, and then have someone count it, moving a finger or pencil up and down as he does.



WITHOUT BENEFIT OF PLIERS or a hacksaw, the ring really can be removed from this curious wire arrangement. As shown at left, it is simply pulled to the top of the V, and one of the stirrups is pushed through it. Make all parts including the ring from stiff coat-hanger wire. Assemble the stirrups on the bar, and then loop the bar ends. Rub the wire smooth with steel wool and wax it well.

MAGIC YOU CAN MAKE

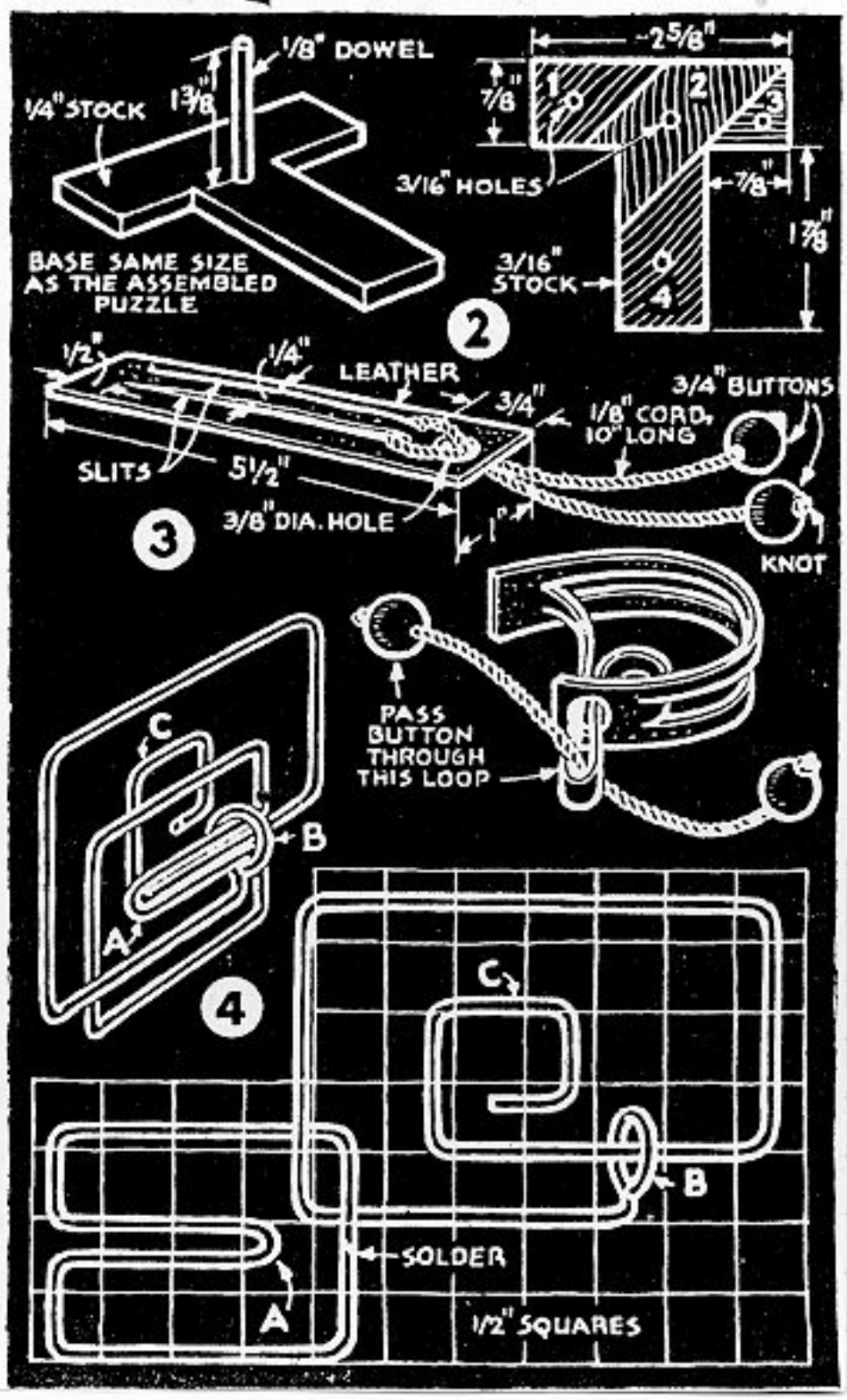


1 DEFY GRAVITY with this variation of a common trick. Rub the mouth of a ridged tumbler on emery cloth to get a rough, plane surface and drill a hole with a brass tube and valve-grinding compound, as shown at left. Hold your thumb over the hole, fill the glass, cover it with the previously dampened cardboard and celluloid, and invert it. The water won't spill. Now slide the square off, leaving the invisible disk. The glass stays full. Then, over a sink, utter a magic word, move the thumb, and the glass empties.

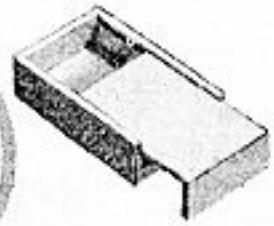
2 TO ASSEMBLE A *T* from four pieces, as shown in the drawing, requires more concentration than you would believe. Saw the *T* out of 3/16" wood stock as indicated, making all edges straight, and drill each piece to fit over a peg in a companion *T* that serves as an ornamental base to hold the puzzle when it isn't in use. Enamel the base and each piece a different color, or shellac them. In the latter case, vary the grain to avoid giving away clues.

3 HOW TO REMOVE THE CORD from the slit leather strap is a real brain teaser that will make most of your friends give up. Then they will feel foolish when you show them how simple it is. Of course, you pull the ¼" wide leather strip through the ⅜" hole, and *don't* try to force the ¾" buttons through! Use a strong, pliable leather, and dress it occasionally to prevent drying out.

4 ODDLY BENT LOOPS joined as in the bottom drawing provide an interesting problem when you try to separate them. Make them of coat-hanger wire, and have bend *A* small enough to fit into loop *B*. To solve, slip *A* into *B* as shown, work spiral *C* through *A*, and draw *A* back through *B*.







MAGIC

THE DISAPPEARING COIN

The box for this trick (1) is about of the size to hold a pack of cards. But on the inside it is only ½ inch deep, since it has a false bottom. Between the two bottoms is a flat piece of brass nearly as long as the box is wide but only an inch across. It is put in crosswise of the box. One end of the box is attached, not to the sides, but to the sliding cover. Ask someone to drop a marked coin in the box. It slides into your hand. Close your hand on it; pass the box to the other hand, shut it, and shake it endwise to make the brass rattle as though the coin were still there. Now secretly slip the coin into some hiding place. Make magic passes, open the box, to show that the coin is gone, and tell the owner where to find his money.





THE COIN IN THE BALL OF YARN

When you learn this trick you will want to combine it with the trick of the disappearing coin. For it adds to the mystification if you can produce the marked coin from the very middle of a ball of yarn. To do it you must lay the coin box on a table conveniently near a ball of yarn prepared as follows:- Get a flat tin tube (2) large enough to let a coin slip through it and with a handle at one end, as in the picture. Wind yarn around it until only the little handle projects (3). Lay the ball on your table so that the handle will now show, and while you are making passes over the coin box, secretly slip the coin into the slot and pull out the tube (4). Now drop the ball in a tumbler and let the owner of the coin unwind the yarn where all may see (5). At last the coin will appear at the very center of the ball, and the owner will take it out, wondering, and see his mark on it.







THE MULTIPLYING COIN PLATE

It is simplest to buy this magic plate from a dealer, but you can make one if you prefer. Get a plain white plate; cut two disks of heavy glazed cardboard to fit the bottom, and in a third, somewhat thicker than a coin, make a slot-shaped cut a little wider than a coin. Glue these to the bottom of the plate with the slot piece in the middle (6); finish the edges with white enamel. Put some coins in the slot. As you hold the plate out to a spectator, keep the slot toward you. He counts out coins on it (7). Pass it to the other hand, thus getting the slot in front while you ask him to hold out his hands or a hat for his coins. When you pour them back (8) the extra ones will come too.



PRODUCING A HANDKERCHIEF FROM A MATCH BOX

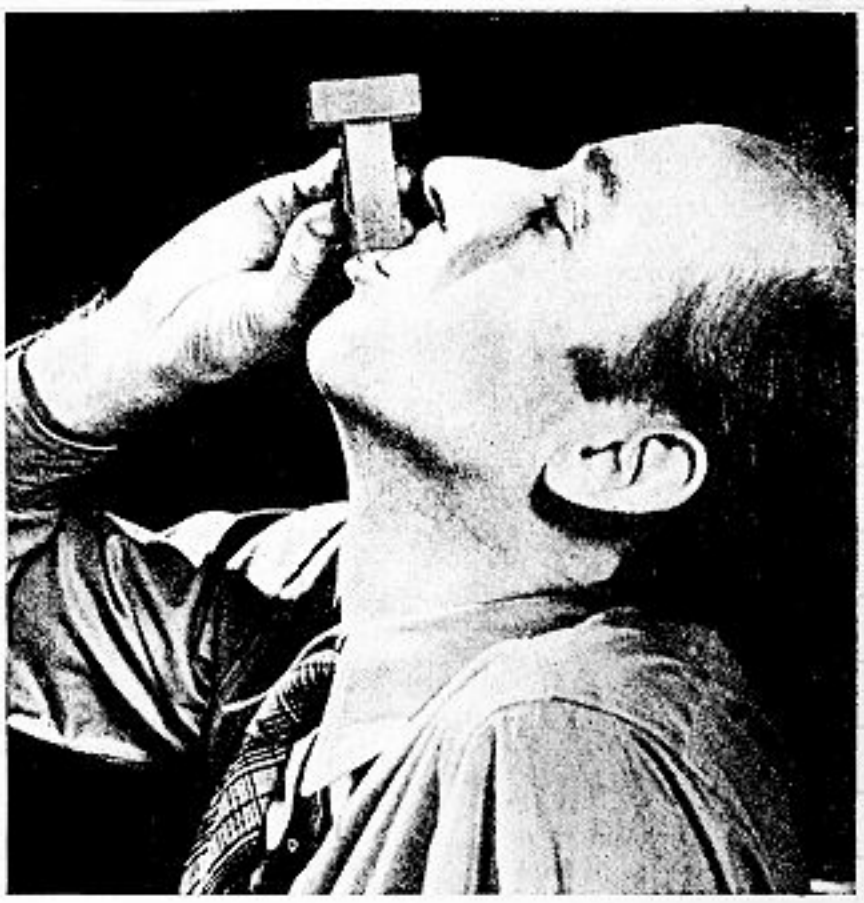
All you need for this trick is a box of safety matches, a silk handkerchief—and an excuse to light a match. In preparation, open the safety-match box part way (9) and cram the handkerchief into the open space. Leave the box lying carelessly on the table, taking care of course that the handkerchief does not show. When you want to perform the trick take up the box casually with the handkerchief end hidden in your hand. Take out a match for some special purpose. Then suddenly offer to produce the handkerchief. Of course when you shut the box the handkerchief will be forced out into your hands (10) and you can produce it with an appropriate flourish.



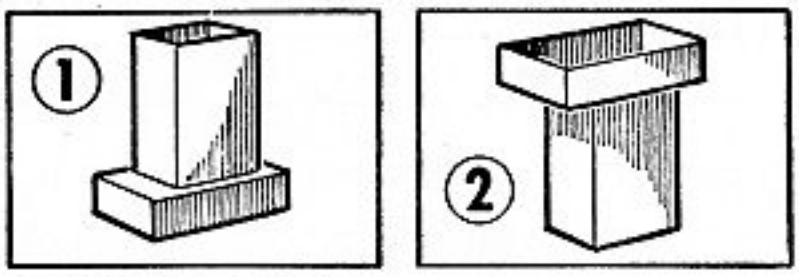




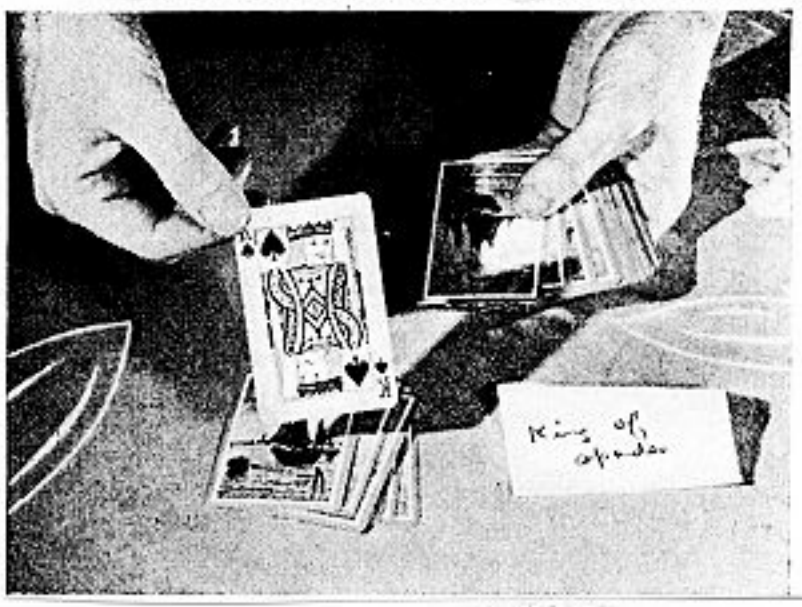
TABLE TRICKS



REVERSING A MATCHBOX set up as in Fig. 1 below so that it will be in position as shown in Fig. 2 sounds elementary. But wait—you must do it by touching only the casing, not the drawer! Now it sounds impossible, but it's still easy. Put your mouth on the casing and suck hard; then straighten up, holding onto the casing and still sucking, and bend your head back, as at right. The drawer comes up with the casing.



POPULAR SCIENCE, *NOVEMBER, 1945*



THIS ONE'S IN THE CARDS in more ways than one. Have one of your friends deal off a deck face down as many cards as he wishes after you have written the name of one card on a piece of paper, folded it, and handed it to another friend. Then have the dealt cards placed back on the top of the deck and let the second friend deal off the same number, this time face up. Watch the expressions when they unfold your paper and read on it the name of the very last card the second friend turned up!

How's it done? You simply note the top card on the deck originally and write that one on the paper. A little deduction will tell you why it's the last turned up.



CUT THE WASHERS OFF and still leave the string intact—this is a trick requiring a little sleight of hand. Explain that the quickest way to release the washers is to cut the string at the lower washer. Have someone hold the two free ends, take the four washers in your left hand, and pretend to cut. Conceal them as you do so, and pull the loop down over the lower washer. Your friend will be surprised to see the washers free and the cord whole!

DON'T BACK DOWN when you pull this one. Have someone hand you a crayon behind your back, and after a moment, whip out your free hand, point toward him, and name the color of the crayon! Be sure, though, to make a streak on your palm so you can see the color as you point.



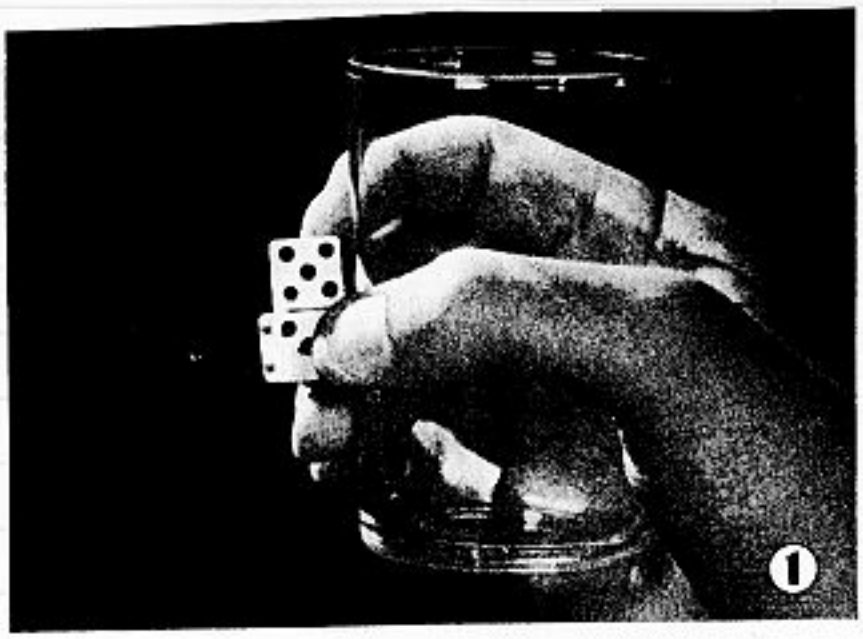




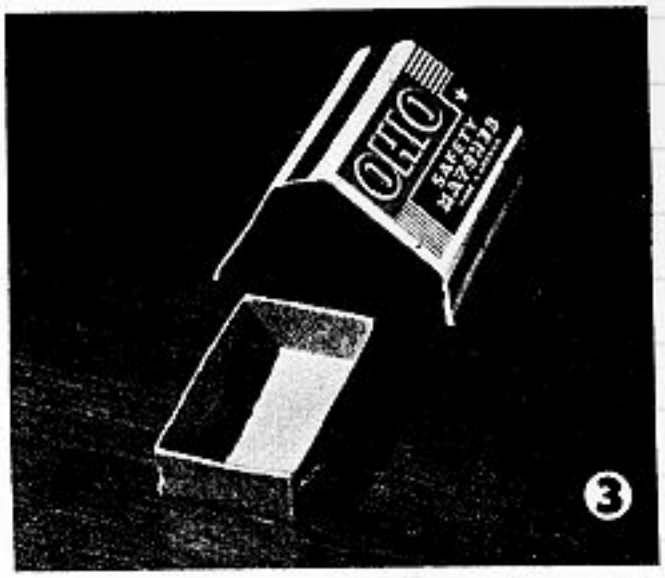
TABLE TRICKS

1 TOSSING DICE into a glass is hardly a trick. But hold two dice and the glass in one hand, as shown above, and try getting the dice in one at a time. The first die can be caught readily; but when you try throwing the second up, the movement pops the first out of the glass. Instead drop the second, and move the glass under it.

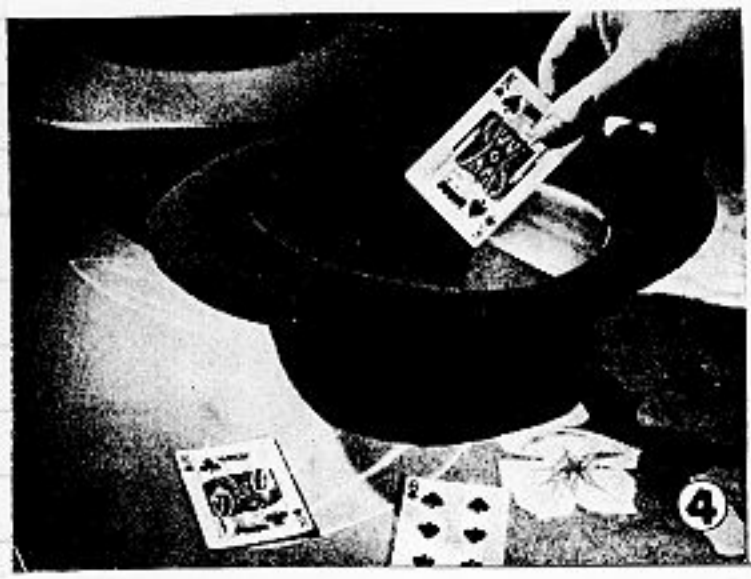
2 GRAVITY CAN BE DEFIED if you have the know-how! Close your left hand around a pencil; then grip your wrist with your right, as shown, pretending that this exerts magnetic action. Slowly open the fingers from around the pencil and then the thumb. But be sure to hold the pencil with your unseen right index finger!

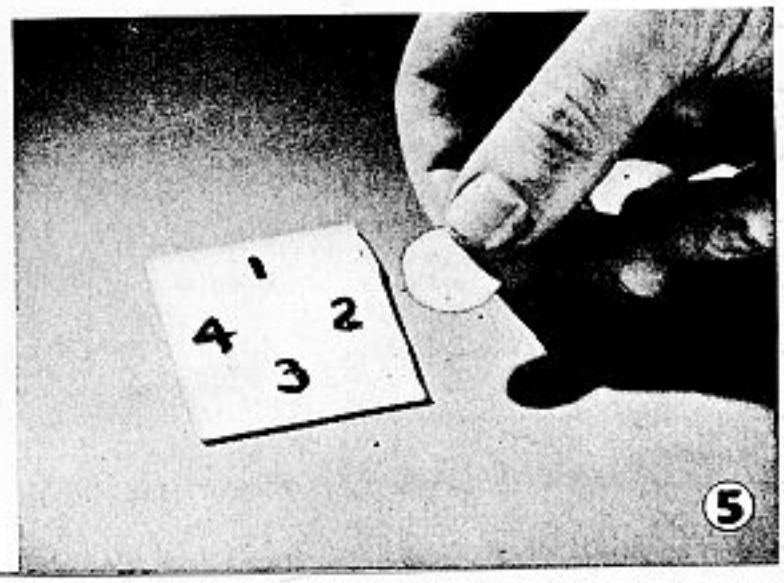
3 MATCHBOX MAGIC. With the drawer on the far side of a tunnel formed from the box, challenge anyone to make the drawer come through the tunnel toward him—without touching anything. When others have given up, cup your hand behind the drawer and blow smartly into your palm. The drawer will be blown toward you.

4 RIGHT OUT OF THE HAT come cards at your command. Let the deck be shuffled and cut. Place half in a hat, cover with another hat, and shake to mix them. Then let a friend slip three cards from the remaining half between the hats face down. Shake the hats again. You can then pick his three cards unerringly. Bend your half deck before putting it in the hat. The chosen cards, being flat, are then easily distinguished.



5 NUMBERS ON A CARD are a real puzzler. While your back is turned have someone cover for a minute or longer one number on a card like that below. Then hold the card to your forehead while you pretend to concentrate, but take a surreptitious look at it in the darkness of your cupped palms. If luminous paint was used, the number that was covered will glow less than the others, enabling you to name it.





MYSTIFYING STUNTS

By Raymond B. Wailes

Entertain Your Friends with These Feats of Magic, Easily Performed With Home-Laboratory Equipment



While a startled "assistant" juggles the magic hot ball, the chemical wizard transforms "water" into five liquids of different colors and kinds

POPULAR SCIENCE APRIL, 1936

AN AMATEUR chemist with a flair for showmanship can entertain his friends with absorbing tricks of chemical magic. At will he can evoke hissing gases, colored lights, strange odors, and effect seemingly miraculous transformations. Such demonstrations may be as simple or elaborate as desired.

A "chemical factory in the palm of the hand" could be the title for a parlor trick that may be performed with a minimum of preparation. When a pinch of lime and another of ammonium chloride are placed in the palm and rubbed together, ammonia gas is the result. It is a familiar experiment to a chemist, but none the less impressive to a layman. The ammonia is readily recognized by its odor.

A simple "magic powder" that changes its hue at the performer's touch is a mixture of mercuric chloride and potassium iodide, in the dry, powdered form. When the white mixture is rubbed, the small quantity of red mercuric oxide that is formed gives the whole powder a yellow color. This may be done in the palm of the hand, or the white mixture may be placed in a small pill box and shaken for a minute or so, which is sufficient to produce the surprising color scheme.

Trick matches to fool a smoker may be prepared from ordinary safety matches by coating the heads and a small part of their length with a solution of water glass (sodium silicate). The water-glass solution customarily employed for preserving eggs may be used for this purpose. Let the coating dry thoroughly. When the matches are struck on the side of the box, they puff, smoke, and spatter, but no effort can induce them to light. Trick exploding matches are made in another way, not to be tried in a home laboratory; their effect is produced by a small crystal of silver fulminate, affixed to the match with an adhesive.

Small explosions that supply effective "atmosphere" for a chemical-magic show may be produced safely with other chemicals, such as a mixture of sulphur and potassium chlorate. The quantity of the mixture used should not exceed half the size of a pea. When this is struck with a hammer, a noisy but harmless detonation results.

"Pharaoh's serpents," amusing and mystifying, may easily be produced in an amateur laboratory. These are the wriggling, snake-like forms of ash that emerge from a small pyramid of suitable chemical composition when its tip is ignited. There are several ways of preparing such compositions, which vary in effectiveness according to the relative volume of ash that they form. One



When a mixture of sulphuric acid and paranitroacetanilide is heated over a small flame, an impressive "serpent" writhes out of the dish

for the AMATEUR CHEMIST

standard method consists of mixing solutions of a mercury salt and a sulphocyanide, or thiocyanate, as it is sometimes called; mercuric chloride or mercuric nitrate may be used for the first, and potassium sulphocyanide or sodium sulphocyanide for the second. The heavy precipitate of mercuric sulphocyanide that results is washed, dried, and molded into small pyramids, with or without the addition of dextrin or glue water as a binder. A second method uses, for ingredients, sugar, potassium nitrate, and potassium bichromate, mixed together and molded to the desired shape. This mixture, however, produces only a limited quantity of ash and its burning qualities leave much to be desired.

A far more striking demonstration of "Pharaoh's serpents" may be given with the aid of a little laboratory apparatus and a mixture consisting of strong sulphuric acid and paranitroacetanilide. This organic chemical is a light yellow, fluffy powder. You will not be likely to find it on the shelves of a drug store, but dealers in chemicals can supply it. It is not necessary to buy more than an ounce. The grade known as technical is pure enough for your needs, although, of course, the C. P. (chemically pure) variety may be employed.

Mix the chemical with strong sulphuric acid in an evaporating dish, using plenty of the powder and adding the acid sparingly. You should obtain a thick paste, almost solid in consistency; a thin one will not work satisfactorily.

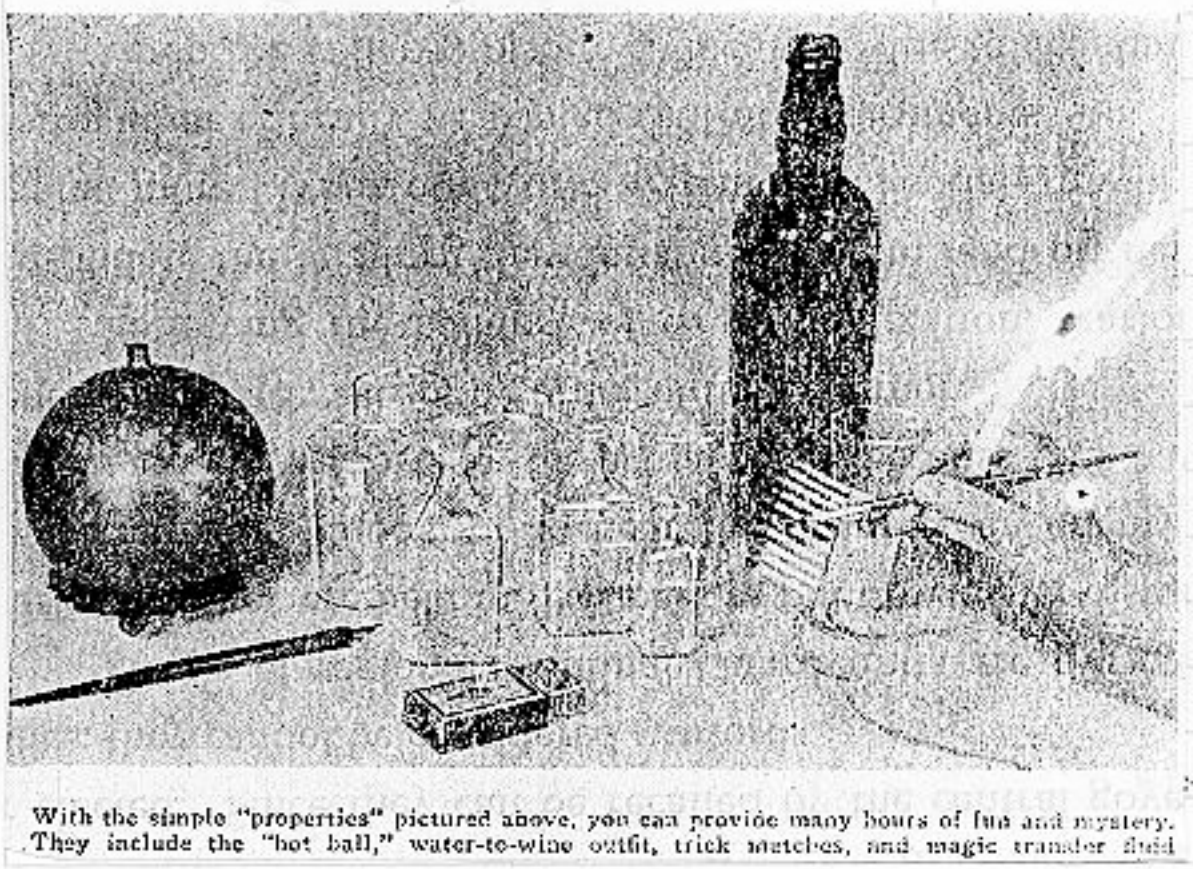
When all is ready for your demonstration, heat the mixture gently over a small flame until the reaction sets in. The ash erupts from the dish with a writhing movement, simulating a giant snake, and the quantity produced from a small amount of chemicals is really astonishing. Only a tablespoonful of the mixture was used to produce the spectacular effect shown in the accompanying photograph. The ash is comparatively tough, and may be picked up and tossed from hand to hand. For an indoor demonstration, it is best to open the windows during the reaction, although the odor produced is not unpleasant.

Certain chemicals evolve a surprising amount of heat when water is added to them, and you can apply this fact to an amusing bit of byplay. A hollow copper ball of the type sold by plumbing supply dealers makes a good accessory for the trick. Into it should be placed about a tablespoonful of a heat-producing mixture made in accordance with one of the formulas given in a subsequent paragraph.

At some time during your exhibition of chemical magic, add a quarter glassful of water to the contents of the ball, and stopper the hole with a machine screw. Then ask a volunteer from your audience to come forward and assist you by holding the ball, as if you planned to use it in a forthcoming demonstration. Proceed at once with another part of your program, keeping your unsuspecting "assistant" standing beside you with the ball in his hands.

Soon he will notice that the ball is getting warmer, and you may see him shifting it uneasily from hand to hand. Before long it will be downright hot. The onlookers will enjoy a laugh at the expense of the victim, as he is presently forced to deposit his embarrassing burden wherever he can find a suitable place to set it down.

For this trick, you may take your choice of several heat-producing mixtures, selecting the one whose ingredients are available. One suitable preparation may be made by mixing ninety grams of sodium acetate, ten grams of sodium hyposulphite, four grams of glycerin, and one gram of calcium chloride (a teaspoonful equals about five grams). Another good formula consists of sixty grams of iron filings, one gram of lead chloride, and one fifth of a gram of aluminum powder. A third recipe uses seventy grams of iron filings, seven grams of copper sulphate, two grams of common table salt, one gram of calcium chloride, and one gram of potassium chlorate. Any other unit of weight, of course, may be substituted for grams in these formulas, provided the ingredients are mixed in the proportions called for.



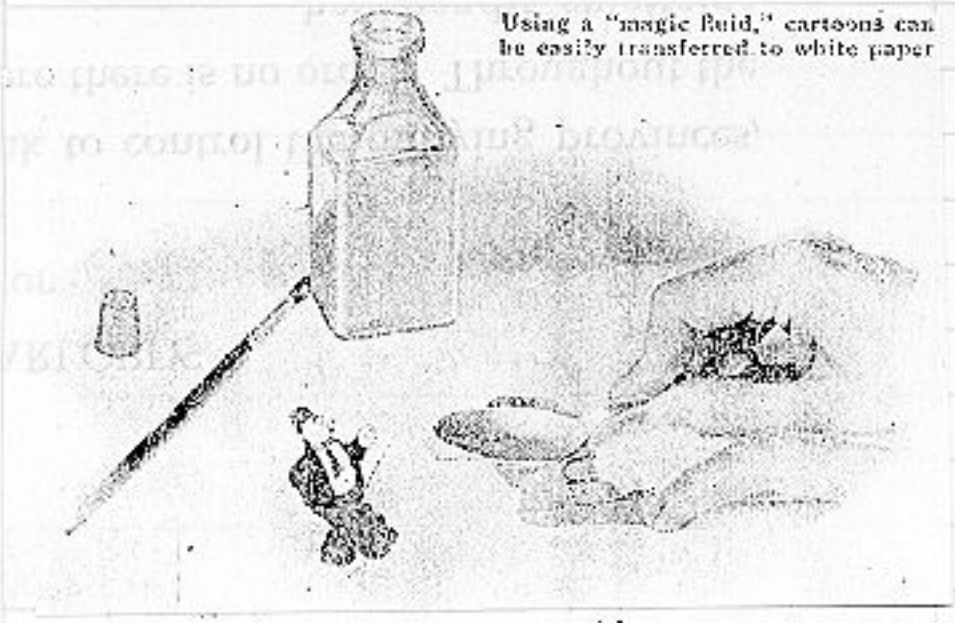
With the simple "properties" pictured above, you can provide many hours of fun and mystery. They include the "hot ball," water-to-wine outfit, trick matches, and magic transfer fluid

NO EXHIBITION of chemical magic is complete without some version of the classical "water-to-wine" trick. Here is an elaboration of it that produces a variety of striking color changes and other effects.

This demonstration consists of pouring a liquid, apparently water, into five seemingly empty glasses arranged in a row. As each glass is filled in its turn, the first glassful looks like water; the second, red port wine; the third, bright blue ink; the fourth, milk; and the fifth effervesces, so much like a headache potion that you may facetiously announce it will be set aside for the benefit of anyone who tries to figure out how the trick is done. Since the liquids are not what they seem, no one, of course, should be permitted to sample them.

The liquid that you pour into the glasses is really a weak solution of ferric chloride or of ferric nitrate. After either of these iron salts has been dissolved in the required amount of water, the liquid should be acidified by adding three or four cubic centimeters of strong sulphuric acid for every pint of solution. If the solution is dilute enough to be colorless, it may be poured from a decanter of clear glass. A stronger solution of the iron chemical will be somewhat yellowish in tint but may still be used if it is poured from a colored bottle that masks its color.

Only the first of the five glasses used



Using a "magic fluid," cartoons can be easily transferred to white paper

for this stunt is actually empty. The others contain small quantities of chemicals that react with the iron-and-acid solution to produce the varied effects. As much of each chemical should be used as will escape detection at a short distance.

Glass No. 2, when prepared for this demonstration, has been rinsed with a strong solution of potassium sulphocyanide, (thiocyanate); and if a few drops of the solution can be left in the bottom of the glass for good measure, without being too apparent, so much the better. Upon the addition of the iron solution, an iron thiocyanate is formed, and its red color gives the liquid the appearance of wine.

Glass No. 3 is prepared in the same way, except that the solution used is potassium ferrocyanide (yellow prussiate of potash). On reacting with the iron solution, it forms Prussian blue.

Glass No. 4 should contain several drops of a strong solution of barium chloride or barium nitrate. The milky effect obtained is due to a precipitate of white barium sulphate, produced by the sulphuric acid in the solution that is added.

Glass No. 5 is sprinkled with a thin layer of baking soda. The acid in the liquid poured upon it decomposes the chemical, liberating carbon dioxide gas and thus causing the effervescence.

Before the glasses employed in this demonstration are used again for other purposes, they should be washed thoroughly to remove all traces of the chemicals.

Making fingerprints without ink is a chemical stunt that proves baffling to the uninitiated. The subject's finger is first placed on a "stamp pad" consisting of a cloth saturated with a colorless chemical solution; the impression is then made on what appears to be ordinary white paper. A sharply defined blue-black print results.

To prepare the paper, heat about twenty parts by weight of citric acid with about ten parts of starch and ten parts of water, until the reaction is complete and the liquid has lost most of its milky appearance. Thin the product with water and use it to coat the paper, which should then be well dried.

THE stamp pad is made of several thicknesses of finely woven white cloth, folded to the size and shape of an inking pad. It is thoroughly dampened with a solution consisting of about three parts of sodium nitrite or potassium nitrite—not nitrate—and one part of potassium iodide or sodium iodide, dissolved in about 700 parts of water.

The magic fingerprint that is produced when the subject's finger is pressed upon the damp cloth pad and then upon the prepared paper looks as if it were made with ink, although all the materials used are colorless. Actually the citric acid on the paper, reacting chemically with the nitrite chemical carried on the finger, liberates free iodine from the iodide salt. The free iodine, in turn, reacts with the starch to create the dark-blue coloration.

Invisible or "sympathetic" inks are easily prepared in an amateur laboratory. Cobalt chloride crystals, which are supplied in most home chemistry sets, may be dissolved in water, and writing made with this solution will be invisible. Warming the paper "develops" the secret message; the writing turns blue and is easily read. When it is breathed upon or exposed to moist air, it becomes invisible again. A small amount of ammonium chloride added to the cobalt chloride solution enhances the effect. Ammonium chloride may also be used alone as a sympathetic ink. Other substances exhibiting the same property include cupric bromide, copper sulphocyanide, cobalt nitrate, cobalt sulphocyanide, weak sulphuric acid, and most of the organic acids—for example, acetic acid and nitric acid.

While it may not strictly fall within the field of chemical magic, a novel preparation that you can concoct from easily obtainable ingredients has curious and practical applications. This liquid will enable you to transfer cartoons, text, and other printed matter from newsprint to any other paper desired. It contains substances that soften the inked parts, together with other ingredients that perform the roles of pick-up and adhesive.

TO MAKE this preparation, dissolve one ounce of white soap flakes in one quart of warm water. Then add to the solution one half pint of turpentine, one half teaspoonful of aromatic spirits of ammonia, and ten drops of kerosene.

The resulting mixture is simple and clean to use. Moisten the cartoon or other newspaper item with the liquid, which should first have been shaken well in its bottle. Now turn the printed face down upon the paper to which the transfer is to be made, and rub the back of the damp print vigorously with a rounded instrument such as the bowl of a spoon. This causes the transfer to take place. Several impressions may be taken from the same picture, and pictures in colors as well as in black and white may be transferred. The method is inapplicable, however, to pictures on glossy paper, which do not transfer well.

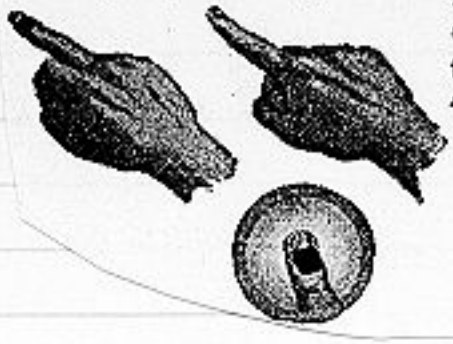
SUGAR THAT WILL NOT DISSOLVE

Tell your friends that you will hold a cube of sugar under water for ten minutes without its dissolving. Then place the sugar on top of a cork floating in a bowl of water, and push an inverted glass down into the water over the cork. The sugar will be under, but not in, the water.



THE VANISHING SPOT

Paste a small square of black court plaster on the back of your second finger. Tell your spectators that at your command the spot will vanish and reappear. Close your fist and say, "Go away, Jack." Then quickly extend your first finger, which has no court plaster. Then close your fingers and say, "Come back, Jack," and extend the second finger again. All this must be done very smoothly and quickly, with the fist held somewhat downward.



THE WALKING RING

Put a ring on a perfectly smooth cane and hold the stick quite still with the ring just touching the surface of a table. Entirely of its own accord the ring will move from one end of the stick to the other.





MAGIC

THE MAGIC CORNUCOPIA

Cut a folded sheet of newspaper so that there will be two sheets about 10½" by 14½". Paste the sheets together, but leave free the space to the left of the dotted line shown in the little picture. When the paste is dry the double paper will look like a single sheet, but there will be a pocket in it. Fill this pocket with several feet of very thin silk ribbon and lay the paper on your table. Before performing the trick hold up the paper, shaking and turning it so that the audience can see both sides of it. Now roll it into a cornucopia, or funnel. Show the empty cornucopia—and then begin pulling yards of ribbon from it. Now shake the paper out again, showing both sides. Again roll it up, and pulling a small silk handkerchief from your pocket, secretly tuck it into the pocket of the funnel. Unroll the cornucopia, and presto! the handkerchief has disappeared.

THE SPIRIT WHISTLE

You will need two whistles to do this trick. Fasten one to the end of a rubber tube, and attach the other end of the tube to a rubber ball. Now conceal the whistle in your cuff, let the tube run up your arm, and hold the ball in your armpit where you can press it—and thus blow the whistle—with a slight movement of your arm against your body. When about to perform the trick, pass the other whistle around for inspection. Then announce that you will not touch it to your lips, but that your spirit will blow it as you hold it in your hand. The spirit will answer questions: one toot for "Yes," two for "No," three for "I don't know." Of course you answer the questions with the concealed whistle. If the light is dim, the movement of your arm will not be seen.



THE SPIRIT SEANCE

You will need a piece of cloth about 2 ft. square for this trick. Make a hem along one edge of it and run a small round dowel or slat through the hem so that you can hold the cloth up by one corner, as shown in the picture below. Paint or whittle some false fingers and fasten them at one end of the stiffened side of the curtain, so that, in a dim light, you will seem to be holding the curtain up with both hands, although really you are using only one. When doing the trick, step to a table and set a bell upon it. Announce that there is a friendly spirit present who will ring the bell at your command—or answer questions with it, as the spirit whistle does. Taking care that the audience does not see the false fingers till the right time, lift the curtain in front of the bell. Back of the curtain, you can of course ring the bell yourself.





THE MYSTERIOUS GLASS

The trick shown in the circles depends entirely on your making movements more quickly than the eye can follow them. Sit at one end of a table, with the spectators seated around it but toward the other end. Wrap a piece of paper around a tumbler, twisting the top into a funnel. Announce that you will make the glass drop through the table. Cover it with the funnel and slide it off the edge into your lap so quickly that when you crush the funnel no one will know where the glass has gone.





There's MAGIC in Memory

No need to be a Houdini or a Trilby to work these amazing card tricks or mind-reading feats. Just let Dr. Bruno Furst train your mind.

Mechanix Illustrated January, 1954

By Dr. Bruno Furst

(Dr. Bruno Furst, lawyer and psychologist, is the director and founder of the School of Memory and Concentration with headquarters in New York and branches all over the country, South America, and Canada. Its Correspondence Course Division extends over five continents. Dr. Furst's system is taught at many Universities, Colleges, Adult Education Centers, Business Firms, and Trade Associations.)

YOU'RE at a party. Someone calls to you from across the room and asks you to name a card which has just been selected from a deck. Without shuffling through the pack, without even seeing or touching the cards, you name the pasteboard promptly.

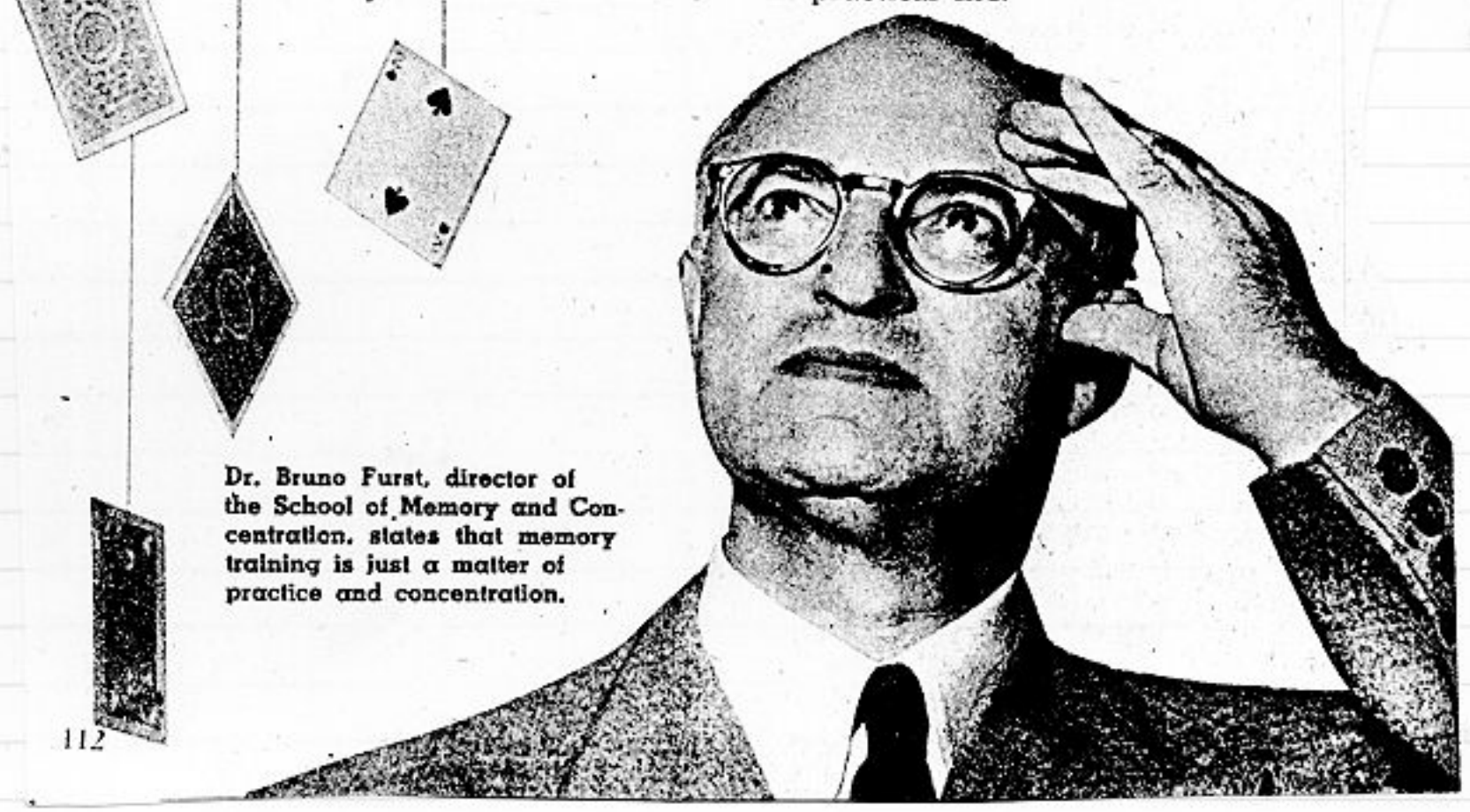
Other cards are chosen and, one after the other, you snap them out with unerring accuracy. The baffled spectators hide you in a closet, send you into the next room or even outdoors—but you can still reel off the cards people pick, unhesitatingly, tantalizingly and correctly!

Sounds utterly mystifying, doesn't it? But there's actually no magic, telepathy, or anything occult involved. The answer lies in just one word—memory.

In fact, through memory training you can perform this and other incredible card tricks that startle and amaze with ridiculous ease, stunts which can neither be duplicated or exposed by the uninitiated.

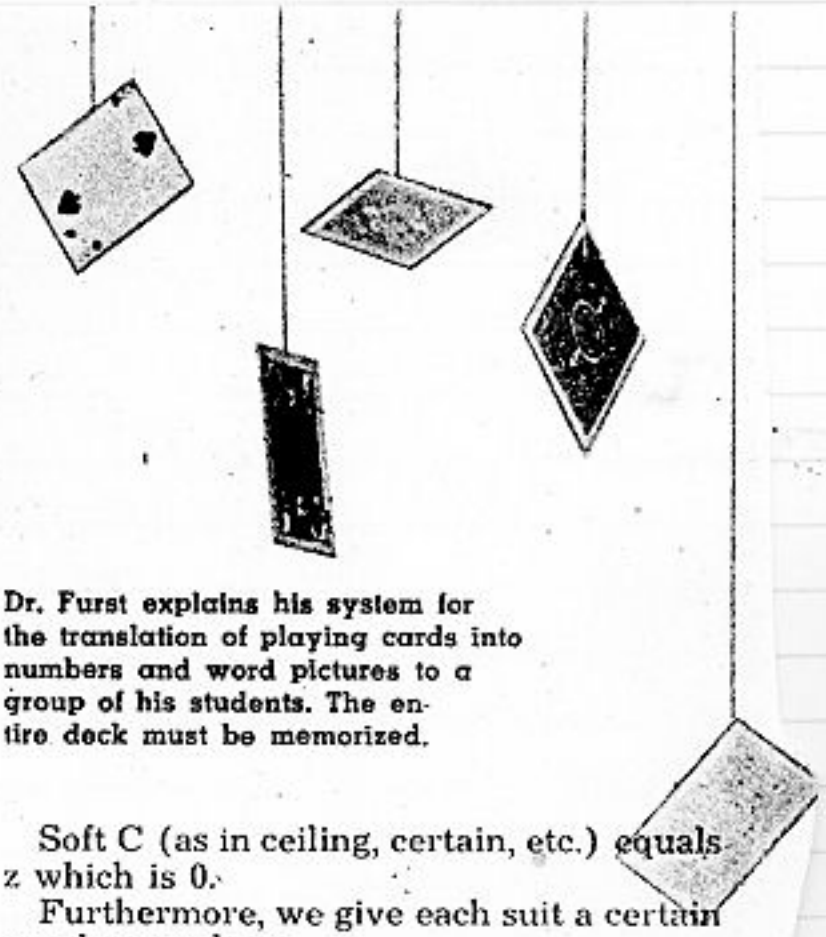
In this article, I'm going to show you how.

You see, I run a memory training school, attended by doctors, lawyers, business men, college students, housewives—who are tired of forgetting what they read, of forgetting names and faces of people, or their addresses and telephone numbers. I help them to improve their memory for everything that they have to remember in practical life.



Dr. Bruno Furst, director of the School of Memory and Concentration, states that memory training is just a matter of practice and concentration.





Dr. Furst explains his system for the translation of playing cards into numbers and word pictures to a group of his students. The entire deck must be memorized.

And the same system that is useful for professional or business purposes, can also be applied to fun and entertainment.

Let's start with the "mind reading" act I have just described. The stunt is worked by two persons, one who offers the cards to the spectators and one who divines them. Each has memorized the following simple numerical code. Pay close attention—it's the key to a lot of card magic.

1 is indicated by the letter t, because the t has one downstroke.

2 by n, because n has two downstrokes.

3 by m, because m has three downstrokes.

4 by r, because the word four has four letters of which r is the fourth; and, besides, r is the emphatic consonant in the word four.

5 by l, because the Roman capital L means 50.

6 by J. If you turn 6 around, you practically have J.

7 by K. The initial stroke in writing a calligraphic K is similar to a 7.

8 by f. The small hand-written f and the number 8 both have two loops.

9 by p. If you turn 9 around, you have P.

0 by z, because z is the last letter in the alphabet, and the familiar Latin word zero, which means "nought," begins with z.

You notice that we use only consonants; the vowels have no numerical value, and can be used wherever they are needed.

The entire system is phonetic, which means we follow the sound, and use all the consonants, which have the same or a similar sound, for the same number value; for instance:

Hard C (as in car, card, etc.) equals K which is 7

V equals f which is 8

B equals P which is 9

Soft C (as in ceiling, certain, etc.) equals z which is 0.

Furthermore, we give each suit a certain number, such as

Clubs—1
Diamonds—2
Hearts—3
Spades—4

Fine. Now a card is picked. One partner glances at it and asks the other—who is far away—to name it. The secret lies in the simple, apparently inconsequential words or phrases he uses in asking the question. You see, both of you have agreed that the first consonant in the first word spoken by the partner giving out the card indicates the suit, while the first consonant in the second word refers to the value of the card. Ace is best considered as one, and the ten as zero.

Suppose one partner calls out: "Now, let's try to guess this card." The first word "now" starts with an *n*—you know that *n* indicates 2 or diamonds. The second word "let's" starts with an *l*, indicating 5—hence the card chosen must be the Diamond 5 or the 5 of Diamonds.

Suppose the question is: "Read this one, can you?" The *r* in the word "read" is 4, the *t* in the word "this" is 1. You know 4 equals Spades and 1 is the Ace, thus the card is the Ace of Spades.

One more example: "Try just one more card." The *t* is 1, the *j* is 6. Therefore, the card is the Clubs 6.

What about face cards? In formulating the code, just add 5 to the suit number. That gives us the following suit values for face cards:

Clubs—6
Diamonds—7
Hearts—8
Spades—9

The face cards themselves may be valued



After Dr. Furst's explanation, one of the students, Mrs. Jean Schneider, is blindfolded and is able to identify playing cards by code words.



Another student, Herman Kappler, listens while 39 cards are called out. Then, by the process of elimination, he recites the remaining 13 cards.

like this: Jacks are 2, Queens are 3, and Kings are 4.

So if the question is: "Concentrate now on this card," the c (sounding like k) is 7 and the *n* is 2. The 7 is Diamonds for face cards and the 2 represents a Jack; therefore it is the Jack of Diamonds.

Another example: "Please read this card" means 9-4, or the King of Spades.

Just a little practice with a partner will bring the words and numbers sharply into focus, and you will be amazed how rapidly you will be able to code and decode the cards.

You can pretty well rest on your laurels with just this one trick. I can assure you that my students who have mastered it have flabbergasted gatherings of prominent men and women who spent hours vainly attempting to trip them up and solve the stunt.

But there are plenty of others with which you can pad out your repertoire. Remember the "Mr. Wizard" puzzler? It's an old trick, and goes like this:

You announce at a party that a fabulous wizard has just arrived in town from India. He's a famous conjurer gifted with the power of reading minds over the telephone. To prove it, you ask someone to select a card, then dial Mr. Wizard's number. There, of course, is a confederate. He isn't planted there—you just agreed with him that each can call the other whenever the opportunity to play the game presents itself.

As soon as you ask, "Is Mr. Wizard there?" he catches on and starts calling off the suits slowly. When he reaches the correct one, you merely say "yes." Then Mr. Wizard begins counting slowly, from Ace through to King, and you interrupt with "yes" at the right number or picture. Thus Mr. Wizard, the old fraud, now knows the card and you can hand the phone to the doubting Thomas who chose it. He listens and is properly amazed.

The effect is startling, but an even bigger bombshell can be exploded by using the same code as in the "mind reading" act. Try it this way:

Tell the person who picked the card to go to the phone *himself* and call a number you give him. Make it very plain that there will be no contact between you and the wizard, hence no opportunity for skullduggery. The victim asks the Great One if he can read the card he holds in his hand. And the wizard unhesitatingly does!

The secret? Simple. After the card is selected, quickly invent a name for the wizard based on the code. If it's a 4 of Clubs, the name might be Tom Redding—*t* for 1, *r* for 4. The 1, remember, is Club; the 4 is the card's value. Give your victim the phone number of your partner, and tell him to ask for Tom Redding. The moment the name is uttered, your confederate can immediately translate it into the card.

But caution—don't try it more than once at any gathering unless you've got a few wizards strategically spotted around the community.

You've probably seen vaudeville and night club acts in which a swami, blindfolded on the stage, guesses objects shown to an assistant by members of the audience. It's all done with codes and memory training. Once my wife and I on a vacation trip passed a theater where a phenomenal mind reader was starring. Curious, we went in, and I was astonished to see that the star was one of my former students who had developed memory cultivation into a baffling, and highly lucrative, stage asset.



Here pretty Marilyn Sims repeats from memory the sequence of a deck of cards, which she heard only once. Stunt is actually easier than it looks.

If you are somewhat more ambitious and not quite satisfied with such simple stunts, you can show your friends that you are able to memorize an entire deck of cards in a short time. How to do it?

Based on the number code, it is easy to construct a Basic List of 99 words. Since only the consonants count, we are at liberty how to insert the vowels. We follow the sequence of the alphabet, which means: a-e-i-o-u-y.

If the insertion of the first vowel (a) leads to a word, we are satisfied; if not, we proceed to the following vowels. For instance, according to the number code, 12 consists of T and N. If we insert the first vowel—a—we find the word Tan, which is satisfactory.

13 consists of T and M. If we insert the first vowel—a—we find the word Tam; since tam is frequently used as an abbreviation for tam-o'-shanter it is satisfactory.

Although we need only 52 words for the playing cards, I am giving you the entire Basic List, because it can be used to remember shopping lists, appointments, schedules, anniversaries, in short, almost everything that we have to remember in every-day life.

Here is the list:

1. tea	13. tam	25. nail	37. mike
2. Noah	14. tar	26. niche	38. muff
3. May	15. tale	27. neck	39. map
4. ray	16. tissue	28. navy	40. race
5. law	17. tack	29. nap	41. rat
6. jaw	18. taffy	30. mass	42. rain
7. key	19. tap	31. mat	43. ram
8. fee	20. nose	32. man	44. rear
9. bay	21. net	33. mama	45. rail
10. toes	22. moon	34. mare	46. rash
11. tot	23. name	35. mail	47. rake
12. tan	24. Nero	36. match	48. reef
49. rope	62. chain	75. coal	88. fife
50. lace	63. chime	76. cash	89. fob
51. lot	64. chair	77. cake	90. base
52. lane	65. Chile	78. cuff	91. bat
53. lime	66. judge	79. cap	92. bean
54. lair	67. check	80. face	93. beam
55. lily	68. chef	81. fat	94. bar
56. lash	69. chip	82. fan	95. ball
57. lake	70. case	83. fame	96. badge
58. leaf	71. cat	84. fare	97. back
59. lap	72. can	85. fall	98. beef
60. chase	73. cam	86. fish	99. babe
61. chat	74. car	87. fig	

The translation of playing cards into the words of the Basic List is easy. We always use the suit first. Thus Clubs 2 becomes 12 or Tan. Diamonds 7 becomes 27 or Neck. Before you proceed make sure that you know the Basic List, and that you are quick in translating the cards. The ace is translated as 1, and the 10 as zero, which means Ace of Diamonds equals Net, and 10 of Hearts equals Mass. Then ask somebody to shuffle a deck at random and call the cards out one by one; ask him to call them slowly, since you must have time enough to translate each card into the proper word of the Basic List. Construct a little story while you go along, using these words in the same sequence as your friend calls out the cards. Example: the first 5 cards which he calls may be:

2 of Hearts, which you translate into 32—or Man
King of Diamonds, or Car
Ace of Diamonds, or Net
8 of Spades, or Reef
5 of Clubs, or Tale

While he proceeds you form a story of your own, which could run like this: A *man* takes his *car* out to go fishing; he takes his *net*, fishes from a *reef*, and tells us a *tale*, about his good luck.

It takes some imagination to construct such a story rapidly, but a little training works wonders. My advice is to try it first alone, and with not more than ten to fifteen cards, then with 20 and 30, and only when you can do it with 30 without making a mistake, proceed to 40 cards, and then to the entire deck. It is useful to stop after 10 or 12 cards and to make sure that you can repeat that part of the story. The vast majority of my students master this experiment with the entire deck after a short time. Needless to say that it can be combined with the mind-reading stunt in a startling way. If somebody draws a card and I have memorized the deck, all I have to do is to look at the preceding card, and I can ask my partner the proper question without so

much as glancing at the card which has been drawn. Knowing the preceding card enables me to know the following card, which must be the card which has been drawn. I don't have to see it.

Another exercise which is easier to perform and still looks like black magic to the uniti-ated, uses the Basic List in order to find the "missing cards," or the "fourth hand" in a bridge deck.

You ask for four volunteers at your party, and have them seated around a card table: Give them a bridge deck, let them shuffle and distribute the cards among themselves. Each one receives 13 cards. Then three of them will slowly call out their cards. The moment they have finished you will be able to reel off the 13 cards which the fourth volunteer is holding; mind you, the one who did *not* read his hand. Sounds like magic, doesn't it?

All it needs is the application of the Basic List in connection with proper associations. This time it is not even necessary to form a story; all you have to do is to form a quick mental picture with yourself in connection with the Basic List word for every card which has been called. Afterwards you run mentally through the words of the Basic List, from 10 to 49, and the 12 numbers for the picture cards. You will find immediately the words for which you have not formed an association. These are the cards in the hands of the fourth player.

Let me give you an example just for one suit (clubs). Suppose I call out:

6 of Clubs (Tissue). Imagine yourself wip-ing your forehead with tissue paper.

Ace of Clubs (Tot). Imagine yourself walking with a little tot.

9 of Clubs (Tap)
2 of Clubs (Tan)
Jack of Clubs (Chain)
10 of Clubs (Toes)
4 of Clubs (Tar)
King of Clubs (Chair)
8 of Clubs (Taffy)

Then you run mentally through the Basic List from 10 to 19—the number cards for Clubs—and from 62 to 64—the picture cards for Clubs.

Ask yourself: Did I form an association with Toes? (yes)—with Tot? (yes)—with Tan? (yes)—with Tam? (no)—with Tar? (yes)—with Tale? (no)—with Tissue? (yes)—with Tack? (no)—with Taffy? (yes)—with Tap? (yes)—with Chain? (yes)—with Chime? (no)—with Chair? (yes).

This way you find immediately that you have no associations for Tam—Tale—Tack—Chime—which means missing are 3-5-7 and Queen of Clubs.

Of course, this example covers only one suit while the correct procedure comprises the en-tire deck with all four suits distributed in-discriminately among the four participants. However, the system that you apply remains the same.

Again some advice: Try it at first without the picture cards, which leaves you 40 number cards; eliminate 10 of them and look slowly through the balance of 30 cards. Form your association with each card, and then run men-tally through the Basic List, the way I de-scribed it before. I am sure you will find immediately which words—and therefore which cards—are missing.

You must realize that our memory works like a muscle, and must be trained like a muscle, if we expect it to work properly, even at a higher age.

In my classes at Steinway Hall, New York, I have seen innumerable self-admitted mem-ory duds of both sexes not only flip through a deck of cards in an incredibly short time, but they increased the efficiency of their memory in general to a degree which seemed unbelievable before they started this course. The headquarters of my correspondence course division at 365 West End Avenue, New York City, receive numerous letters al-most every day, saying in effect: "I can always become the life of the party whenever I so desire, and my memory, which used to work like a sieve, became so reliable that I can trust it at any time and with regard to the most difficult subject material." •

(Editor's Note: Word 22 on Basic List should be "noon" not "moon.")



FREEING THE PAPER

Turn a bottle upside down on a single sheet of paper. Pull the paper taut with the left hand, and strike the table a number of light blows with the fist of the right. At each blow the paper will slip toward you a half inch or so, and will gradually be removed from under the bottle.



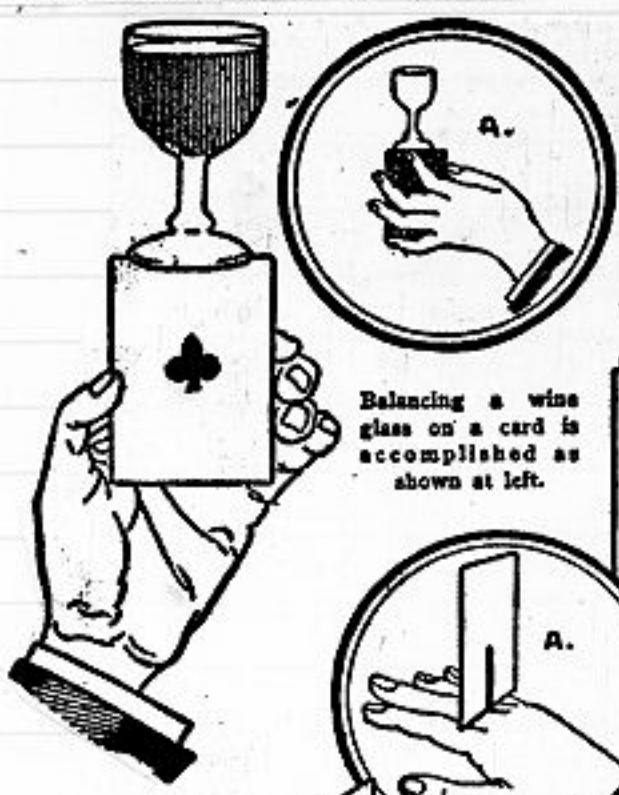
THE MAGICAL GLASS

Hold a goblet of water as shown, and lifting it quickly and smoothly, swing it round as if it were empty. No water will spill.

Parlor Juggling

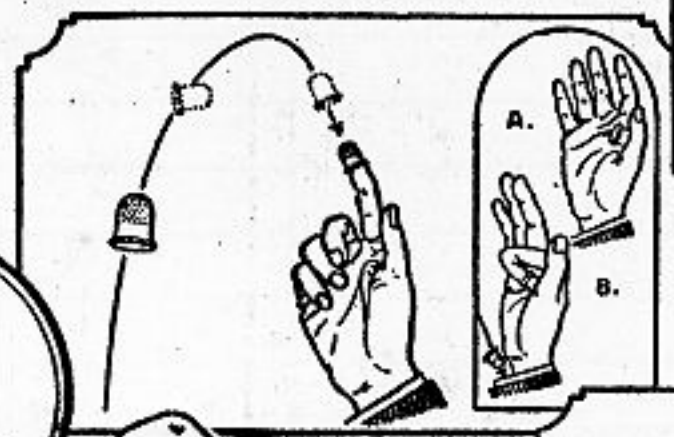
Tricks That All Can Do

By L. J. SMITH



Balancing a wine glass on a card is accomplished as shown at left.

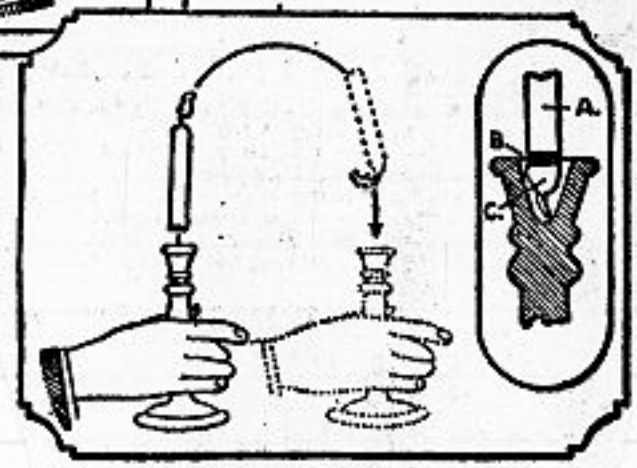
With a needle, a card can be balanced, as shown, and allowed to fall slowly.



To seemingly catch a thimble on the finger. Secret—second thimble as at A above. Toss second thimble into the air, place first on finger as at B, straighten out, catching second thimble in sleeve.



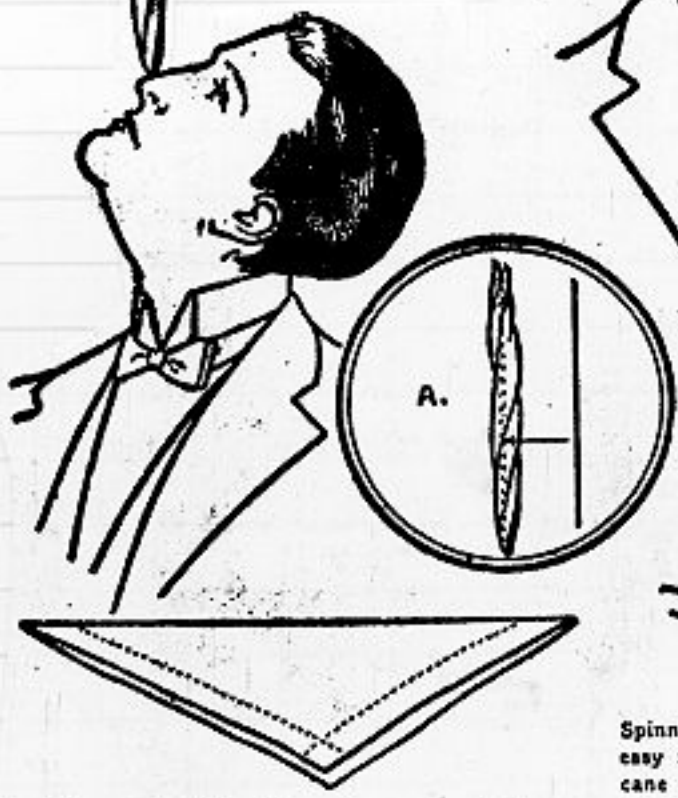
Place paper in scissors as at A above. Envelope is previously clipped. As envelope falls, moving scissors gives clipping effect.



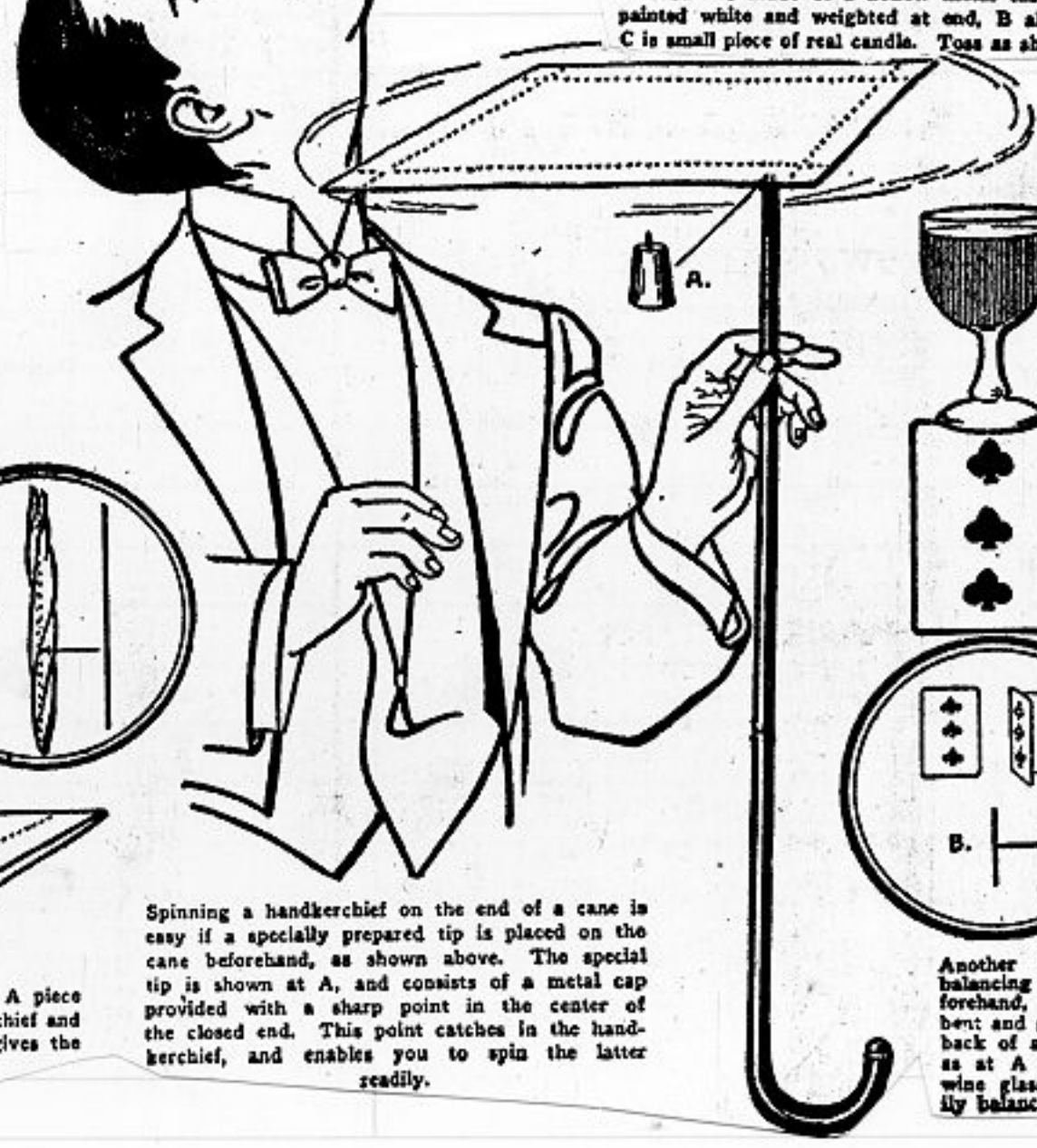
A candle is made of a hollow metal tube A, painted white and weighted at end, B above. C is small piece of real candle. Toss as shown.



To balance orange on straw. Right: A metal cup is painted like an orange and fitted with a point, as shown at A. Orange is placed in cup and pin point in straw. Balancing is easy.



To balance a handkerchief on the nose. A piece of fine wire is secretly laid in the handkerchief and the latter is then rolled up. The wire gives the necessary rigidity for balancing.



Spinning a handkerchief on the end of a cane is easy if a specially prepared tip is placed on the cane beforehand, as shown above. The special tip is shown at A, and consists of a metal cap provided with a sharp point in the center of the closed end. This point catches in the handkerchief, and enables you to spin the latter readily.

Another wine glass balancing trick. Beforehand, a card is bent and glued to the back of another card as at A and B. A wine glass will readily balance as shown.





Make a burning candle float upright in a glass of water? Sure. It can be done. Weight the bottom of the candle beforehand with a nail or screw and then conceal with melted wax. Plop it all into a glass of water and the balanced candle floats perfectly upright.

Remove the dollar bill from under the tumbler without disturbing the coin perched on the rim of the glass? Simple! Just wrap one end of the bill around a pencil and slowly roll it out. It'll slip from under the glass smoothly without causing coin on top to stir.





MECHANIX ILLUSTRATED DEC., 1952

PARLOR PRESTIDIGITATION





Pass a single calling card around her head? First fold card in half lengthwise. Then make series of cuts a quarter inch apart from folded edge up to within an eighth inch from open edges. Turn card around and cut between original cuts. Open up and slip over head.

Balance a drinking tumbler atop a playing card? Here's the joker—a little piece of pasteboard bent at right angles to the card and held behind creates a tripod base for the glass. The piece can be slipped up against the card while the gullible spectators look elsewhere.









Can you defy gravity by holding the knife without gripping it? As your lower hand squeezes the wrist of the other, the upper fingers open and the knife remains miraculously suspended—that is if you have your forefinger pressed against it from behind.

Slice an unscathed apple and find a penny inside? Well, on the unseen side of the blade a penny is fastened with beeswax. Wedge open the apple with the forepart of the blade and then wipe off the coin so it sticks to the inside of the apple after you've penetrated it.





If you've always had a secret urge to be a houseparty Houdini, here are some simple tricks to try on the unsuspecting guests.





Can you make five or more boxes of matches perch one atop the other with such security that you can tilt the entire batch without spilling? It's a cinch if you extend the inner casing of each box into the outer casing of the next one, giving the whole column of boxes a stiff bracing.

Make an egg stand on end without injuring the shell? All you have to do is put a little mound of salt under the table cloth before your victims come into the room. This makes a soft bed for the egg on which it can easily be made to stand when suckers are watching.







What fun to receive a letter which no one can read but you! The one this small girl is reading was probably written in lemon juice, since that sort of "invisible ink" will become visible when the paper is heated.

Photo by H. Armstrong Roberts

The MYSTERIES *of* SECRET WRITING

Have You Ever Tried to Write a Secret Letter? Have You Ever Tried to Puzzle Out One?

THE aim in secret writing is to send a message which no one can read except the man for whom it is meant. Usually one of three different ways is followed. The message may be written in "invisible ink," or in cipher, or in code words. Cipher writing is also called "cryptography" (krĭp-tŏg′rȧ-fĭ), which comes from two Greek words meaning to "conceal" and to "write."

Possibly you know that lemon juice can be used for invisible writing; it will not show until the paper is heated. One can also use milk, which leaves greasy lines that can be developed by rubbing dust over the paper. One can, in fact, write by dipping a clean pen into clear water; the writing will develop under iodine vapor. A great many special inks have been invented for invisible writing which will appear only when treated by the proper chemical. Secret messages of this sort are usually written either between or across the lines of a letter written in ordinary ink.

Cipher writing is not hard to read if one has the key, but without the key it takes both skill and patience to puzzle out the meaning. A few examples will here be given to illustrate various types of cipher and some methods of solution.

A message is hidden, although in plain view, in the following note, which, let us assume, a college football player has written on a postal card and sent home to his sister:

> Well, here are the days of easy scoring—daring and doing! We are nearly through football. Our regular coach has resigned. I shall tell more after Saturday.

If you take the first letter of each word in this note and combine the letters to form new words, you will see that the young man is putting a question to his sister. He is asking, "What does dad want for Christmas?"

The same question may be put into cipher in this way:

Text: What does dad want for
Cipher: ZKDW GRHV GDG ZDQW IRU
Christmas?
FKULVWPDV

Instead of each letter of the text we have gone onward in the alphabet to the third letter following, and used that letter in the cipher. It would work just as well to take the fourth or seventh letter, or any other order of letters, provided we have agreed with our correspondent as to which one we are using. Incidentally, the rule of taking the third letter was followed by Julius Caesar in secret messages two thousand years ago.

It is interesting to note that no matter what you call a letter, when using a substitution cipher, it will behave in its natural way. Let us look at the following cryptogram (krĭp'tô-grăm):

RG RH MLG VZHB GL PVVK Z
HVXIVG

We see one letter standing by itself. It cannot really be a *z*, for that letter never makes a word by itself. Surely it must be either *I* or *a*. Now we notice three words made up of two consonants each, but we know that in each case one of those consonants must stand for a vowel, for every word must have a vowel. The first two of these words begin alike with an R, and one of them ends with a G; while the fifth word begins with a G.

Let us put our wits to work on these three words. Pretty soon we shall have the following pattern of all the possible combinations of letters to serve as a guide while we make our guesses:

RH: am as at if is it of or—am an at if in it up—am an as if in is

RG: an an an in in in on on—as as as is is is us—at at at it it it

GL: no no no no no no no no—so so so so so so so—to to to to to to

We see that the pattern can be fitted by many different arrangements of common words, but that they all require *no*, *so*, or *to* for the third word, GL. Now these two letters appear in reverse order in MLG, the third word in the cryptogram, which must therefore end with *on*, *os*, or *ot*. But what three-letter word in English ends in *os?* We run down the whole alphabet and find none. Therefore we can eliminate all the groups ending in *so*. Our message begins RG RH. We try out *an am*, *an as*, etc., and discover that there are no likely beginnings of a sentence in the *no* groups. In the *to* groups *at an* and *it is* seem the only probable beginnings. Let us try them.

Cipher: RG RH MLG VZHB GL PVVK
Text: At an ot n to .
Text: It is ot s to
Z HV XIVG .
I n t
a s t

Next we try the three-letter word. We run down the alphabet: *cot*, *got*, *hot*, *jot*, *lot*, *not*, *pot*, *rot*, *sot*, *wot*. None of these fit *at an*. Only *hot* and *not* seem to fit *it is*. Let us try *not*. Next we observe that V occurs five times in this short sentence. We wonder if it stands for *e*, the letter that occurs most frequently in English. Our cipher and guesses now look like this:

Cipher: RG RH MLG VZHB GL PVVK
Text: I t i s n o t e a s t o e e
Z HV XIVG
a s e e t

We turn to the dictionary and look for four-letter words beginning *eas*. There are only three; *ease*, *east*, and *easy*. We also look for six-letter words beginning with *se* and ending with *et*. The first word we strike is *secret*. And by now we have the meaning: *it is not easy to keep a secret*.

If we put down in alphabetical order the letters used in the above text and the cipher letters underneath, it will appear that this particular cipher alphabet is just the reverse of the regular English alphabet.

Text: a c e i k n o p r s t y
Cipher: Z X V R P M L K I H G B

So all that the writer has done has been to use the alphabet backward.

But the methods of deciphering which we have just illustrated cannot easily be used in solving cryptograms that are not divided into words. When they are not divided in that way, we have to rely mainly on so-called "frequency tables." The letter which is used most often in ordinary English is *e*. Next comes *t*. The other letters are listed below

in their usual order of frequency. In telegrams, where "the" is usually omitted and where we use various other short-cuts in language, the frequency is slightly different from that of ordinary English. Here are the two tables:

Ordinary English: E T O A N I R S H D L
U C M P F Y W G B V
K J X Z Q

Telegrams: E O T A I N R S L C H
D M U P F W G B Y V
K J X Q Z

Suppose we are asked to solve the following cipher telegram:

QEKTF HFADB GYPKK GGWRB
KQIKP JBVWR QKJRK IBAJU
ARBHR KQTPL PAQBL WPRYO
KPWFA SBEBV BJREK GBFWQ
RJANE RWHHP BQQOA UBRVK
KJBLW PDWUB JTBJY SCWSD

The arrangement in groups of five letters is common in secret telegrams, since it is convenient when checking for accuracy. Our first step is to set down an alphabet on a piece of paper. Then count the number of times each letter occurs in the cipher. The result is as follows:

A	7	N	1
B	15	O	2
C	1	P	8
D	4	Q	8
E	4	R	10
F	4	S	3
G	4	T	3
H	4	U	3
I	2	V	3
J	8	W	9
K	12	X	
L	3	Y	3
M		Z	

Since the cipher letter B is the most frequent, we assume that it stands for *e* of the text. The next most frequent cipher letters are K, R, and W. We guess that they stand respectively for *o*, *t*, and *a*. Now we write down our first guesses under the cipher letters:

QEKTF HFADB GYPKK GGWRB
o e oo ate
KQIKP JBVWR QKJRK IBAJU
o o e at o to e
ARBHR KQTPL PAQBL WPRYO
te t o e at
KPWFA SBEBV BJREK GBFWQ
o a e e e t o e a
RJANE RWHHP BQQOA UBRVK
t ta e et o
KJBLW PDWUB JTBJY SCWSD
o e a a e e a

We now grow interested in the combination *ate*, especially because it is preceded by KKGG, a pair of double letters. Does the telegram inform us that somebody ate something? Or is *ate* merely the ending of another word? Here are some possibilities:

GYPKK GGWRB
oo ate
d goo ddate
m roo mmate

We have reasoned like this: Cipher letter G comes at about the middle of the list of frequencies for this particular cryptogram. If we look at the middle of the frequency list for telegrams we shall find *d* and *m*. Trying both of these, we need *g* and *r* instead of cipher letter P in order to spell possible words. But P, occurring eight times, is comparatively frequent, and therefore is more likely to be *r*, which comes near the beginning of the normal frequency list. We decide to try *roommate*. This gives us two new letters, *r* and *m*, which we now set down wherever the corresponding cipher letters appear.

Next we attack two groups that come in the last line:

RWHHP BQQOA
t a r e

The combination *re* is very frequent in English, appearing in all positions, at beginnings or ends of words, or within words. We are much interested in the doubles on either side of *re*. After some experimentation we find that the word *address* fits the pattern. If that is the word, we should expect it to be followed by *is*, *him*, *her*, *us*, or *them*, or by a name or a street number. None of the five suggested words will fit the pattern OA UBRVK KJB, etc., because *s*, *m*, *e*, and *r* in those words would not be matched with the same cipher letters as elsewhere in the message. The only numeral that fits immediately after *address* is *five*. That gives

us *five tVooJe*, which with some more trying becomes *five two one*. Now if we substitute all letters so far guessed at, and use hyphens for the remaining letters, the message looks like this:

s–o––d–i–e m– roommate os–orne watson to –e invited to s–r– rise– art– for a–i –e–e went –ome –ast ni––t address 521 –ar– aven–e n– ––a––

With very little more work we find that the message reads:

Should like my roommate, Osborne Watson, to be invited to surprise party for Alice. He went home last night. Address: 521 Park Avenue, N. Y. C. Jack.

How the cipher was constructed may be seen below:

Text: a b c d e f g h i j k l m n
Cipher: W I S H B O N E A C D F G J
o p q r s t u v w x y z
K L M P Q R T U V X Y Z

The key word *wishbone*, easily remembered, has first been written down under the first eight letters, and then the remaining letters of the alphabet have been taken in their regular order.

Simple Kinds of Secret Writing

There are many other ways of writing in cipher. For instance, the actual letters of a message may be used, but in such a disarranged order that they will make nonsense to anyone who does not know how to rearrange them. We may write a sentence in zigzag fashion, like this:

I i n t a y o e p s c e
t s o e s t k e a e r t

This may be put into cipher—or "enciphered"—by first taking all the letters in the upper line and then those in the lower line, like this:

IINTAYOEPSCETSOESTKEAERT

Now, since the upper line was twelve letters long, it is obvious that the *i* of *it* and the *s* of *is* must each be just twelve letters away from its partner. All the pairs are, of course, broken in the same way. Any one who discovers this interval of twelve can rearrange the letters and read the message.

Suppose that the same sentence had been written downward to form a rectangle of six columns, like this:

I n a o p c
t o s k a r
i t y e s e
s e t e e t

The enciphering might have been done by taking the letters crosswise by lines, as before: INAOPCTO, etc. Again the letters which originally came together would be separated by a regular distance, this time an interval of six. Ciphers of the kind we are now describing are called transposition ciphers, because the letters are merely transposed. Let us illustrate a method of solving them.

Could You Read This Secret Message?

Assume that we have received the following cipher message:

HRITOER ALLOWUA AEVIOGS
NAIRNRY VCEPTGP TNQDTSX
EEDBLEL ODUAHDZ

A count of the letters shows that *e* occurs most frequently, and *a* next, followed by *o* and *t* in the order of frequency. The whole list is so near the frequency in the plain text of English telegrams that we conclude we are dealing with a transposition cipher. There are 56 letters in all. How many different sizes of rectangle can they form? We find that the widths and heights may be as follows: 2 × 28 or 28 × 2, 4 × 14 or 14 × 4, 7 × 8 or 8 × 7. Shall we write the letters out in all six different arrangements, or shall we look for a clue in order to save time? There is a *q* in the message. A peculiarity about *q* in English is that it is almost without exception followed by *u*. Let us count forward from *q* until we strike a *u*. It is the fourteenth letter. Now, since we have already learned that fourteen is one of the dimensions of a rectangle of 56 items, let us write the cryptogram in four lines of fourteen letters each.

H R I T O E R A L L O W U A
A E V I O G S N A I R N R Y
V C E P T G P T N Q D T S X
E E D B L E L O D U A H D Z

The word *have* can be read downward in column 1, and the word *received* in columns 2 and 3. The whole message is easily read.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E
F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F
G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G
H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N
O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

But what about the *x* and *z* in the last column? They are simply so-called "nulls," added to fill out the rectangle.

Transposition ciphers can be made very difficult by following unusual routes through the rectangle, as may be illustrated by the numbered places in these sample arrangements:

4 8 12 16	1 8 9 16
3 7 11 15	2 7 10 15
2 6 10 14	3 6 11 14
1 5 9 13	4 5 12 13

5 13 9 1	1 5 9 2
6 14 10 2	12 13 14 6
7 15 11 3	8 16 15 10
8 16 12 4	4 11 7 3

Whatever arrangement is agreed upon by the correspondents, it must be systematic in order to avoid errors. But the very fact that it is systematic enables the cipher expert in the end to pick the lock.

So far we have discussed comparatively simple ciphers. Our samples of substitution, for instance, used only one cipher alphabet each. But in so-called multiple substitution ciphers several different alphabets may be used in enciphering the same message. To illustrate how this may be done we shall construct a cipher square containing twenty-six alphabets, as given on page 147.

Using this cipher square and a key word we shall encipher a message as follows. Our message will be "*Hear ènemy submarines / operating near Cape Hatteras.*"

Text:	h e a r e n e m y s u b m
Key word:	j o h n j o h n j o h n j
Cipher:	R T I F O C M A I H C P W
	a r i n e s o p e r a t i
	o h n j o h n j o h n j o
	P Z W X T A C Z T Z O D X
	n g n e a r c a p e h a t
	h n j o h n j o h n j o h
	V U X T I F M P X S R P B
	t e r a s
	n j o h n
	H O G I G

Any key word agreed upon is written under the plain text as many times as necessary. In this case the word is *John*. Then the first letter of the text, *h*, is noted at the top of the cipher square, and the corresponding key letter, *j*, at either side of the square. Where the *h* column crosses the *j* line is an R, which is set down as the first letter of the cipher. By the same method *e* and *o* produce T, and so on throughout the message.

Observe that the cipher letters thus come out of four different alphabets, namely those that begin, in the left-hand margin of the square, with J, O, H, and N.

It might be supposed that such a cryptogram would be too complicated for solution by an enemy. But probably no secret writing ever invented remains secret for any great length of time. In the case of multiple substitution ciphers, like the one above, one can get a clue by counting the number of letters between repetitions of letter groups, as for instance, TIF and XT, which we have underlined above. Note that these repetitions are caused when a letter group in the text recurs over the same part of the key word. Necessarily the distance between them is equal to a given number of whole key words. Therefore the length of the key word must be a common factor in the various distances between repetitions. In the above case the distances are 28 and 12. The common factor is 4; 28 equals 4 × 7, and 12 equals 4 × 3. Thus the cipher expert discovers that the key word has four letters, which means that four different alphabets have been used. He then rewrites the cipher message downward in columns of four letters thus:

R O I etc
T C H
I M C
F A P

Observe that all the letters from the J alphabet are now in the top line, those from the O alphabet in the next line, etc. Each line is now treated as a single substitution cipher.

During the Revolutionary War, and later during the early history of our nation, the use of a "book cipher" was common. For instance, two correspondents would each have a copy of some dictionary not well known to the public. They then communicated by simply writing numerals to indicate the page and the number of the desired word on the page.

Mechanics of Magic

By "DUNNINGER"

EVERYDAY SCIENCE AND MECHANICS *for* MARCH, 1936

● CIGARETTE tricks are quite the vogue, as no doubt has been noted by the many readers who have lately attended variety or vaudeville performances. The experiment herein described is one of the most astounding, and seemingly difficult, of all cigarette tricks. Although it seems to be an effect which requires years of practice to perfect, it is in reality exceedingly simple to operate. The magician forms his left hand into a fist. Four spectators are requested to light cigarettes, which are handed to the wizard, one after the other. As he receives them, he places them, lighted ends down, into his closed fist. On slowly opening his fingers, all four cigarettes are found to have mystically disappeared.

Explanation: A specially constructed "feke," in the form of a metal pull, is responsible for the disappearance. The pull is attached, as illustrated, to a strong piece of elastic, which carries it up the sleeve, and out of sight. It is divided into four compartments, each one of which holds a cigarette firmly and, as the burning end enters the metal holder, the cigarette is automatically extinguished. The fact that four cigarettes are vanished, at one and the same time, is a decided improvement over the old cigarette-vanishing pull, which was constructed for the disappearance of but one lit cigarette.

In the vanishing tumbler effect, the magician brings forth a large glass tumbler, containing a beverage which he drinks. After the glass has been emptied of its contents, it is placed, mouth down, upon a table top. A cone is now made from a sheet of newspaper and, holding the cone in one hand, the glass is removed from the table, and placed inside the cone. Without suspicious moves, and with arms bare to the elbow, the magician crushes the cone between his fingers, rolls it into a small ball, and carelessly tosses it aside. The glass has completely vanished.

Explanation: A cone, constructed of heavy cellophane, fits loosely over the glass tumbler. In the act of picking up the glass, the tumbler is secretly dropped into a bag supported upon a wire frame, which has been attached to the back of the table. Thus, the cellophane cone, (which in reality appears to be the tumbler), is slowly lowered into the mouth of the paper cone and, a moment later, is crushed between the performer's hands, and tossed aside.

Many are the tales of magic and mystery which come from the East. Reports recently arrived of a new mystery, in which the faker parades the streets of Calcutta, with a long, twenty-inch dagger, penetrating his cheeks. When a few coppers are dropped into his ever-open palm, he nonchalantly opens his mouth, displaying the remainder of the blade, which is clearly seen.

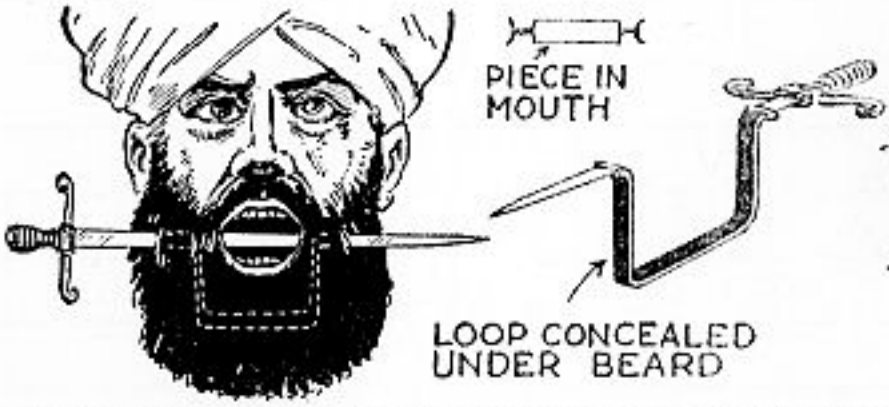
Explanation: In spite of the faker's spiritual countenance, the affair is but a clever deception. As illustrated, the dagger is of special construction. The two sections of the blade are held close to his cheeks, by a concealed metal loop, easily kept from view by his thick full-grown beard. A special piece of steel, constructed with two loops, is held between his jaws, and helps to complete the illusion when his mouth is opened wide.



With the feke here illustrated, four cigarettes may be vanished at a time.



Disappearing an empty tumbler by a cellophane substitute.



In this illusion, the sword apparently pierces the jaws of the mystic; when he opens his mouth, the blade may be seen inside. Actually, the blade is made in two parts, as shown.



MECHANICS and HANDICRAFT FEBRUARY, 1938

Popular Magic



By Dunninger

A VERY effective and sensationally mystifying stunt, suitable for either drawing room or stage performance is the trick I have chosen to name "The Boxes Diablo." Suspended from the ceiling by a cord or ribbon, and hanging several feet above floor level, is a ribbon-bound box. After this has been directed to the attention of the audience, the magician asks for the loan of a watch, which he either apparently smashes, and loads inside a funnel tube attachment of his pistol, and fires toward the suspended box or vanishes by any method suitable to himself. With his sleeves rolled to the elbow, the wizard carefully removes the box and places it upon an undraped table. Upon untying the ribbon and opening the box, it is found to contain a second smaller box, likewise tied with ribbon. When the ribbon has been removed and this box is opened, a third box is revealed, from which the magician pulls forth a rabbit. Around the rabbit's neck, tied with a ribbon, is the original watch, which is identified and returned to its owner.



A borrowed watch is found attached by a ribbon to the neck of a rabbit located in the innermost of the three nested boxes. The diagram below explains how it got there.



Explanation: Around the rabbit's neck is a length of ribbon extending four or five inches; to the free end of the ribbon is attached a common watch swivel, such as is used ordinarily on watch chains. Before presenting the trick, the rabbit is secreted inside the nest of three boxes, but the length of ribbon is permitted to hang out between the covers, so that when the covers are closed and the boxes are tied, the swivel hangs outside the largest box. When the boxes are suspended from the ceiling, the hinge sides of the boxes are toward the audience, to conceal the swivel from sight. The borrowed watch

Joseph Dunninger, celebrated "mentalist" and magician, whose articles appear exclusively in this publication, is the world's foremost society entertainer, and has appeared before more celebrities than any of his contemporaries. Among those he has mystified are President Franklin D. Roosevelt, ex-Presidents William Howard Taft, Calvin Coolidge, Warren Harding, Herbert Hoover and Theodore Roosevelt, H. R. H. Duke of Windsor (formerly King Edward VIII), Thomas A. Edison, etc.



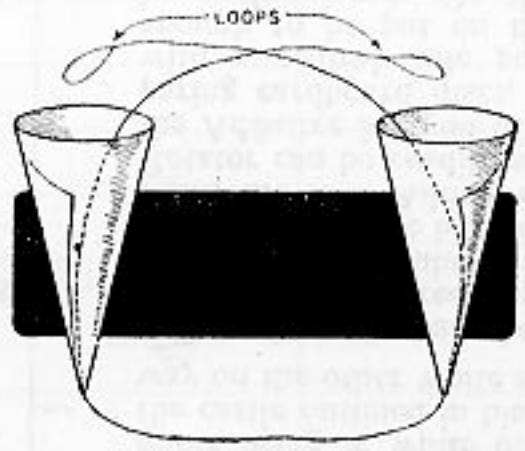
is naturally exchanged for a duplicate. The original watch is palmed, and in the act of removing the nest of boxes from the cord suspending it, the watch is secretly hooked to the swivel. When the boxes are opened, the hinges always face the audience. The rest takes care of itself.

Handkerchief tricks are ever popular, and those demanding little in the way of specially prepared paraphernalia, and comparatively little practise, are more than sought for by the amateur conjurer. The effect here described possesses these qualifications; because of its mystifying property, it likewise is popular with the professional magician. Two paper cones are displayed. These are momentarily laid aside, while the magician offers two handkerchiefs for inspection. The handkerchiefs are of silk, about 14″ square, one blue and the other red. After these are returned to the performer, he freely exhibits the empty cones, after which he tucks one of the handkerchiefs in each. Holding them in his hands, he instructs the audience to watch his movements carefully, and to remember which colored kerchief is in each cone. With a quick movement of the hands, he commands the kerchiefs to change place, when, much to the amazement of the audience, the exchange takes place instantly. The kerchiefs and cones may be passed for inspection immediately. To strengthen the effect, the silks may be marked for identification, if the performer chooses, to prove that only the original handkerchiefs are used.



A playing card is converted into a book of paper matches.

Explanation: The diagram illustrates that the only additional apparatus employed is a loop of thin silk thread, which has been arranged inside the paper cone in the manner illustrated. In tucking the kerchiefs inside the cones, they are secretly placed inside the loops formed at the ends of the thread. The wizard has but to pull his arms apart quickly to cause the kerchiefs to exchange places. When passing the apparatus for inspection the thread is secretly dropped to the floor.







A simple trick requiring little preparation in which handkerchiefs leap out of paper cones and exchange places. The loops of thread are responsible.

Here is a pretty impromptu effect. The magician nonchalantly places his cigarette to his lips, but, reaching into his pockets, seems to be lacking the necessary box of matches, so instead he picks up

a playing card, he holds it in one hand at arm's length, and upon waving the hand up and down once or twice, the card is seen mysteriously transformed into a paper of matches, of the flat pocket variety. Removing one of the matches, he strikes it and lights his cigarette.

Explanation: The package of matches is glued to the back of a playing card. The card is creased so as to fold into four parts and, when folded, a flap from a second package of matches is pasted upon the exposed playing card back. Therefore, the magician has but to hold the prepared card at arm's length and with several waves of the hand to create the necessary misdirection, the card is folded in position to effect the transformation.



A SURPRISING PENNY

A card about 2 inches square is balanced on the end of the first finger, and a penny is placed on top of it, as shown in the oval. To the utter amazement of the spectators, a flip of the finger sends the card sailing across the room, while the penny is left on the tip of the finger.



A MATCH-BOX VACUUM

Can you shift the match-box cover and drawer in Fig. 6 to the reversed position in Fig. 7 without separating them? Inhale sharply with your mouth over the drawer, throw your head back, and then pick them up.



TRICKY BUTTONS

Cut slits and a circle in a strong piece of paper, as you see in Fig. 4. Then insert a cord and to it attach buttons too large to go through the hole. Now detach the string from the paper without removing the buttons. The solution is to pull a part of the panel through the hole.



IT CAN'T BE DONE!

Stand with feet together and one foot and shoulder touching the wall. Now try to lean your head against the wall!

A CANDLE MOTOR

Heat the heads of two pins and force them into the middle of a candle, one on each side. Balance the candle on two glasses, as you see below, with a pan on either side to catch the drip. Light the candle at both ends and it will rock back and forth as it melts, like a seesaw.



HEAVY, HEAVY HANGS OVER YOUR HEAD

Sit down on a chair and lay your right hand flat upon the top of your head. Then challenge anybody to lift it off. He may use both hands, but jerking or pulling sideways is not allowed.





HOW IS IT DONE?

Place a coin on a folded handkerchief (see picture at the left) so that it will seem to be inside instead of in a fold. Hold the handkerchief between two fingers, as the boy is doing. Now ask someone to pull all its four corners. The coin will seem to pass through the material and fall into your hand.



THE SPIRIT CALCULATOR

A piece of paper and a pencil are passed around the audience with a request that four different persons will each write down a row of four figures, each row below the next. The performer then passes the paper to a fifth person to add, but before the result is called out, the performer writes it on the blackboard. The secret is that he already had a set of figures in different handwritings, the sum of which he had memorized. He gave the fifth player that sum to be added, instead of the one his audience had set down!



THE MAGIC KNOT

Ask someone to tie a knot in a handkerchief without letting go either of the opposite corners he is holding. It seems impossible, but is very simple. Fold your arms as the boy at the right is doing, and in that position take hold of the handkerchief. Then just unfold your arms!



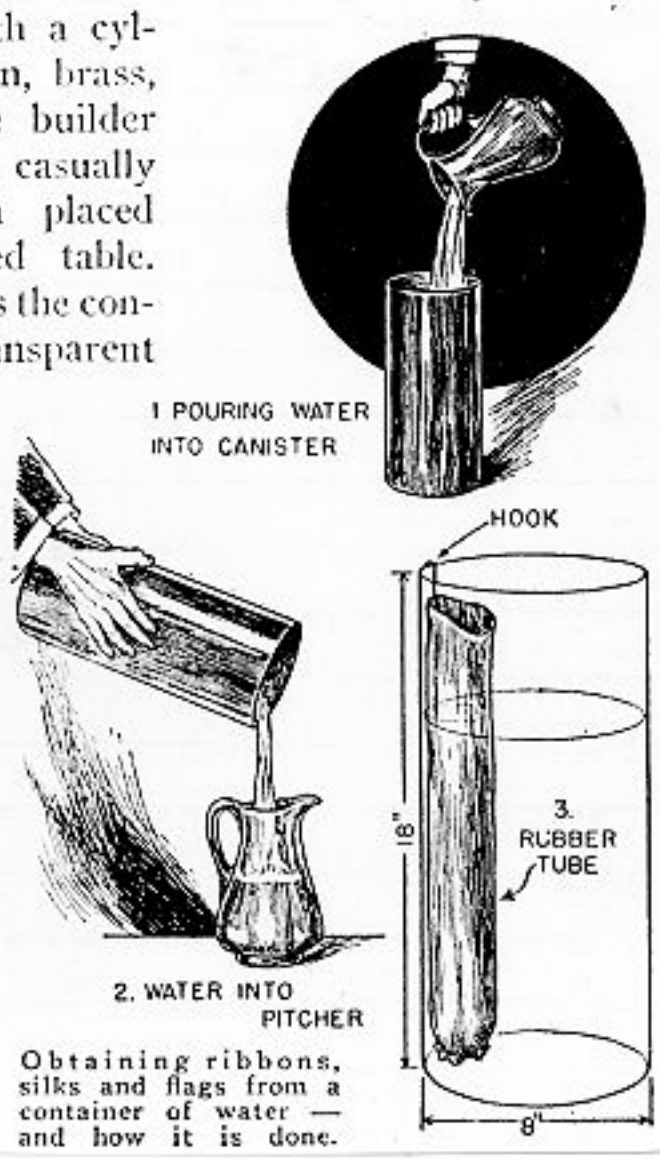
MECHANICS and HANDICRAFT MARCH, 1937

Popular Magic



By "Dunninger"

THE *Enchanted Cannister*, the first trick described this month, is strikingly effective and suitable for either parlor or stage; it can be constructed easily with a small amount of effort. The wizard brings forth a cylinder (made of tin, brass, or any metal the builder prefers), which is casually shown, and then placed upon an undraped table. The magician pours the contents of a large transparent water pitcher (brim full of water), into the cylinder, and then, with arms bare to the elbows, he reaches into the cylinder and pulls forth yard after yard of ribbons of various colors, silk kerchiefs of rainbow tints, flags of various nations, flowers, etc. After a comparatively large amount of production stuff has been pulled forth (which, of course, is all perfectly dry, in spite of the water), the conjurer picks up the cylinder and pours all the water back into the pitcher, instantly passing the cylinder for examination.



Obtaining ribbons, silks and flags from a container of water — and how it is done.

As in most effective tricks, the secret is exceedingly simple. The "load" had been previously concealed in a rubber tube (closed at one end) which had been secreted inside the cylinder before the experiment. When the last flag is pulled out of the cylinder, it secretly carries with it the rubber tube, which is attached to the flag by means of a strong piece of string. Thus, the cylinder may be passed for instant inspection. As the inner tube is of rubber, the water inside the cylinder in no way interferes with the production of the silks, etc.

Effective card tricks requiring comparatively little or no practice, or "sleight-of-hand" preparation, are, of course, most popular. The one here described is not alone possessed of these welcome features, but is exceedingly striking in effect.

The conjurer removes a pack of cards from the usual paper card case, and then separates all the spades from the rest, displaying the thirteen cards ranging from ace to king. These are given to someone to shuffle thoroughly, who is then requested to scatter them, backs up, in any order, upon the table. Regardless of how often this operation is repeated, the wizard's X-ray eye mysteriously locates the ace of spades, although he may have been led out of the room, prior to the shuffling and spreading of the cards.



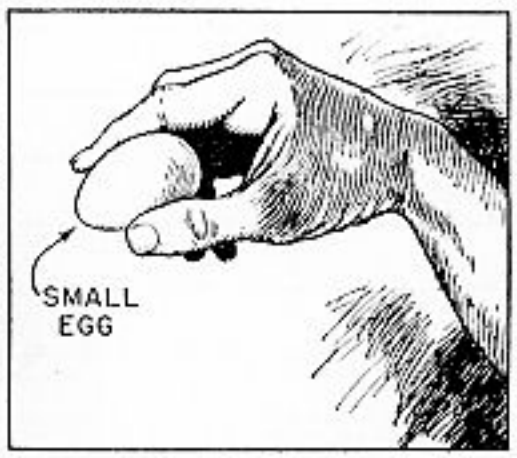
A hair, glued into a pocket in a card, will enable you to locate that card regardless of its position on the table.

Explanation: The ace has been secretly "doctored" beforehand. With a razor blade, the paper layers of the card are separated, and a short fine human black hair is glued inside the pocket thus formed. It is remarkable to note that no one will detect this preparation, in spite of the fact that the cards are freely handled by the spectators. The conjurer has, therefore, but to locate the hair in order to find the ace.

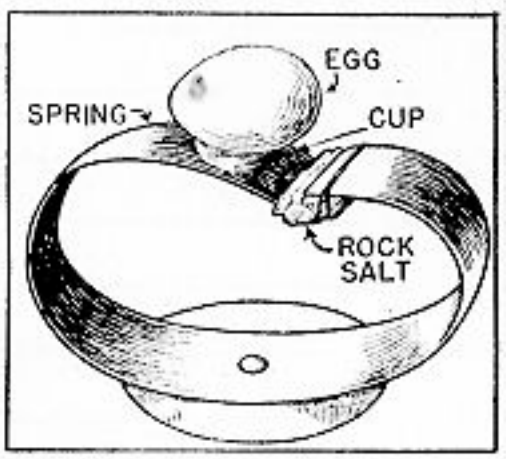
One of the most effective tricks from the mystic East, and one which has baffled a number of experienced Occidental conjurers, is described next. The turban-clad Oriental passes a small pigeon egg for inspection and also shows a small bowl which has been almost filled to the brim with muddy water. His short-sleeved robe permits him to prove that there is no deception about the act of his slowly placing the egg inside the bowl. His bare arms and slow action completely assure the spectators of the complete lack of deception. Uttering a weird chant, he suddenly claps his hands together several times, when lo and behold, the eggs mysteriously jumps out of the bowl, several feet into the air, and into his hands, whereupon it is passed for immediate inspection.



At a given command the egg pops out of a bowl of water.



The egg itself is entirely unprepared and may be exhibited freely.



A lump of rock salt holds the spring under tension.

The secret of this amazing effect consists of a small piece of apparatus, which the sly Eastern demonstrator of mystery has smuggled into the bowl a few moments prior to placing the egg into the water. This apparatus, as illustrated, consists of a piece of strong clock spring, bent into a loop, between the ends of which the wizard has wedged a piece of rock salt. The dirty water in the bowl renders the spring invisible. The wizard carefully places the egg inside a small cup attached to the spring for this purpose. After several moments, the water dissolves the rock salt, allowing the spring to toss the egg out of the bowl and into the air, the magician catching it during its flight. The action, of course, has been timed by the worker.

MECHANICS and HANDICRAFT APRIL, 1938



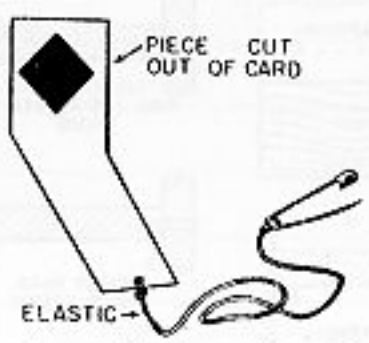
by Dunninger

THE first trick this month is a clever impromptu experiment requiring no special apparatus and but little practice. In effect, it is one of the most mystifying tricks that one could possibly find. Some years ago, it was offered by an eminent European spiritualist, who even demonstrated it to scientific groups without its secret being detected. An ordinary tumbler is passed for inspection, after which a loop of thread is tied near the top of the glass; the free end of the thread is tied around a round pencil, the loop being loose enough to slip, but not freely. In brilliant light, or what is commonly known as a daylight seance, the medium sits in the center of the room holding the pencil at its end; the glass is visible to all. Soon a mysterious "ting" is distinctly heard; it emanates from the tumbler. After several of these clear, bell-like sounds are heard, the medium advises that the spirits are present, and the glass will answer questions for the believers . . . one "ting" for no, two for yes.

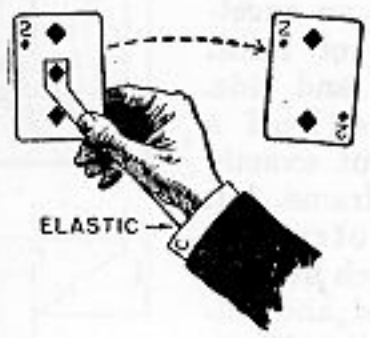


An extremely novel and mysterious trick in which the glass gives forth sounds in "response" to questions. No secret devices are used.

Strange as it may seem, this "music from the spirit land" is created by nothing more than the slightest twist of the pencil held in the outstretched hand. This twist cannot be seen by the most careful observer. By analysis, one will discover that the thread slips suddenly on the pencil, and the vibrations, communicated to the glass,



A small piece of card, cut out as illustrated, is affixed to a rubber band running up the sleeve.

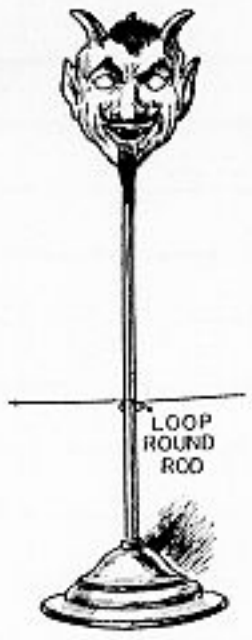


The trey of diamonds is converted into the deuce in a flash.

cause it to give forth a characteristic note. The closer the ear is held to the glass, the louder the sound, and the greater the mystery.

Many and varied are the experiments in which an instantaneous change of a playing card is required. There are many forms of changing cards upon the market, but these are all mechanical, and, for that reason, cannot be passed for inspection. Here is a changing card, the suite of which is instantly transformed and the card is then passed for examination immediately. We will say a card has been selected, (forced), and, after it has been reshuffled into the pack, the deck is handed to the magician, who, glancing through the deck, removes a card which he hopes will be the one secretly selected. Holding aloft the trey of diamonds in full view, the magician is informed that the two of diamonds was the one selected and, as is common, the audience expresses the usual amusement at the wizard's failure. Yet, when the magician asks them to take another look at the card, the merriment is reversed, because what seemed to be a trey of diamonds is distinctly found to be the deuce of diamonds.

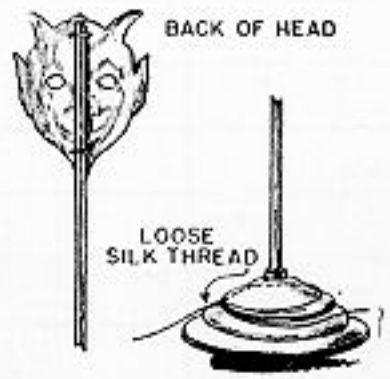
This effective transformation is accomplished by a small piece of apparatus in the form of an extra piece of a playing card, cut to the shape illustrated and affixed to a rubber band running up the performer's sleeve, where it is attached to a safety pin. Thus, at the proper time, the small piece of card is carried up the sleeve and out of sight. By holding this at a short distance from the spectators, the effect is startling.



A thread looped around the upright stick makes this head twist or turn.



The head is manipulated by two assistants off-stage. It can be passed for examination whenever any member of the audience expresses a desire to do so.



Prior to the experiment the thread is looped around the base. The magician lifts it into position on the dowel when ready to demonstrate.

An excellent effect, suitable for either drawing room or stage, is this small Enchanted Demon. The apparatus is of simple construction and lends itself to a very effective illusion. One first secures a small "doll" face, preferably resembling a demon, such as is sold by novelty shops for masquerading or Hallowe'en celebrations. A dowel about two feet long is attached to the face and is set into a hole in a heavy metal base (commonly used for window display purposes, and securable at any window display supply house). At the wizard's command, the head turns either to the right or to the left or spins slowly or rapidly, in either direction. All of the apparatus may be passed for inspection, and no solution to the mystery can be found. The magician's old pal, the silk thread, is again called upon to assist. A loop wound around the stand, as illustrated, is quite invisible at a short distance. When the stick is placed into the hole of the stand, the thread is secretly moved up into position, which enables operation of the head by two assistants in the wings who simply pull the thread in either direction.

A High-Power Spot Light

MODERN MECHANIX DEC., 1934

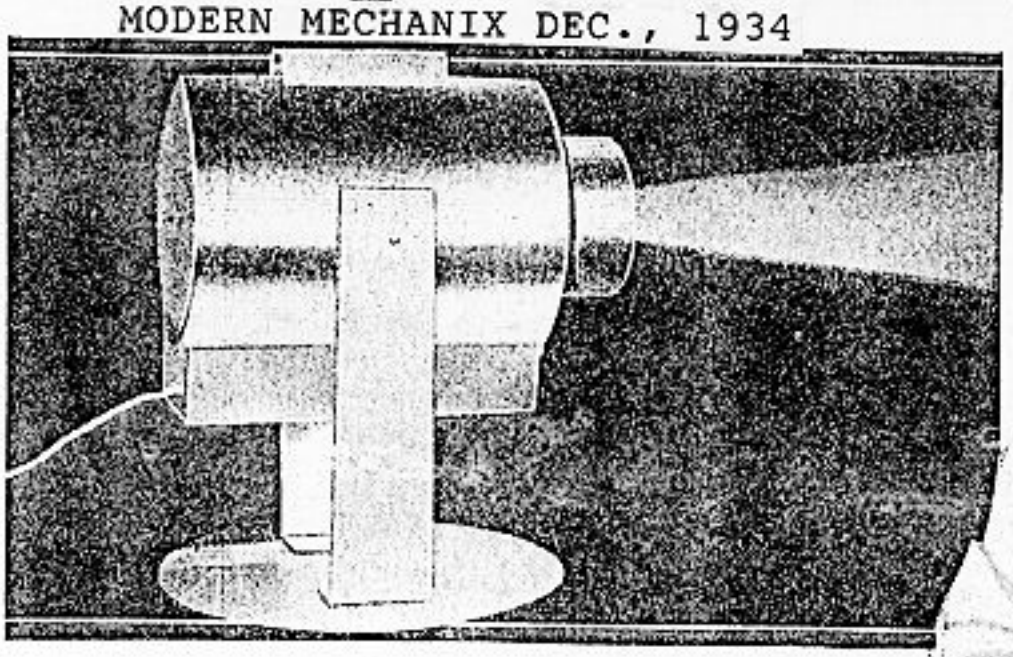


Fig. 1. Here is the completed spot light, mounted on a circular base so that it can be swung into any position. Lamp house swings up and down on the pivots in uprights.



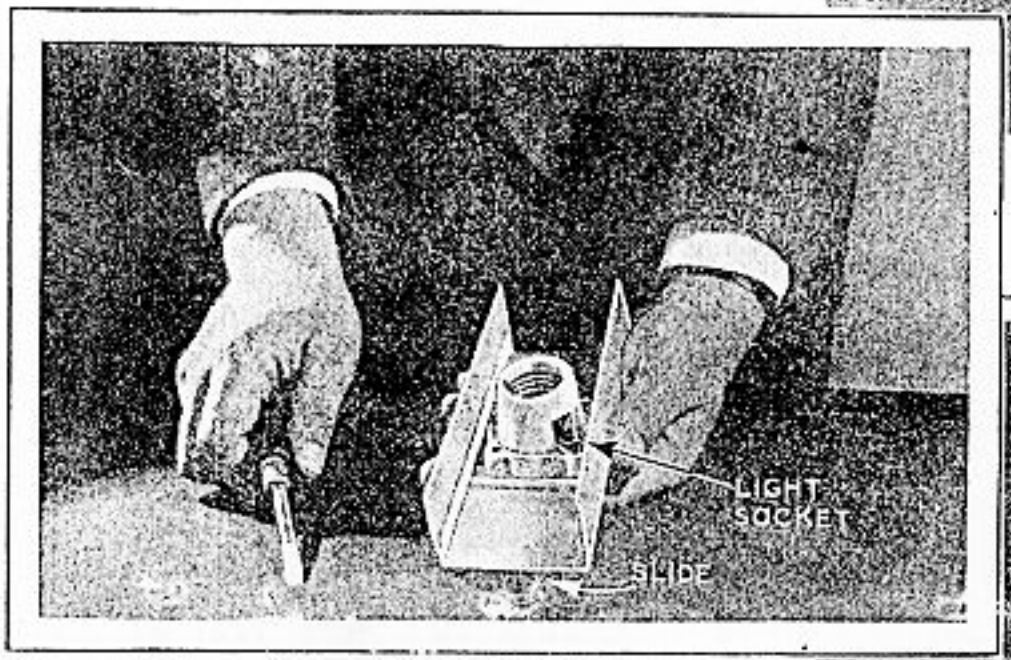


Fig. 2. The socket moves freely back and forth in the incandescent lamp holder to alter the size of the spot, and the flanges keep it in a level position, as shown above.

YOUR amateur stage production will go over with a louder bang if you bring this spot light into action at the proper place and time. And meanwhile you will also find it extremely serviceable in your photo gallery when you are making portrait photographs.

"Spots" used professionally, as in motion picture making and in modern portrait studios, run into prohibitive prices. In the accompanying illustrations, however, it is shown how you can construct a home-made spot light at a very low cost—not exceeding four dollars, which includes a high-wattage lamp.

Heavy bright or galvanized sheet tin is used. The "lamp house" shell, as shown in Fig. 3, is made of a piece of the tin 7½ inches wide and 15½ inches long, with ¼ inch turned edges on the ends, and bent to shape. In the top a ventilating slot is

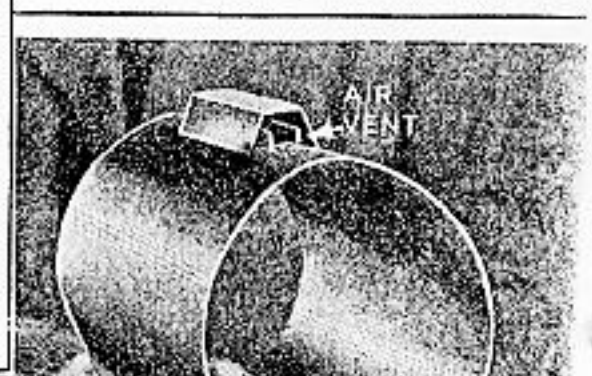


Fig. 3. For ventilation of the lamp house a slit in the top is provided and covered with a guard to prevent escape of light.

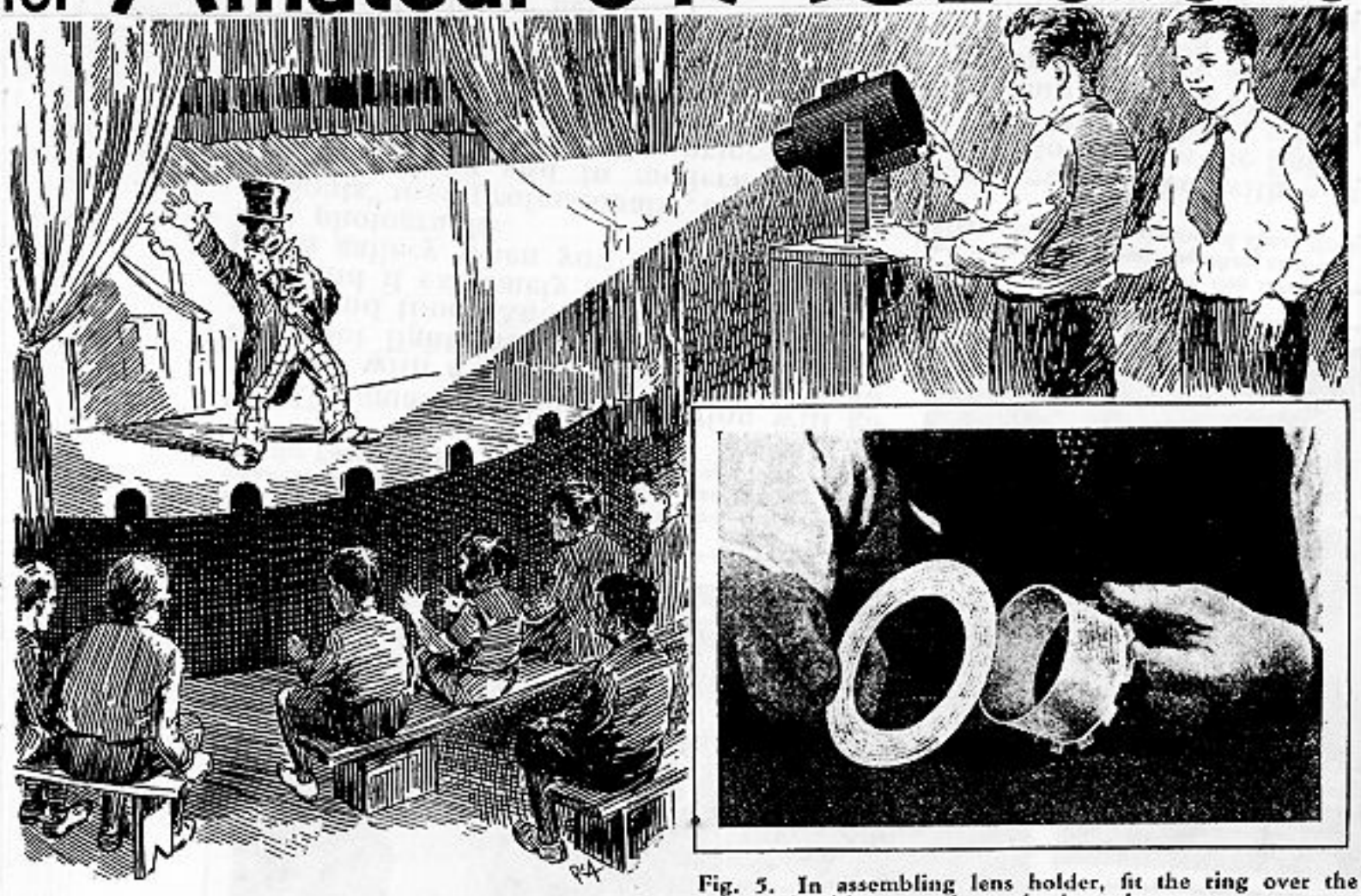
Fig. 4. In above photo the lamp house and lamp holder have been soldered together and are ready for the end. Heavy bright or galvanized sheet tin is used for the hou

cut, and covered with a small bent piece of tin to exclude the light.

The lamp holder, which is soldered to the lamp house, is 5½ inches wide and 7 inches long. The sides are turned up ½ inches, leaving a center track 2½ inches wide. The lamp socket, soldered to a square of tin, slides in the track thus formed, and is held level with strips of tin on each side as illustrated in Figs. 2 and 4.

Two discs are cut from another piece the tin, 5½ inches in diameter. The

for Amateur STAGE Shows



Artist's drawing above illustrates the proper use of the spot light at your amateur stage production.

Fig. 5. In assembling lens holder, fit the ring over the tube and solder securely to the lamp house.

for the front is cut to form a ring and accommodate the 3½-inch diameter lens barrel, to which it is soldered. This in turn is soldered to the front of the lamp house.

A 3½-inch condensing lens is placed in the barrel, with the convex side facing the interior of the lamp house as shown in Fig. 5. Circular rings fitting inside the barrel retain the lens in position.

For a base use a large circular piece of tin with two uprights soldered in place, and the lamp house riveted to these so that it will swing up and down easily. (Fig. 1.)

The incandescent lamp used may either be of 400 watts or less, as these all fit the regular sockets. The intensity may be increased, however, by silvering a spot on the lamp opposite the lens.

How to Silver the Bulb

Make a three-inch circle from a strip of waxed paper and place it on the lamp as illustrated in Fig. 7. Dissolve a gram of silver nitrate in an ounce of distilled water, and add ammonia until the solution becomes dark and again almost clear.

Several drops of liquid formaldehyde are quickly stirred into this and at once poured on the lamp, inside the retaining paper wall. Within five minutes the spot will be covered with a silver coating that gives a mirror reflecting ability. That part of the globe to be silvered should of course be well cleaned and polished before covering with the solution.

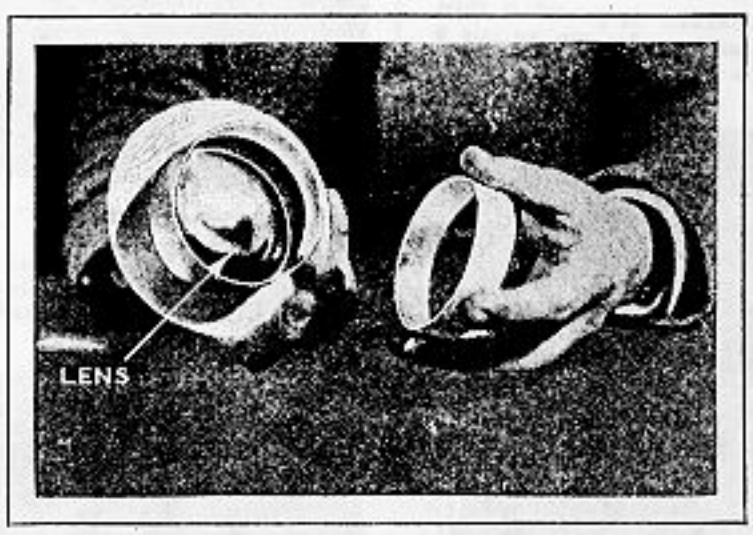


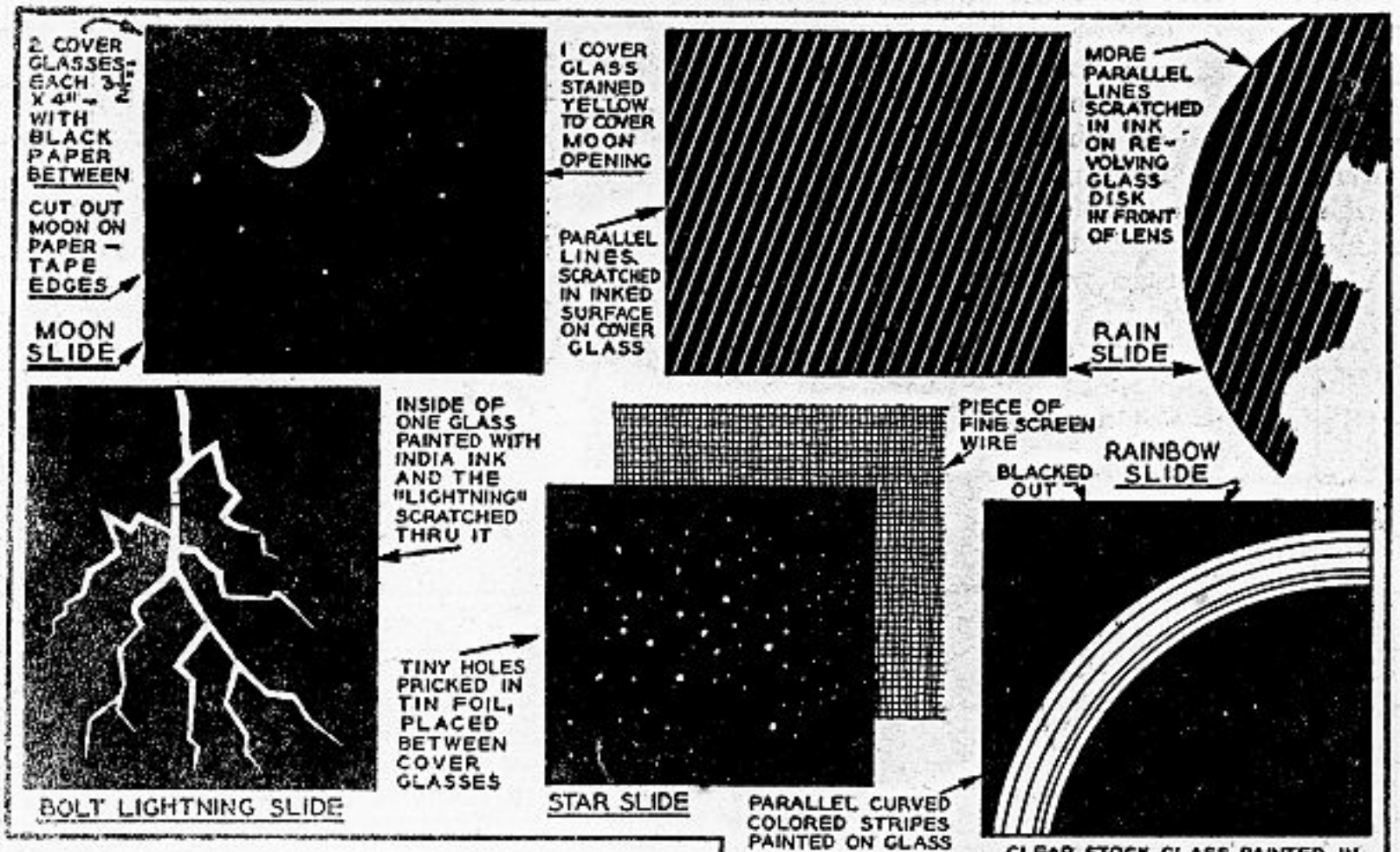
Fig. 6. Here is how the lens is fitted into the holder. The lens is held by the ring with flat side out.



Fig. 7. A mirror is made on the rear of the incandescent lamp by pouring the solution into the waxed-paper cup.

TRICK LIGHTING EFFECTS

Mechanix Illustrated—July, 1939



MUCH of the success of a play depends upon the mechanical devices and lighting. On professional stages these things are usually taken care of, but the amateur has to struggle along with the bare necessities. Much of the success of good lighting depends upon spotlights, and it is not often an amateur group possesses even one. However, a good stereoptican or "magic lantern" will do wonders, and if supplied with the proper slides, many novel effects can be produced, including some that seem almost unbelievable.

When possible use a stereoptican of not less than 500 watts. The lens should be one providing a beam of at least fifty feet which will cover the entire stage. If possible use two lenses; one a long focus and the other a short focus. This allows the lantern to be used either back in the balcony or close up, perhaps behind the proscenium arch or a set piece front stage.

Most modern stages use a cyclorama for sky effects and distance. A cyclorama is essentially nothing more than a flat drop curtain or wall at the very rear of the stage and lighted from overhead or from the sides with floodlights to give it the proper color. Its top and ends are, of course, masked by the overhead borders and the wings.

Several effects that can be produced upon such a "cyke" are shown in the sketches. This of course with a darkened house and stage lights arranged to suit the scene.

First is the moon. This effect is accomplished by making a slide composed of two coverglasses (clear glass) the standard size—3¼x4 inches. Cut out a piece of black paper the same size, and near the center cut a moon shaped opening with a razor blade or sharp knife, making clean edges. Place this between the two pieces of glass and bind together as you would any lantern slide. If the moon is to be yellow insert a piece of yellow celluloid over the opening before binding, or stain the glass itself. Insert in the slide holder and focus sharply on the background. If the sky is lighted a deep blue to represent night, the moon image will cut into it very realistically. By laying the lantern partly on its side and moving the slide holder slowly

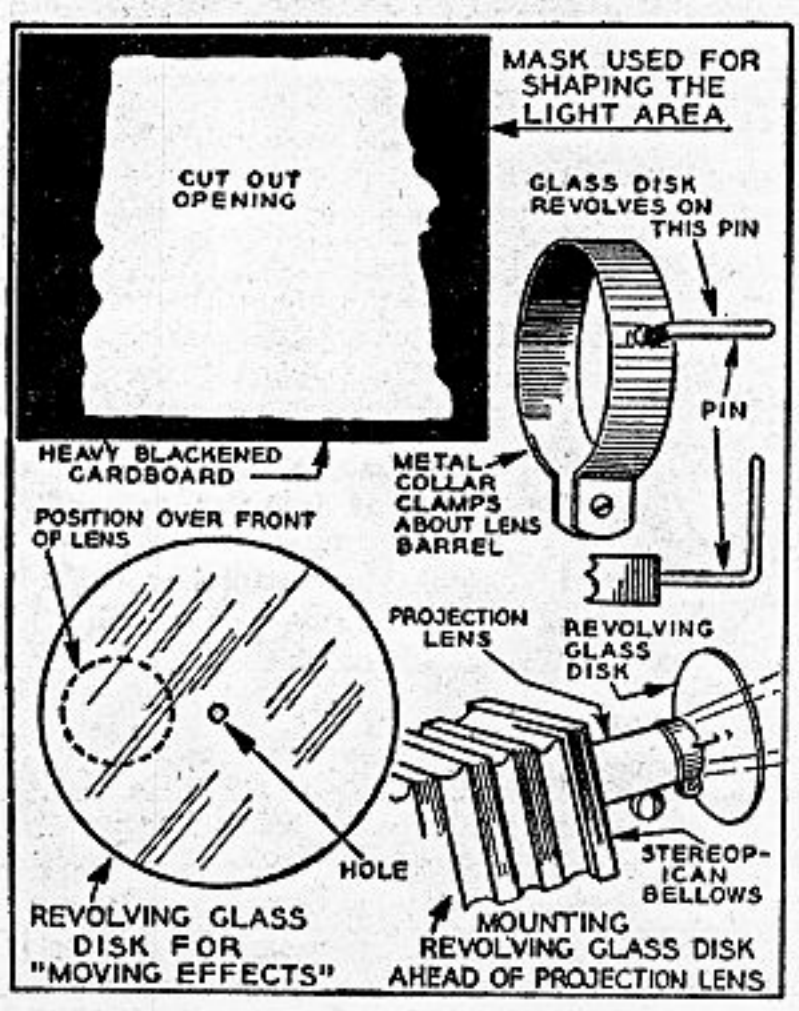
FOR AMATEUR PLAYS

BY L. B. ROBBINS



SEVERAL POSITIVE FILM PRINTS OF CLOUDS CEMENTED TOGETHER-END TO END-AND THEN ALL SURFACE BLACKED OUT WITH INDIA INK EXCEPT THE CLOUDS

MOVING CLOUD STRIP



and carefully, the moon will appear to travel up and across the sky as in nature.

Suppose the stage is nearly pitch dark for a thunder storm. Forked lightning can be produced as follows: Paint the inside surface of one glass with India ink. Then, with a sharp needle, scratch the lightning through the ink to the glass so it appears transparent as in the sketch. Bind the other glass over this and your slide is done. Set the lantern on its side so the slide holder goes in vertically. Project the lightning on the dark drop and cover the lens with your hand. To make the flash move the open fingers across the lens a couple of times rapidly and then cover it again. This will produce a flickering flash following which a stage hand can shake the "thunder sheet." It is enough to startle any audience.

Stars can be simulated as follows: Cut a piece of heavy tinfoil the slide size. Prick it full of tiny holes with a fine needle. Bind it between two cover glasses and project it upon the night sky. They can be made to twinkle by gently moving a piece of fine mesh window screen back and forth in front of the slide.

On a semi-darkened stage a rain storm can be simulated very effectively in the following manner. First have a glass disk cut out about three times the diameter of the projector lens. A small hole should be drilled in the exact center. Swab the disk with black ink or black paint on one side. Next, make a metal collar, like that in the drawing, to fasten securely about the projector lens barrel. A stiff wire shaft can then be soldered to one side of the collar as shown. Prepare a slide by covering with black paint or ink and then scratch fine parallel lines in the paint with a needle. Scratch similar lines in the black on the disk. Place the slide in the holder and the disk on the pin shaft. Slanting rain lines will show on the scenery, and by revolving the disk to the left, from the top, those lines will cross the stationary ones presenting the effect of shimmering, falling rain.

A rainbow can be produced in a startling way by scribing an arc on a clear glass slide and painting the various rainbow colors in this space in narrow strips. Black the rest of the slide. When thrown upon the scene it is advisable to have the image slightly out of focus to get the soft effect of a rainbow.

Two effects, often times desirable, are "water ripples" and moving flames. The surprising part is the simplicity of the things needed to obtain such effects. Have two pieces of pressed glass with wavy, parallel lines pressed in, cut to slide size. Also two disks of the same material cut and drilled like that for the rain. In the "water ripple slide" the lines should lie parallel to the 4-in. side while in the "flame" slide the lines run from top to bottom. Stain the water ripple disk light blue and the fire disk flame red. When the blue disk is rotated in front of the ripple

slide a moving water effect is produced. When the fire disk is rotated in front of the flame slide the lines appear to rise and flicker very much like real flames. Various colored effects can be produced by the tint of the disks.

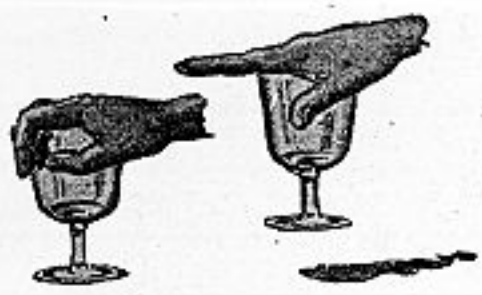
After the rain storm you may want to show heavy clouds moving across the cleared sky. In this case make some snapshots of clouds and print them on film stock to make positives. These should be 3¼ in. wide, (slide width). Cement these together in a long strip and black out all but the clouds themselves. Put a clear glass slide in the holder and then very carefully and slowly push the cloud strip along in front of the glass and your clear sky will take on the effect of a clearing storm.

The stage manager may be able to think of other "effect devices" once he has experimented with the foregoing. In all cases however, a mask must be used in front of the slide so the projected image will fall only upon that portion of the stage desired. This consists of an opening in black paper of the shape and size to prevent any of the projected image falling upon any undesired part of the scene. The idea is shown in the sketch. Some experimentation is necessary at rehearsals so the rainbow, clouds, etc., will only show in the "sky" of the scene and not upon the wings and other parts of the scene.



THE JUMPING BALL

Place a light ball in a tapering glass goblet which you hold at an angle in your left hand, as shown in the picture. Announce to your audience that the ball is so sensitive that it will do anything to escape a draft. Then blow into the goblet containing the ball. The ball will jump out into the goblet you hold in your right hand. The French do this trick with an egg, which they save from breaking by putting water in the right-hand glass.



RAISING A GLASS

Press the palm of your hand over the top of a light tumbler or goblet. Then lower the fingers as shown and raise them again quickly but not abruptly. When you raise your hand the glass will stick to it.



ONE BALL OR TWO

By crossing the fingers as shown in the oval and rubbing them over a ball or coin, you will be able almost to convince yourself that there are two balls —especially if you close your eyes. Aristotle is said to have invented this trick to amuse the little boy who became Alexander the Great.

A GOOD WAY TO BUMP YOUR HEAD



Take a stool and place it next a wall, you yourself standing two stool-widths away. Now bend over and try to pick the stool up.

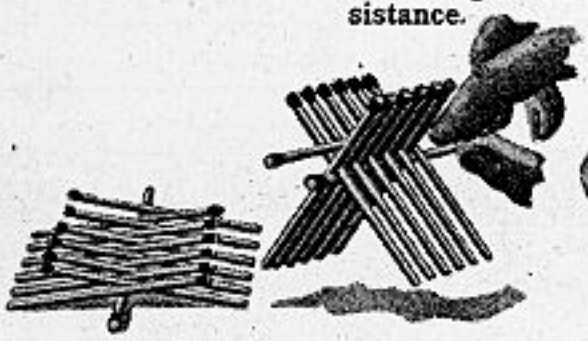
A GOOD PRACTICAL JOKE

Fill two glasses with water and place them on the backs of a friend's hands, asking him to balance them. He will show you how easy it is to do, and may laugh at such a simple trick; but soon he will discover that he is a helpless prisoner and cannot set the glasses down without assistance.

A FOOT OF LEAD

Stand with the left foot touching the wall and the left arm extended, as you see at the right. Now try to lift the right foot.





A STOOL OF MATCHES

Ask anyone if he can lift thirteen matches with one match. The chances are that he can't. This is the way to do it. Put one match on the table, then set up the twelve others, pointing them in alternate directions, as you see above. Set the thirteenth match on top and lift them all with the match beneath.



A DIFFICULT TASK

It is easy to sit down after first crossing the legs below the knees. But try crossing the legs above the knees, and you will find that sitting down is about as hard as it would be if you had no knees at all.



THE CONTRARY STOPPER

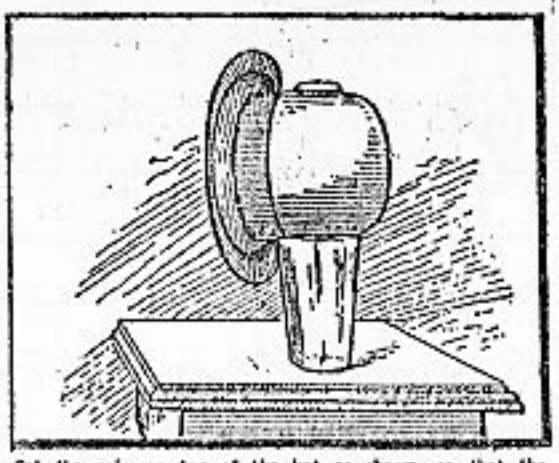
Try to blow a little cork inside a large bottle, first setting the cork inside the bottle neck. The silly cork comes out instead of going in! Now inhale instead of blowing, and the cork goes in with no trouble at all.

Scientific Coin Puzzles

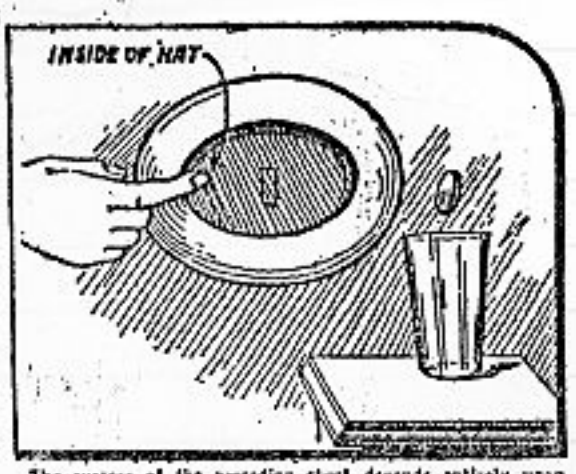
Simple Stunts with Ordinary Articles



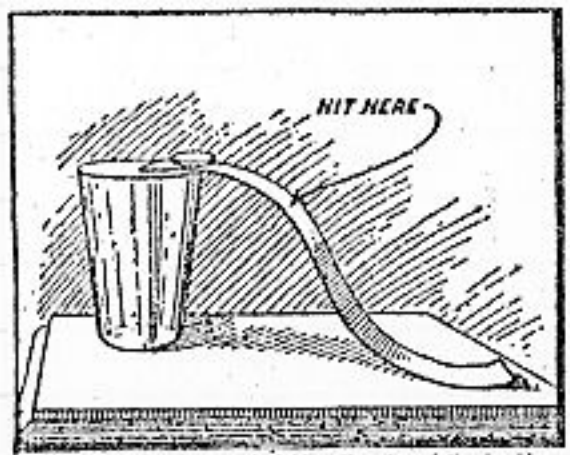
This surprising little novelty is easily performed. The one cent piece sticks against the forehead as though it were glued there. The trick is performed simply by pressing the coin to the forehead and moving it upward. Dampening may help.



Set the coin on top of the hat as shown, so that the coin is directly above the tumbler. Give the hat a sharp jerking blow and it comes out from under the coin which drops into the glass. Ask a bystander to attempt the same stunt. He will probably fail unless he knows how.



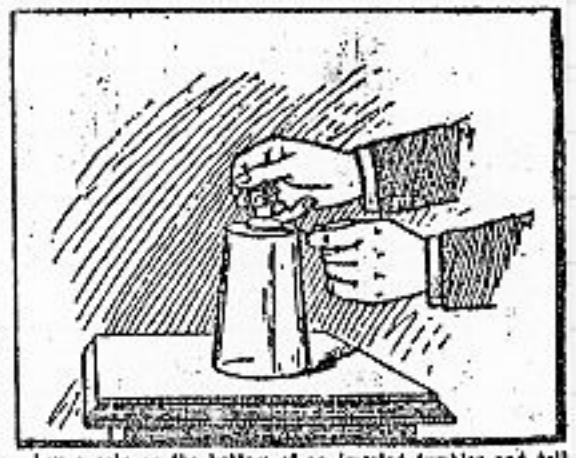
The success of the preceding stunt depends entirely upon the fashion of the blow and the point at which the hat is struck. To make the stunt successful, the operator must hit the inside of the brim of the hat, as illustrated above, a very sharp fast blow, so that the coin falls perpendicularly.



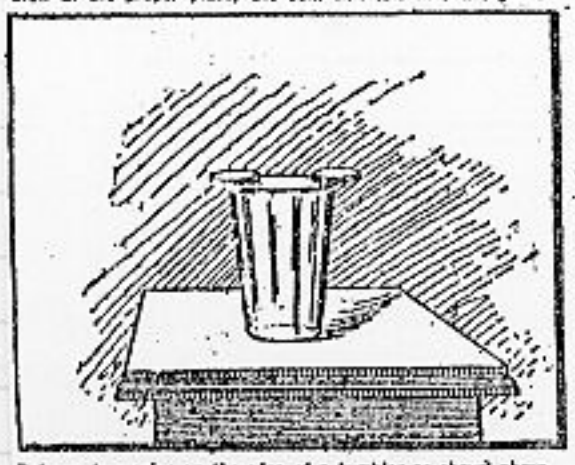
If a heavy strip of paper is laid on the edge of the tumbler and a coin balanced across the edge of the tumbler and paper as shown, and the paper is struck a sharp downward blow in the proper place, the coin will fall into the glass.



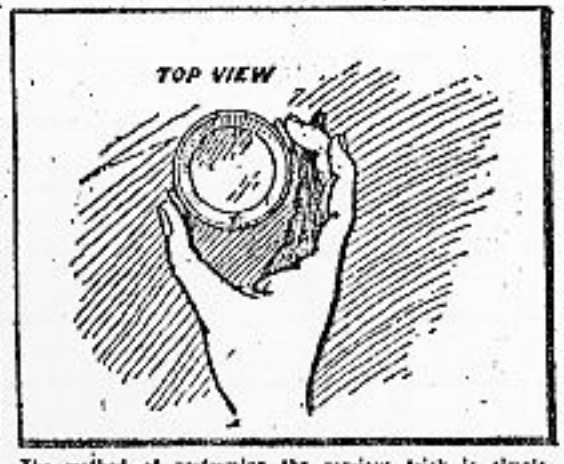
Another stunt which requires a bit of practice before the performer may work it successfully is illustrated above. A quarter or half dollar is balanced between two needles and caused to spin by blowing on it.



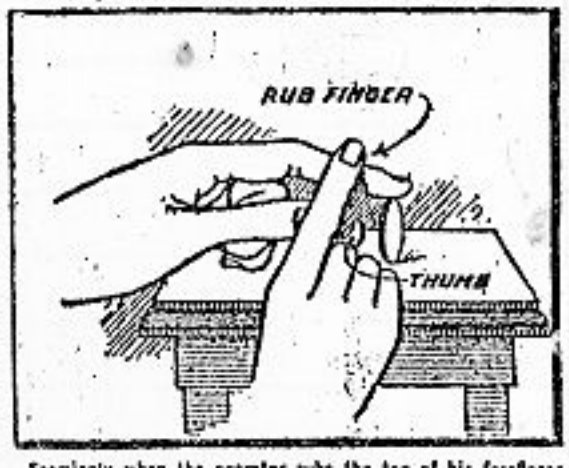
Lay a coin on the bottom of an inverted tumbler and tell the audience that it is impossible for anyone to lift the coin "from the top of the glass" with two matches. You may lift it—but not "from the top of the glass."



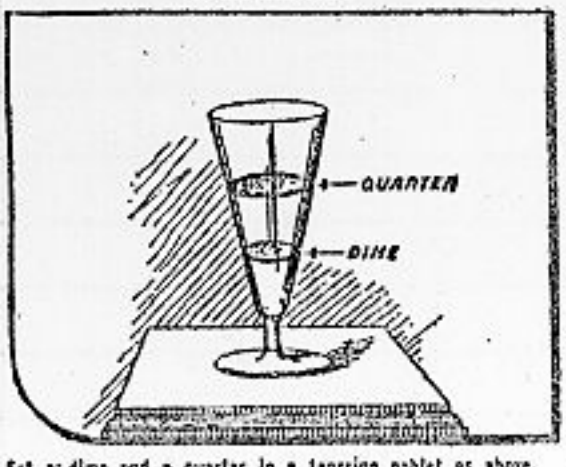
Balance two coins on the edge of a tumbler as shown above and challenge someone to remove them at the same time, and hold them between finger and thumb, touching one coin with the thumb only and the second with one finger only of the same hand.



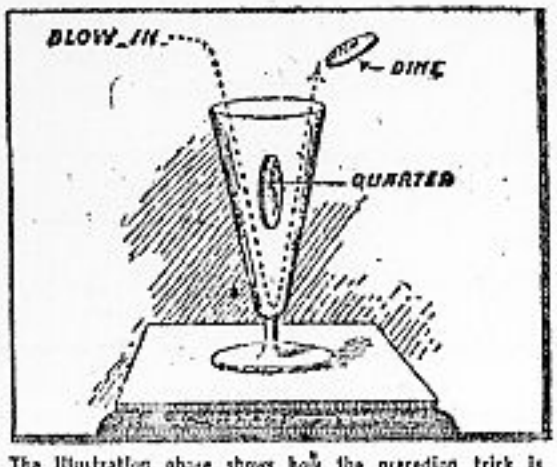
The method of performing the previous trick is simple. With a great deal of care, grip the coins as shown, causing them to slide down the side of the tumbler. Then draw them around the side of the glass and snap them together.



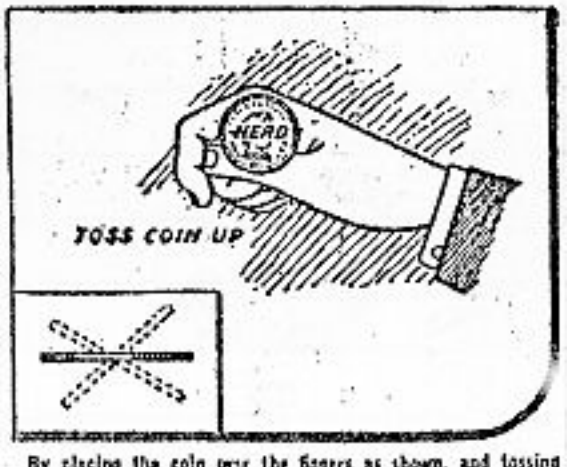
Seemingly when the operator rubs the top of his forefinger which balances the coin, the coin rotates as a result of the massaging movement. However, note the thumb and the ease with which it can strike coin and make it spin.



Set a dime and a quarter in a tapering goblet as above. The dime being smaller sits below the larger coin in the glass. The problem is to remove the dime from beneath the quarter without touching or removing the quarter.

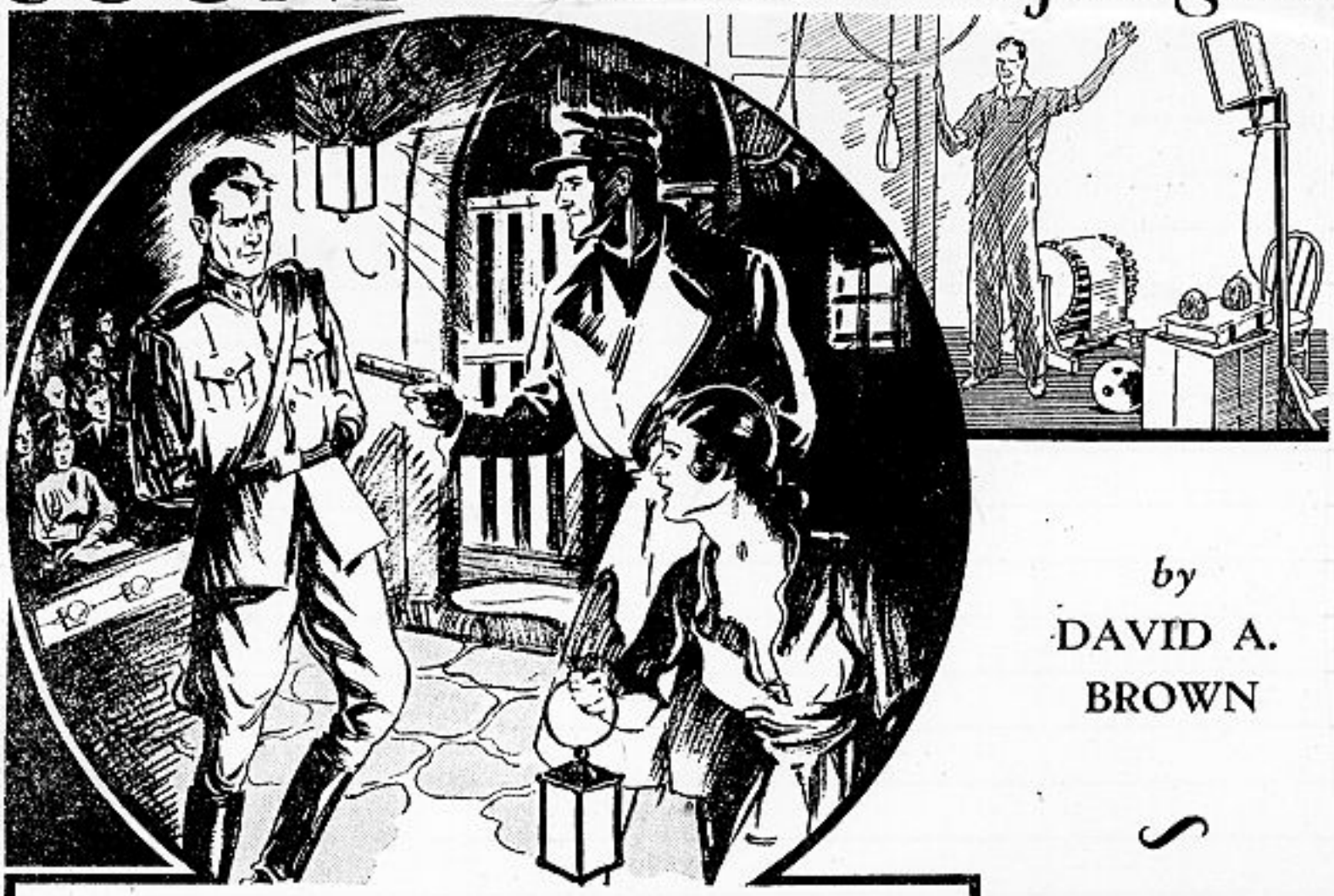


The illustration above shows how the preceding trick is performed. The operator simply blows down one side of the tumbler, causing the larger coin to tilt over edgewise and the small coin to slide out past the large coin.



By placing the coin over the fingers as shown, and tossing it—not spinning it—into the air, the coin can be made to fall with the same face up as the coin lay on the fingers. The coin wiggles and seems to spin.

SOUND EFFECT *Gadgets*



by
DAVID A. BROWN

Bizarre though they may seem, the devices described in this article with a little practice can be made to produce any off-stage sound effect for amateur theatricals.
MODERN MECHANIX DEC. 1934

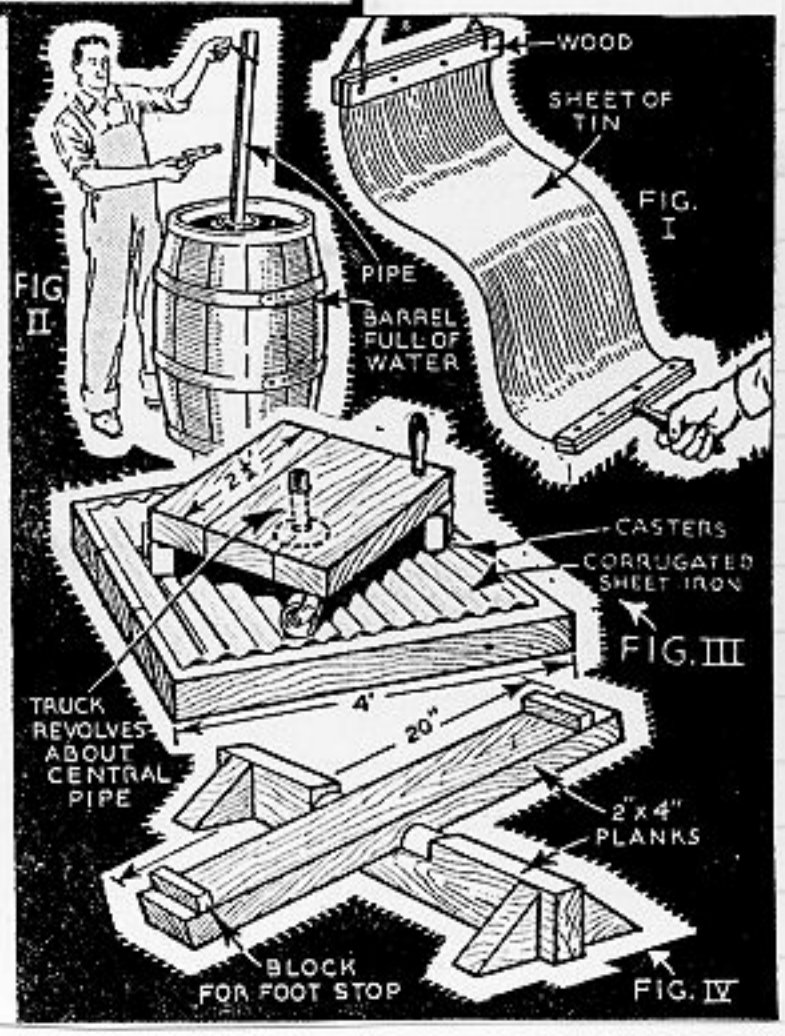
Pictured below are devices used for producing back-stage thunder, chimes or fire bells, clicking of train wheels passing over rails, or sound of marching men.

THIS equipment which to the layman may appear to be the invention of a lunatic is used regularly on the professional stage to obtain unusual sound effects. Continued use, however, has demonstrated how these weird devices can add realism to the average stage play.

Little theater groups should have these easily-made noisemakers among their stage equipment, for there is hardly a play written which does not call for the use of some of them.

The thunder sheet, Fig. I, is shaken to produce the deep roll of thunder. It is made from a sheet of flexible copper or tin, both ends of which are held firmly with light wooden battens. One end is suspended overhead by ropes. A handle of wood or loop of rope makes it easier to operate.

For a loud clap of thunder, fire a blank shotgun shell into an empty barrel, or suspend a log chain by means of rope and pulley over an empty barrel across which is laid a sheet of galvanized iron. At the "cue" release the rope. The sound is deafening.



for the "Little THEATER"



To make a set of chimes, suspend a brass pipe in a barrel of water. Raise and lower the pipe while tapping it with a hammer until the desired pitch is sounded. The water line is the point at which the pipe should be sawed. In this way several pipes may be suspended from a rack by rope, and tuned to form chimes, church, train or fire department bells. For loud ringing use a hammer, for softer tones a striker padded and covered with chamois.

For the sound of train wheels passing over rails use a truck, Fig. 3, mounted on steel casters, revolving on a base covered with corrugated iron roofing. The truck is 2½′ square, the base 4′ square. Cut a hole in the center of the roofing and screw a floor flange pipe socket to the base. Into this screw a section of pipe for the truck to revolve around. Merely cut a hole in the truck to fit the pipe and fasten a convenient handle at one corner for operating the truck.

As a train approaches, first sound a wooden train whistle and ring the bells. Come in with the steam exhaust by lightly

(Continued on page 132)

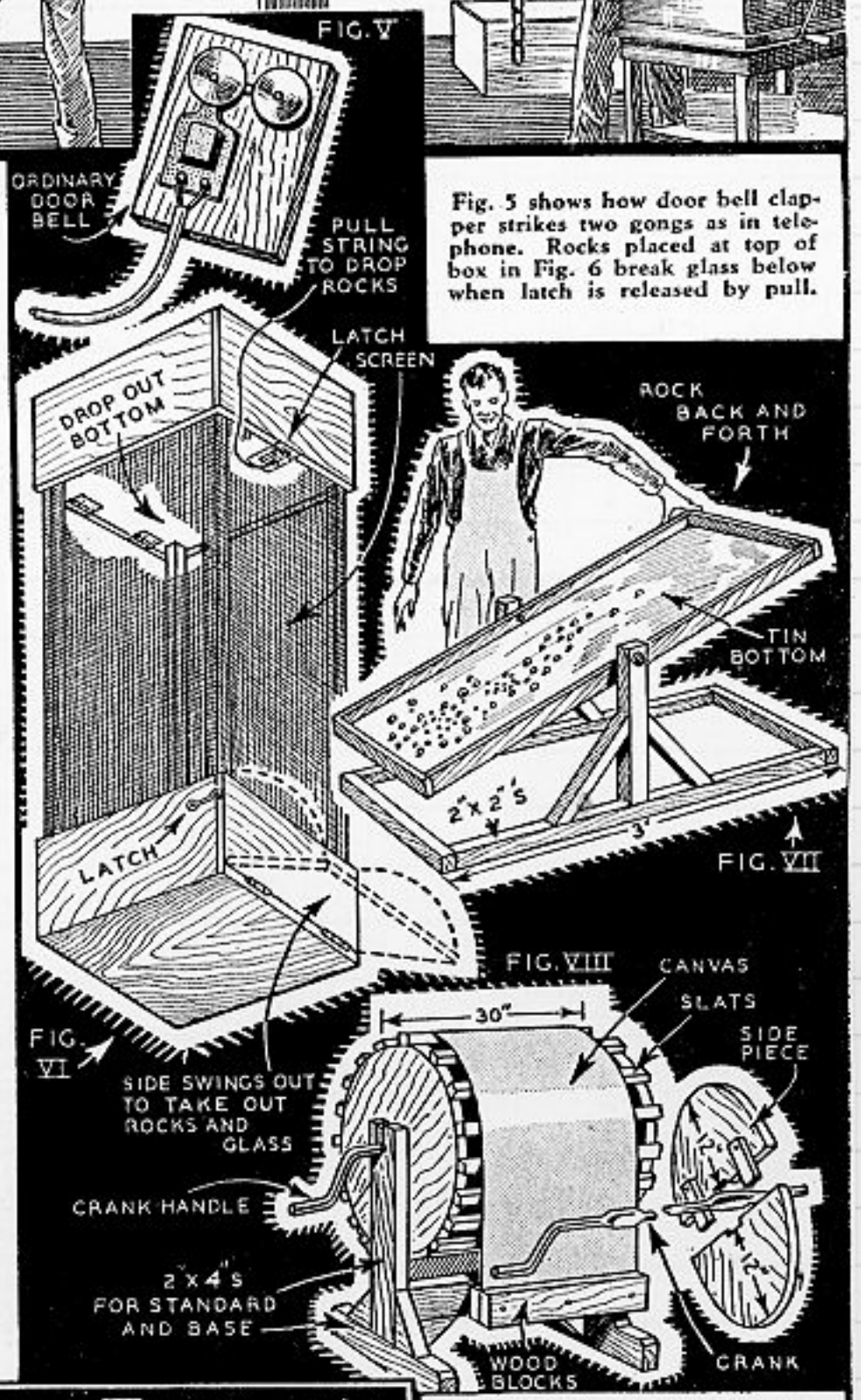
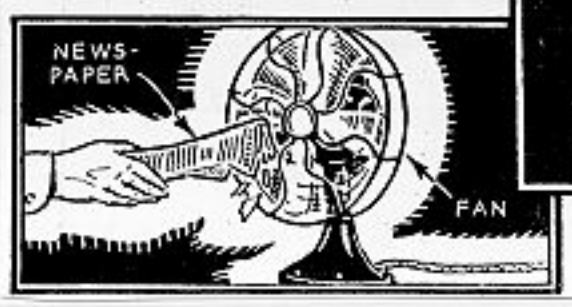


Fig. 5 shows how door bell clapper strikes two gongs as in telephone. Rocks placed at top of box in Fig. 6 break glass below when latch is released by pull.

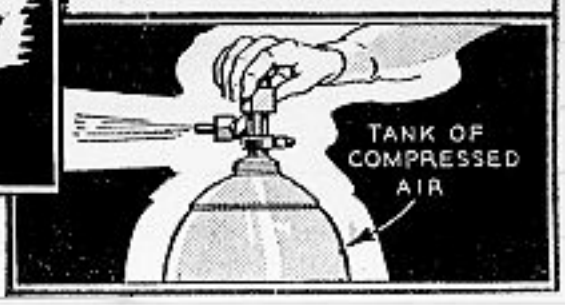
Whir and roar of stunting airplane is realistically reproduced by holding newspaper against electric fan.





Breaking berry crates provides crackling of flames for fires.

Noise of escaping steam is made by opening compressed air valve.



brushing a trap drummer's steel brush across a piece of light metal laid across an empty box, or two sand paper blocks gently rubbed together. Next start revolving the truck and increase the volume on bells and whistle. Accelerate the speed of all effects. When the train pulls into the station all sounds are up. The truck stops, the bell slows its ringing, and the steam is blown off by means of a siren whistle or better still a drum of compressed air which is allowed to escape.

The Sound of Marching Men

Marching soldiers are represented through the teeter-totter, Fig. 4, made from short lengths of 2"x4". The operator may sit on a chair and operate this with his feet, leaving his hands free for other uses.

The glass crash, Fig. 6, is two wooden boxes mounted one above the other on four posts, as shown. A break-away bottom in the upper box is operated by a string which draws an ordinary door bolt. A small hole is cut in the screen wire covering the space between the boxes, so that the bolt may be reset. A side of the lower box lets down. Small brass hooks hold it in position. Rocks are dropped down onto old bottles and broken pieces of glass placed in the lower box when the latch string is pulled. Any "business" calling for the sound of breaking glass may be handled with this effect.

For rain, drop a few handfuls of BB shot onto the tin bottomed rocking tray, Fig. 7, and then agitate them gently by rocking the tray. When dried peas are similarly agitated in a tray the bottom of which is screen wire, the sound is like surf on an ocean beach.

Wind is produced by revolving a drum made of ½" sla's tacked to drum heads at 2" intervals over which a piece of canvas is passed. A convenient sized pipe is bent as in Fig. 8, and flattened on an anvil at the points where it passes through the small notches cut in the centers of the two drumheads. The stand is of 2"x4". One end of the canvas flap is tacked to the cross brace, the other is passed around the drum and held down by the weight of two light battens between which it is tacked.

Door Slams and Cannon Fire

A plank held under the foot and elevated at one end by a rope sounds like a door slamming or a cannon fired at a distance when released. This followed by a short rising note on a siren whistle, broken off with a blank cartridge fired into an empty barrel, is used when a cannon registers a direct hit.

Rattan switches struck across a leather cushion or piece of insulating wool give the sound of a rifle shot, while several switches rapidly struck are used for machine gun fire.

Very effective fire scenes may be created, with sound alone. An ordinary child's wooden cricket wheel simulates the crackling of flames, as does the breaking of berry crates. The breaking of laths followed by a door slam and a few shakes of the thunder sheet give the effect of crashing timbers and walls.



THE RESULT IS QUITE A BLOW

Place a paper bag flat upon the table so that the mouth projects over the edge. Now put some heavy books—dictionaries or reference books—on top of it. By blowing into the bag you can make the books tumble over.



PICKING UP THE HANDKERCHIEF

Put a handkerchief directly under the back of a kitchen chair. Lying lengthwise across the chair, try to pick the handkerchief up in your mouth. You may hang on to any part of the chair you like, but you must not tip it over.



THAT FUNNY FUNNEL

Blow straight at a candle with a funnel. The flame can't be made to move, because the air currents are evenly distributed and escape at the base of the candle. If you raise the funnel a little, the currents of air will hit the flame and it will bend.



A QUEER EGG

Put a thin cardboard on a glass of water and an egg on a plain ring on top of it. Tap the paper lightly at one corner and it will slide away, letting the egg and ring fall.

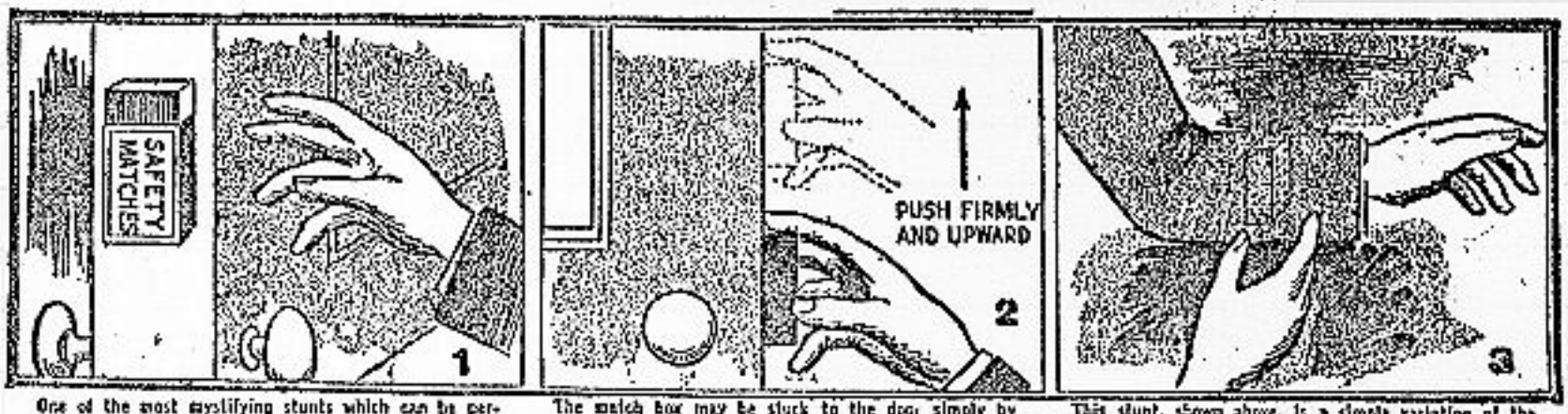
A GAME FOR HALLOWE'EN

Float a candle in a tub of water and try to seize it with your lips and teeth. This can be done only by taking a deep breath and holding it, then ducking into the water and seizing the elusive candle. Keep your hands behind your back!



Easily Performed Match Tricks

Mystifying Stunts Which Entertain



One of the most mystifying stunts which can be performed with a box of safety matches is sticking it to a flat surface seemingly without any support. This stunt is performed with apparatus found around any home. Above, the match box is shown sticking to the end of an open door. The surface must be smooth.

The match box may be stuck to the door simply by pressing it firmly against the wood, and at the same time moving it upward. Several trials may be necessary before you can perform the trick. Either an empty or full box may be used. Press the box from sides and corners, as pressure from the top will not work.

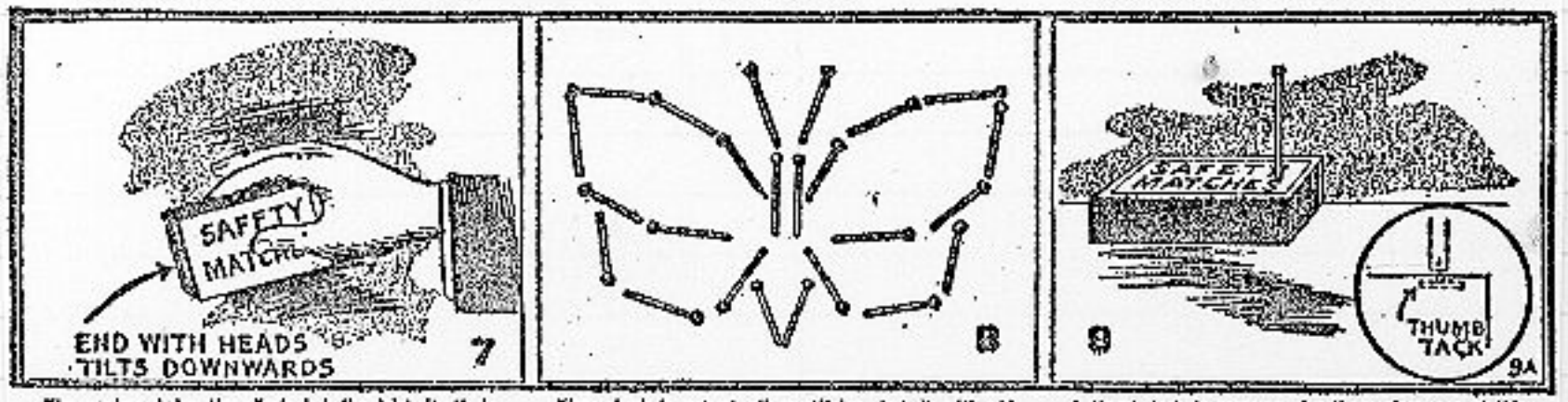
This stunt, shown above, is a simply variation of the one shown in the first two illustrations, except that the sanded edge of the box is used instead of its back, and the box is supported from the coat sleeve instead of the door. A box of non-safety matches with a sanded side is required in this stunt.



Hold a box of safety matches in the air. It lands on the table with the label side up. Repeat the whirl two or three times. The box always falls flat, label side up. The box may be whirled by someone else, and in spite of anything they do, if they actually throw the box into the air, the results will be the same.

The secret of the trick just described lies in an old, old law. It is performed by virtue of a heavy coin placed in the bottom of the box between the drawer and the case. Preferably a heavy coin should be used. The weight of the coin causes the bottom of the box to fall downward.

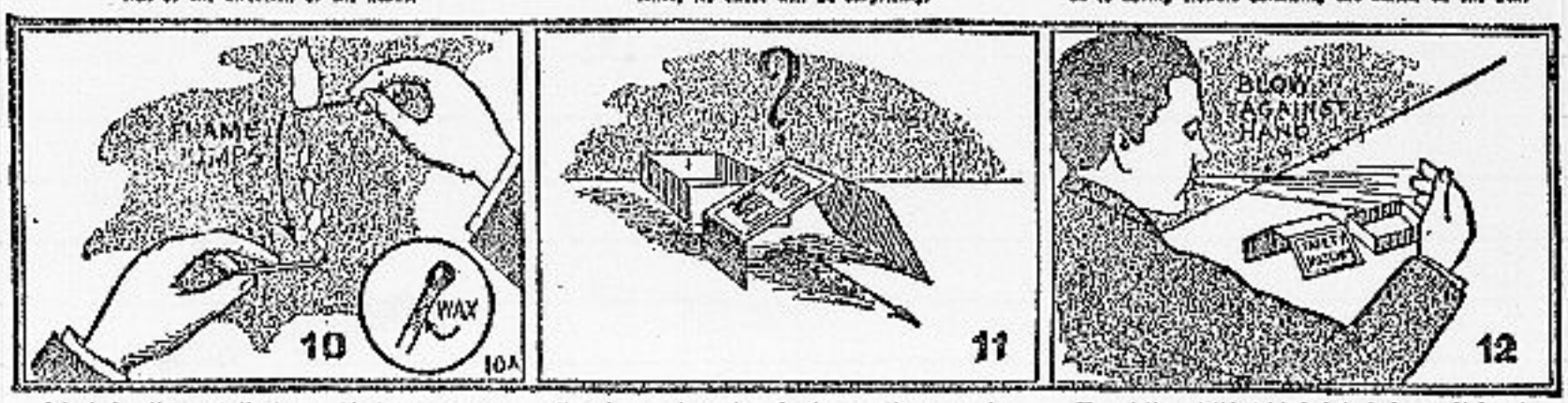
Borrow a box of safety matches from a friend, shuffle it in the hand, be very mysterious, and then tell which way the heads of the matches are pointing. Your results will be much more certain if the box of matches is a full one, since the difference in the weight of head end and tail end performs the trick.



The mystery helps the effect, but the trick itself depends entirely upon the good old law of gravitation. By grasping the box in the center very lightly the added weight of the heads of the matches will force one end of the box lower than the other, thus giving an indication of the direction of the heads.

This stunt is not at all mystifying, but it will add greatly to any impromptu entertainment. Simply take a handful of small safety matches and lay them out on the table in some preconceived design. If the design is viewed through half closed eyes from some distance, its effect will be surprising.

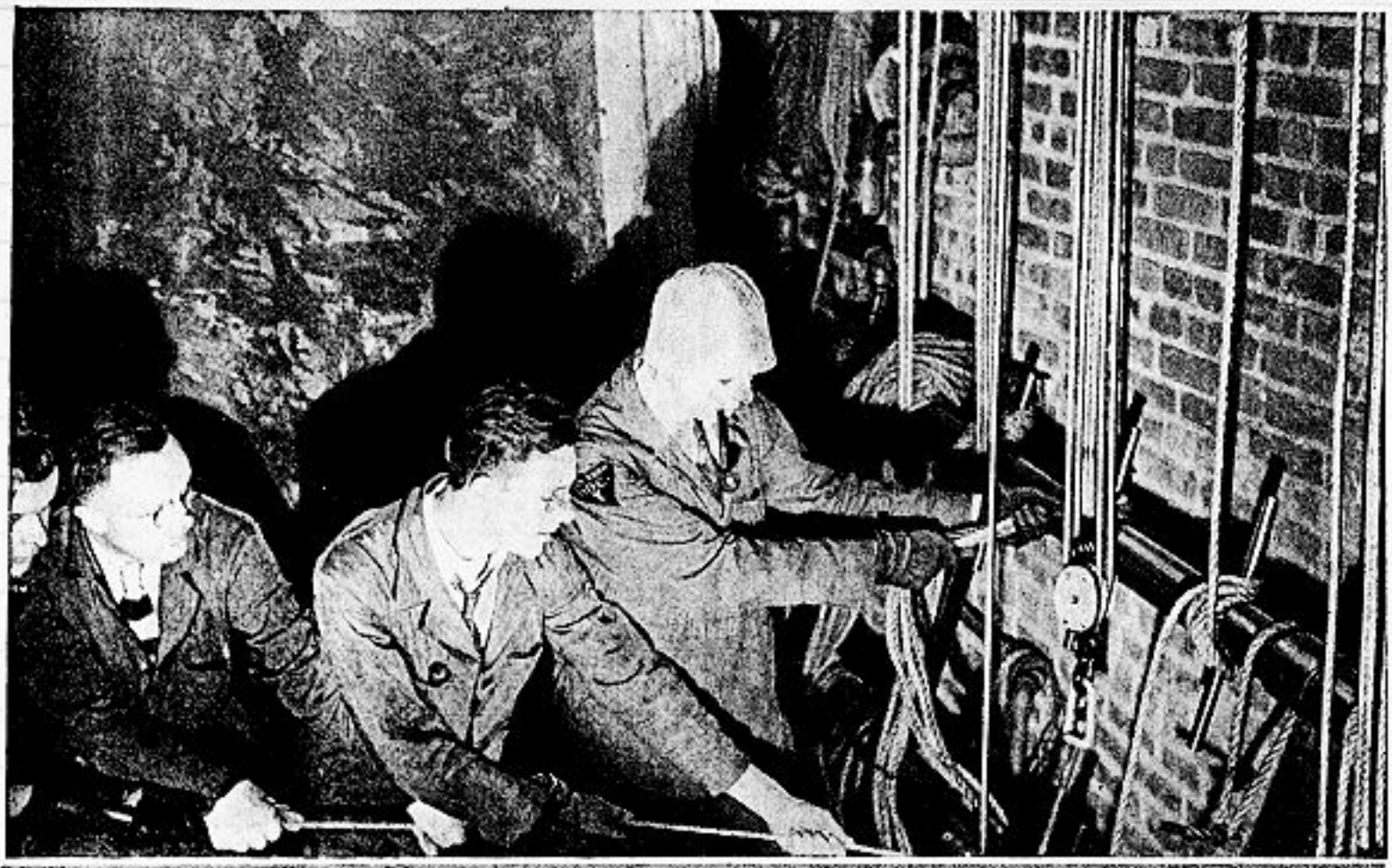
A thumb tack is necessary for the performance of this stunt. It is thrust part way through the cover of a match box as illustrated and a match is made to stand upright after the performer has made a lot of stage business seeking to lead his audience to believe that he is having trouble balancing the match on the box.



Introducing the acrobatic flame. Light two matches, blow one out and as the smoke curls up, hold the flame of the other match above it. Suddenly the flame slides down the curl of smoke and relights the lower match. The lower match must be previously coated with paraffine as an ordinary match will not work.

Here is a real puzzle. Break open the cover of a match box and set it so that it forms a sort of funnel. Place the empty drawer of the box on the opposite side of the cover and then ask one of the audience to bring the drawer through the funnel without touching it. The funnel stands between him and the drawer.

The solution of this trick is indeed clever. It is only necessary for the performer to cup his hand in such fashion that it will reflect a stiff breath of air onto the drawer. By this means the wind will act against the drawer forcing it through the funnel. With a slight amount of practice this may be done with ease.



While one man keeps a continual snub on the stage lines, the crew hauls up the back-row scenery

POPULAR SCIENCE NOVEMBER, 1939

Stage Rigging Methods

FOR AMATEUR THEATRICALS

AMATEUR theatrical performances are often marred by exasperating waits between acts while the scenery is being shifted. There is no reason for such delays. The successful handling of scenery depends upon teamwork among the stage crew and skill in manipulating the sets. Methods described in this article have been used by the Montclair (N.J.) Operetta Club and Montclair Dramatic Club.

Most amateur groups perform on a school stage which is usually poorly designed for play production. Lay out the scenery to scale on a floor plan drawing of the stage; make sure that it fits and that all "holes" are masked in. Give considerable thought as to how the shifting is to be handled and where the scenery is to be stacked when not in use.

The scenery should always be marked for identification. Paint the marking on the wood. When the scenery is moved to the stage, make a trial set-up of each act and mark key locations on the floor with colored thumb tacks—red for Act I, white for Act II, and so on.

Upright scenery is lashed together and supported with stage braces, which are made fast with special screws placed in the cracks between the floor boards. The flats themselves seldom have to be anchored to the floor. A small wedge under one corner of an off-square flat will make it sit firmly.

When a row of flats is to be hoisted or flown, it is desirable to fasten them together with wooden cleats in addition to the lashings. The cleats should be as long as the row. They keep the flats in line if the hoisting batten should spring a little. Even when suspended from above, the flats should always be supported by stage braces when in place, otherwise the slightest draft will make them sway.

When planning to fly scenery, always be suspicious of the strength of the usual school rigging with the eyes carrying the pulleys set in a plastered ceiling. Consult the architect of the building if doubtful. If you are lucky enough to have an open grid with movable blocks, your troubles are at a minimum. Examine the hoisting lines for bad

By THOMAS L. HALL

spots and be sure they are strong enough for the job. The safe load for good ½" manila rope is about 100 lb. for flying scenery.

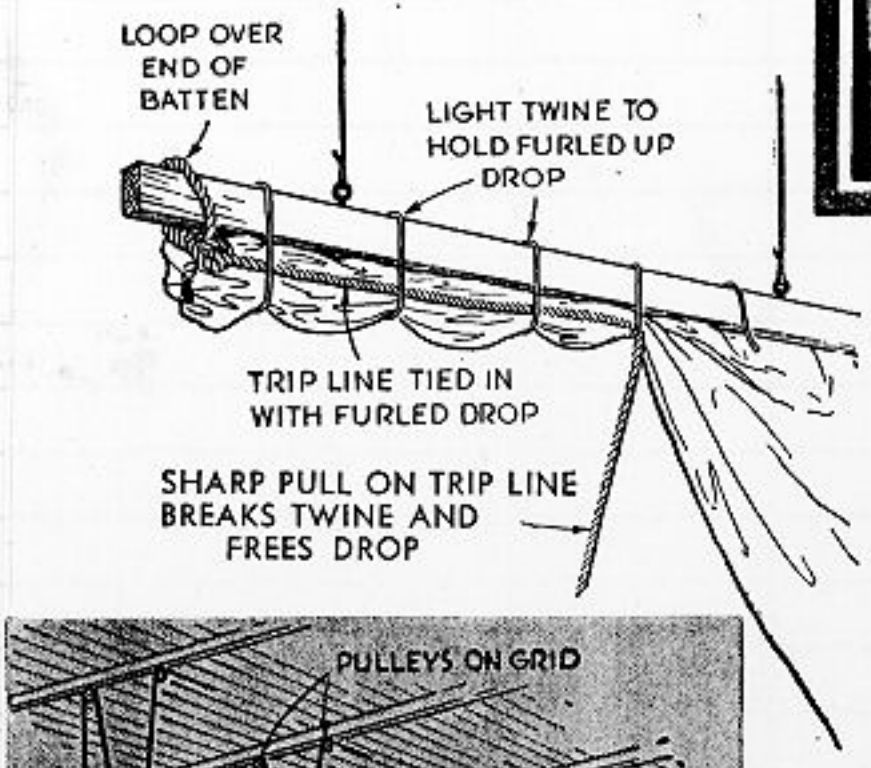
In spite of its weight, 1¼" or 1½" pipe is about the best material for scenery battens. For very light work, however, ¾" pipe or even wood may be used. Battens should always be tied to their supporting lines so that the lines hang vertical, otherwise the batten will get out of level when hoisted.

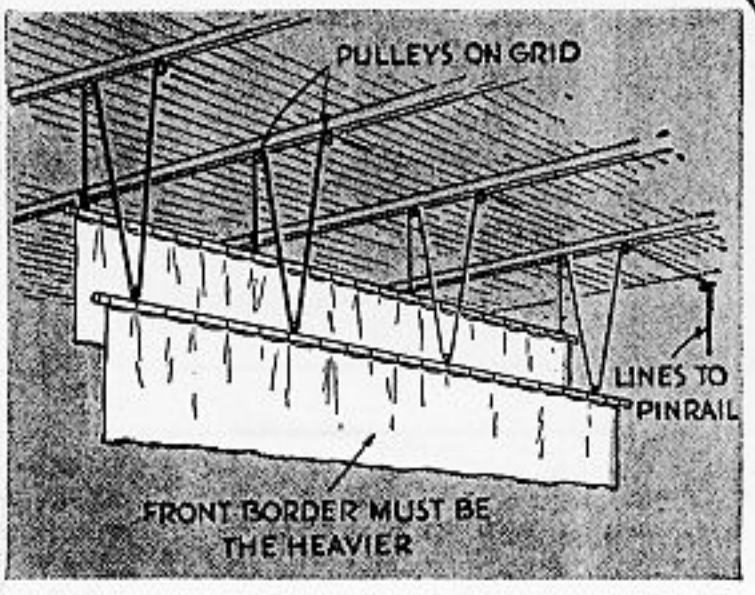
Rope, particularly when new, will stretch, and the battens must always be leveled when fully loaded. Measure the height of the batten from the stage and adjust one line at a time until level. When finally leveled, mouse all the hoisting lines together at the pin rail with twine or friction tape. This mousing, if put on opposite some fixed mark when the batten is at its proper height, will serve as a marker for setting the batten during the performance.

Cloth borders, to mask the stage overhead, are used in practically every show. If they must be changed between acts, hang two borders on one batten with the Act 2 border in front. For Act 1 furl up the Act 2 border like a sail and let it drape over the back of the batten. The lines will keep it from falling down. It can then be easily tripped down with a long pole between the acts. Obviously, the Act 2 border must be wider than that used for Act 1. Another method, that of setting up a border in stops, and also a more complicated rigging using balanced battens are shown in the drawings at the left. These schemes are used for very fast shifts.



When plenty of man power is available, a watch tackle is more adaptable than counterweights. Grooved blocks bolted between steel plates form a rope clamp





Two ways of rigging borders. The lower method is more complicated and needs a grid above the stage

Back drops are suspended from battens and should always have a piece of pipe run through the bottom hem to pull out the wrinkles. The drop is hung with the pipe just clear of the floor. When possible, set only one drop to a batten and don't furl them if there is enough room overhead to take them up standing. If they must be furled, lower the batten to the floor and tie the whole thing, including the foot pipe, in-

to a bundle with a number of rope slings.

If a large drop or a cyclorama (curtain encircling the entire stage) is hung close to the rear wall, the difference in temperature between the wall and the air on the stage will be sufficient to cause a strong draft to flow back of the drop and make it belly out at the bottom. In some cases a wood cleat must be nailed along the entire length of the drop to secure it to the floor and the hoisting lines pulled very tight to get rid of the belly. To change drops when the bottoms of both are nailed fast, each drop must have its own batten. Use one set of hoisting lines. Lower the drop to be changed to the floor, untie the batten, transfer the lines to the other batten and take it up. There must be some kind of ground row in front of the drops to mask the one which is on the floor.

A method of rigging a cyclorama and other rigging stunts are shown in the accompanying drawings. Rigid scenery should be attached to the battens with light chain. Fly as little of it as possible.

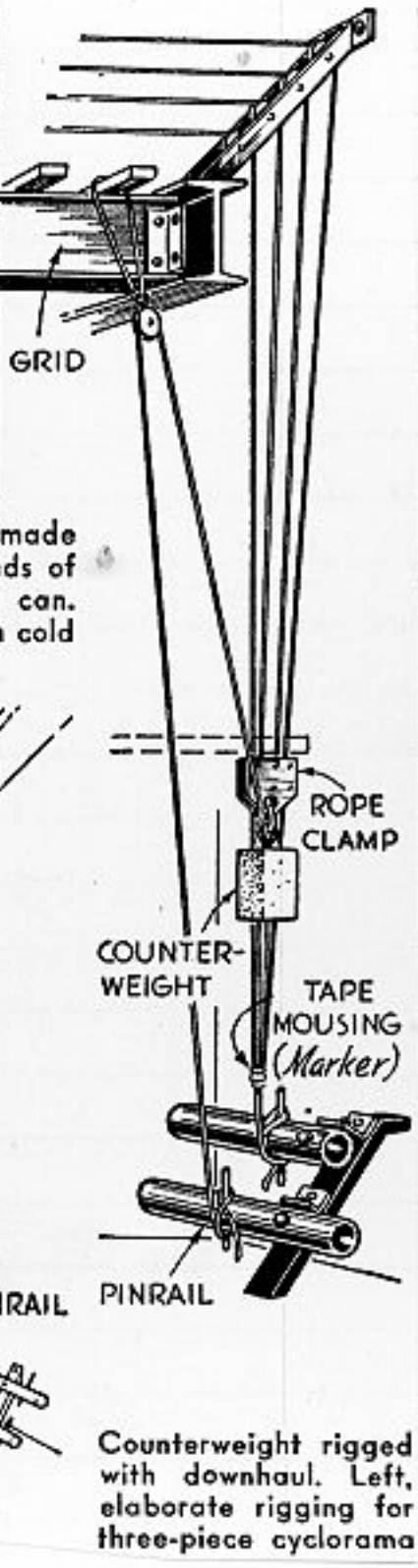
Stage lines normally terminate on a pin-rail at floor level on one side of the stage where they are "tied off." Since most stages available to amateurs do not include counterweighted lines, the lifting of heavy scenery is something of a problem. Homemade counterweights are hazardous unless carefully rigged. The cast-lead weight shown in a drawing is about the best available for amateur work. To the best of the author's knowledge, it was originated by the Montclair (N. J.) Dramatic Club. The watch tackle shown in the photograph is more adaptable than counterweights, especially when plenty of man power is available. Another photograph shows the method of hoisting with the tackle. One man keeps a continual snub on the stage lines and acts as straw boss of the group. The rope clamp is especially helpful. It is simply two blocks of hardwood grooved somewhat smaller than the ropes and bolted between two steel plates. If no rope clamps are available, the tackle or counterweight may be made fast to the stage lines with a rolling hitch.

A knowledge of knots is indispensable in stage rigging. At least one member of the crew should be able to splice rope, and the ability to make a running splice which will pass through a pulley will sometimes save a performance from disaster.

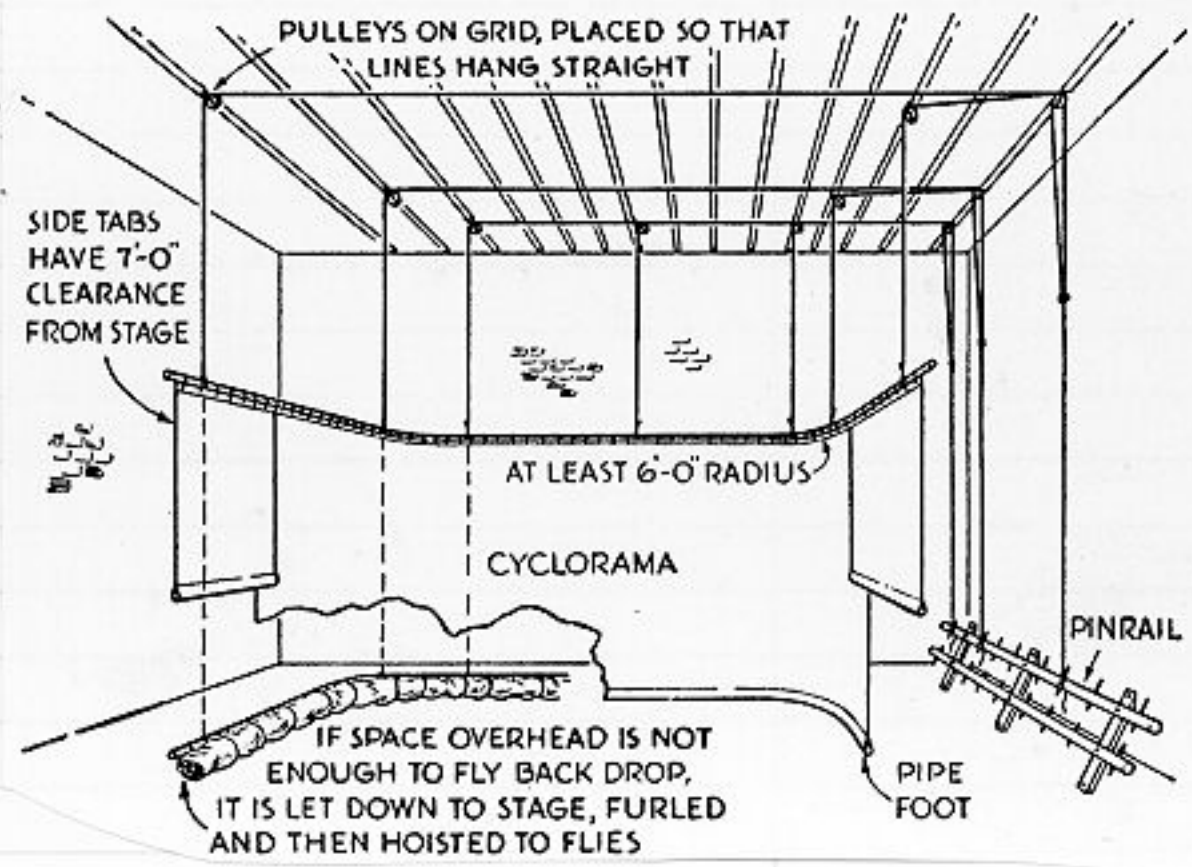
The stage crew should have a complete tool box handy and there should be a long stage brace with the top and bottom irons

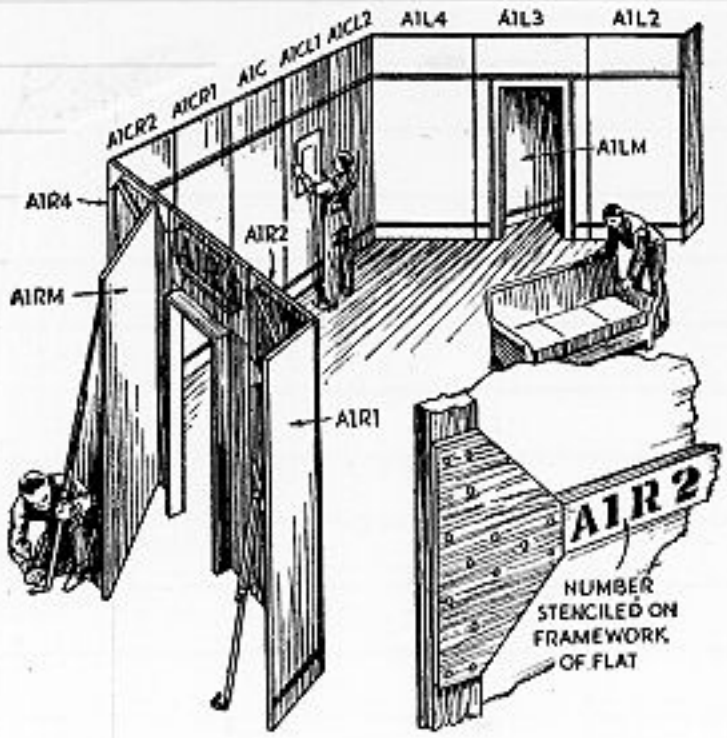


Lead counterweight made by pouring 95 pounds of molten metal into a can. Remove the tin when cold



Counterweight rigged with downhaul. Left, elaborate rigging for three-piece cyclorama





Scenery should be clearly marked for easy identification. For instance, A1R2 means Act 1, stage right, second from footlights

removed to be used as a measuring stick, for tripping borders, and guiding up scenery. A long step ladder is also very useful.

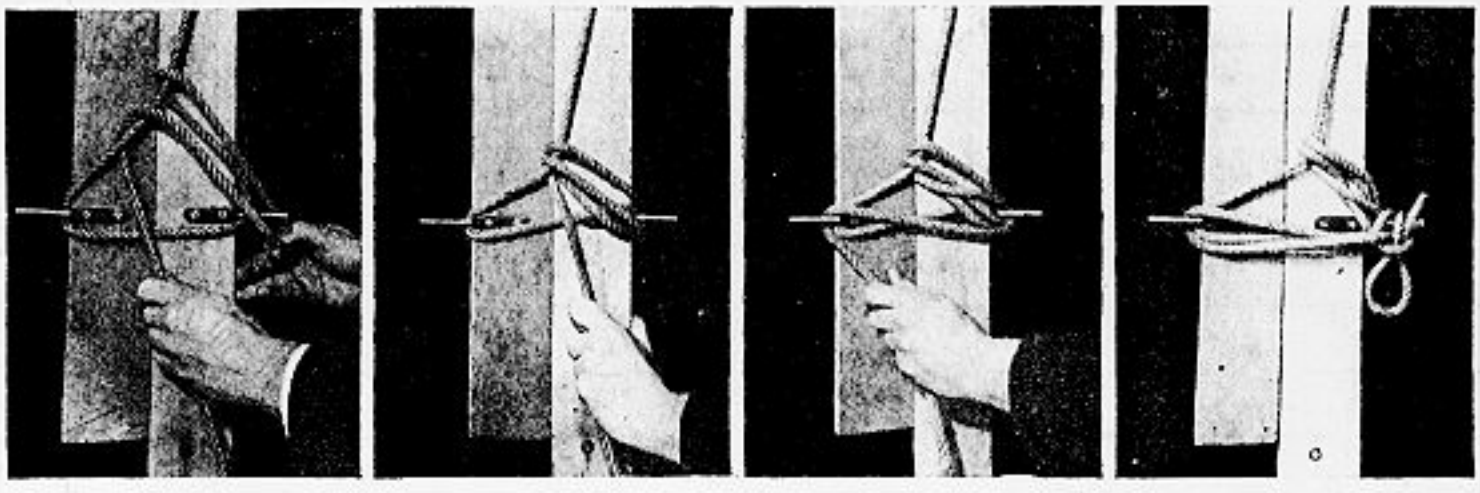
Since life insurance companies regard professional stage work as a fairly hazardous occupation, a few safety suggestions are not out of order:

Keep the cast off-stage during shifts. Examine knots, line, and any weight-carrying parts before each performance. Beware of snap hooks and screw eyes in tension. Never stand under counterweights nor under scenery being hoisted. When working aloft, always tie your tools fast.

If you drop something yell "headache" as loud as you can. "Look out below" takes too long to say. Always steady a ladder. Don't force a line which suddenly pulls tight.



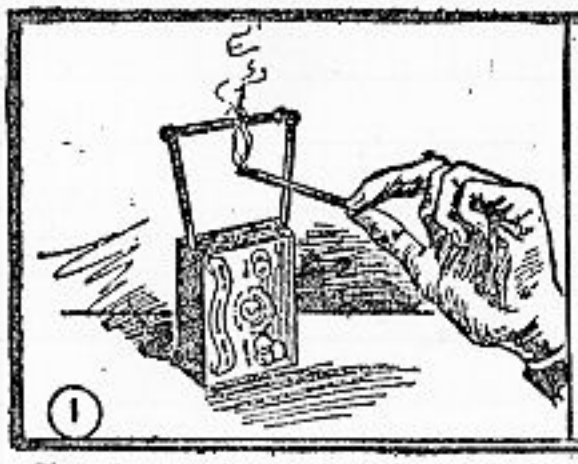
Never seen and rarely heard of, an efficient stage crew may well be called a hidden but invaluable asset to any dramatic organization. They receive no applause and scant credit from the cast. Their entire reward lies in the personal satisfaction which follows when their work is a success because it was well planned and well executed.



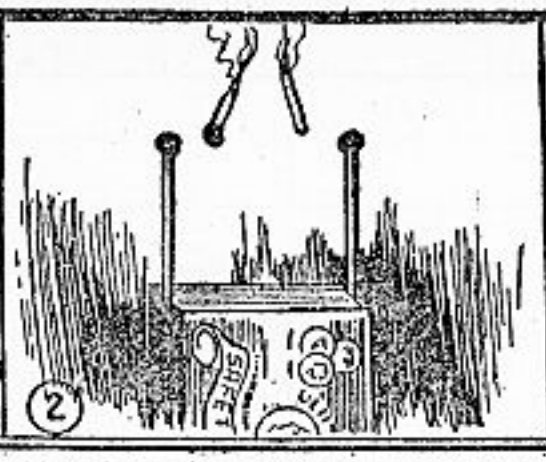
Four steps in tying off a line to lash flats together. Use a square knot for joining two ropes; bowline-on-a-bite, loop in doubled rope; bowline, loop in single rope; reef knot, tying on back drops and borders; anchor knot, tying on batten lines; and a clove hitch for general purposes

Scientific Match-Box Puzzles

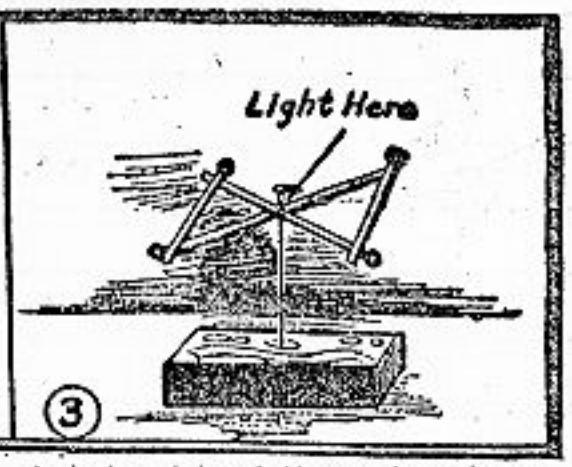
Simple Entertainments with Safety Matches



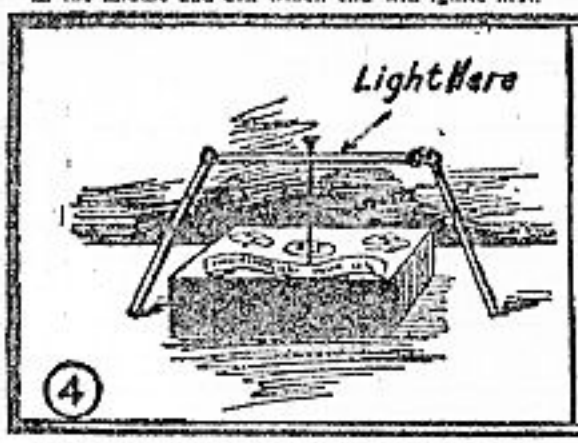
Place three matches as shown in the sketch above, two of them thrust in between the drawer and the sides of the box. Light the cross match in the middle and ask which end will ignite first.



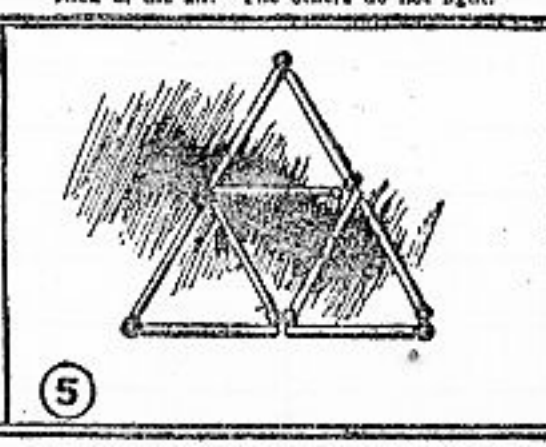
After all the opinions and bets are in light the central match and watch the fun. The pressure of the other two matches will throw the burning stick in the air. The others do not light.



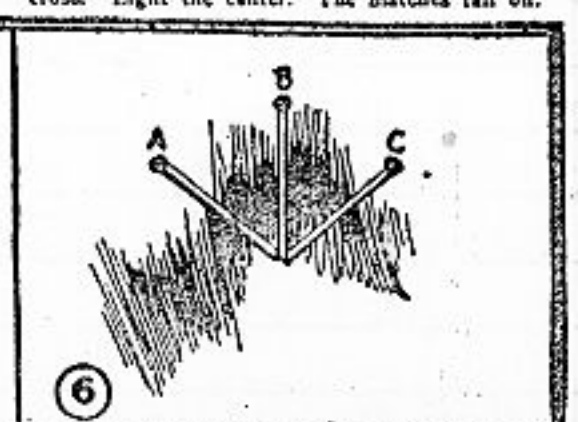
A simple variation of this stunt is to pin two matches in the form of a cross as shown above and lay two other matches across the ends of the cross. Light the center. The matches fall off.



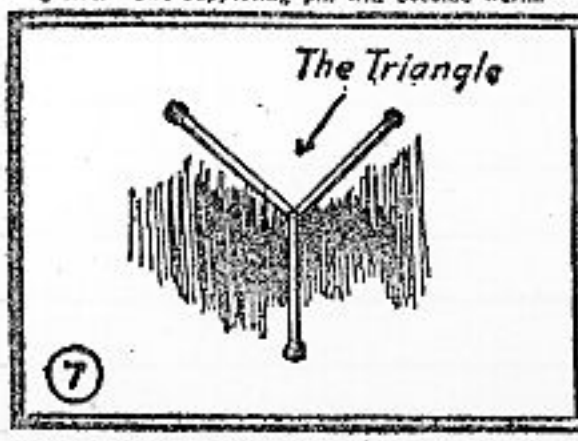
This is a third variation of the same stunt, shown above. Instead of the cross use only one match as the support and stand the other two at its end. They, as before, fall to safety and are not ignited. The supporting pin will become warm.



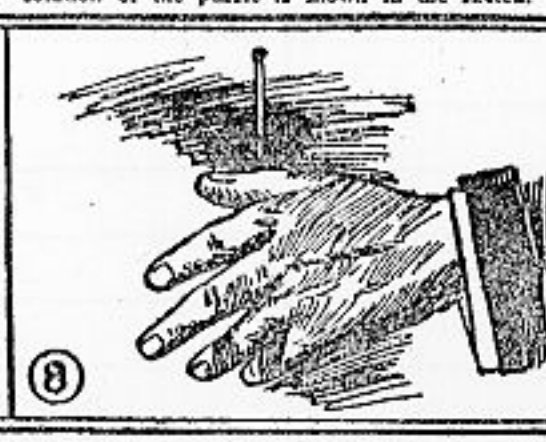
Ask your audience to form five triangles with nine matches. Give them the matches and let them try it. All the triangles are equilateral and none of the sticks must be broken. The solution of the puzzle is shown in the sketch.



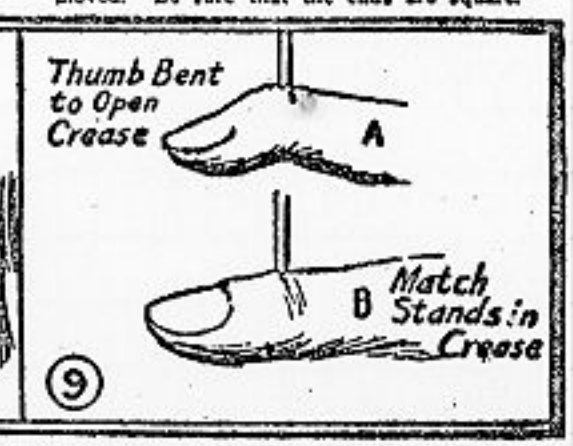
Place three matches in the sketch as shown above and ask someone in the crowd to form an equilateral triangle with them by moving only the match marked "B." The other two must not be moved. Be sure that the ends are square.



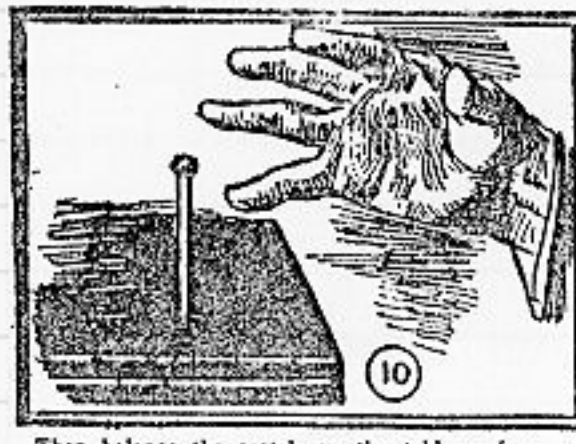
The solution to the problem is simple. Simply put the match "B" at the bottom of the other two and a very small equilateral triangle will be formed by the square bases of the matches as shown in the sketch.



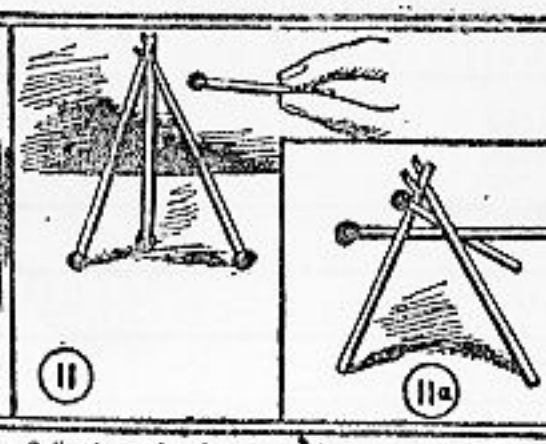
This is a great feat of equilibrim. Place the small match stick on the thumb and make stage play of great difficulty to keep it balanced. Unless some one knows the trick they will say you should be on the Keith Circuit.



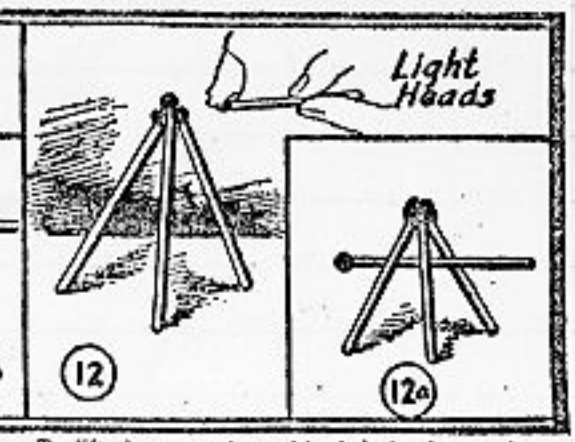
They will change their mind, however, when the explanation is given them. The thumb is bent down as shown in the above sketch and the match is inserted in the wrinkle of flesh where it is firmly held in the upright position.



Then balance the match on the table surface. While the audience isn't looking moisten the end of the match. When placing it on the table use some force in standing it upright. After the feat secretly remove the moisture with the finger.



Split the ends of two matches and wedge them together. Then place a third one against them forming the tripod as shown above. Ask someone to lift the three with one match. The solution is to let the loose match fall between the lifting stick and the two wedged ones.



To lift three matches with their heads together, light them and extinguish the flame with a breath. The heads will be found to be welded together so that they may be easily lifted from the table.

The Wonderful Hat.

Upon a table place three pieces of bread, or any other eatable, at a little distance from each other, and cover each with a hat. Take up the first hat, and removing the bread put it into your mouth, letting the company see that you swallow it. then raise the second hat and eat the bread which was under that. then proceed to the third hat in the same manner. Having eaten the three pieces, ask any person in the company to choose which hat he would like the three pieces of bread to be under, and when he has made his choice of one of the hats, put it on your head, and ask him if he does not think they are under it.

How to put an Egg into a Bottle.

To accomplish this seeming incredible act, requires the following preparation You must take an egg and soak it in strong vinegar, and in process of time its shell will become quite soft, so that it may be extended lengthways without breaking then insert it into the neck of a small bottle, and, by pouring cold water upon it, it will re-assume its former figure and hardness. This is really a complete curiosity, and baffles those who are not in the secret to find out how it is accomplished.

An After-Dinner Feat.

Fold your napkin into the form of a cravat, and request some one of the company to fill up your glass with wine or water, and place it on your napkin, cover your glass with a hollow plate, cover again the plate with the two ends of the napkin in such a fashion as the glass will be tightly pressed against the plate, and turn the whole upside down It is now easy to drink the liquid, which comes down gently into the plate—and hence you can readily wager to drink a glass of water or wine without touching your glass with your hands or mouth.

One Hundred and Twenty-Five Card Tricks.

This is the title of our new book which contains How to Produce a Particular Card without Seeing It. To Tell the Number of Cards by Their Weight. To Tell the Card a Person Has Touched with His Finger To Change a Card Looked Up in a Box To Produce a Mouse From a Pack of Cards. To Turn a Card into a Bird. To Send a Card Through a Table To Burn a Card and Afterwards Find it in a Watch To Change a Pack of Cards into Various Pictures. To Make a Card Jump Out of a Pack and Run on the Table and 115 others, sent by mail, post-paid, to any address, on receipt of 25 Cents This book also contains an exposure of the card tricks made use of by professional card-players blacklegs and gamblers.

How to Lift a Flint Glass with a Straw.

Take a straw which is not broken or bruised, and, having bent one end of it into a sharp angle, put this curved end into the bottle, so that the bent part may rest against its side, you may then take the other end, and lift up the bottle by it, without breaking the straw, and this will be more easily accomplished, as the angular part of the straw approaches nearer to that which comes out of the bottle.

The Conjuror's Joke.

This is a complete trick, but may afford some amusement. You offer to bet any person that you will so fill a glass of water that he shall not move it off the table without spilling the whole contents. You then fill the glass, and, laying a piece of thin card over the top of it, you dexterously turn the glass upside down on the table, and then draw away the card and leave the water in the glass with its foot upwards. It will therefore be impossible to remove the glass from the table without spilling every drop.

How to make a Coin stick against the Wall.

Take a small coin, such as a dime or a quarter, and on the edge cut a small notch with a knife, so that a little point of the metal will project. By pressing this against a door or wooden partition, the coin will remain mysteriously adhering against the perpendicular surface.

A Self-Turning Cross.

Take a piece of straw, cut about the length of your finger and, before announcing the trick, twist the end a couple of turns With another piece of straw, make the arms of a cross and plant it in a crack in the table Drop upon the head of the straw a couple of drops of water, and command it to turn. As the water descends through the straw into the twist you have made, it will cause it to unwind and revolve, although fastened.

The Obedient Dime.

Lay a dime between two half dollars, and place upon the larger coins a glass. Remove the dime without displacing either of the

To Bring a Person Down Upon a Feather.

This is a practical pun You desire any one to stand on a chair or table, and you will tell him that, notwithstanding his weight, you will bring him down upon a feather You then leave the room, and procuring a feather from a feather bed, you give it to him, and tell him that you have performed your promise—that you engaged to bring him DOWN upon a feather, which you have done; for there is the feather, and, if he examines it, he will find DOWN upon it.

An Amusing Trick for the Drawing-Room.

You begin by declaring that if any one will write something on a piece of paper, you will undertake to say what there is upon it. Should any one take you, tell him, when he has written something on a piece of paper, to roll it up small and hold the paper straight up in his hand, and, after making him hold it up a number of different ways, say, "Now place the paper on the floor in the middle of the room, and in order that I may not have the chance of lifting it up in the least, place both your feet upon it; I will then proceed to take up a candle, a stick, or anything else you please, and inform you at once what is on the paper" After going through all sorts of manœuvres, to mislead the spectators and keep alive their curiosity, you finally turn to the gentleman who is standing with both feet on the paper, remarking, "I have undertaken to state what was upon that piece of paper. You are upon it!" With many a hearty laugh, you will be declared the winner of the bet

To make Water Rise from a Saucer into a Glass.

Pour water into a saucer, then light a piece of paper, which you put in a wine-glass, and, on clapping the glass down into the saucer, the water will be seen to rise into it.

The Bottle Conjuror.

State to the company that it was proved some years ago, at the Olympic Theatre, that to crawl into a quart bottle was an impossibility, but the rapid progress made by the march of intellect in these enlightened times has proved that any person MAY crawl into a pint bottle as easily as into his bed Having thus prefaced your intentions, you get a pint bottle, and place it in the middle of the room; then go outside the door, and creeping into the room upon all fours, say, "Ladies and gentlemen, this is crawling IN to the pint bottle!"

The Mysterious Addition.

It is required to name the quotient of five or three lines of figures each line consisting of five or more figures—only seeing the first line before the other lines are even put down. Any person may write down the first line of figures for you. How do you find the quotient?

Example.—When the first line of figures is set down, subtract 2 from the last right-hand figure, and place it before the first figure of the line, and that is the quotient for five lines. For example, suppose the figures given are 41,268, the quotient will be 241,266. You may may allow any person to put down the two first and the fourth lines, but you must always set down the third and fifth lines, and in doing so, always make up 9 with the line above, as in the following example:

41,268
18,024
81,875
45,862
54,137
241,366

Therefore, in the annexed diagram you will see that you have made 9 in the third and fifth lines with the lines above them. If the person desiring to put down the figures should set down a 1 or 0 for the last figure, you must say: "We will have another figure," and another, and so on until he sets down something above 1 or 2.

65,876
81,274
18,725
165,875

In solving the puzzle with three lines, you subtract 1 from the last figure, and place it before the first figure and make up the third line yourself to 9. For example 65,876 is given, and the quotient will be 165,875, as shown in the annexed diagram.

To Hold a Classful of Water Upside Down without Spilling.

Fill a glass brimful of water or other liquid, lay a thin card over it, and on the card press a plate or a piece of glass Turn it all upside down, and you can hold the glass up by the stem without losing a drop of water It is the weight of the air which presses on the paper outside more than the water within, and sustains it When the water soaks through the card it will force it off abruptly

To Tell the Number any Person Thinks of.

Bid the person double the number he has fixed on in his mind which done, bid him multiply the sum of them both by 5 and give you the product, which they will never refuse to do it being so far above the number thought of), from which, if you cut off the last figure of the product, will always be a cipher or a 5

half-dollars indicated, simply by the direction your fingers will follow. The celebrated and the thumb of your hand. The celebrated of the breakfast of

MAGIC FIGURES

Before anyone enters the room, write the number 35 on a slip of paper and hide it in a vase, a book, or any other odd place you think of. When the guests have entered, go around with a piece of paper, handing it to this person and that and asking each to write any figure smaller than 10 on it. As each figure is written, add it secretly to the sum of those that have gone before. When the sum reaches 26 or over, stop calling for more figures, and say importantly, "That will be enough, thank you; but I should like this gentleman's initial on the paper for identification." When he gives you his initial, write it down yourself, and while you are doing it quickly write down also whatever figure is needed to bring the sum of the column to 35. Now let him add the figures up, and pass the paper around for all to see. Let it be folded, and when it is passed back to you burn it up, still folded in the sight of all. Now ask one of the guests to open the Bible at page 407, or to look in such and such a vase—wherever you have hidden that paper. There he will find the answer to the sum, 35. This can be varied by choosing another two-figure number. Stop the sum at 9 or less below it.



MAGIC

READING FROM FOLDED PAPERS

Ask each guest to write a question on a slip of paper and fold it securely. Then collect the questions in a hat, promising to answer them without opening the folded papers. Now for this trick you must have a confederate. All he has to do is let you know beforehand what his question is going to be. Then when you are collecting the papers, you quietly slip his under the band inside the hat. Now take out one of the other slips, but answer your friend's question. Then open the slip you hold, as if to verify the question—and read silently what is really written there. Repeat your friend's question aloud. Next time take another slip, but answer the question on the first slip. When all are answered, mix the slips together, your friend's included, and pass the hat around for inspection.



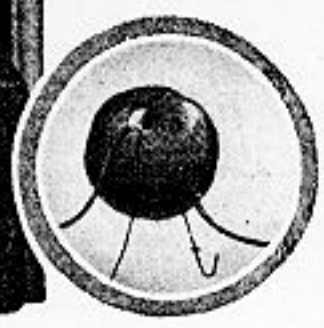
SILK FROM PAPER

"I have three pieces of paper, red, white, and blue. I am going to burn them. From the ashes will come silk." As you make this boast, you have, rolled up under your right armpit, 4 yards each of red, white, and blue ribbon, sewed together at one end. With your right hand thrust the papers, tightly twisted, into a flame, and at the same time show that you have nothing in your left hand and only the papers in your right. As you draw up your right sleeve to show that it is empty, conceal the ribbon in your left hand. Pass the burning papers to your left hand, crush out the flame, and as you do it get the ribbons in your right hand and let them unfold.









THE MYSTERIOUS APPLE

Cover a table with a black cloth that reaches the floor and set the table in front of a black curtain in a doorway. Fasten one end of a long, strong black thread to the carpet behind the table, and loop the other end over a hook at the top of the door in the other room. Let the end hang down just far enough to touch the table; fasten a black pin bent like a fishhook to it. Pass around the audience 2 ft. of cord and an apple with a ½" hole cut through it. Now pass the cord through the hole, and with it the thread, catching the hook on the under side of the apple. At your command the apple will climb the cord when you push the thread with your knee.

FUN WITH TRICKS

THE CANE AND THE RING

Tie a curtain ring on a string and hang it in a doorway. Present one of your friends with a cane and tell him to run it through the ring as the boy in the picture is trying to do. It is not so easy as it looks.



LOOKING-GLASS DIFFICULTIES

Try writing or drawing pictures as the boy is doing below, keeping your eye on a mirror which reflects your hand and paper. It is a great temptation to look at the paper instead of the mirror, because everything is turned topsy-turvy, as you can see in picture No. 4.



CAN YOU BREAK A MATCH?

It sounds simple, but if you hold the match over the first joint of the second finger and under the first joint of the first and third fingers, as you see in picture No. 3, you will find it hard to do.







TRY IT

Ask someone to lay a coin in the palm of his hand and brush it off with a hairbrush.





SEE IT FLOAT

Put a piece of tissue paper on top of a glass of water. Place a needle on top of the paper, as in picture No. 2, without letting the needle get wet. The paper will sink but the needle will stay on top.



MAGIC INK

Write on white paper with a clean steel pen dipped in lemon juice. When the lemon juice dries, the writing will be invisible, but will reappear if you press it with a hot iron.



THE FLOATING SUGAR LUMP

Secretly place a lump of sugar on its end in a cup of coffee. Then announce that you are going to make a lump of sugar float. All you have to do is to place a second lump as shown in Fig. 5.





THE MAGNETIC HAND

Tell your audience that you have a strange power, which you do not quite understand but which makes your hand magnetic whenever you squeeze your wrist. Then prove it to them by holding a cane as the boy in the left-hand corner is doing. Picture No. 6 will show you how it is done.





PUSHING THE TUMBLER

The boy at the left said that he could push a glass of water through a napkin ring or a tiny hole in a cardboard. And he is doing it too, although it is not quite what you expected.



FUN WITH TRICKS

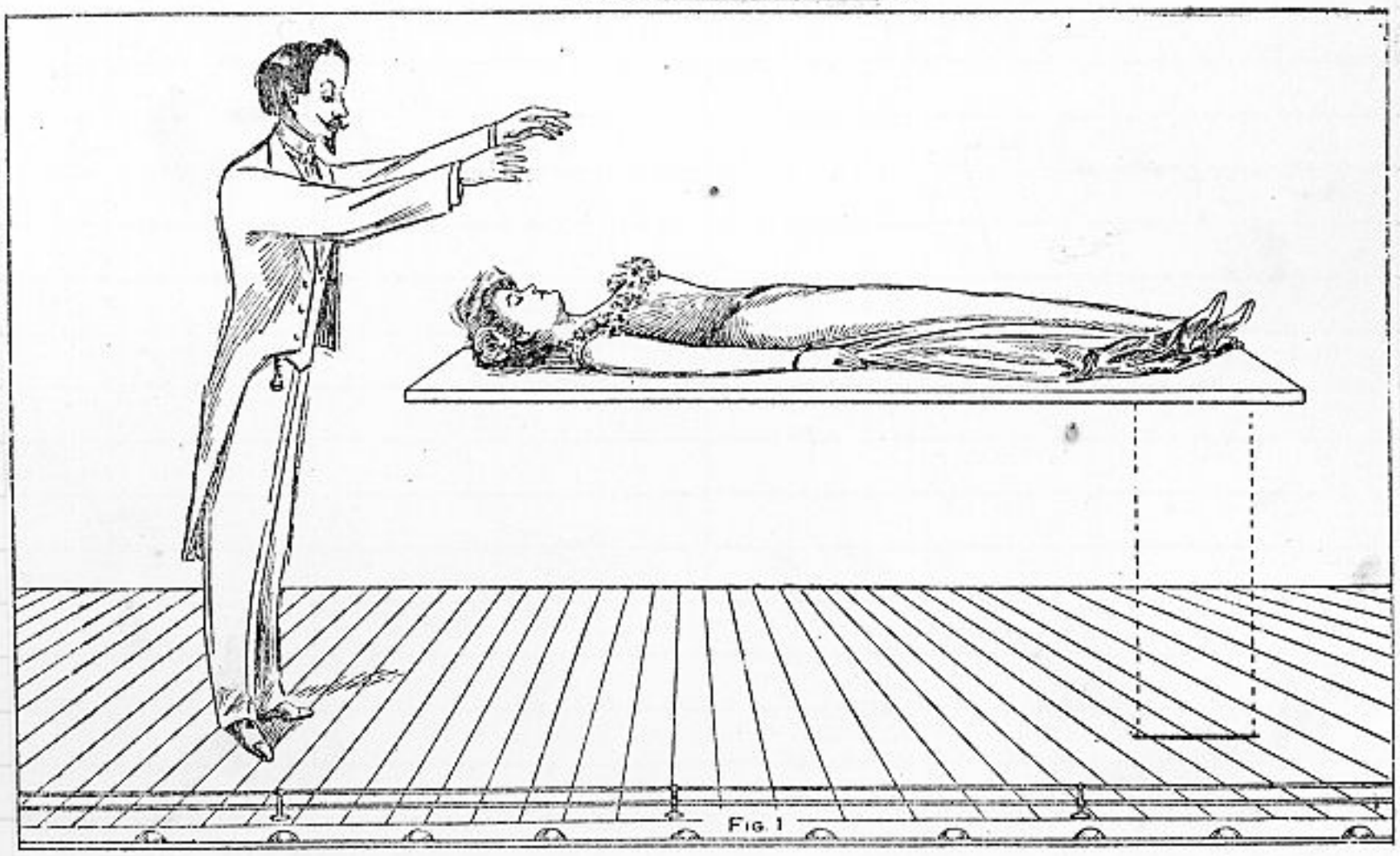


PLAYING HIDE-AND-SEEK WITH A PEA

You will need three walnut-shell halves and a small dried pea for this trick—and lots of practice. This is how it is done. Lay the pea on the table and ask someone to put a shell over it and to remember which shell it is. Place the fingers of the right hand on that shell and the fingers of the left on another shell, and move both shells over the table. Then reach for the third with your left hand and at the same time lift the first with the right just high enough to slide out the pea, which you then conceal between your thumb and third finger (Fig. 2). Now shift the shell to the center of the table, reach for another, and lift it slightly, so that you can slide the pea under. Your audience will be surprised that the pea has changed shells.

The Levitation — A Modern Stage Trick

THE BOY MECHANIC - 1913



Raising the Subject in Midair

This illusion has mystified thousands of the theater-going public, in fact, it has been the "piece de resistance" of many illusion acts. The ordinary method of procedure is as follows: The person who is to be suspended in the air, apparently with no support—usually a lady—is first put in a hypnotic (?) sleep. She is placed on a couch in the middle of the stage, and in most cases the spot light is brought into play. The performer then takes a position close to the couch and with dramatic effect makes a few hypnotic passes over the subject. She then slowly rises from the couch until she has attained a height varying from 4 to 5 ft. above the stage, as shown in Fig. 1. The couch is then

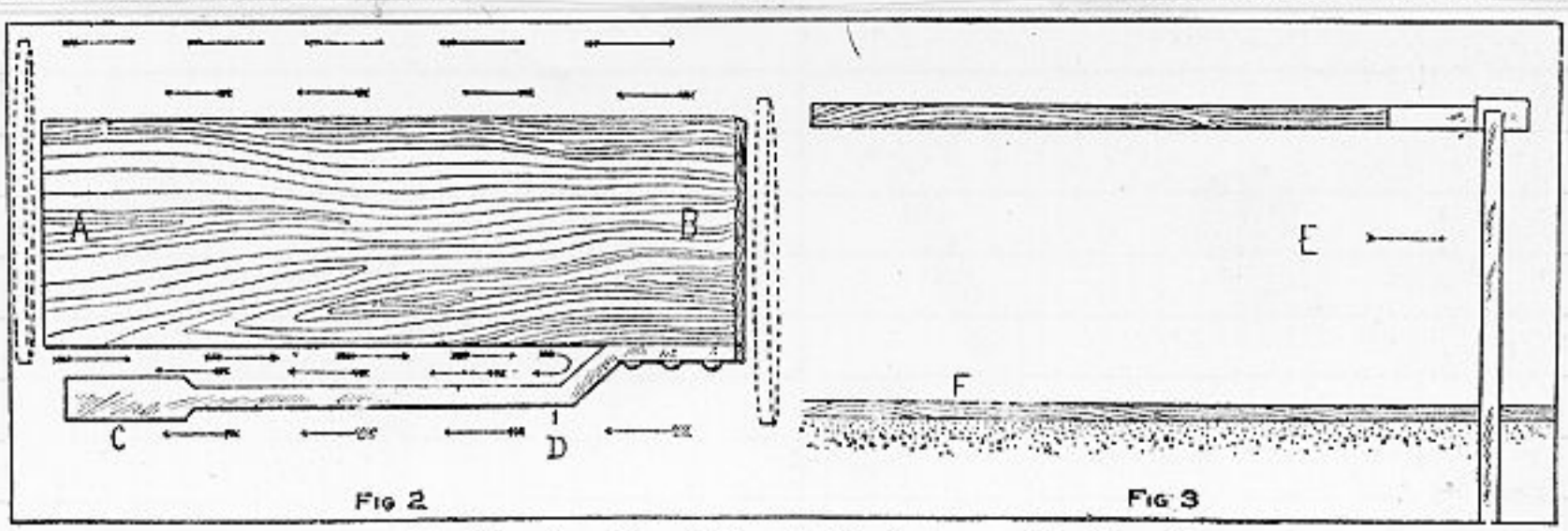


Fig 2 Fig 3

Direction the Hoop Takes in Passing over the Board

taken away and a hoop is passed over the floating lady. The performer now causes the lady to float back to the couch or board that she may have been resting on, after which the so-called hypnotic spell is withdrawn.

In spite of the claims that the illusion owes its origin to Hindoo magic, it is nothing more nor less than a clever mechanical contrivance, the construction of which will be readily understood by a glance at the accompanying illustrations.

The bottom of the couch, if one is used, contains a cradle-like arrangement which fits the recumbent form of the lady and is connected to a heavy sheet of plate glass by means of a rod, D, Fig. 2, attached to one end, and running parallel to the side of the cradle. When the glass is lifted, the body of the subject is also raised, seemingly at the will of the performer. This is accomplished by the aid of an assistant beneath the stage floor. The plate of glass, E, Fig. 3, passes perpendicularly through the stage down to a double block and tackle. The end of the cable is attached to a drum or windlass and the plate glass held steady with guides at the sides of the slot in the stage floor, through which it passes. The winding up of the cable naturally forces the plate glass and cradle up, causing the lady to rise.

Some illusionists place the lady on a board on two ordinary trestles and cause the board to rise with the lady on it, as shown in the illustration, thus obviating the use of heavy paraphernalia as in the cradle attachment. The cradle attachment is also generally accompanied by a 2-in. iron bar, used in the place of the plate glass, the performer or operator standing at the rear of the couch to conceal the bar as it comes from beneath the stage. However, the method illustrated is the one generally used.

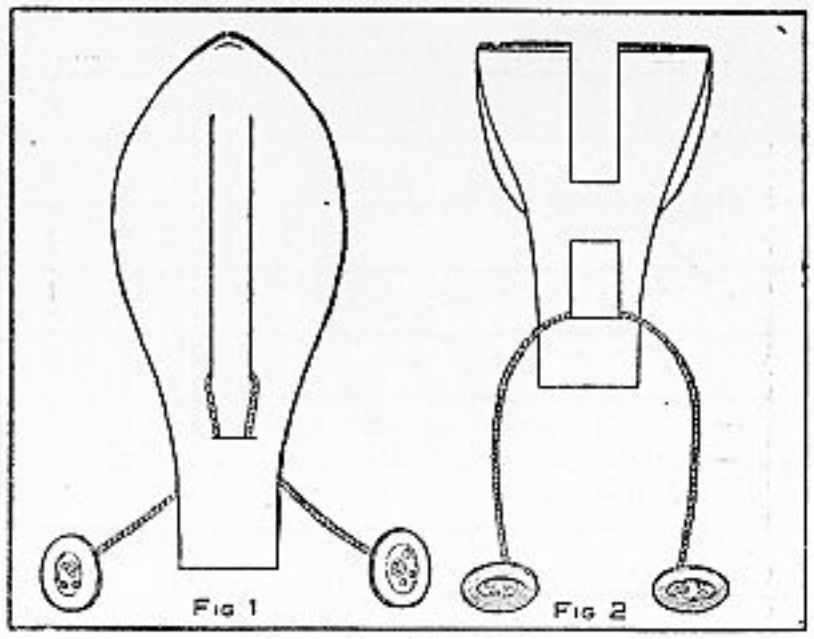
The solid hoop is passed over the body in the following manner: Start at the end, B, Fig. 2, passing the hoop as far as C with the hoop on the outside of the back horizontal rod. The side of the hoop toward the audience is then turned and swung clear around over the feet at A and entered between the rod and board on which the lady rests. The hoop is then carried as far as it will go back toward the end B. Then the side nearest the operator is passed over the head of the body apparently the second time and passed off free at the feet. Thus to the closest observer the impression is given that the hoop has encircled the lady twice. The illustrations give in detail the working of the illusion above the stage floor. No set rule is used for the tackle and drum below the floor.

THE BOY MECHANIC - 1913

The Buttoned Cord

Cut a piece of heavy paper in the shape shown in Fig. 1 and make two cuts down the center and a slit as long as the two cuts are wide at a point

about 1 in. below them. A string is put through the slit, the long cuts and back through the slit and then a button is fastened to each end. The small slit should not be so large as the buttons. The trick is to remove the string. The solution is quite simple. Fold the paper in the middle and the part between the long cuts will form a loop. Bend this loop down and pass it through the small slit. Turn the paper around and it will appear as shown in Fig. 2. One of the buttons may now be drawn through and the paper restored to its original shape.



Removing the String

THE BOY MECHANIC - 1913

Old-Time Magic

Balancing Forks on a Pin Head

Two, three and four common table forks can be made to balance on a pin head as follows: Procure an empty bottle and insert a cork in the neck. Stick a pin in the center of this cork so that the end will be about 1½ in. above the top. Procure another cork about 1 in. in diameter by 1¾ in. long. The forks are now stuck into the latter cork at equal distances apart, each having the same angle from the cork. A long needle with a good sharp point is run through the cork with the forks and ½ in. of the needle end allowed to project through the lower end.

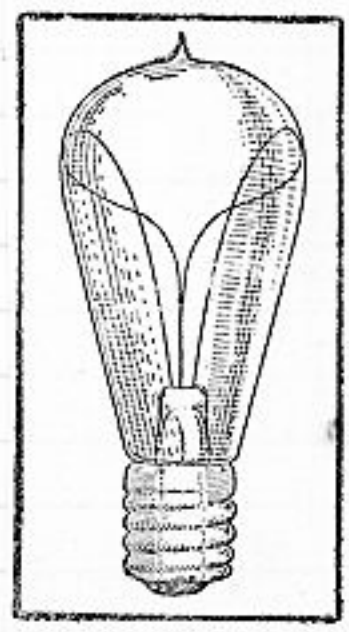


The point of the needle now may be placed on the pin head. The forks will balance and if given a slight push they will appear to dance. Different angles of the forks will produce various feats of balancing.—Contributed by O. E. Tronnes, Wilmette, Ill.

THE BOY MECHANIC - 1913

Experiment with an Incandescent Lamp

When rubbing briskly an ordinary incandescent lamp on a piece of cloth and at the same time slightly revolving it, a luminous effect is produced similar to an X-ray tube. The room must be dark and the lamp perfectly dry to obtain good results. It appears that the inner surface of the globe becomes charged, probably by induction, and will sometimes hold the filament as shown in the sketch.—Contributed by E. W. Davis, Chicago.



A Mystifying Watch Trick

THE BOY MECHANIC - 1913

Borrow a watch from one of the audience and allow the owner to place it in the box, as shown in Fig. 1. This box should be about 3 in. long, 4 in. wide and 2½ in. deep, says the Scientific American. It should be provided with a hinged cover, M, with a lock, N. The tricky part of this box is the side S, which is pivoted at T by driving two short nails into it, one through the

front side and the other through the back, so that when S is pushed in at the top, it swings around as shown in Fig. 1 and allows the watch to slide out into the performer's hand. The side S should fit tightly when closed, so that the box may be examined without betraying the secret. As the side S extends down to the bottom of the box, it facilitates the use of the fingers in pulling outward at the lower part while the thumb is pressing inward at the top part. The side of the box opposite S should be built up in the same way, but not pivoted.

Use a flat-bottom tumbler, A, Fig. 2, containing an inner cone, B, for the reproduction of the watch. The cone is made of cardboard pasted together so it fits snugly inside of the tumbler. The cone is closed except at the bottom, then bran is pasted on the outside surfaces to make the tumbler appear as if filled with bran when it is in place. Place the tumbler with the cone inside on a table somewhat in the background. Put some loose bran on top of the cone and allow the cork, attached as shown in B, Fig. 2, to hang down on the outside of the tumbler, away from the audience. A large handkerchief should be laid beside the tumbler.

After the watch has been placed in the box, Fig. 1, the performer takes the box in his left hand, and while in the act of locking it with his right hand secures possession of the watch as previously explained. Tossing the key to the owner of the watch, the performer places the box on a chair or table near the audience and, with the watch securely palmed, walks back to get the tumbler. Standing directly in front of the tumbler with his back toward the audience, the performer quickly raises the cone with his right hand, lays the watch in the bottom of the tumbler and replaces the cone.

The loaded tumbler and the handkerchief are then brought forward, and the former is placed in full view of the

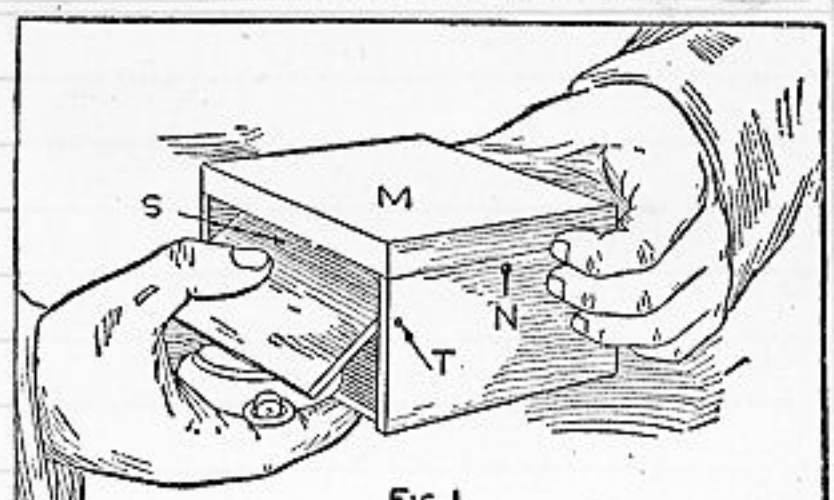


FIG. 1

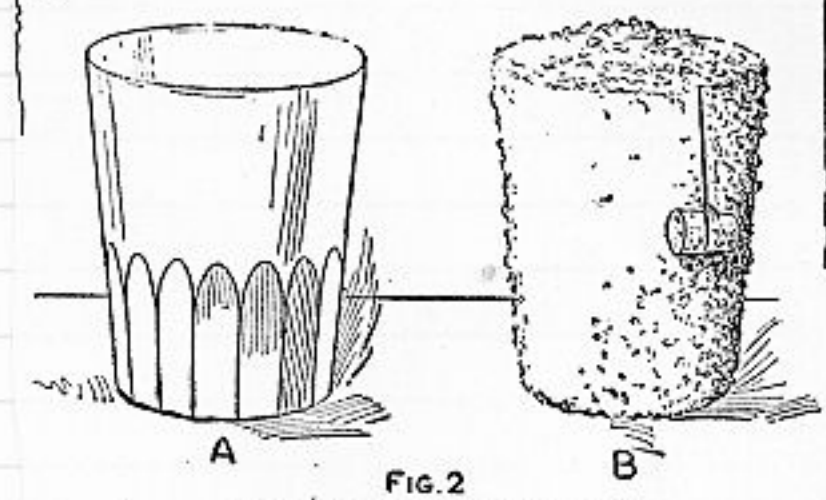


FIG. 2

Parts for the Watch Trick

audience with the cork hanging down behind it. The performer calls attention to the tumbler being full of bran and picks up some of it from the top to substantiate his statement. He then spreads the handkerchief over the tumbler, commands the watch to pass from the box into the tumbler and the bran to disappear.

The box is then handed to the owner of the watch so that he may unlock it with the key he holds. As soon as the box is found to be empty, the performer grasps the handkerchief spread over the tumbler, also the cork tied to the cone. Raising the handkerchief, he carries up the cone within it, leaving the watch in the bottom to be returned to its owner.

THE BOY MECHANIC - 1913

Balloon Ascension Illusion

By C. W. Nieman

In these days of startling revelations in air-craft flight we are prepared to see any day some marvelous machine-driven bird cutting figure-eights all

over the sky above our heads. One boy recently took advantage of this state of expectancy to have an evening's harmless amusement, through an illusion which deceived even the most incredulous. He caused a whole hotel-full of people to gaze open mouthed at a sort of "Zeppelin XXIII," which skimmed along the distant horizon, just visible against the dark evening sky, disappearing only to reappear again, and working the whole crowd up to a frenzy of excitement. And all he used was a black thread, a big piece of cardboard and a pair of field glasses.

He stretched the thread between two buildings, about 100 ft. apart, in an endless belt, passing through a screw-eye at either end. On this thread he fastened a cardboard "cut-out" of a dirigible, not much to look at in daytime, but most deceptive at dusk. By pulling one or the other string he moved the "airship" in either direction. He took the precaution of stretching his thread just beyond a blackberry hedge and thus kept over-inquisitive persons at a safe distance. He also saw to it that there was a black background at either end so that the reversing of the direction of the craft would not be noticed.

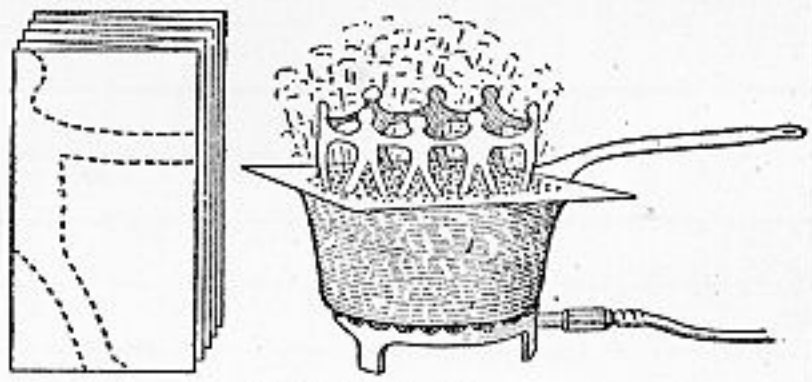
In attracting the crowd he had a confederate stand looking at the moving ship through a field glass, which at once gave the suggestion of distance, and materially heightened the illusion. When the interest of the crowd, which at once gathered, was at its height, the "aeronaut" pulled his craft out of sight and let the disillusion come when the light of day laid bare his fraud.

THE BOY MECHANIC - 1913

A Miniature War Dance

A piece of paper, 3 or 4 in. long, is folded several times, as shown in the sketch, and the first fold marked out to represent one-half of an Indian. Cut out all the folds at one time on the dotted line and you will have as many men joined together as there were folds in the paper. Join the hands of the two end men with a little paste so as to form a circle of Indians holding hands.

The next thing to do is to punch holes in heavy cardboard that is large enough to cover a pot or stew pan, and



Indian War Dance

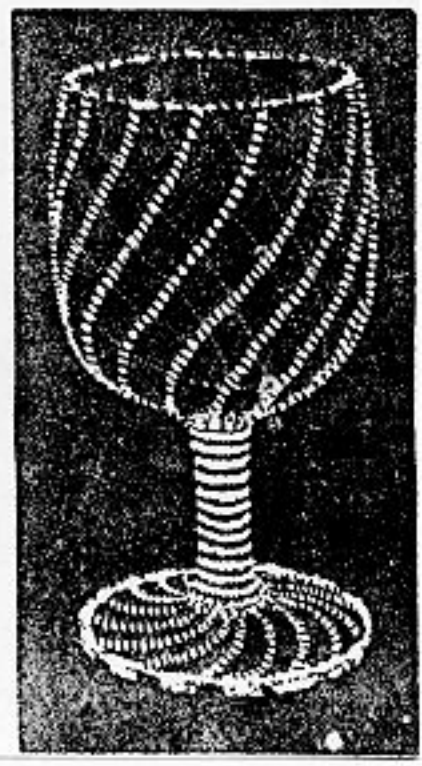
partially fill the vessel with water. Set this covered vessel over a heat and bring the water to a boiling point and then set the miniature Indians on the perforated cover. The dance will begin.

If the Indians are decked out with small feathers to represent the head gear and trailing plumes, a great effect will be produced.—Contributed by Maurice Baudier, New Orleans, La.

THE BOY MECHANIC - 1913

Electrostatic Illumination

Any one having the use of a static machine can perform the following experiment which gives a striking result. A common tumbler is mounted on a revolving platform and a narrow strip of tinfoil is fastened with shellac varnish to the surface of the glass as follows: Starting beneath the foot of the glass from a point immediately below the stem, it is taken to the edge of the foot; it follows the edge for about 1



in. and then passes in a curve across the base, and ascends the stem; then it passes around the bowl in a sinuous course to the rim, which it follows for about one-third of its circumference; after which it descends on the inside and terminates at the bottom. The tinfoil on the outside of the glass is divided by cutting with a knife every ⅛ in., the parts inside and beneath the glass being left undivided. Current is then led from a static machine to two terminals, one terminal being connected to one end of the tinfoil strip, and similarly the second terminal makes contact with the other end. As soon as the current is led into the apparatus, a spark is seen at each place where the knife has cut through the tinfoil. If the tumbler is rotated, the effect will be as shown in the illustration. A variety of small and peculiar effects can be obtained by making some of the gaps in the tinfoil larger than others, in which case larger sparks would be produced at these points. The experiment should be carried out in a darkened room, and under these circumstances when nothing is visible, not even the tumbler, the effect is very striking.

OLD-TIME MAGIC

THE BOY MECHANIC - 1913

Removing 36 Cannon Balls from a Handbag

The magician produces a small handbag and informs the audience that he has it filled with 20-lb. cannon balls. He opens up the bag and takes out a ball which he passes to the audience

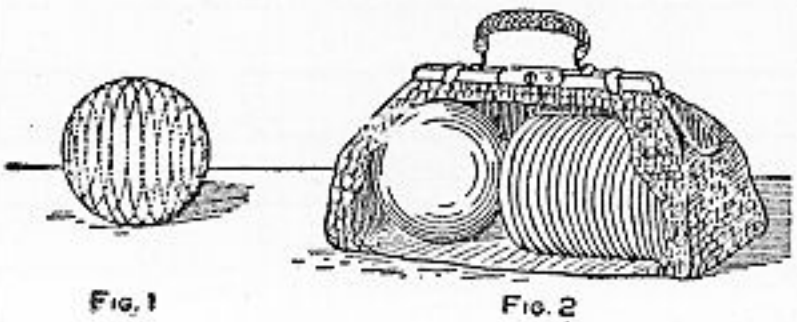


FIG. 1 FIG. 2

Balls Made of Spring Wire

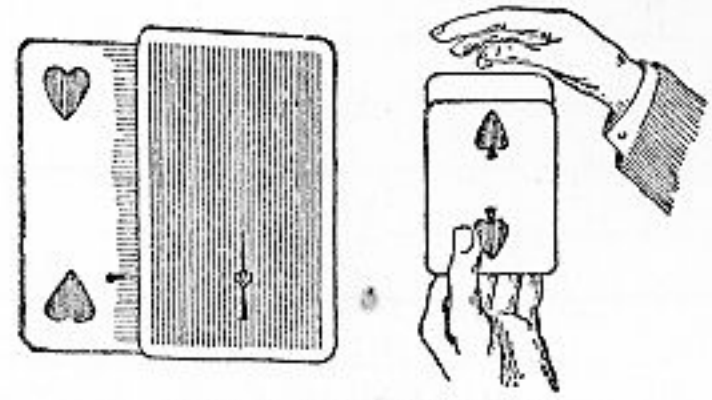
for examination. The ball is found to be the genuine article. He makes a few passes with the wand and produces another ball, and so on until 36 of them lie on the floor.

In reality the first ball, which is the one examined, is the real cannon ball, the others are spiral-spherical springs covered with black cloth (Fig. 1). These balls can be pressed together in flat disks and put in the bag, Fig. 2, without taking up any great amount of space. When the spring is released it will fill out the black cloth to represent a cannon ball that cannot be distinguished from the real article.—Contributed by J. F. Campbell, Somerville, Mass.

THE BOY MECHANIC - 1913

A Rising Card Trick

A rising card trick can be accomplished with very little skill by using the simple device illustrated. The only



Card Slips from the Pack

things needed are four ordinary playing cards and a short rubber band. Pass one end of the rubber band through one card and the other end through the other card, as shown in the illustration, drawing the cards close together and fastening the ends by putting a pin through them. The remaining two cards are pasted to the first two so as to conceal the pins and ends of the rubber band.

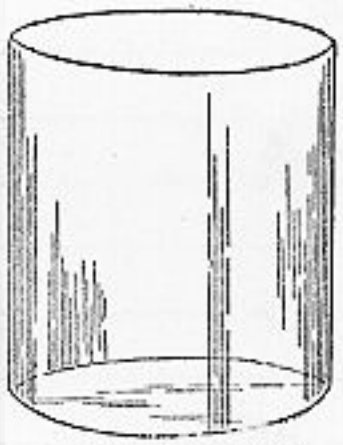
Put the cards with the rubber band in a pack of cards; take any other card from the pack and show it to the audience in such a way that you do not see and know the card shown. Return the card to the pack, but be sure and place it between the cards tied to-

gether with the rubber band. Grasp the pack between your thumb and finger tightly at first, and by gradually loosening your hold the card previously shown to the audience will slowly rise out of the pack.—Contributed by Tomi O'Kawara, San Francisco, Cal.

THE BOY MECHANIC - 1913

Illusion for Window Attraction

Gold fish and canary birds, living together in what seems like one receptacle, make an unusual show window attraction. Secure two glass vessels having straight sides of the same height, one 18 in. in diameter (Fig. 1) and the other 12 in. in diameter (Fig. 2). The smaller is placed within the larger, the bottoms being covered with moss and aquarium decorations which can be purchased at a bird store. Fill the 3-in. space between the vessels with water. Cut a piece of galvanized screen into circular form to cover the larger vessel, and hang a bird swing, A, Fig. 3, in the center. Place the screen on top of the vessels so that the swing will hang in the center of the inner vessel. A weight—a box filled with sand will do—should be placed on top of the screen, over the smaller vessel, to keep it from floating. Moss should be put over the top of the screen so that the two separate vessels can not be seen.



18 in. Diameter
Fig. 1



12 in Diameter
Fig. 2

Place the birds in the inner vessel and the fish in the water. The effect is surprising. To complete the effect and

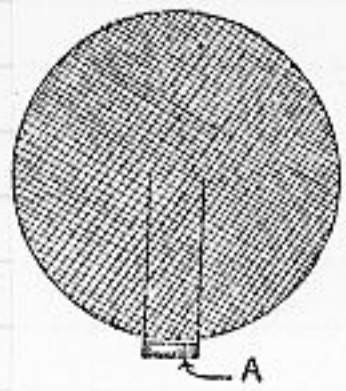


Fig. 3

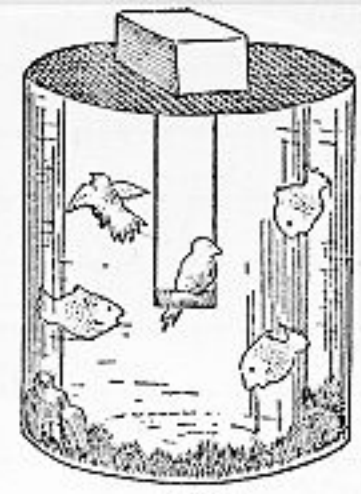


Fig. 4

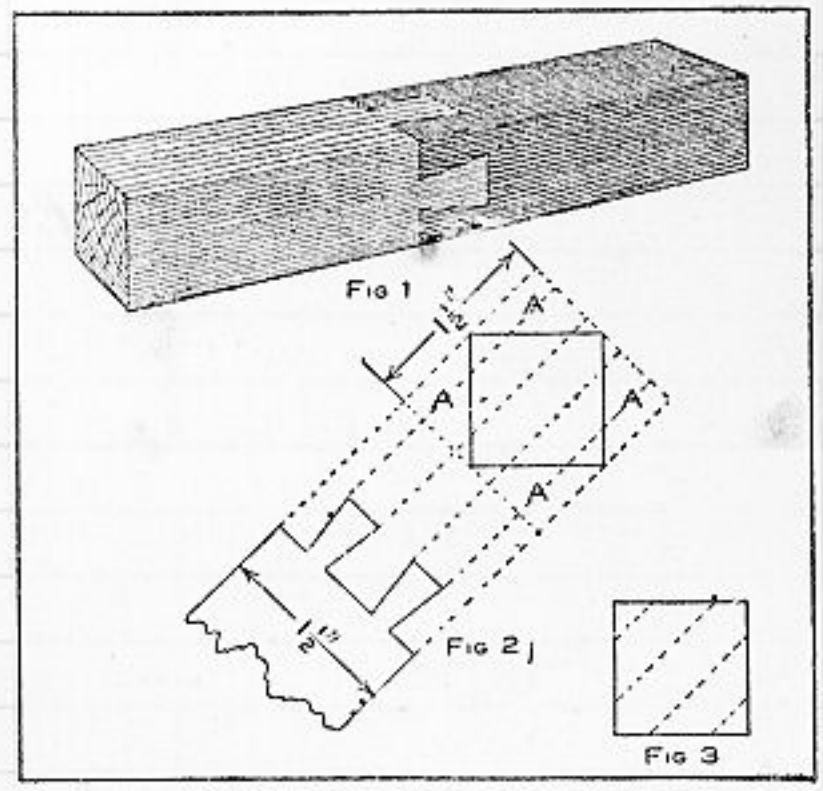
Birds and Fish Apparently Together

aid the illusion the vessels can be set in a box lined with black velvet, or on a pedestal.—Contributed by J. F. Campbell, Somerville, Mass.

THE BOY MECHANIC - 1913

A Dovetail Joint Puzzle

A simple but very ingenious example in joinery is illustrated. In the finished piece, Fig. 1, the dovetail appears on each side of the square stick of



How the Joint Is Cut

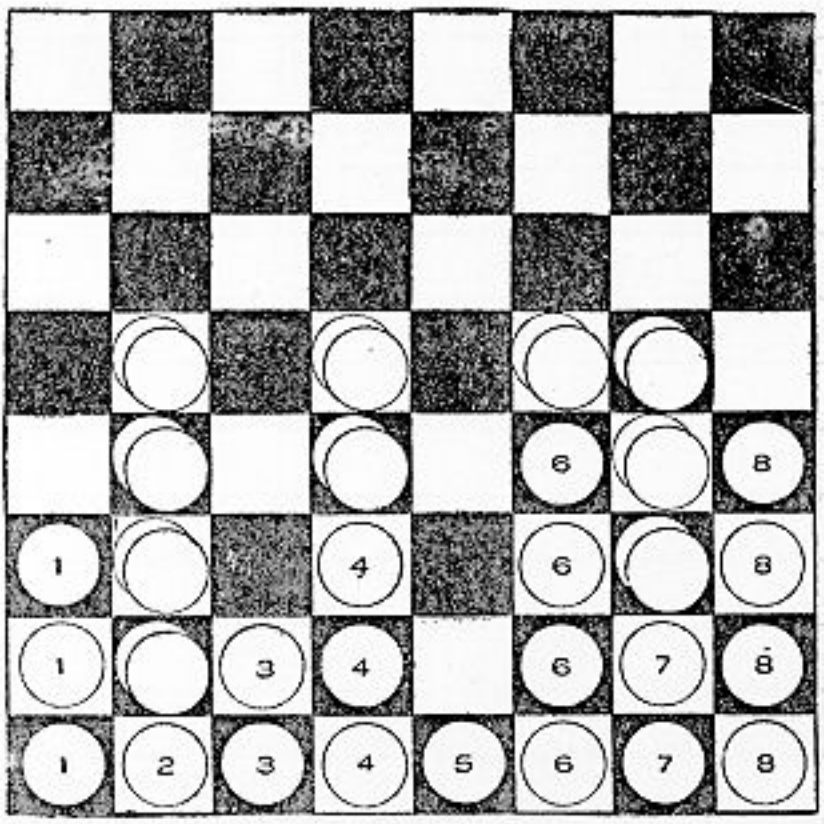
wood, the illustration, of course, shows only two sides, the other two are identical. The joint is separable and each part is solid and of one piece. In making, take two pieces of wood, preferably of contrasting colors, such as cherry and walnut or mahogany and boxwood, about 1½ in. square and of any length desired. Cut the dovetail on one end of each stick as shown in

Fig. 2, drive together and then plane off the triangular corners marked A. The end of each piece after the dovetails are cut appear as shown in Fig. 3, the lines marking the path of the dovetail through the stick.

THE BOY MECHANIC - 1913

A Checker Board Puzzle

Place eight checker men upon the checker board as shown in the first row in the sketch. The puzzle is to get



Placing the Checkers

them in four piles of two men each without omitting to jump over two checker men every time a move is made.

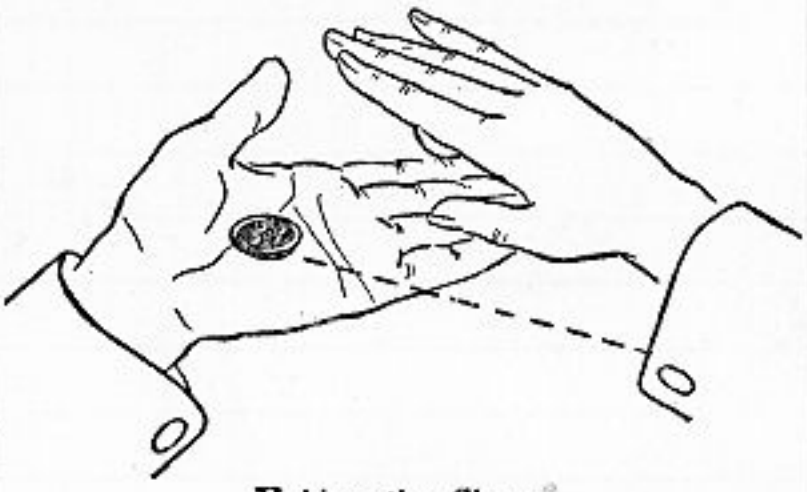
The first move is to jump 5 over 4 and 3 on 2 which is shown in the second row, then jump 3 over 4 and 6 on 7 and the positions will appear as shown in the third row; jump 1 over 2 and 5 on 4 to get the men placed like the fourth row and the last move is to jump 8 over 3 and 7 on 6 which will make the four piles of two men each as shown in the fifth row.—Contributed by I. G. Bayley, Cape May Point, N. J.

THE BOY MECHANIC - 1913

Old-Time Magic

Changing a Button into a Coin

Place a button in the palm of the left hand, then place a coin between the second and third fingers of the right hand. Keep the right hand faced down and the left hand faced up, so as to conceal the coin and expose the button. With a quick motion bring the left hand under the right, stop quick and



Making the Change

the button will go up the right-hand coat sleeve. Press the hands together, allowing the coin to drop into the left hand, then expose again, or rub the hands a little before doing so, saying that you are rubbing a button into a coin.—Contributed by L. E. Parker, Pocatello, Idaho.

THE BOY MECHANIC - 1913

Buttonhole Trick

This trick is performed with a small stick having a loop attached that is too small for the stick to pass through. Spread out the string and place it each side of the buttonhole, then draw the cloth around the hole through the string until it is far enough to pass the stick through the hole. Pull back the cloth and you have the string looped in the hole with a hitch the same as if the stick had been passed through the string.





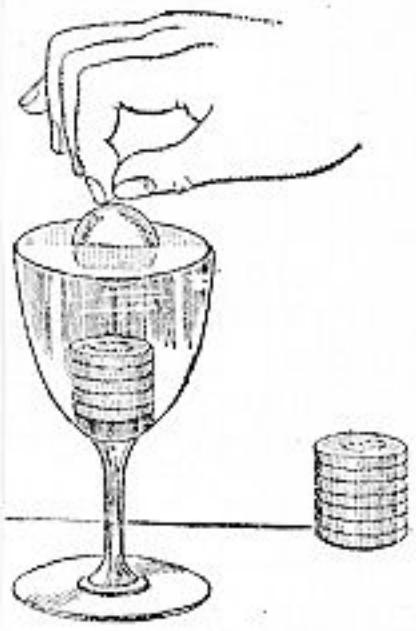
The stick may be removed by pulling up the loop as if you were passing the

stick through it, putting the stick in the hole and leaving the string on the outside, then spread the string, pulling up the cloth and passing the stick through the hole as before.—Contributed by Charles Graham, Pawtucket, Rhode Island.

THE BOY MECHANIC 1913

Dropping Coins in a Glass Full of Water

Take a glass and fill it to the brim with water, taking care that the surface of the water is raised a little above the edge of the glass, but not running over. Place a number of nickels or dimes on the table near the glass and ask your spectators how many coins can be put into the water without making it overflow. No doubt the reply will be that the water will run over before two coins are dropped in. But it is possible to put in ten or twelve of them. With a great deal of care the coins may be made to fall without disturbing the water, the surface of which will become more and more convex before the water overflows.



THE BOY MECHANIC - 1913

Cardboard Spiral Turned by Heat

A novel attraction for a window display can be made from a piece of stiff cardboard cut in a spiral as shown in Fig. 1. The cardboard should be about 7 or 8 in. in diameter. Tie a piece of string to the center point of the spiral and fasten it so as to hang over a gas jet, Fig. 2. A small swivel must be put in the string at the top or near the cardboard, if it is desired to have the spiral run for any length of time. The cardboard will spin around rapidly and present quite an attraction.—Contributed by Harry Szerlip, Brooklyn, N. Y.

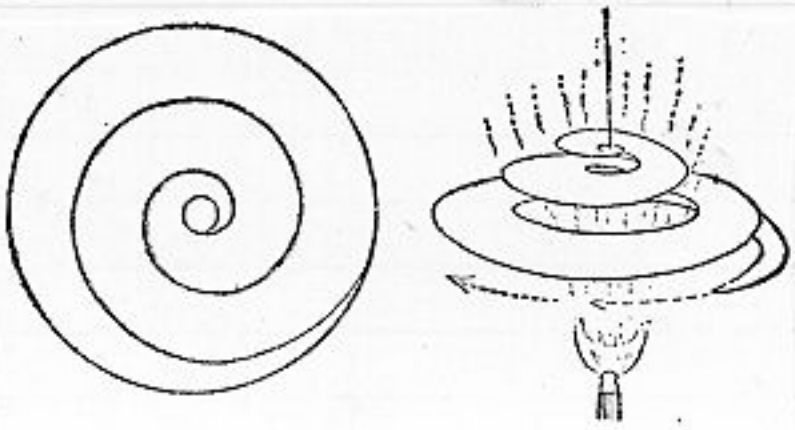


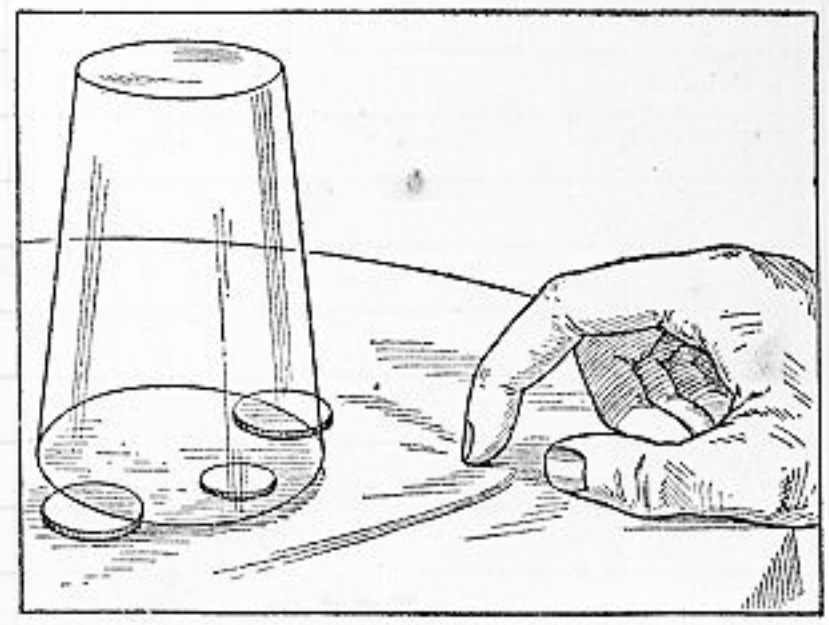
Fig. 1 Fig. 2

Spiral Cut from Cardboard

THE BOY MECHANIC - 1913

Moving a Coin Under a Glass

Place a penny or a dime on a tablecloth, towel or napkin and cover it over with a glass in such a way that the glass will rest upon two 25 or 50-cent pieces as shown in the sketch. The coin is made to come forth without touching it or sliding a stick under the edge of the glass. It is only necessary to claw the cloth near the glass with the nail of the forefinger.



Removing the Coin

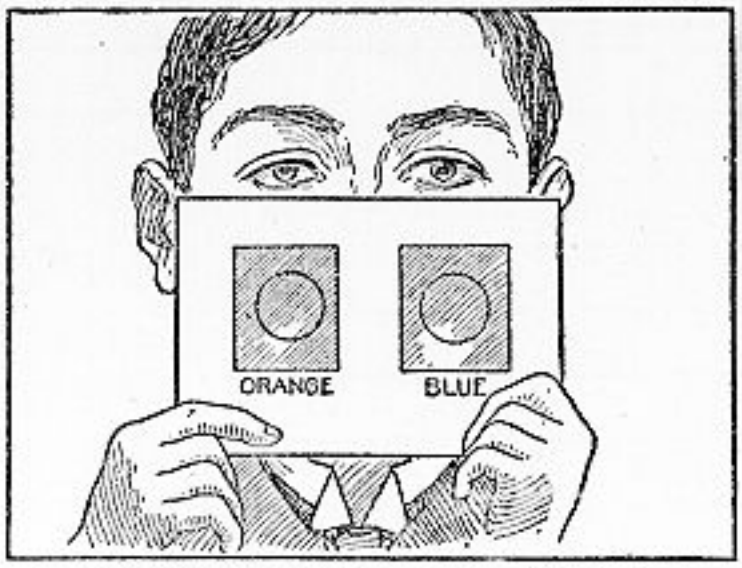
The cloth will produce a movement that will slide the coin to the edge and from under the glass.

The Principles of the Stereograph

THE BOY MECHANIC - 1913

Each of our eyes sees a different picture of any object; the one sees a trifle more to the right-hand side, the other to the left, especially when the object is near to the observer. The

stereoscope is the instrument which effects this result by bringing the two pictures together in the senses. The stereograph produces this result in another way than by prisms as in the stereoscope. In the first place there is



Looking Through the Colored Gelatine

only one picture, not two mounted side by side. The stereograph consists of a piece of card, having therein two circular openings about 1¼ in. diameter, at a distance apart corresponding to the distance between the centers of the pupils. The openings are covered with transparent gelatine, the one for the left eye being blue, that for the right, orange. The picture is viewed at a distance of about 7 in. from the stereograph. As a result of looking at it through the stereograph, one sees a colorless black and white picture which stands out from the background. Try looking at the front cover of Popular Mechanics through these colored gelatine openings and the effect will be produced.

If one looks at the picture first with the right eye alone through the orange glass, and then with the left eye through the blue glass, one will understand the principle on which the little instrument works. Looking through the blue glass with the left eye, one sees only those portions which are red on the picture. But they seem black. The reason is that the red rays are absorbed by the blue filter. Through the orange gelatine all the white portions of the picture seem orange, because of the rays coming from them, and which contain all the colors of the spectrum; only the orange rays may pass through. The red portions of the picture are not seen, because, although they pass through the screen, they are not seen against the red ground of the picture. It is just as though they were not there. The left eye therefore sees a black picture on a red background.

In the same way the right eye sees through the orange screen only a black picture on a red background; this black image consisting only of the blue portions of the picture.

Any other part of complementary colors than blue and orange, as for instance red and green, would serve the same purpose.

The principle on which the stereograph works may be demonstrated by a very simple experiment. On white paper one makes a picture or mark with a red pencil. Looking at this through a green glass it appears black on a green ground; looking at it through a red glass of exactly the same color as the picture, it, however, disappears fully.

Through the glass one will see only a regular surface of the color of the glass itself, and without any picture. Through a red glass a green picture will appear black.

So with the stereograph; each eye sees a black picture representing one of the pictures given by the stereoscope; the only difference being that in the case of the stereograph the background for each eye is colored; while both eyes together see a white background.

In the pictures the red and the green lines and dots must not coincide; neither can they be very far apart in order to produce the desired result. In order that the picture shall be "plastic," which increases the sense of depth and shows the effect of distance in the picture, they must be a very trifle apart. The arrangement of the two pictures can be so that one sees the pictures either in front of or on the

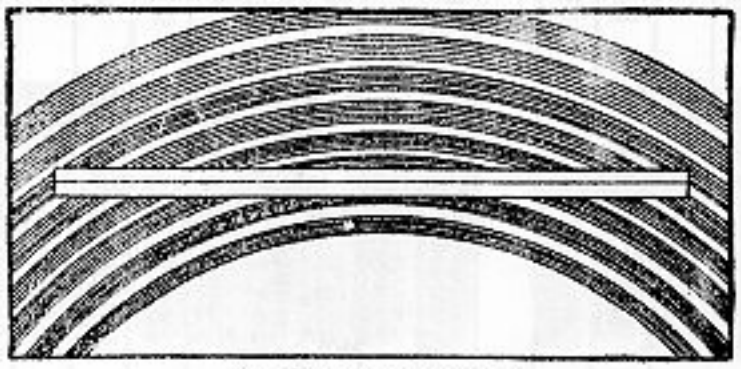
back of the card on which they are printed. In order to make them appear before the card, the left eye sees through a blue screen, but the red picture which is seen by it is a black one, and lies to the right on the picture; and the right eye sees the left-hand picture. The further apart the pictures are, the further from the card will the composite image appear.

In the manufacture of a stereoscope the difficulty is in the proper arrangement of the prisms; with the stereograph, in the proper choice of colors.

THE BOY MECHANIC - 1913

An Optical Illusion

The engraving shows a perfectly straight boxwood rule laid over a number of turned brass rings of various sizes. Although the effect in the illus-



An Optical Illusion

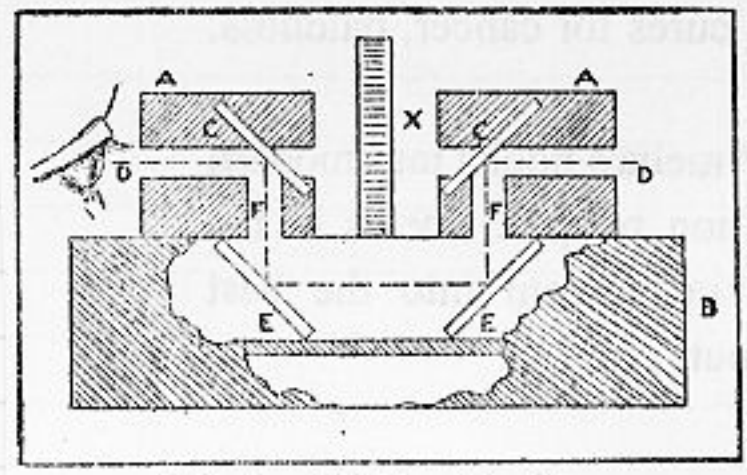
tration is less pronounced than it was in reality, it will be noticed that the rule appears to be bent, but sighting along the rule from one end will show that it is perfectly straight.

The brass rings also appear distorted. The portions on one side of the rule do not appear to be a continuation of those on the other, but that they really are can be proved by sighting in the same manner as before.—Contributed by Draughtsman, Chicago.

THE BOY MECHANIC - 1913

Home-Made X-Ray Instrument

Two cylinders, AA, are mounted on a base, B, and mirrors, CC, are fitted at an angle of 45 deg. into these cylinders. Corresponding mirrors, EE, are put in the base parallel with those in the cylinders. An opening extends downward from D of each cylinder so that light entering at one end of the



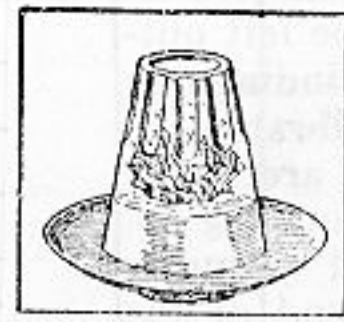
Details of X-Ray Machine

cylinder is reflected down at right angles by the first mirror to the second, from the second to the third, from the third to the fourth which reflects the light to the eye. Thus the light never passes through the cylinders and the observer does not see through, but around any object inserted at X between the cylinders.

Experiment with Heat

THE BOY MECHANIC - 1913

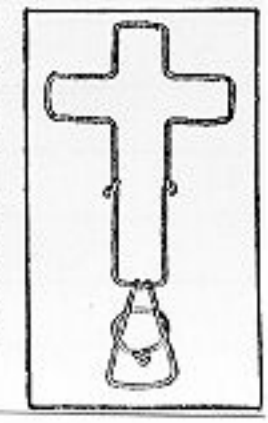
Place a small piece of paper, lighted, in an ordinary water glass. While the paper is burning turn the glass over and set into a saucer previously filled with water. The water will rapidly rise in the glass, as shown in the sketch.



Simply Made Wire Puzzle

THE BOY MECHANIC - 1913

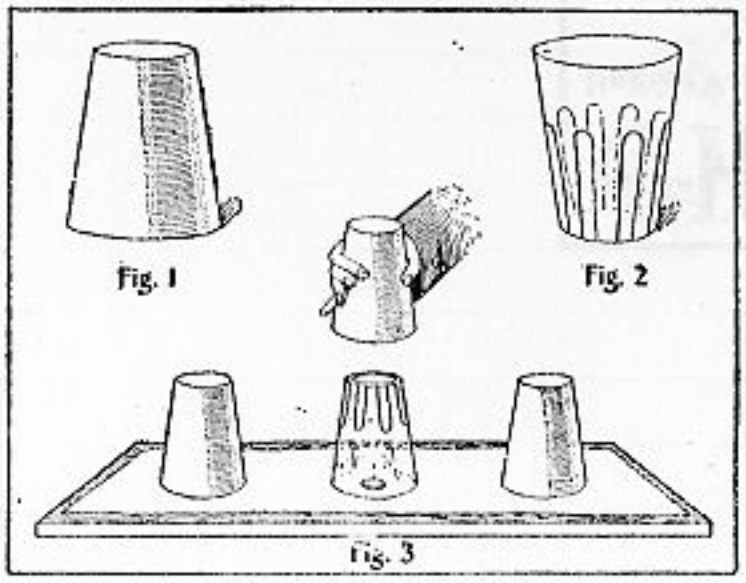
The object of this simply made wire puzzle is to get the ring off, which is not easy unless you know how. To do so it is necessary to move the triangle with ring to one of the hinge joints and fold the puzzle. Then slip the ring off the triangle over the hinge joint and it will slip all around and off at the other hinge.



Coin and Tumbler Trick

THE BOY MECHANIC - 1913

The accompanying sketch shows how a good trick may be easily performed by any one. Lay a piece of

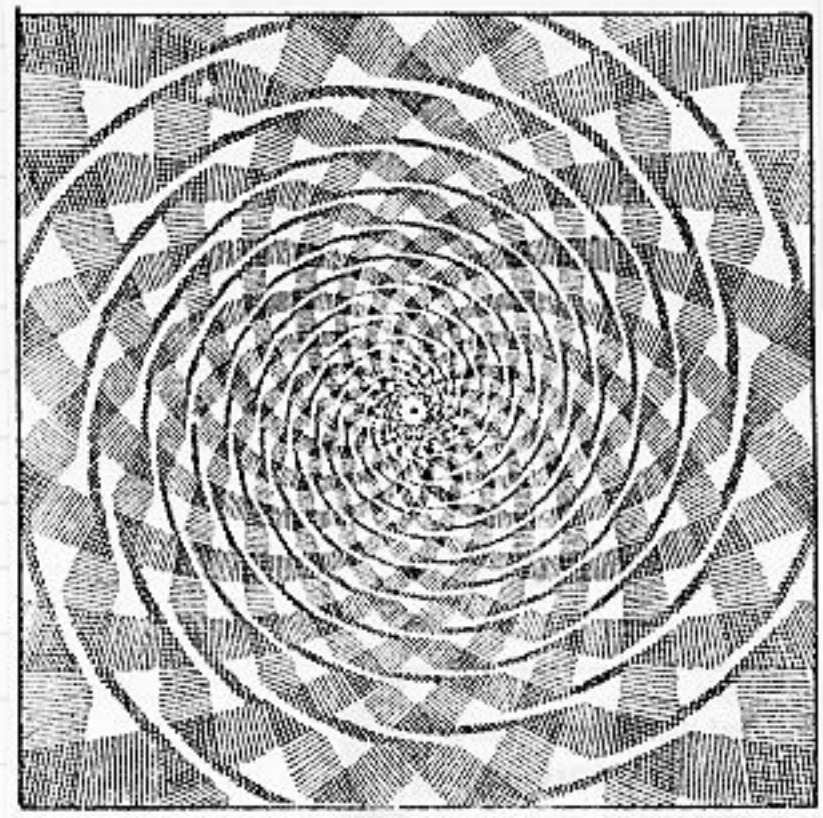


This is a Good Trick

heavy paper that is free from creases on a board or table. Secure three tumblers that are alike and stick a piece of the same heavy paper over the openings in two of them, neatly trimming it all around the edges so as to leave nothing of the paper for any one to see. Make three covers of paper as shown in Fig. 1 to put over the tumblers. Place three coins on the sheet of paper, then the tumblers with covers on top of the coins, the unprepared tumbler being in the middle. Now lift the covers off the end tumblers, and you will see that the paper on the openings covers the coins. Replace the covers, lift the middle one, and a coin will be seen under the tumbler, as the opening of this tumbler is not covered. Drop the cover back again and lift the other tumblers and covers bodily, so that the spectators can see the coins, remarking at the same time that you can make them vanish from one to the other. The openings of the tumblers must never be exposed so that any one can see them, and a safe way to do this is to keep them level with the table.

Another Optical Illusion

After taking a look at the accompanying illustration you will be positive that the cords shown run in a spiral toward the center, yet it shows a series of per-

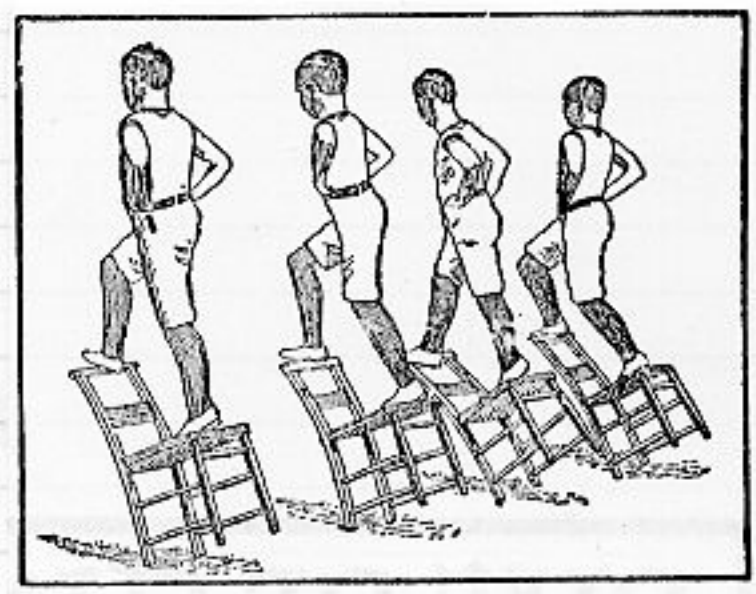


The Cord is Not a Spiral

THE BOY MECHANIC - 1913

fect circles of cords placed one inside the other. You can test this for yourself in a moment with a pair of compasses, or, still more simply, by laying a point of a pencil on any part of the cord and following it round. Instead of approaching or receding from the center in a continuous line, as in the case of a spiral, you will find the pencil returning to the point from which it started.

THE BOY MECHANIC - 1913



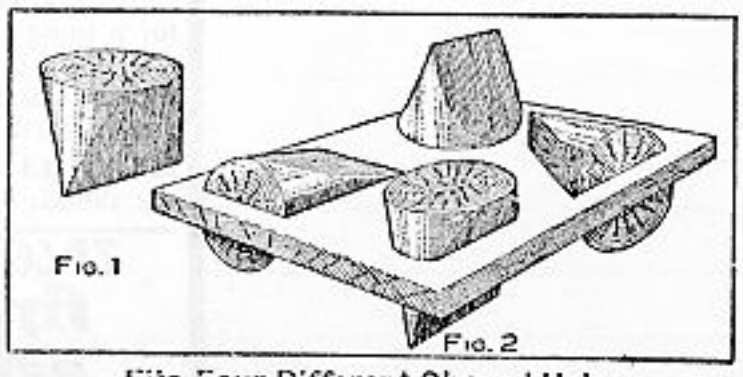
Feat of Balancing on Chairs

Among the numerous physical exercises is the feat of balancing on the two rear legs of a chair while one foot rests on the front part of the seat and the other on the back of the chair. This may appear to be a hard thing to do, yet with a little practice it may be accomplished. This exercise is one of many practiced by the boys of a boys' home for an annual display given by them. A dozen of the boys will mount chairs at the same time and keep them in balance at the word of a commanding officer.

Fitting a Plug in Different Shaped Holes

THE BOY MECHANIC - 1913

A certain king offered to give the prince his liberty if he could whittle a plug that would fit four different-shaped holes, namely: a square hole, a round one, an oblong one and a triangular one, says the Pathfinder. A broomstick was used to make the plug and it was whittled in the shape shown



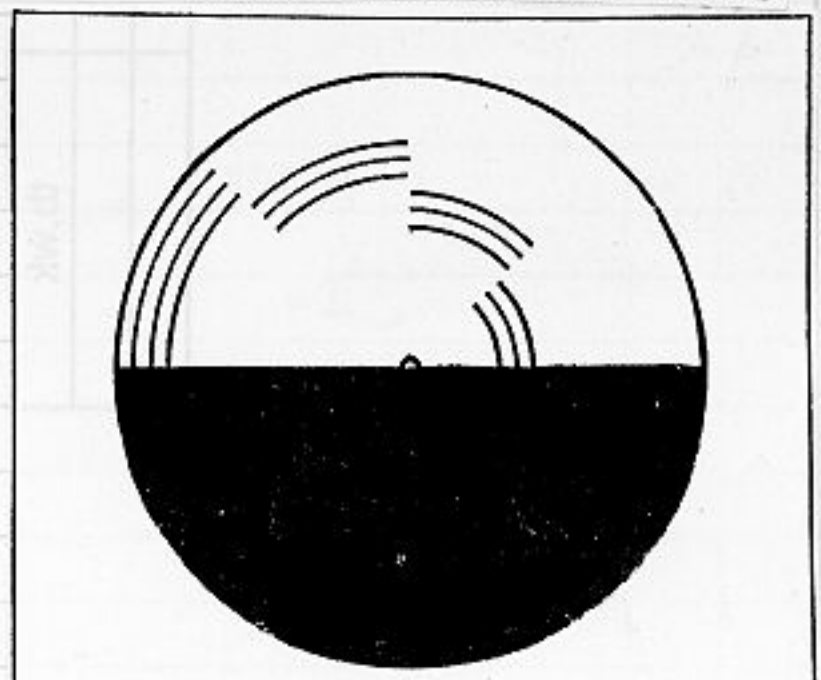
Fits Four Different Shaped Holes

in Fig. 1. The holes in the different places as shown in Fig. 2, were fitted by this one plug.

THE BOY MECHANIC - 1913

An Optical Top

One of the latest optical delusions, and one not easy to explain, is Benham's color top. Cut out the black and white disk shown in the figure, and paste on a piece of stiff cardboard. Trim the edges of the cardboard to match the shape of the disk, and make a pinhole in the center. Cut the pin in half and push it through from the under side until the head of the pin



An Optical Top

touches the cardboard. Spin slowly in a strong light and some of the lines will appear colored. The colors appear different to different people, and are changed by reversing the rotation.

Old-Time Magic

Trick with a Coin in a Wine Glass

The accompanying sketch shows a trick of removing a dime from the bottom of an old-fashioned wine glass without touching the coin. The dime is first placed in the bottom of the glass and then a silver quarter dropped in on top. The quarter will not go all the way down. Blow hard into the glass in the position shown and the dime will fly out and strike the blower on the nose.



Untying-a-Knot Trick

Tie a double knot in a silk handkerchief, as shown in the accompanying sketch and tighten the last tie a little by slightly drawing the two upper ends; then continue to tighten much

more, pulling vigorously at the first corner of the handkerchief, and as this end belongs to the same corner it cannot be pulled much without loosening the twisted line of the knot to become a straight line. The other corner forms a slip knot on the end, which can be drawn out without disturbing the form, or apparent security of the knot, at the moment when you cover the knot with the unused part of the handkerchief.



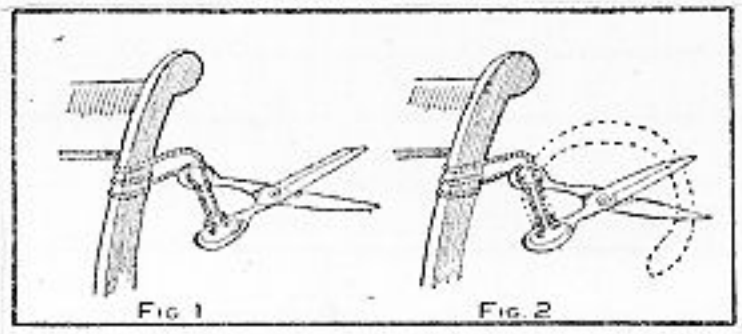
When the trick is to be performed, tie two or three very hard knots that are tightly drawn and show your audience that they are not easy to untie. The slip knot as described then must be made in apparently the same way and untied with the thumb while the knot is in the folds of the handkerchief.

Old-Time Magic—Part II

THE BOY MECHANIC - 1913

Removing Scissors from a Cord

A piece of strong cord is doubled and fastened to a pair of scissors with a slip knot, as shown in Fig. 1. After passing the ends of the cord through the thumb hole of the scissors they are tied fast to a chair, door knob or any other object that may be of sufficient size to make the ends secure. The trick is to release the scissors without cutting the cord.

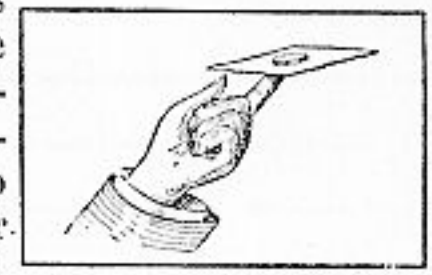


How the Scissors Are Removed

Take hold of the loop end of the cord in the lower handle and drawing it first through the upper handle and then completely over the blades of the scissors, as shown in Fig. 2. This is very simple when you know how, but puzzling when the trick is first seen.

Coin and Card on the First Finger

This is a simple trick that many can do at the first attempt, while others will fail time after time. It is a good trick to spring upon a company casually if you have practiced it beforehand. A playing card is balanced on the tip of the forefinger and a penny placed on top immediately over the finger end, as shown in the sketch. With the right-hand forefinger and thumb strike the edge of the card sharply. If done properly the card will fly away, leaving the penny poised on the finger end.



Old-Time Magic—Part III

THE BOY MECHANIC - 1913

Disappearing Coin

While this is purely a sleight-of-hand trick, it will take very little practice to cause the coin to disappear instantly. Take a quarter of a dollar between the thumb and finger, as shown, and by a rapid twist of the fingers whirl the coin and at the same time close the hand, and the coin will disappear up your coat sleeve. On opening the hand the coin will not be seen. Take three quarters and hold one in the palm of the left hand, place the other two, one between the thumb and finger of each hand, then give the coin in the right hand a whirl, as described, closing both hands quickly. The coin in the right hand



will disappear up your sleeve, and the left hand on being unclosed will contain two quarters, while the one in the right shall have disappeared.

THE BOY MECHANIC - 1913

Sticking a Coin Against the Wall

Cut a small notch in a coin—ten-cent piece or quarter will do—so a small point will project. When this is pressed firmly against a wood casing or partition the coin will stick tightly.

A Chinese Outdoor Game

THE BOY MECHANIC - 1913

The accompanying illustration shows the "grand whirl," or the Chinese students' favorite game. This game is played by five persons, four of them turning around the fifth or central figure with their arms locked about each other and the two outside persons swinging in midair with their bodies almost horizontal.



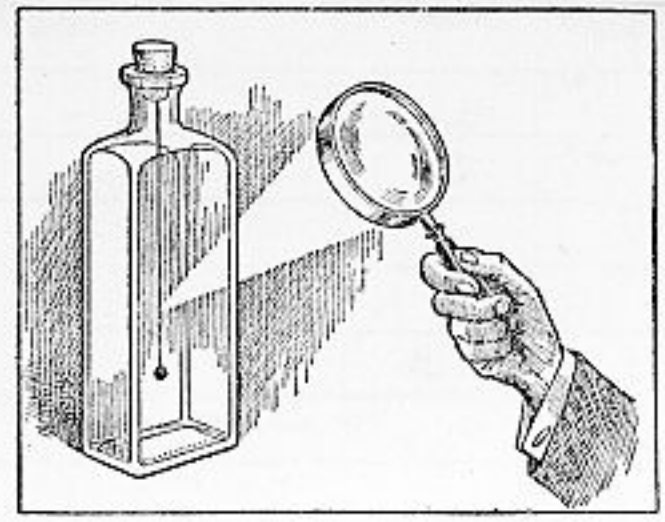
Chinese Doing the Grand Whirl

Old-Time Magic—Part IV

Cutting a Thread Inside of a Glass Bottle

THE BOY MECHANIC - 1913

This is a trick which can only be performed when the sun shines, but it is a good one. Procure a clear glass bottle and stick a pin in the lower end of the cork. Attach a thread to the pin and tie a small weight to the



The Glass Directs the Sun's Rays

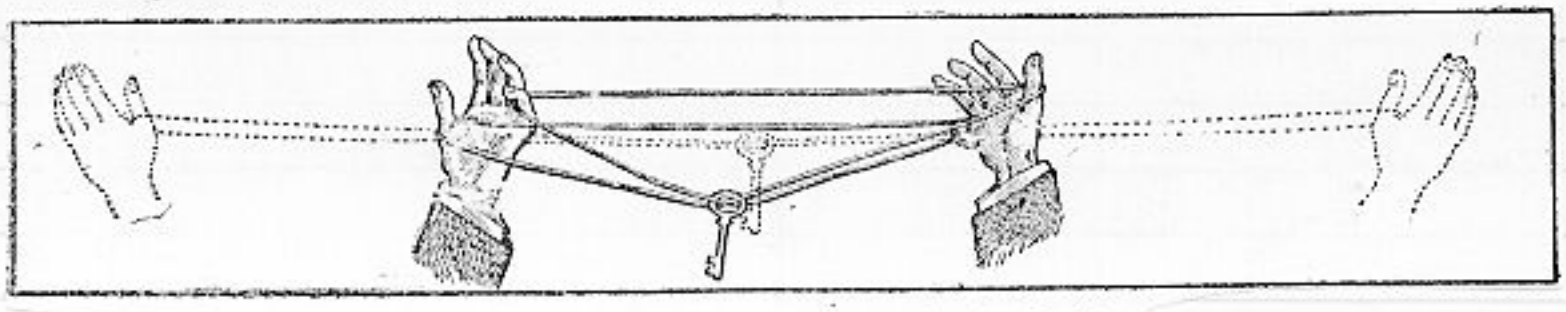
end of the thread so it will hang inside the bottle when the cork is in place. Inform your audience that you will sever the thread and cause the weight to drop without removing the cork.

All that is required to perform the feat is to hold a magnifying glass so as to direct the sun's rays on the thread. The thread will quickly burn and the weight fall.

THE BOY MECHANIC - 1913

Removing a Key from a Double String

Tie the ends of a 5-ft. string together, making a double line on which a key is placed and the string held as shown by the dotted lines in the sketch. Turn the palms of the hands toward you and reach over with the little finger of the right hand and take hold of the inside line near the left-hand thumb. Reverse the operation and take hold of the inside line near right-hand thumb with the little finger of the left hand. You will then have the string as it appears in the sketch. Quickly let loose of the string with a little finger on one hand and a thumb on the other and pull the string taut. The key will drop from the string.

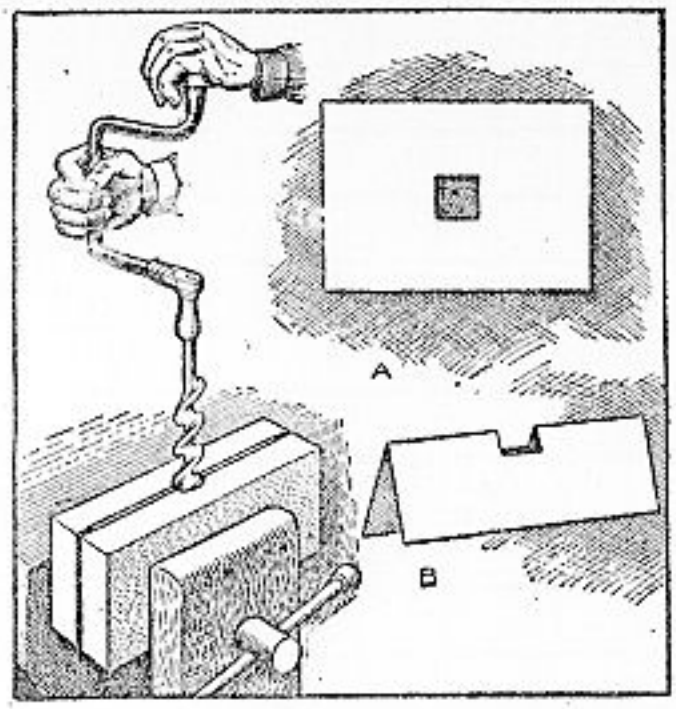


"The Key Will Drop from the String"

How to Bore a Square Hole

THE BOY MECHANIC - 1913

You would not consider it possible to bore a square hole in a piece of cardboard, yet such a thing can be done. Take a cardboard or a thin piece of wood, fold and place it between two pieces of board with the fold up; the boards are then put in a vise as shown. Start the bit with the screw point in the fold, using a 1-in. bit, and bore a



Boring a Square Hole

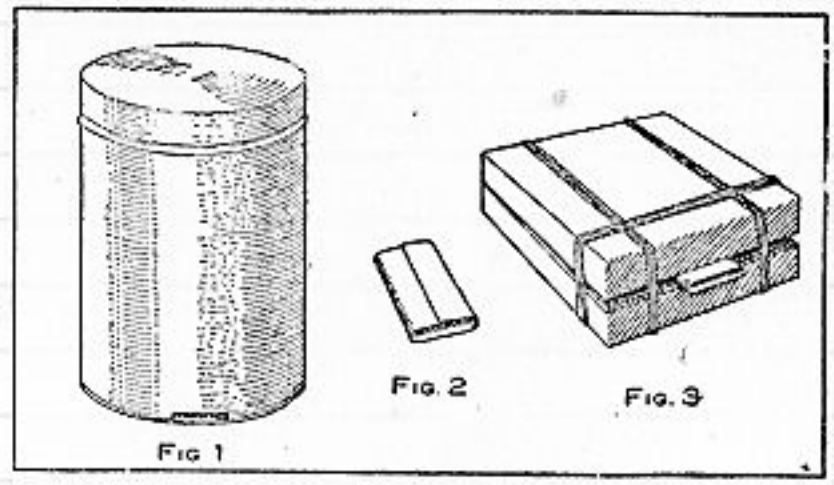
hole ½ in. deep. When the cardboard is taken from the vise it will appear as shown at B and when unfolded, as at A.

Old-Time Magic—Part V

The Disappearing Coin

This is an uncommon trick, entirely home-made and yet the results are as startling as in many of the professional tricks. A small baking-powder can is employed to vanish the coin, which should be marked by one of the audience for identification. Cut a slot in the bottom on the side of the can, as shown in Fig. 1. This slot should be just large enough for the coin that is used to pass through freely, and to have its lower edge on a level with the bottom of the can.

The nest or series of boxes in which the coin is afterwards found should consist of four small sized flat pasteboard boxes square or rectangular bent in the shape as shown in Fig. 2 to serve as a guide for the coin through the various boxes. This guide is inserted about ⅛ in. in the smallest box between the cover and the box and three rubber bands wrapped around the box as indicated. This box is then enclosed in the next larger box, the guide being allowed to project between the box and the cover, and the necessary tension is secured by three rubber bands around the box as before. In like manner the remaining boxes are



Appliances for the Disappearing Coin

adjusted so that finally the prepared nest of boxes appears as in Fig. 3.

The coin can easily be passed into the inner box through the tin guide, then the guide can be withdrawn which permits the respective boxes to close and the rubber bands hold each one in a closed position.

The performer comes forward with the tin can in his right hand, the bottom of the can in his palm with the slot at the right side. He removes the cover with the left hand and passes his wand around the inner part of the can which is then turned upside down to prove that it contains nothing. The marked coin is dropped into the can by some one in the audience. The cover is replaced and the can shaken so the coin will rattle within. The shaking of the can is continued until the coin has slipped through the slot into his palm. The can is then placed on the table with his left hand. Then apparently

he looks for something to cover the can. This is found to be a handkerchief which was previously prepared on another table concealing the nest of boxes. The coin in the right hand is quickly slipped into the guide of the nest of boxes, which was placed in an upright position, and the guide withdrawn, and dropped on the table. The performer, while doing this, is explaining that he is looking for a suitable cover for the can, but as he cannot find one he takes the handkerchief instead. The handkerchief is spread over the can and then he brings the nest of boxes. He explains how he will transfer the coin and passes his wand from the can to the boxes. The can is then shown to be empty and the boxes given to one in the audience to be opened. They will be greatly surprised to find the marked coin within the innermost box.

Old-Time Magic—Part VI

A Handkerchief Mended after Being Cut and Torn

Two persons are requested to come forward from the audience to hold the four corners of a handkerchief. Then beg several other handkerchiefs from the audience and place them on the one held by the two persons. When several handkerchiefs have been accumulated, have some one person draw out one from the bunch and examine for any marks that will determine that this handkerchief is the one to be mended after being mutilated. He, as well as others, are to cut off pieces from this handkerchief and to finally tear it to pieces.

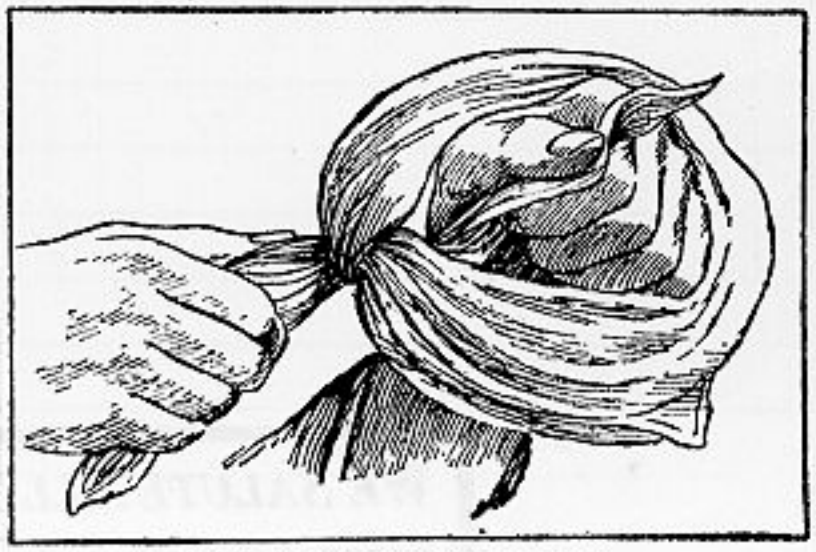
The pieces are then all collected and some magic spirits thrown over the torn and cut parts; tie them in a small package with a ribbon and put them under a glass, which you warm with your hands. After a few seconds' time, you remove the glass, as you have held it all the time, and take the handkerchief and unfold it; everyone will recognize the mark and be amazed not to find a cut or tear in the texture.

This trick is very simple. You have an understanding with some one in the company, who has two handkerchiefs exactly alike and has given one of them to a person behind the curtain; he throws the other, at the time of request for handkerchiefs, on the handkerchiefs held for use in the performance of the trick. You manage to keep this handkerchief where it will be picked out in preference to the others, although pretending to thoroughly mix them up. The person selected to pick out a handkerchief naturally will take the handiest one. Be sure that this is the right one.

When the handkerchief has been torn and folded, put it under the glass, on a table, near a partition or curtain. The table should be made with a hole cut through the top and a small trap door fitted snugly in the hole, so it will appear to be a part of the table top. This trap door is hinged on the under side and opens into the drawer of the table and can be operated by the person behind the curtain who will remove the torn handkerchief and replace it with the good one and then close the trap door by reaching through the drawer of the table.

The Magic Knot

This is a very amusing trick which consists of tying one knot with two ends of a handkerchief, and pulling the



Tying and Untying a Knot

ends only to untie them again. Take the two diagonal corners of a handkerchief, one in each hand and throw the main part of the handkerchief over the wrist of the left hand and tie the knot as shown in the illustration. Pull the ends quickly, allowing the loop over the left hand to slip freely, and you will have the handkerchief without any knot.

THE BOY MECHANIC - 1913

The Rolling Marble

Take a marble and place it on a smooth surface, the top of a table will do. Ask some one to cross their first and second fingers and place them on the marble as shown in the illustration. Then have the person roll the marble about and at the same time close the eyes or look in another direction. The person will imagine that there are two marbles instead of one.

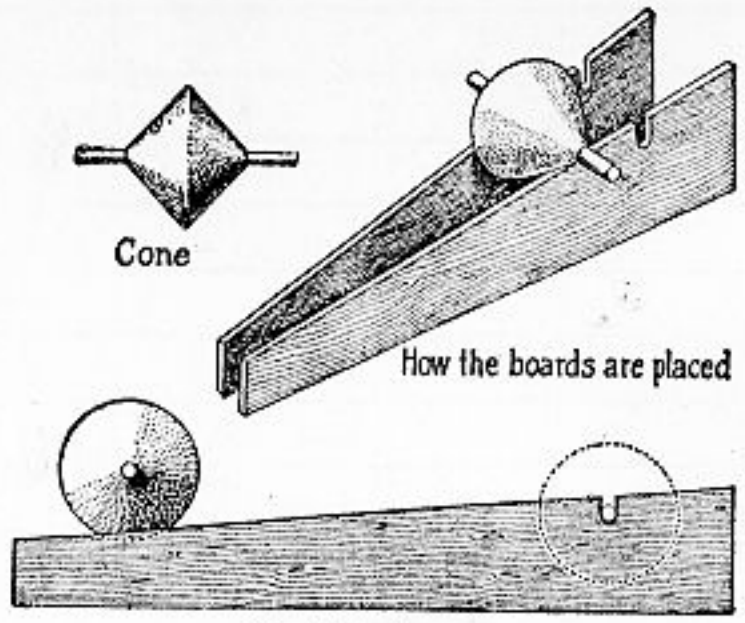


THE BOY MECHANIC - 1913

Rolling Uphill Illusion

This interesting as well as entertaining illusion, can be made by anyone having a wood-turning lathe. A solid, similar to two cones placed base to base, is accurately turned in a lathe, the sides sloping to an angle of 45 deg. The spindle can be turned out of the solid at the same time as the cone; or, after turning the cone, drive an iron or wood shaft through the center making a tight fit.

The boards for the track are made with a sloping edge on which the cone is to roll. This slope will depend on the diameter of the cone, which can be any size from 3 to 12 in. The slope should not be too flat, or the cone will not roll, and it should be such that the



The Illusion

one end will be higher than the other by a little less than half the diameter of the cone. Thus it will be seen that the diameter of the cone determines the length of the slope of the tracks. A notch should be cut in the tracks, as indicated, for the shaft to drop into at the end of the course.

The lower end of the tracks are closed until the high edge of the cone rests upon the inside edges of the tracks and the high end spread sufficiently to take the full width of the cone and to allow the shaft to fall into the notches. When the cone and tracks are viewed from the broadside the deception will be more perfect, and will not be discovered until the construction of the model is seen from all sides. Should it be difficult to make the cone from wood, a good substitute can be made from two funnels.—Contributed by I. G. Bayley, Cape May Point, N. J.

A Mystifying Watch Trick

THE BOY MECHANIC - 1913

Borrow a watch from one of the audience and allow the owner to place it in the box, as shown in Fig. 1. This box should be about 3 in. long, 4 in. wide and 2½ in. deep, says the Scientific American. It should be provided

with a hinged cover, M, with a lock, N. The tricky part of this box is the side S, which is pivoted at T by driving two short nails into it, one through the front side and the other through the back, so that when S is pushed in at the top, it swings around as shown in Fig. 1 and allows the watch to slide out into the performer's hand. The side S should fit tightly when closed, so that the box may be examined without betraying the secret. As the side S extends down to the bottom of the box, it facilitates the use of the fingers in pulling outward at the lower part while the thumb is pressing inward at the top part. The side of the box opposite S should be built up in the same way, but not pivoted.

Use a flat-bottom tumbler, A, Fig. 2, containing an inner cone, B, for the reproduction of the watch. The cone is made of cardboard pasted together so it fits snugly inside of the tumbler. The cone is closed except at the bottom, then bran is pasted on the outside surfaces to make the tumbler appear as if filled with bran when it is in place. Place the tumbler with the cone inside on a table somewhat in the background. Put some loose bran on top of the cone and allow the cork, attached as shown in B, Fig. 2, to hang down on the outside of the tumbler, away from the audience. A large handkerchief should be laid beside the tumbler.

After the watch has been placed in the box, Fig. 1, the performer takes the box in his left hand, and while in the act of locking it with his right hand secures possession of the watch as previously explained. Tossing the key to the owner of the watch, the performer places the box on a chair or table near the audience and, with the watch securely palmed, walks back to get the tumbler. Standing directly in front of the tumbler with his back toward the audience, the performer quickly raises the cone with his right hand, lays the watch in the bottom of

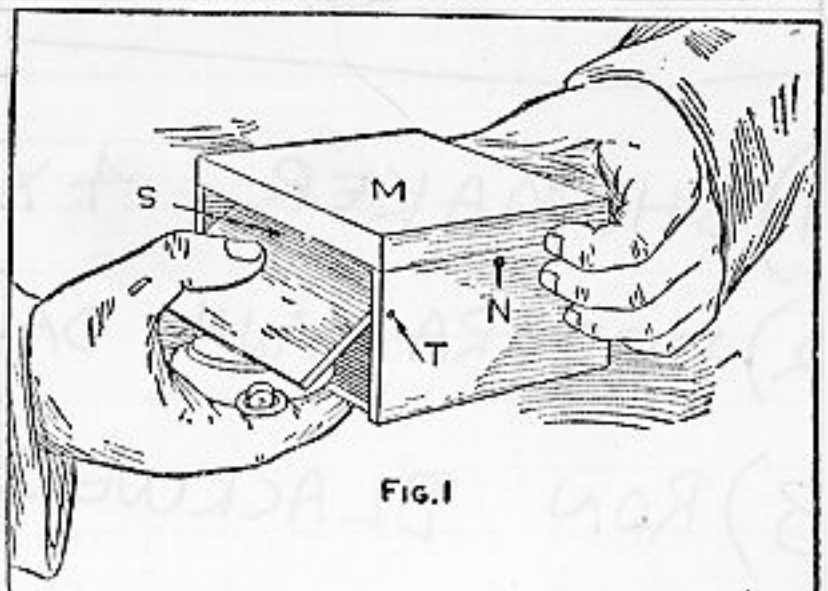


FIG. 1

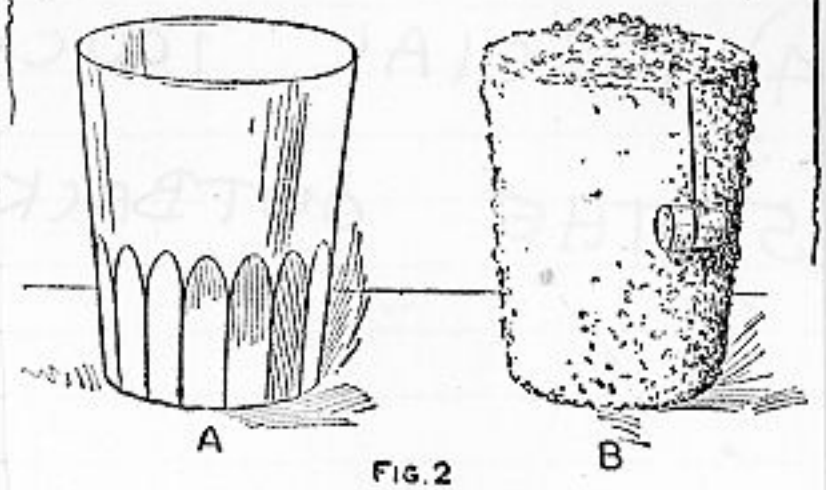


FIG. 2
Parts for the Watch Trick

the tumbler and replaces the cone.

The loaded tumbler and the handkerchief are then brought forward, and the former is placed in full view of the audience with the cork hanging down behind it. The performer calls attention to the tumbler being full of bran and picks up some of it from the top to substantiate his statement. He then spreads the handkerchief over the tumbler, commands the watch to pass from the box into the tumbler and the bran to disappear.

The box is then handed to the owner of the watch so that he may unlock it with the key he holds. As soon as the box is found to be empty, the performer grasps the handkerchief spread over the tumbler, also the cork tied to the cone. Raising the handkerchief, he carries up the cone within it, leaving the watch in the bottom to be returned to its owner.

THE BOY MECHANIC - 1913

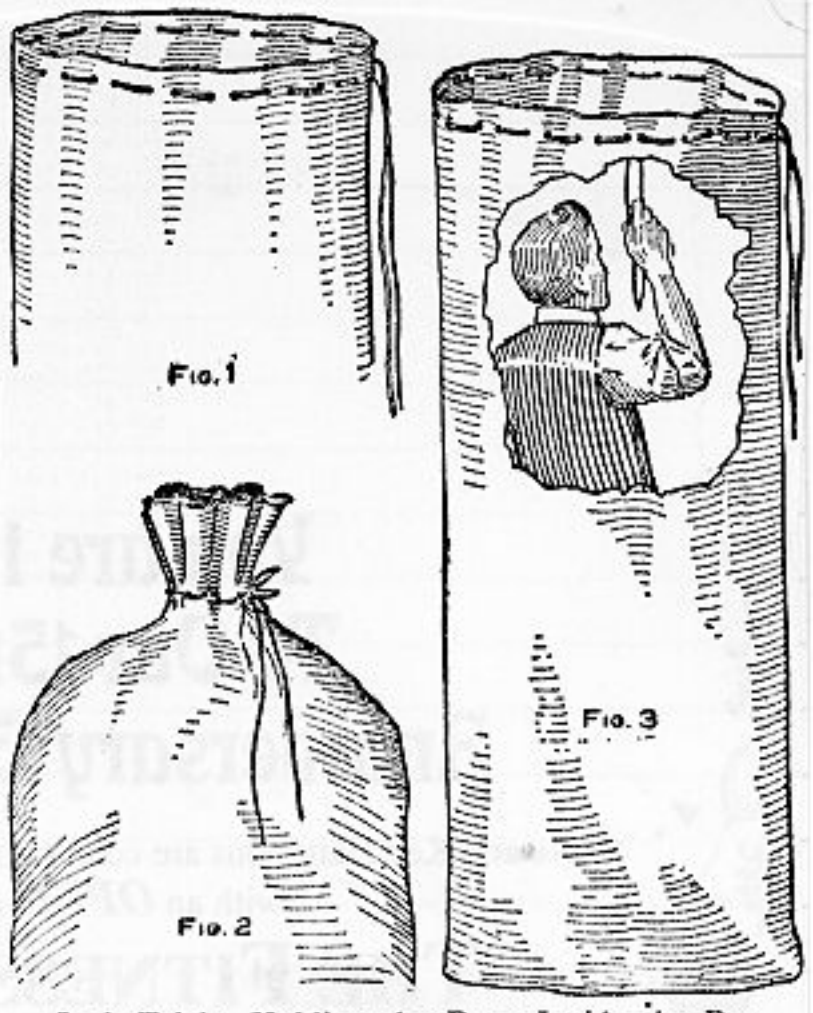
Old-Time Magic

A Sack Trick

The magician appears accompanied by his assistant. He has a sack similar to a meal bag only on a large scale. The upper end of this bag is shown in Fig. 1, with the rope laced in the cloth. He then selects several people from the audience as a committee to examine the sack to see that there is absolutely no deception whatever in its makeup. When they are satisfied that the bag or sack is all right, the magician places his assistant inside and drawing the bag around him he allows the committee to tie him up with as many knots as they choose to make, as shown in Fig. 2.

The bag with its occupant is placed in a small cabinet which the committee surround to see that there is no outside help. The magician then takes his watch and shows the audience that in less than 30 seconds his assistant will emerge from the cabinet with the sack in his hand. This he does, the sack is again examined and found to be the same as when it was first seen.

The solution is when the assistant enters the bag he pulls in about 15 in. of the rope and holds it, as shown in Fig. 3, while the committee is tying him up. As soon as he is in the cabinet he merely lets out the slack thus making enough room for his body to pass through. When he is out of the bag he quickly untics the knots and then steps from his cabinet.—Contributed by J. F. Campbell, Somerville, Mass.



Sack Trick—Holding the Rope Inside the Bag

The Invisible Light

The magician places two common wax candles on a table, one of them burning brightly, the other without a light. Members of the audience are allowed to inspect both the table and the candles.

The magician walks over to the burning candle, shades the light for a few seconds, turns to the audience with his hands a few inches apart, showing that there is nothing between them, at the same time saying that he has a light between his hands, invisible to them (the audience), with which he is going to light the other candle. He then walks over to the other candle, and, in plain sight of the audience lights the candle apparently with nothing.

In reality the magician has a very fine wire in his hand which he is heating while he bends over the lighted candle, and the audience gaze on and see nothing. He turns to the other candle and touches a grain of phosphorus that has been previously concealed in the wick with the heated wire, thus causing it to light.—Contributed by C. Brown, New York City.

How to Find the Blind Spot in the Eye

THE BOY MECHANIC - 1913

Make a small black circular dot ½ in. in diameter on a piece of cardboard and about 3 in. from the center of this dot draw a star. Hold the cardboard so that the star will be directly in front of one eye, while the dot will be in front of the other. If the star is in front of the left eye, close the

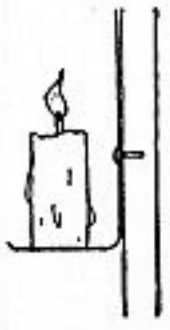
right eye and look steadily at the star while you move the cardboard until the point is reached where the dot disappears. This will prove the presence of a blind spot in a person's eye. The other eye can be given the same experiment by turning the cardboard end for end. The blind spot does not indicate diseased eyes, but it simply marks the point where the optic nerve enters the eyeball, which point is not provided with the necessary visual end organs of the sight, known as rods and cones.

THE BOY MECHANIC - 1913

Parlor Magic for Winter Evenings

By C. H. CLAUDY

You are seated in a parlor at night, with the lights turned low. In front of you, between the parlor and the room back of it, is an upright square of brightly burning lights, surrounding a perfectly black space. The magician stands in front of this, in his shirt sleeves, and after a few words of introduction proceeds to show the wonders of his magic cave. Showing you plainly that both hands are empty, he points with one finger to the box, where immediately appears a small white china bowl. Holding his empty hand over this bowl, some oranges and apples drop from his empty hand into the bowl. He removes the bowl from the black box, or cave, and hands its contents round to the audience. Receiving the bowl again, he tosses it into the cave, but it never reaches the floor—it disappears in mid-air.



The illusions he shows you are too many to retail at length. Objects appear and disappear. Heavy metal objects, such as forks, spoons and jack-knives, which have been shown to the audience and which can have no strings attached to them, fly about in the box at the will of the operator. One thing changes to another and back again, and black art reigns supreme.

Now all this "magic" is very simple and requires no more skill to prepare or execute than any clever boy or girl of fourteen may possess. It is based on the performance of the famous Hermann, and relies on a principle of optics for its success. To prepare such a magic cave, the requisites are a large soap box, a few simple tools, some black paint, some black cloth, and plenty of candles.

The box must be altered first. One end is removed, and a slit, one-third of the length from the remaining end, cut in one side. This slit should be as long as the width of the box and about five inches wide. On either side of the box, half way from open end to closed end, should be cut a hole, just large enough to comfortably admit a hand and arm.

Next, the box should be painted black both inside and out, and finally lined inside with black cloth. This lining must be done neatly—no folds must show and no heads of tacks. The interior must be a dead black. The box is painted black first so that the cloth used need not be very heavy; but if the cloth be sufficiently thick, no painting inside is required. The whole inside is to be cloth-lined, floor, top, sides and end.

Next, the illumination in front must be arranged. If you can have a plumber make you a square frame of gas-piping, with tiny holes all along it for the gas to escape and be lit, and connect this by means of a rubber tube to the gas in the house, so much the better; but a plentiful supply of short candles will do just as well, although a little more trouble. The candles must be close together and arranged on little brackets around the whole front of the "cave" (see small cut), and should have little pieces of bright tin behind them, to throw the light

toward the audience. The whole function of these candles is to dazzle the eyes of the spectators, heighten the illusion, and prevent them seeing very far into the black box.

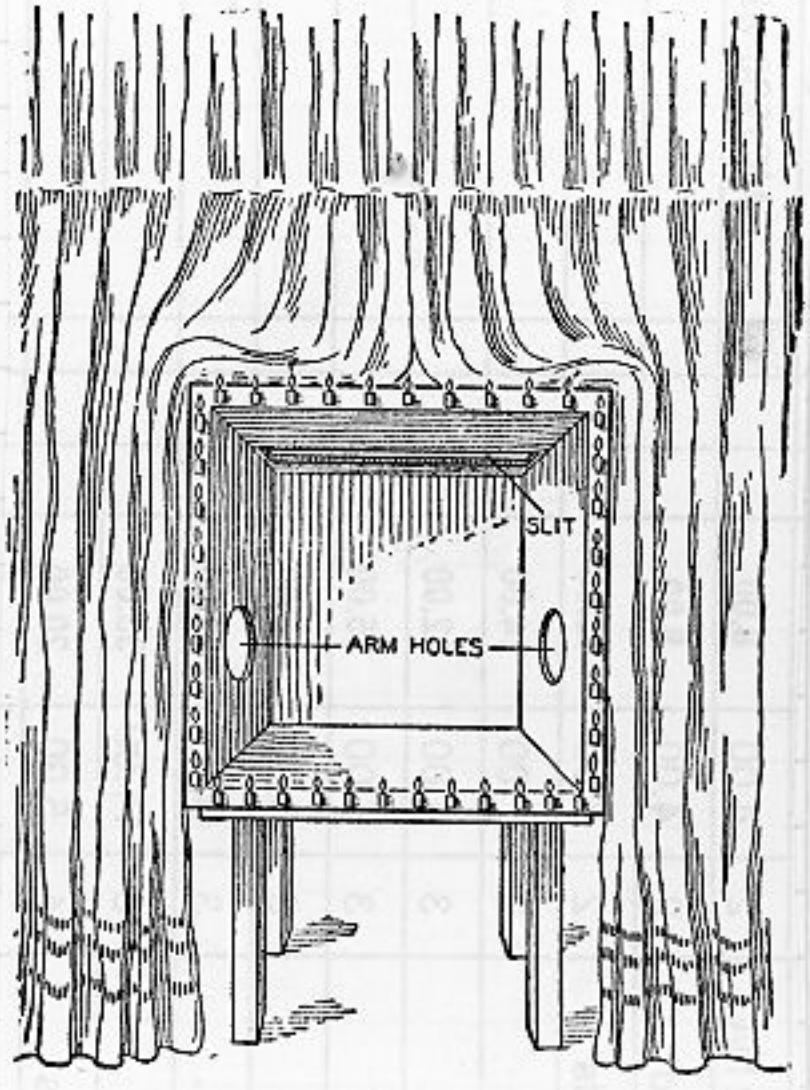
Finally, you must have an assistant, who must be provided with either black gloves or black bags to go over his hands and arms, and several black drop curtains, attached to sticks greater in length than the width of the box, which are let down through the slit in the top.

The audience room should have only low lights; the room where the cave is should be dark, and if you can drape portieres between two rooms around the box (which, of course, is on a table) so much the better.

The whole secret of the trick lies in the fact that if light be turned away from anything black, into the eyes of him who looks, the much fainter light reflected from the black surface will not affect the observer's eye. Consequently, if, when the exhibitor puts his hand in the cave, his confederate behind inserts his hand, covered with a black glove and holding a small bag of black cloth, in which are oranges and apples, and pours them from the bag into a dish, the audience sees the oranges and apples appear, but does not see the black arm and bag against the black background.

The dish appears by having been placed in position behind a black curtain, which is snatched swiftly away at the proper moment by the assistant. Any article thrown into the cave and caught by the black hand and concealed by a black cloth seems to disappear. Any object not too large can be made to "levitate" by the same means. A picture of any one present may be made to change into a grinning skeleton by suddenly screening it with a dropped curtain, while another curtain is swiftly removed from over a pasteboard skeleton, which can be made to dance either by strings, or by the black veiled hand holding on to it from behind, and the skeleton can change to a white cat.

But illusions suggest themselves. There is no end to the effects which can be had from this simple apparatus, and if the operators are sufficiently well drilled the result is truly remarkable to the uninitiated. The illusion, as presented by Hermann, was identical with this, only he, of course, had a big stage, and people clothed in black to creep about and do his bidding, while here the power behind the throne is but a black-veiled hand and arm. It can be made even more complicated by having two assistants, one on each side of the box, and this is the reason why it was advised that two holes be cut. This enables an absolutely instantaneous change as one uncovers the object at the moment the second assistant covers and removes the other.



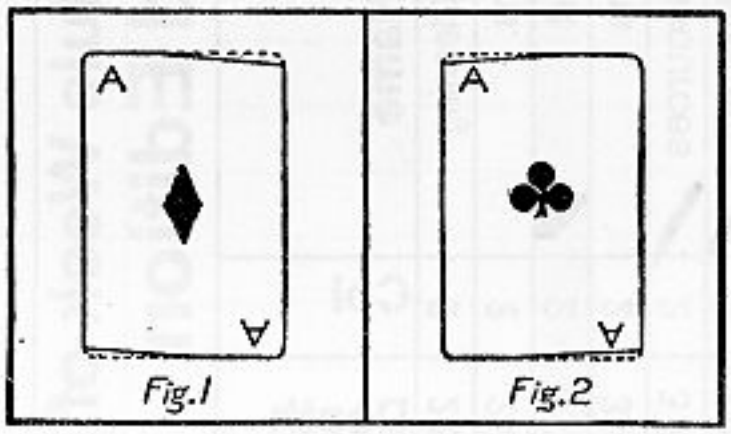
The Magic Cave

It is important that the assistants remain invisible throughout, and if portieres are impossible, a screen must be used. But any boy ingenious enough to follow these simple instructions will not need to be told that the whole success of the exhibition depends upon the absolute failure of the audience to understand that there is more than one concerned in bringing about the curious effects which are seen. The exhibitor should be a boy who can talk; a good "patter"—as the magicians call it—is often of more value than a whole host of mechanical effects and helpers. It is essential that the exhibitor and his confederate be well drilled, so that the latter can produce the proper effects at the proper cue from the former. Finally, never give an exhibition with the "cave" until you have watched the illusions from the front yourself; so that you can determine whether everything connected with the draping is right, or whether some stray bit of light reveals what you wish to conceal.

THE BOY MECHANIC - 1913

Card Trick with a Tapered Deck

Another simple trick to perform but one not easily detected, is executed by using a tapered deck of cards as shown in Fig. 1. A cheap deck of cards is evened up square, fastened in a vise and planed along the edge in such a manner that all the pack will be tapered about $\frac{1}{16}$ in. This taper is exaggerated in the illustration which shows



Cards from a Tapered Deck

one card that has been turned end for end.

It is evident that any card reversed in this way can be easily separated from the other cards in the pack, which makes it possible to perform the following trick: The performer spreads the cards out, fan-like, and asks an observer to withdraw a card, which is then replaced in any part of the pack. After thoroughly shuffling the cards the performer then holds the deck in both hands behind his back and pronouncing a few magic words, produces the card selected in one hand and the rest of the pack in the other. This is accomplished by simply turning the deck end for end while the observer is looking at his card, thus bringing the wide end of the selected card at the narrow end of the pack when it is replaced. The hands are placed behind the back for a double purpose, as the feat then seems more marvelous and the observers are not allowed to see how it is done.

In prize games, players having the same score are frequently called upon to cut for low to determine which shall be the winner, but a fairer way is to cut for high as a person familiar with the trick shown in Fig. 2 can cut the cards at the ace, deuce, or three spot, nearly every time, especially if the deck is a new one. This is done by simply pressing on the top of the deck as shown, before cutting, thus causing the increased ink surface of the high cards to adhere to the adjacent ones. A little practice will soon enable one to cut low nearly every time, but the cards must be grasped lightly and the experiment should be performed with a new deck to obtain successful results. —Contributed by D. B. J., Chicago.

THE BOY MECHANIC - 1913

Mechanical Trick With Cards

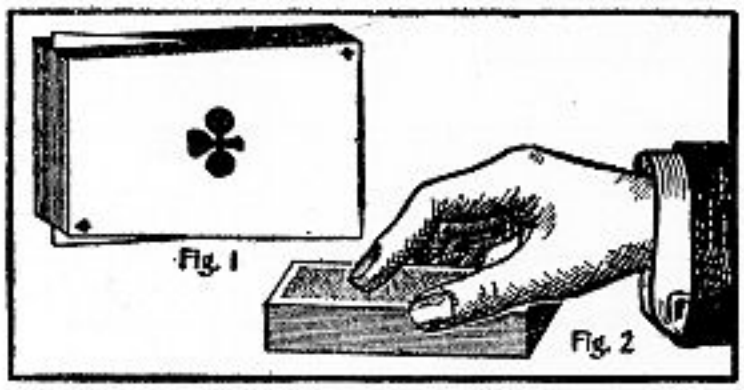
The following mechanical card trick is easy to prepare and simple to perform:

First, procure a new deck, and divide

it into two piles, one containing the red cards and the other the black ones, all cards facing the same way. Take the red cards, square them up and place in a vise. Then, with a plane, plane off the upper right hand corner and lower left hand corner, as in Fig. 1, about $\frac{1}{16}$ in.

Then take the black cards, square them up, and plane off about $\frac{1}{16}$ in. on the upper left hand corner and lower right hand corner, as in Fig. 2.

Next restore all the cards to one pack, taking care to have the first card red, the next black, and so on, every alternate card being the same color. Bend the pack so as to give some spring to the cards, and by holding one thumb on the upper left-hand corner



Card Trick

all the cards will appear red to the audience; place thumb in the center at top of pack and they will appear mixed, red and black; with thumb on upper right-hand corner all cards appear black. You can display either color called for.—Contributed by Ralph Gingrich, Chicago.

THE BOY MECHANIC - 1913

A Miniature "Pepper's Ghost" Illusion

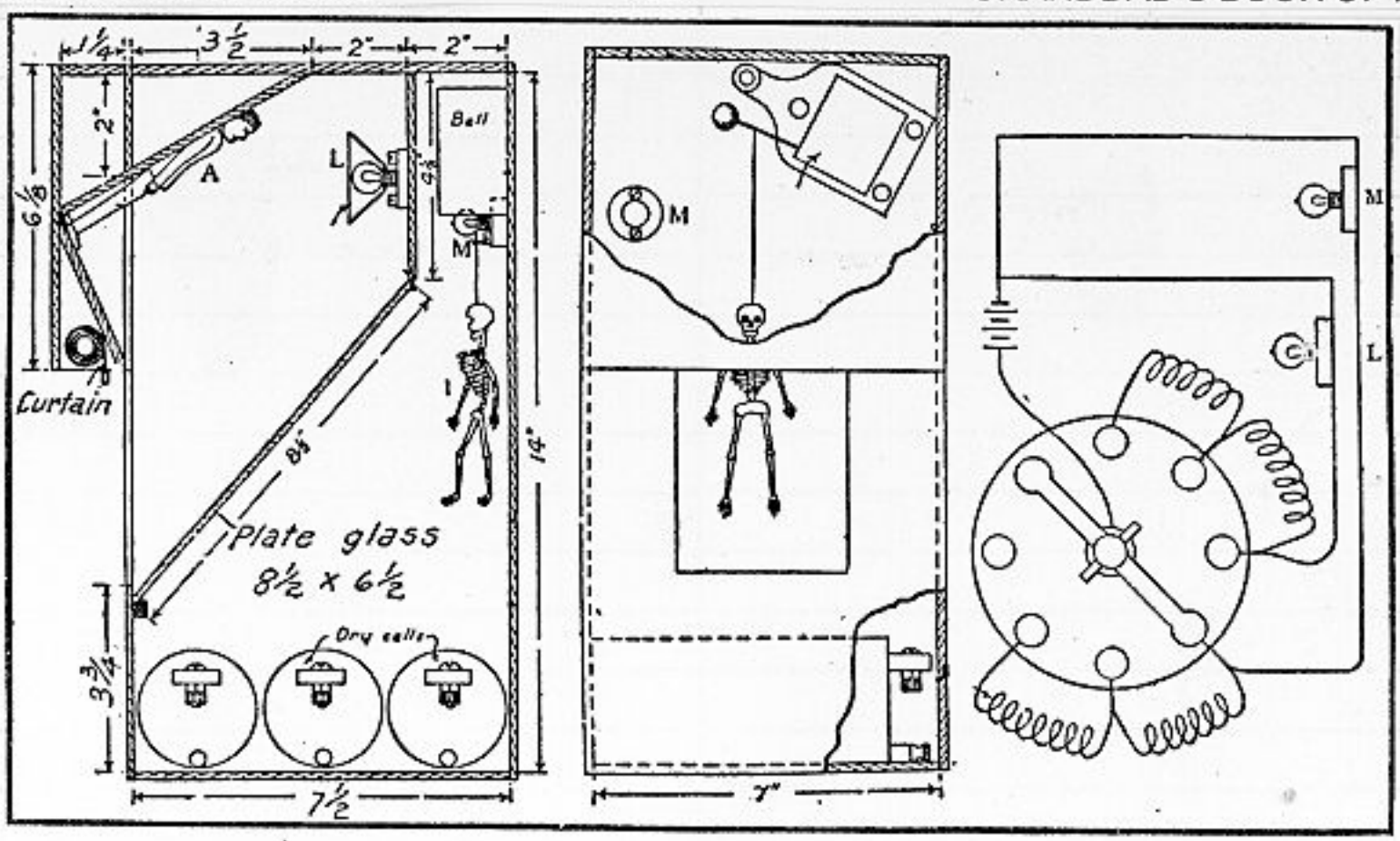
Probably many readers have seen a "Pepper's Ghost" illusion at some amusement place. As there shown, the audience is generally seated in a dark room at the end of which there is a stage with black hangings. One of the audience is invited onto the stage, where he is placed in an upright open coffin. A white shroud is thrown over his body, and his clothes and flesh gradually fade away till nothing but his skeleton remains, which immediately begins to dance a horrible rattling jig. The skeleton then fades away and the man is restored again.

A simple explanation is given in the Model Engineer. Between the audience and the coffin is a sheet of transparent glass, inclined at an angle so as to reflect objects located behind the scenes, but so clear as to be invisible to the audience and the man in the coffin. At the beginning the stage is lighted only from behind the glass. Hence the coffin and its occupant are seen through the glass very plainly. The lights in front of the glass (behind the scenes) are now raised very gradually as those behind the glass are turned down, until it is dark there. The perfectly black surface behind the glass now acts like the silver backing for a mirror, and the object upon which the light is now turned—in this case the skeleton—is reflected in the glass, appearing to the audience as if really occupying the stage.

The model, which requires no special skill except that of carpentry, is constructed as shown in the drawings.

The box containing the stage should be 14 in. by 7 in. by 7½ in., inside dimensions. The box need not be made of particularly good wood, as the entire interior, with the exception of the glass, figures and lights, should be colored a dull black. This can well be done by painting with a solution of lampblack in turpentine. If everything is not black, especially the joints and background near A, the illusion will be spoiled.

The glass should be the clearest possible, and must be thoroughly cleansed. Its edges should nowhere be visible, and it should be free from scratches and imperfections. The figure A should be a doll about 4 in. high, dressed in brilliant, light-colored garments. The skeleton is made of papier maché, and



Construction of the "Pepper's Ghost" Illusion

can be bought at Japanese stores. It should preferably be one with arms suspended by small spiral springs, giving a limp, loose-jointed effect. The method of causing the skeleton to dance is shown in the front view. The figure is hung from the neck by a blackened stiff wire attached to the hammer wire of an electric bell, from which the gong has been removed. When the bell works he will kick against the rear wall, and wave his arms up and down, thus giving as realistic a dance as anyone could expect from a skeleton.

The lights, L and M, should be miniature electric lamps, which can be run by three dry cells. They need to give a fairly strong light, especially L, which should have a conical tin reflector to increase its brilliancy and prevent its being reflected in the glass.

Since the stage should be some distance from the audience, to aid the illusion, the angle of the glass and the inclination of the doll, A, has been so designed that if the stage is placed on a mantle or other high shelf, the image of A will appear upright to an observer sitting in a chair some distance away, within the limits of an ordinary room. If it is desired to place the box lower down, other angles for the image and glass may be found necessary, but the proper tilt can be found readily by experiment.

The electric connections are so simple that they are not shown in the drawings. All that is necessary is a two-point switch, by which either L or M can be placed in circuit with the battery, and a press button in circuit with the bell and its cell.

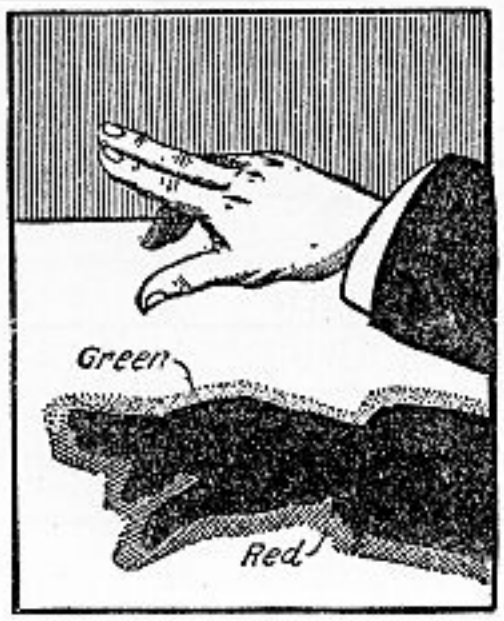
If a gradual transformation is desired, a double-pointed rheostat could be used, so that as one light dims the other increases in brilliancy, by the insertion and removal of resistance coils.

With a clear glass and a dark room this model has proved to be fully as bewildering as its prototype.

THE BOY MECHANIC - 1913

Experiment with Colored Electric Lamps

To many the following experiment may be much more easily performed than explained: Place the hand or other object in the light coming from two incandescent lamps, one red and one white, placed about a foot apart,



Two-Colored Hand

and allow the shadow to fall on a white screen such as a table-cloth. Portions of the shadow will then appear to be a bright green. A similar experiment consists in first turning on the red light for about a minute and then turning it off at the same time that the white one is turned on. The entire screen will then appear to be a vivid green for about one second, after which it assumes its normal color.

THE BOY MECHANIC - 1913

Magic Spirit Hand

The magic hand made of wax is given to the audience for examination, also a board which is suspended by four pieces of common picture-frame wire. The hand is placed upon the board and answers, by rapping, any question asked by members of the audience. The hand and the board may be examined at any time and yet the rapping can be continued, though surrounded by the audience.

The Magic Wand, London, gives the secret of this spirit hand as follows: The hand is prepared by concealing in the wrist a few soft iron plates, the wrist being afterwards bound with black velvet as shown in Fig. 1. The board is hollow, the top being made of thin veneer (Fig. 2). A small magnet, A, is connected to a small flat pocket lamp battery, B. The board is suspended by four lengths of picture-frame wire one of which, E, is connected to the battery and another, D, to the magnet. The other wires, F and G, are only holding wires. All the wires are fastened to a small ornamental switch, H, which is fitted with a connecting plug at the top. The plug can be taken out or put in as desired.

The top of the board must be made to open or slide off so that when the battery is exhausted a new one can be installed. Everything must be firmly fixed to the board and the hollow space filled in with wax, which will make the board sound solid when tapped.

In presenting the trick, the performer gives the hand and board with wires and switch for examination, keeping the plug concealed in his right hand. When receiving the board back, the plug is secretly pushed into the switch, which is held in the right hand. The hand is then placed on the board over the magnet. When the performer wishes the hand to move he pushes the plug in, which turns on the current and causes the magnet to attract the iron in the wrist, and will, therefore, make the hand rap. The switch can be made similar to an ordinary push button so the rapping

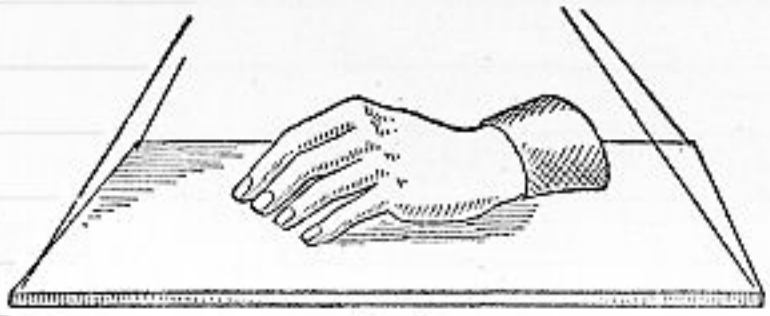


FIG. 1

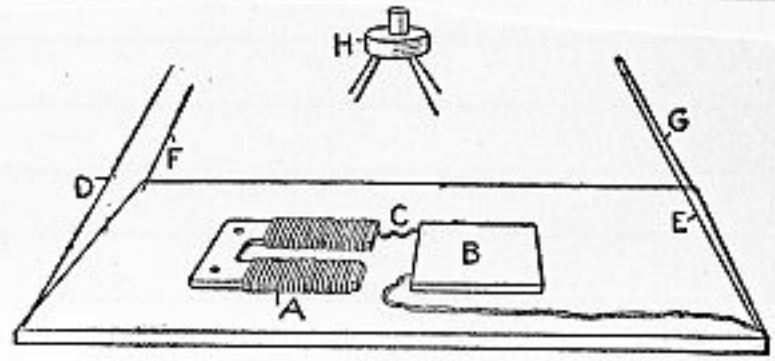


FIG. 2

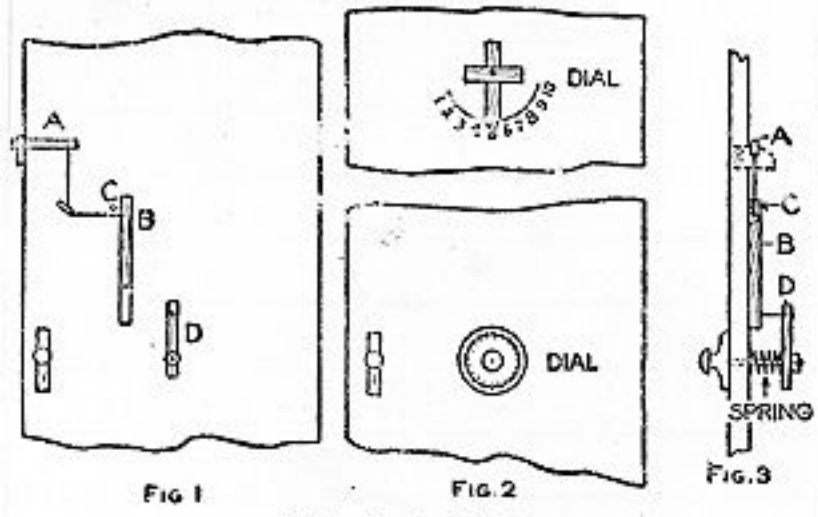
Wax Hand on Board and Electrical Connections

may be easily controlled without detection by the audience.

THE BOY MECHANIC - 1913

Secret Door Lock

The sketch shows the construction of a lock I have on a door which is quite a mystery to those who do not know how it operates. It also keeps them out. The parts of the lock on the inside of the door are shown in Fig. 1. These parts can be covered so that no one can see them.



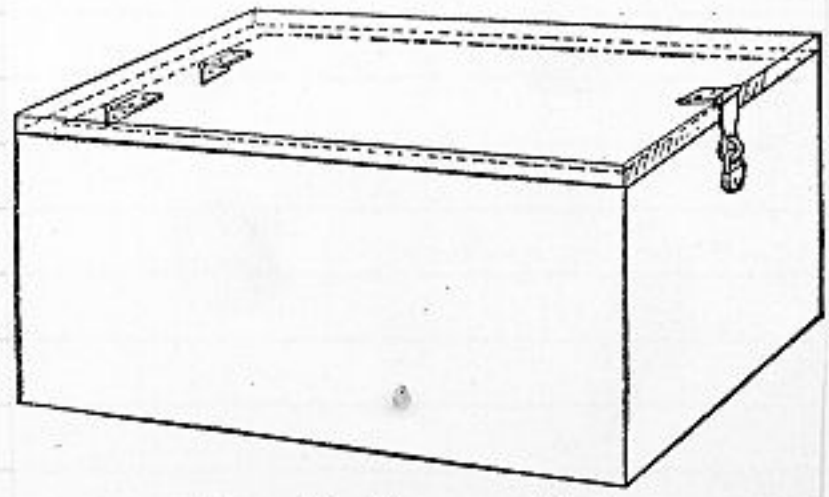
The Lock Parts

The ordinary latch and catch A are attached to the door in the usual manner. The latch is lifted with a stick of wood B, which is about 1 ft. long and 1 in. wide, and pivoted about two-thirds of the way from the top as shown. The latch A is connected to the stick B with a strong cord run through a staple to secure a right-angle pull between the pieces. A nail, C, keeps the stick B from falling over to the left. The piece of wood, D, is 6 or 8 in. long and attached to a bolt that runs through the door, the opposite end being fastened to the combination dial. Two kinds of dials are shown in Fig. 2. The piece D is fastened on the bolt an inch or two from the surface of the door to permit placing a spiral spring of medium strength in between as shown in Fig. 3. The opposite end of the bolt may be screwed into the dial, which can be made of wood, or an old safe dial will do. A nail is driven through the outer end of the piece D and the end cut off so that it will pass over the piece B when the dial is turned. When the dial is pulled out slightly and then turned toward the right, the nail will catch on the piece B and open the latch.—Contributed by Geo. Goodbrod, Union, Ore.

THE BOY MECHANIC - 1913

Magic-Box Escape

The things required to make this trick are a heavy packing box with cover, one pair of special hinges, one or two hasps for as many padlocks and a small buttonhook, says the Sphinx. The hinges must be the kind for attaching inside of the box. If ordinary butts are used, the cover of the box



Box with Hinges and Lock

must be cut as much short as the thickness of the end board. The hinges should have pins that will slip easily through the parts.

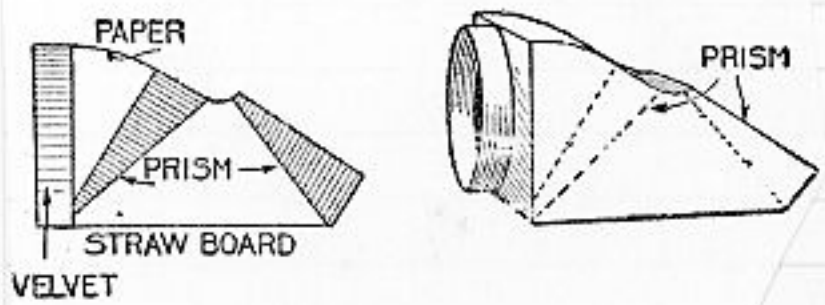
Before entering the box the performer conceals the buttonhook on his person, and as soon as the cover is closed and locked, and the box placed in a cabinet or behind a screen, he pushes the pin or bolt of the hinge out far enough to engage the knob end with the buttonhook which is used to pull the pin from the hinge. Both hinges are treated in this manner and the cover pushed up, allowing the performer to get out and unlock the padlocks with a duplicate key. The bolts are replaced in the hinges, the box

relocked and the performer steps out in view.

THE BOY MECHANIC - 1913

How to Make "Freak" Photographs

The "freak" pictures of well-known people which were used by some daily newspapers recently made everybody wonder how the distorted photographs were made. A writer in Camera Craft gives the secret, which proves to be easy of execution. The distortion is accomplished by the use of prisms, as follows: Secure from an optician or leaded-glass establishment, two glass prisms, slightly wider than the lens mount. The flatter they are the less they will distort. About 20 deg. is a satisfactory angle. Secure them as shown by the sectional sketch, using strawboard and black paper. Then make a ring to fit over the lens mount and connect it with the prisms in such a way as to exclude all light from the camera except that which passes through the face of the prisms. The inner surface of this hood must be



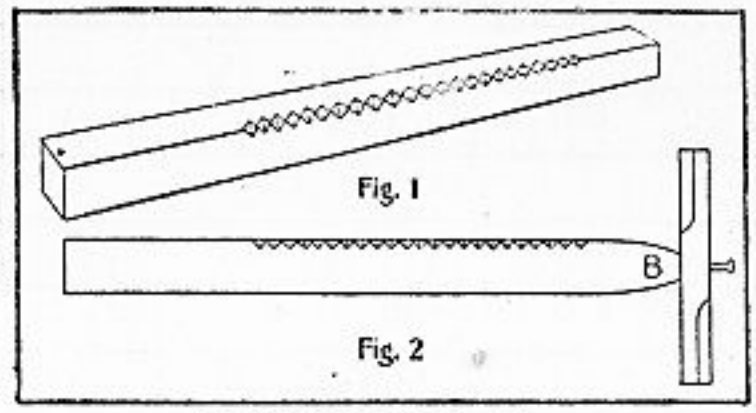
Arrangement of Prisms

dull black. The paper which comes around plates answers nicely. If the ring which slips over the lens mount is lined with black velvet, it will exclude all light and hold firmly to the mount. Place over lens, stop down well after focusing, and proceed as for any picture.

A Skidoo-Skidee Trick

THE BOY MECHANIC - 1913

In a recent issue of Popular Mechanics an article on "The Turning Card Puzzle" was described and illustrated. Outside of the scientific side involved, herein I describe a much better trick. About the time when the expression "skidoo" first began to be used I invented the following trick and



How to Cut the Notches

called it "Skidoo" and "Skidee," which created much merriment. Unless the trick is thoroughly understood, for some it will turn one way, for others the opposite way, while for others it will not revolve at all. One person whom I now recall became red in the face by shouting skidoo and skidee at it, but the thing would not move at all, and he finally from vexation threw the trick into the fire and a new one had to be made. Very few can make it turn both ways at will, and therein is the trick.

Take a piece of hardwood $\frac{3}{8}$ in. square and about 9 in. long. On one of the edges cut a series of notches as indicated in Fig. 1. Then slightly taper the end marked B until it is nicely rounded as shown in Fig. 2. Next make an arm of a two-arm windmill such as boys make. Make a hole through the center of this one arm. Enlarge the hole slightly, enough to allow a common pin to hold the arm to the end B and not interfere with the revolving arm. Two or three of these arms may have to be made before one is secured that is of the exact proportions to catch the vibrations right.

To operate the trick, grip the stick

firmly in one hand, and with the forward and backward motion of the other allow the first finger to slide along the top edge, the second finger along the side, and the thumb nail will then vibrate along the notches, thus making the arm revolve in one direction. To make the arm revolve in the opposite direction—keep the hand moving all the time, so the observer will not detect the change which the hand makes—allow the first finger to slide along the top, as in the other movement, the thumb and second finger changing places: e. g., in the first movement you scratch the notches with the thumb nail while the hand is going from the body, and in the second movement you scratch the notches with the nail of the second finger when the second finger when the hand is coming toward the body, thus producing two different vibrations. In order to make it work perfectly (?) you must of course say "skidoo" when you begin the first movement, and then, no matter how fast the little arm is revolving when changed to the second movement, you must say "skidee" and the arm will immediately stop and begin revolving in the opposite direction. By using the magic words the little arm will obey your commands instantly and your audience will be mystified. If any of your audience presume to dispute, or think they can do the same, let them try it. You will no doubt be accused of blowing or drawing in your breath, and many other things in order to make the arm operate. At least it is amusing. Try it and see.

Scientific Explanation of a Toy

THE BOY MECHANIC - 1913

In a recent issue of Popular Mechanics an article on "The Turning Card Puzzle" was described and illustrated. Outside of the scientific side involved, herein I describe a much better trick. About the time when the expression "skidoo" first began to be used I invented the following trick and called it "Skidoo" and "Skidee," which created much merriment. Unless the trick is thoroughly understood, for some it will turn one way, for others the opposite way, while for others it will not revolve at all. One person whom I now recall became red in the face by shouting skidoo and skidee at it, but the thing would not move at all, and he finally, from vexation, threw the trick into the fire and a new one had to be made. Very few can make it turn both ways at will, and therein is the trick.

Take a piece of hardwood ⅜ in. square and about 9 in. long. On one of the edges cut a series of notches as indicated in Fig 1. Then slightly taper the end marked B until it is nicely rounded as shown in Fig. 2. Next make an arm of a two-arm windmill such as boys make. Make a hole through the center of this one arm. Enlarge the hole slightly, enough to allow a common pin to hold the arm to the end B and not interfere with the revolving arm. Two or three of these arms may have to be made before one is secured that is of the exact proportions to catch the vibrations right.

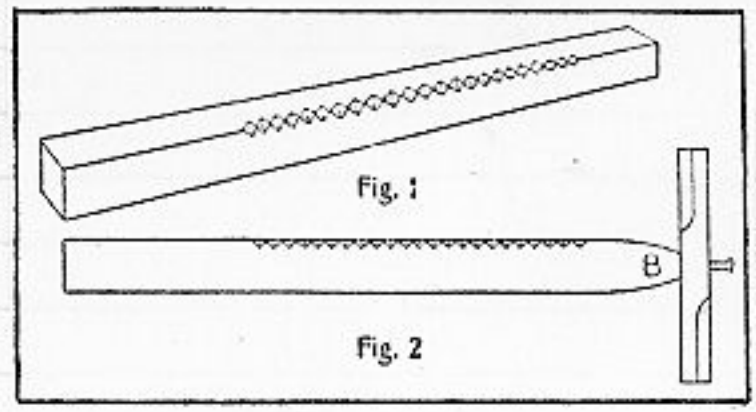


Fig. 1

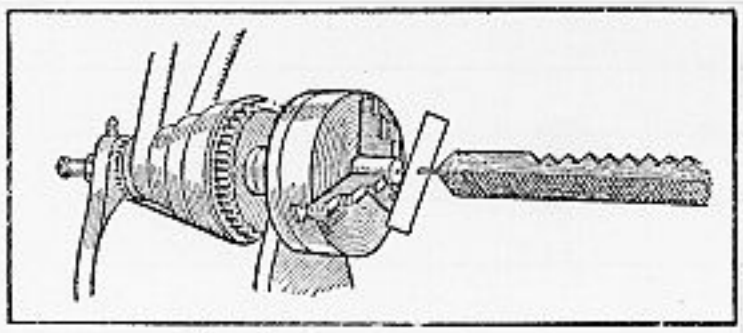
Fig. 2

How to Cut the Notches

To operate the trick, grip the stick firmly in one hand, and with the forward and backward motion of the other allow the first finger to slide along the top edge, the second finger along the side, and the thumb nail will then vibrate along the notches, thus making the arm revolve in one direction. To make the arm revolve in the opposite direction—keep the hand moving all the time, so the observer will not detect the change which the hand makes—allow the first finger to slide along the top, as in the other movement, the thumb and second finger changing places: e. g., in the first movement you scratch the notches with the thumb nail while the hand is going from the body, and in the second movement you scratch the notches with the nail of the second finger when the hand is coming toward the body, thus producing two different vibrations. In order to make it work perfectly (?) you must of course say "skidoo" when you begin the first movement, and then, no matter how fast the little arm is revolving when changed to the second movement, you must say "skidee" and the arm will immediately stop and begin revolving in the opposite direction. By using the magic words the little arm will obey your commands instantly and your audience will be mystified. If any of your audience presume to dispute, or think they can do the same, let them try it. You will no doubt be accused of blowing or drawing in your breath, and many other things in order to make the arm operate. At least it is amusing. Try it and see.—Contributed by Charles Clement Bradley, Toledo, Ohio.

The foregoing article describing the "Skidoo-Skidee Trick" appeared in a recent issue of Popular Mechanics. I have been told that a similar arrangement is used by a tribe of Indians in the state of Washington, by the Hincircular motion is sufficient to produce the result and, secondly, that such motion can be produced by the given movements of the hands.

6. A piece of brass rod was clamped in the chuck of a lathe, and a depression made in the end slightly eccentric, by means of a center punch. If the end of the pin is inserted in this depression,



The Lathe Experiment

while the hand holding the other end of the stick is kept as nearly as possible in the axis of the lathe, rotation of the lathe will produce rotation of the revolving piece. Speeds between 700 and 1,100 r. p. m. gave the best results.

7. A tiny mirror was attached to the end of the pin, and the hand held in the sunlight so that a spot of sunlight was reflected upon the wall. The notches were then rubbed in the usual way. The spot of light upon the wall moved in a way which disclosed two components of motion, one circular and one due to the irregular movements of the hand holding the stick. Usually the orbit was too irregular to show a continuous and closed circular path, but at times the circular motion became very pronounced. It was observed and the direction of rotation correctly stated by a man who was unaware of the source of the motion.

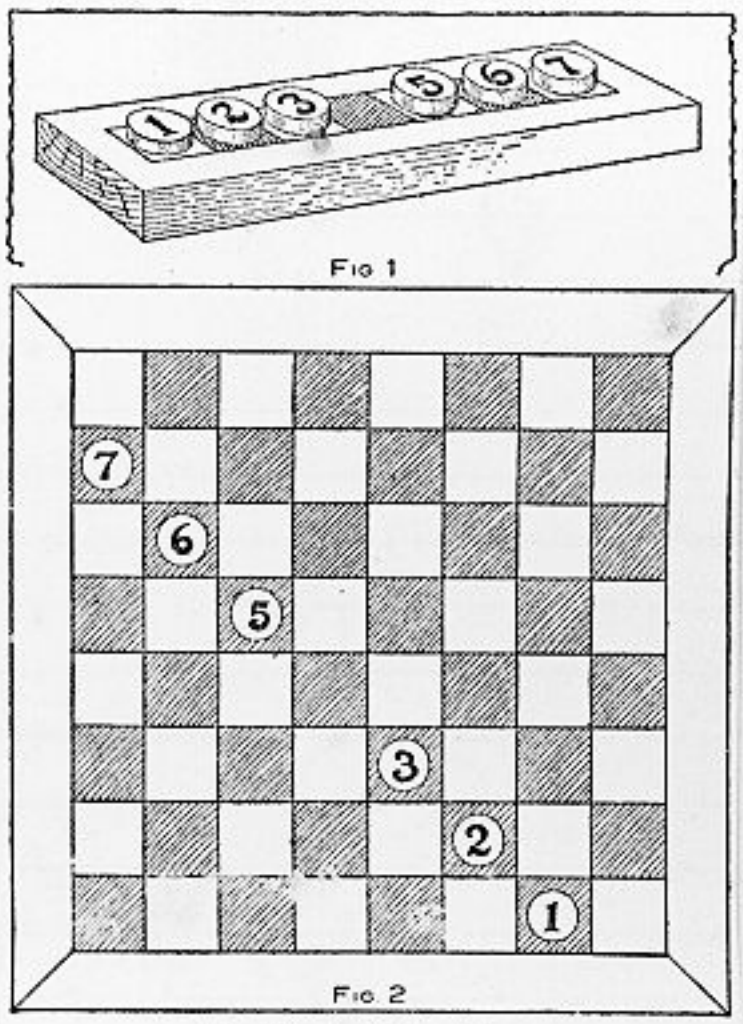
The production of the circular motion can be explained in this way: When the rubbing nail comes to a notch the release of pressure sends the stick upward; this upward motion against the oblique pressure upon the (say) right hand side gives also a lateral component of motion towards the left. As the nail strikes the opposite side of the notch the stick is knocked down again, this motion relieves somewhat the oblique pressure from the right hand side, and the reaction from the holding (left) hand moves the stick to the right slightly, so that it is back in the old position for the next upward motion. Thus a circular or elliptic motion is repeated for each notch, and the direction of this motion is the same whether the nail be rubbed forward or back. For oblique side pressure from the right (notches assumed upward), the motion of the stick and hence of the revolving piece will be counter-clockwise; if the pressure is from the left, it will be clockwise.

That the motion of the revolving piece is due to a swinging action, and not to friction of the pin in the hole, is proved by experiments 3 and 4.—Contributed by M. G. Lloyd, Ph.D., Washington, D. C.

A Checker Puzzle

THE BOY MECHANIC - 1913

Cut a block from a board about 3 in. wide and 10 in. long. Sandpaper all the surfaces and round the edges slightly. Mark out seven 1-in. squares on the surface to be used for the top and color the squares alternately white and black. Make six men by sawing a curtain roller into pieces about $\frac{3}{8}$ in. thick. Number the pieces 1, 2, 3, 5, 6 and 7, and place them as shown in Fig. 1. The puzzle is to make the first three change places with the last three and



Position of the Men

move only one at a time. This may be done as follows:

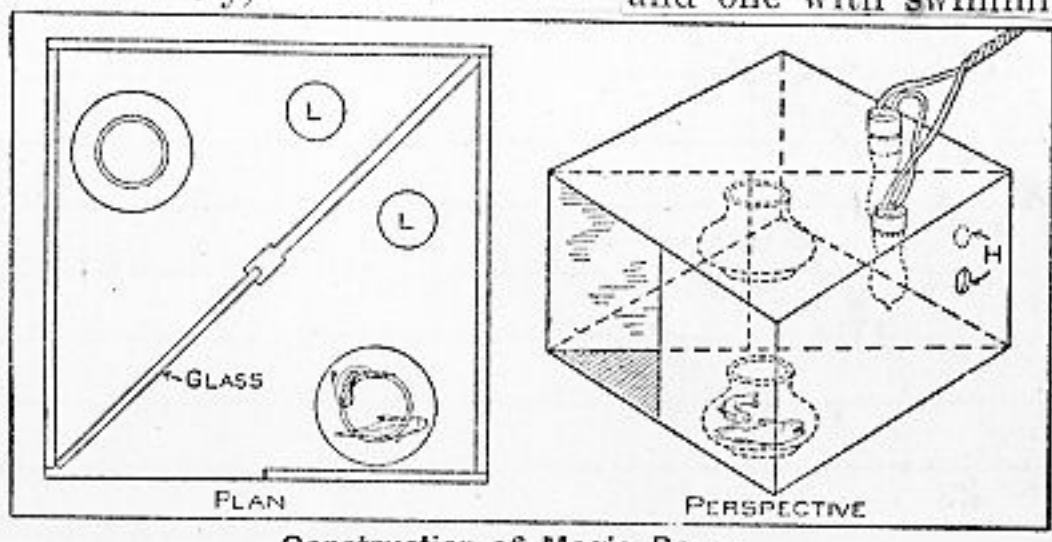
Move 1—Move No. 3 to the center.
Move 2—Jump No. 5 over No. 3.
Move 3—Move No. 6 to No. 5's place.
Move 4—Jump No. 3 over No. 6.
Move 5—Jump No. 2 over No. 5.
Move 6—Move No. 1 to No. 2's place.
Move 7—Jump No. 5 over No. 1.
Move 8—Jump No. 6 over No. 2.
Move 9—Jump No. 7 over No. 3.
Move 10—Move No. 3 into No. 7's place.
Move 11—Jump No. 2 over No. 7.
Move 12—Jump No. 1 over No. 6.
Move 13—Move No. 6 into No. 2's place.
Move 14—Jump No. 7 over No. 1.
Move 15—Move No. 1 into No. 5's place.

After the 15 moves are made the men will have changed places. This can be done on a checker board, as shown in Fig. 2, using checkers for men, but be sure you so situate the men that they will occupy a row containing only 7 spaces.—Contributed by W. L. Woolson, Cape May Point, N. J.

AN ELECTRIC ILLUSION BOX

THE BOY MECHANIC - 1913

The accompanying engravings show a most interesting form of electrically operated illusion consisting of a box divided diagonally and each division alternately lighted with an electric lamp. By means of an automatic thermostat arranged in the lamp circuit causing the lamps to light successively, an aquarium apparently without fish one moment is in the next instant swarming with live gold fish; an empty vase viewed through the opening in the box suddenly is filled with flowers, or an empty cigar box is seen and immediately is filled with cigars.

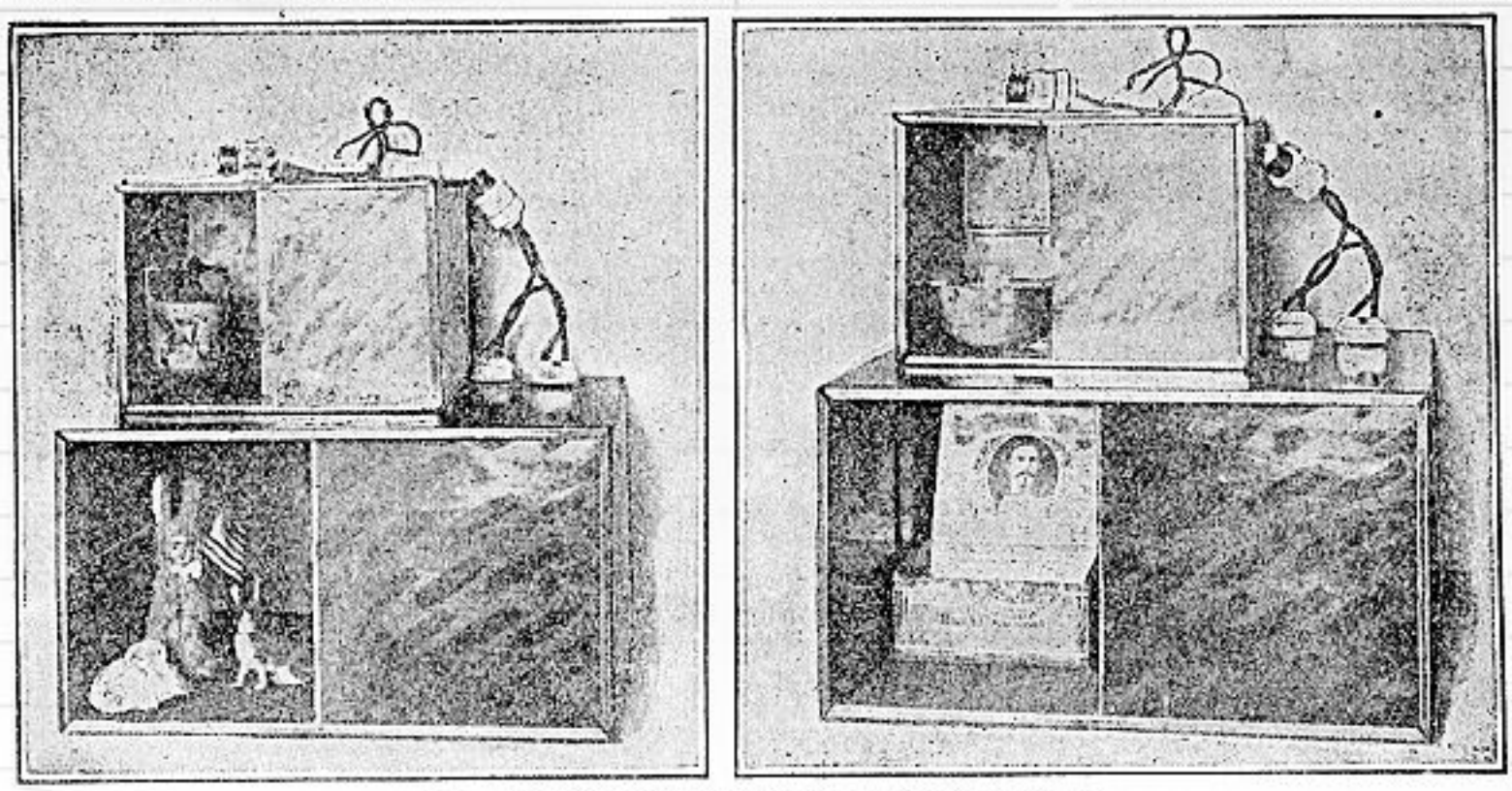


Construction of Magic Boxes

These electric magic boxes as shown are made of metal and oxidized copper finished, but for ordinary use they can be made of wood in the same shape and size. The upper magic boxes as are shown in the engraving are about 12 in. square and 8½ in. high for parlor use and the lower boxes are 18 in. square and 10½ in. high for use in window displays. There is a partition arranged diagonally in the box as shown in the plan view, which completely divides the box into two parts. One-half the partition is fitted with a plain, clear glass as shown. The partition and interior of the box are rendered non-reflecting by painting with a dull, not shiny, black color. When making of wood, a door must be provided on the side or rear to make changes of exhibits. If the box is made large enough, or in the larger size mentioned, openings may be made in the bottom for this purpose, and also used in case of performing the magic trick of allowing two persons to place their heads in the box and change from one to the other.

The electric globes are inserted as shown at LL through the top of the box, one in each division. When the rear part is illuminated, any article arranged within that part will be visible to the spectator looking into the box through the front opening, but when the front part is illuminated, and the back left dark, any article placed therein will be reflected in the glass, which takes the same position to the observer as the one in the rear. Thus a plain aquarium is set in the rear part and one with swimming fish placed in the front, and with the proper illumination one is changed, as it appears, into the other. When using as a window display, place the goods in one part and the price in the other. Many other changes can be made at the will of the operator.

Electric lamps may be controlled by various means to produce different effects. Lamps may be connected in



Four Electric Magic Boxes Complete for Use

parallel and each turned on or off by means of a hand-operated switch or the button on the lamp socket, or if desired a hand-operated adjustable resistance may be included in the circuit of each lamp for gradually causing the object to fade away or reappear slowly.

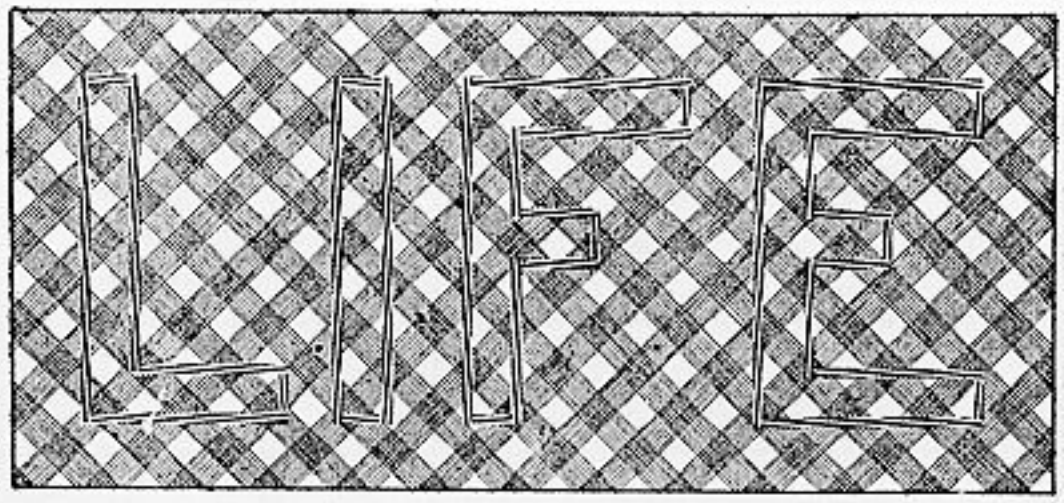
Instead of changing the current operated by hand, this may be done automatically by connecting the lamps in parallel on the lighting circuit and each connected in series with a thermostatic switch plug provided with a heating coil which operates to automatically open and close the circuit through the respective lamp.

When there is no electric current available, matches or candles may be used and inserted through the holes H, as shown in the sketch, alternately.

An Optical Illusion

THE BOY MECHANIC - 1913

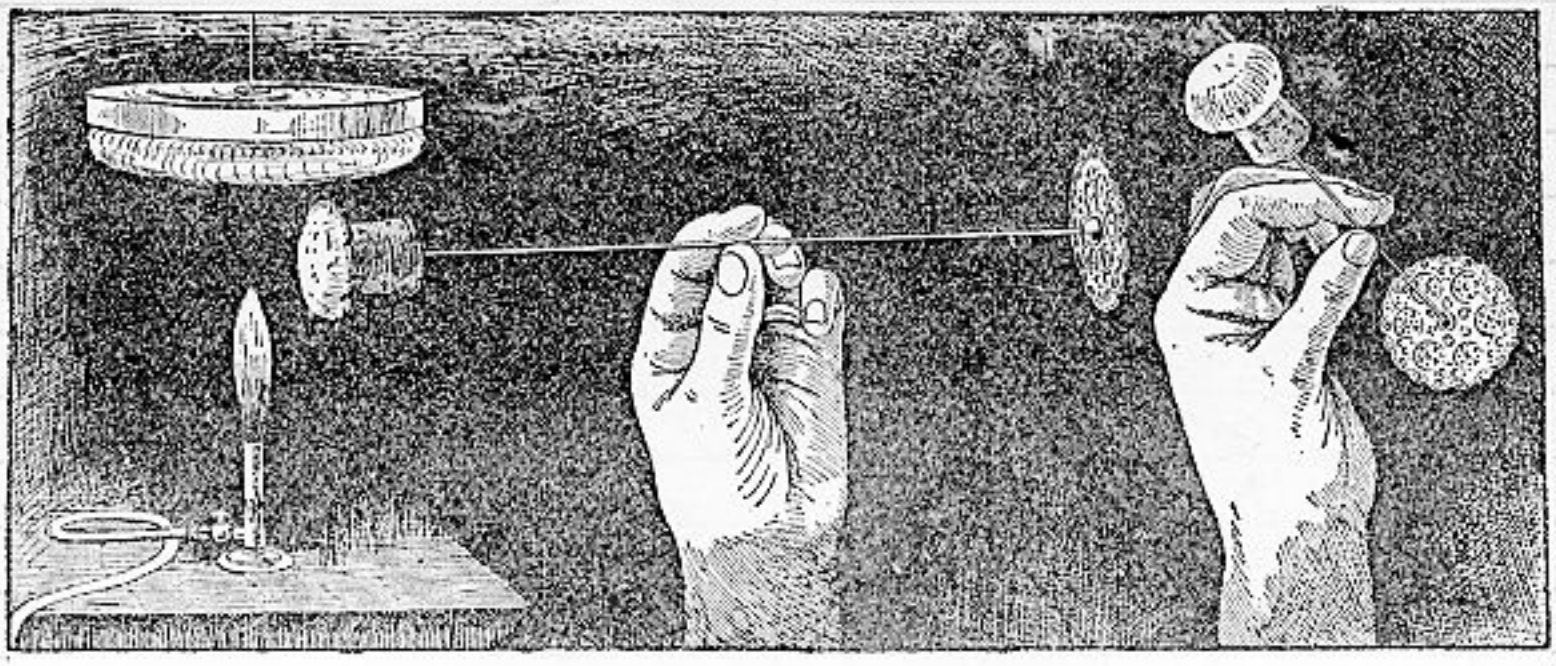
When looking at the accompanying sketch you will say that the letters are alternately inclined to the right and left. They are not so and can be proved by measuring the distance of the top and bottom of any vertical strokes from the edge of the entire block. They will be found to be exactly the same distance. Or take any of the horizontal strokes of the four letters and see how far their extremities are from the top and bottom of the entire block. It will be found that a line joining the extremities of the strokes are strictly parallel to the top or bottom and that they are not on a slant at all. It is the slant of the numerous short lines that go to make up the letter as a whole that deceives the eye.



Optical Illusions

THE BOY MECHANIC - 1913

If a person observes fixedly for some time two balls hanging on the end of cords which are in rapid revolution, not rotation, about a vertical axis, the direction of revolution will seem to reverse.



Illusions Shown by Revolving Platinum Sponge "Pills" and Hat Pins

In some experiments two incandescent "pills" of platinum sponge, such as are used for lighting gas-burners, were hung in tiny aluminum bells from a mica vane wheel which was turned constantly and rapidly in one direction by hot air from a gas flame to keep the platinum in a glow. The inversion and reversion did not take place, as one might suppose, at the will of the observer, but was compulsory and followed regular rules. If the observer watches the rotating objects from the side, or from above or from below, the inversion takes place against his will; the condition being that the image on the retina shall be eccentric. It takes place also, however, with a change in the convergence of the optical axes, whether they are parallel to each other or more convergent. Also when the image on the retina is made less distinct by the use of a convex or concave lens, the revolution seems to reverse; further, in the case of a nearsighted person, when he removes his spectacles, inversion results every time that the image on the retina is not sharp. But even a change in the degree of indistinctness causes inversion.

The cause of this optical illusion is the same where the wings of windmills are observed in the twilight as a silhouette. It is then not a question of which is the front or the back of the wheel, but whether one of the wings or the other comes towards the observer. The experiment is made more simple by taking a hat pin with a conspicuous head, holding it firmly in a horizontal position, and putting a cork on the point. Looking at it in semi-darkness, one seems to see sometimes the head of the pin, sometimes the point towards him, when he knows which direction is right. The inversion will be continued as soon as one observes fixedly a point at the side. Here it is a question of the perception of depth or distance; and this is the same in the case of the rotating balls; the direction of seeming revolution depends on which one of them one considers to be the front one and which the rear one.

From the foregoing the following conclusion may be reached: When, in the case of a perception remitting two appearances, one fixedly observes one of these and then permits or causes change in the sharpness of the image on the retina, the other appearance asserts itself.

Spirit Photographs

THE BOY MECHANIC - 1915

Print some photographs in the usual way on printing-out paper, then fix them in a solution of 1 oz. hyposulphite of soda and 8 oz. of water, and wash them thoroughly. While the prints are still wet, immerse them in

saturated solution of bichloride of mercury. Be very careful to wash the hands and trays after using the mercury solution, as it is poisonous. When the print is placed in the mercury solution, the picture vanishes completely. Leave the prints in this bath just long enough for the image to disappear, and then wash and dry them thoroughly. Soak some clean blotting paper in the hyposulphite-of-soda solution and allow it to dry. You are now ready to perform the magic-photograph trick.

To cause the spirit photograph to appear, cut a piece of blotting paper the same size as the prepared print and moisten it, then hold the apparently blank piece of paper in contact with it. The picture will come out clear and plain, and if thoroughly washed out it will remain permanently.

THE BOY MECHANIC - 1915

A Magic String

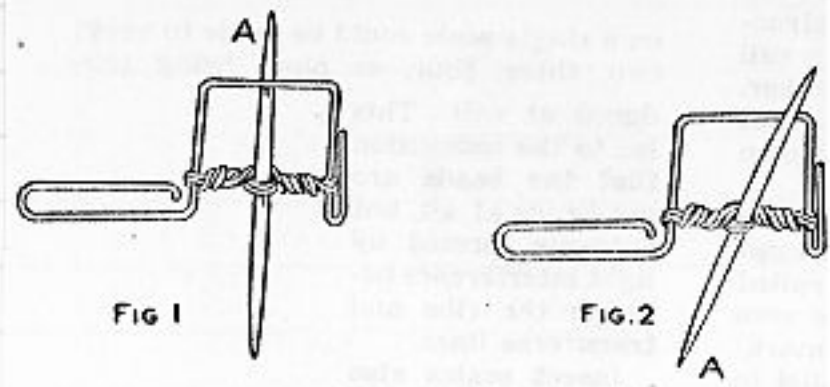
Procure a few pieces of cotton string, each about 1½ ft. long, and fill them well with soap. Prepare a brine by dissolving three tablespoonfuls of salt in a cup of water. Place the strings in the brine and allow them to soak for two hours, or longer. It is necessary that they be thoroughly saturated with the brine.

When taken out of the brine and thoroughly dried, suspend one of them from a nail on a ledge, and hang a finger ring on its lower end. Apply a lighted match to the string and allow it to burn. The ring will not fall, but will hang by the ash.—Contributed by C. Frank Carber, Dorchester, Mass.

THE BOY MECHANIC - 1915

An Optical Illusion

A very deceiving illusion can be contrived with a bit of wire, a rubber band and a toothpick. An ordinary straight hairpin will serve instead of the wire. The hairpin or wire is bent as shown in the illustration, and the rubber band then placed on the inverted U-shaped part. A toothpick is inserted through



Toothpick in Rubber Band

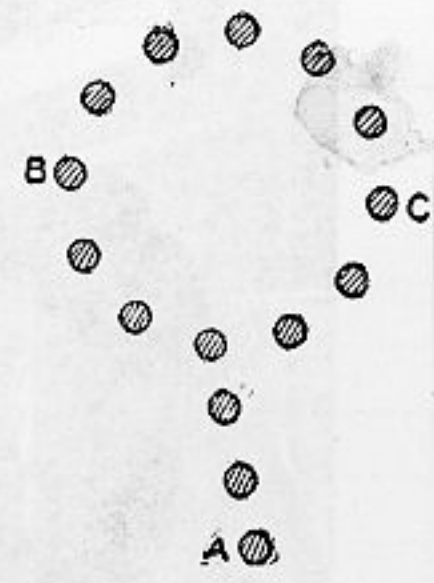
the rubber band and a few turns taken by slipping the toothpick back and forth so it will pass the wire.

Hold the wire straight in front of the eyes, and, using the forefinger of the right hand, turn the end of the toothpick A, Fig. 1, down until it almost reaches the opposite point A, Fig. 2, and let the finger slip off. It will appear as if the toothpick passed through the wire.—Contributed by H. H. Windsor, Jr.

THE BOY MECHANIC - 1915

The "Q" Trick

Lay out the form of the capital letter Q with coins on a table and ask someone in the audience to select a number and then ask that person to count up from one until the number is reached, beginning at A and stopping on the circle, for instance at B, then counting b a c k again beginning with one, but, instead of counting on the tail, pass it and go around the circle, say, to C. The performer gives these instructions to the person doing the counting. The one selecting the number must not tell the performer what the number is, and the latter is to leave the room while the



counting proceeds. The performer, before leaving the room, is to tell which coin will be the last one counted.

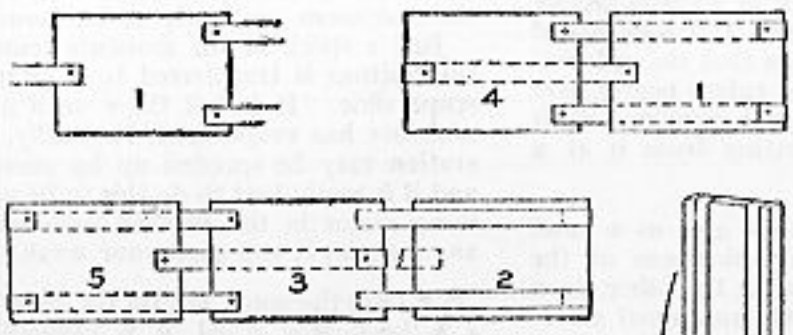
Take, for example, the number 7. Counting from A to B there are just 7 coins and counting back the last number or 7 will be at C. Try 9 for the number and the last one counted will also be C. The number of coins in the tail represents the number of coins in the circle from the intersection of the tail and circle to the last number counted. For instance, the sketch shows 4 coins in the tail, therefore the last coin counted in the circle will be at C or the fourth coin from the intersection of the tail and circle.

By slipping another coin in the tail the location of the last coin counted is changed, thereby eliminating any chance of exposing the trick by locating the same coin in the circle every time. This can be done secretly without being noticed.

How to Make Falling Blocks

THE BOY MECHANIC - 1915

Procure a thin board large enough to cut six blocks, 2 in. wide and 3 in. long; also 2 yd. of cotton tape, ¼ in.



Set of Blocks Joined with Tape So That They Appear to Fall from the Top

wide, and some very small tacks. Cut the board into pieces of the size mentioned, and number two of them on both surfaces, 1, 2, 3, and 4. Cut off three pieces of tape, 4¾ in. long, and on the side of block 1 tack one piece of tape in the center at one end, and the other two pieces at each edge on the opposite end, all being on one side of the block as shown. Take the other block and lay the side numbered 4 up, then draw the two strips of tape on the edges of block 1 under it and back to the end of the surface on block 4, and tack them on this surface at the edges as shown. The center tape is passed under block 4 and turned over the opposite end and tacked. This is clearly shown in the sketch. Thus the second block will hang from either end of block 1 by simply folding them together and separating the ends.

Mark the sides of the third block 5 and 6, and place it with the two others so that the sides numbered 2, 3, and 5 will be up. Cut off three more pieces of tape, 4¾ in. long, and tack them on as shown, being careful not to tack through any of the first three pieces. Put on the fourth block in the same manner as the third block was attached to the second, and so on, until all the blocks are attached.

Take hold of the first block on the edges and tip it as shown by the arrow. The second block will then fall as shown by the second arrow, and the third block falls away in the same manner, and so on, down to the end.

THE BOY MECHANIC - 1915

Writing Name Reversed on Paper Placed on Forehead

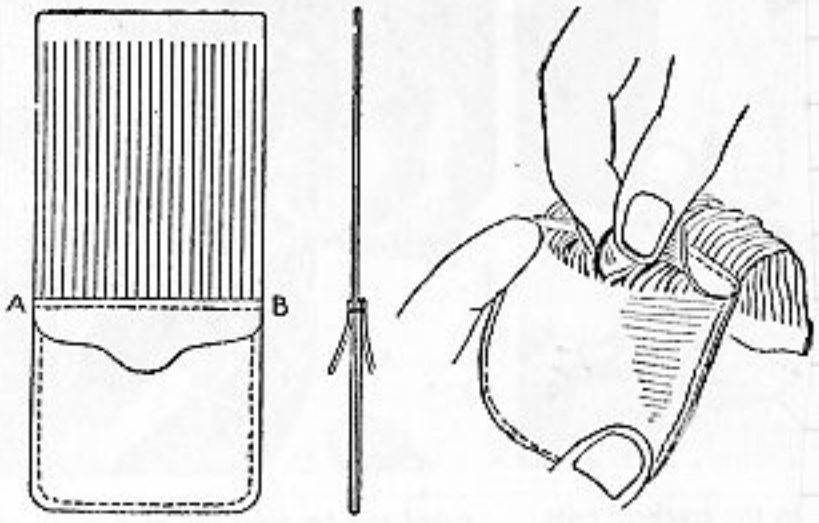
The following is an entertaining experiment in a party of young people. One of those present is asked if he can write his name, and will, of course, answer "yes." He is then subjected to the following test: He is asked to sit down in a chair, a paper, folded several times, is placed on his forehead, a lead pencil is handed him and he is asked to write his name on the paper. As little time as possible to reflect should be left him; if he hesitates, he should be told to just go ahead, and in most cases it will be found that he starts writing his name at the left temple and, to the amusement of the others present, writes it in the way of many left-

handed persons, that is, so that it is legible only when held in front of a mirror, unless one is practiced in reading reversed writing.

THE BOY MECHANIC – 1915

A Puzzle Purse

The puzzle purse is made of four pieces of chamois, two of the pieces being merely flaps, one on each side at the upper edge. One of the pieces



The Strips of Leather Sliding through the Stitches Make the Puzzle Part of the Purse

forming one side of the purse extends upward for about twice the height of the purse part. The part above the purse has a number of slits cut in it to make the width of each strip ⅛ in. These slits should be accurately cut in order that the purse may be opened easily. The other half is only the size of the purse proper. The upper edge of the latter piece and the flap on that side are stitched together to the flap on the opposite side, the threads of the stitches running between the strips of the long piece. These stitches are made on the line AB and around the edge.

To open the purse, take hold of each side on the purse part and draw the pieces apart. In doing so, the strips are drawn through the stitches so that they may be separated and a coin taken from the purse. A pull on each end will close the purse.—Contributed by Chas. Motton, Toronto, Ont.

THE BOY MECHANIC - 1915

Corks-in-a-Box Trick

Procure a pill box and a clean cork. Cut two disks from the cork to fit in the box, and fasten one of the pieces centrally to the inside bottom of the pill box with glue.

To perform the trick, put the loose disk in with the one that is fast, and then open the box to show both corks. Close the box and in doing so turn it over, then open and only one cork will be seen. Be careful not to show the inside of the other part of the box with the cork that is fastened.—Contributed by Fred B. Spoolstra, Yonkers, N. Y.

THE BOY MECHANIC - 1915

A Dissolving Coin Trick

This is a very simple and effective trick. The articles required to perform the trick are, a glass of water, a silver dollar, a handkerchief and a watch crystal, or round piece of glass, the size of a silver dollar. Conceal the crystal in the palm of the hand and show the audience the dollar. Hold the handkerchief in one hand and place the hand holding the silver dollar and crystal under it so that the crystal can be grasped by the hand holding the handkerchief. Remove the dollar by holding it in the palm of the hand and slip it, unobserved, into a pocket.

Ask some one in the audience to hold the handkerchief with the inclosed crystal and ask him to let it drop into the glass of water as the handkerchief covers both. The falling glass can be heard, but upon removing the handkerchief nothing can be seen of the dollar or watch crystal. The circular glass disk cannot be seen in the water. —Contributed by Albert Biery, Spokane, Wash.

THE BOY MECHANIC - 1915

Trick Bottles and Glasses

By GEORGE W. CATLIN



Under Each Cover Used Is a Bottle and Glass, and by Pinching the Cover the Bottle is Made to Rise with It, Thus Leaving the Glass in View

The performer presents to his audience two pasteboard covers, one bottle and one glass. Saying that he wishes to secure the safety of the bottle and glass, he places covers over them, cautioning the audience to note carefully which cover incloses the glass and which the bottle. Then he says that, to prevent any misunderstanding as to their positions, it is desired the audience designate which cover holds the glass. The response will be unanimous, "the left" or "the right" as the case may be, but on raising that cover the bottle is exposed. Covering the bottle again, and asking the audience if they were quite sure that their eyes did not deceive them, he states that the glass is really under the cover just lifted and returned to its place. To prove it, the cover is lifted again, to show the glass this time. The changing can be done as often as desired, or will amuse the crowd.

The secret of the trick consists in the use of two covers, two bottles and two glasses, and the manner of performing it is as follows: The bottles are bottomless and of such size as to admit the glass without sticking. A round hole is cut in one side of each bottle, about 2½ in. above the bottom. This can be accomplished in a drill press by using a round copper tube, with fine emery applied to its end, as a drill. The hole should be so placed that a finger will strike the top of the glass when both bottle and glass are set on the same surface. If dark-colored bottles are used, a false bottom can be made and fitted in each bottle above the upper edge of the glass. This bottom can be cemented in place and made liquid-tight, so that some wine may be placed in the bottle and poured into the opposite glass to show that it holds liquid. In doing this part of the trick, make no more changes with the wine in one glass.

Under each cover is a bottle and tumbler, and by pinching the cover, the bottle is made to rise with it, thus leaving the tumbler in view. When it is necessary to show the bottle, just raise the cover, and the bottle covers the glass. When the bottle is lifted

from the table, the thumb is inserted in the hole to press the tumbler against the opposite side, where it is held and raised with the bottle. Be sure to keep the side of the bottles with the hole back and away from the audience.

It will be seen that it matters not which cover is mentioned; the performer can show just the article he desires.

THE BOY MECHANIC - 1915

A Ring Trick

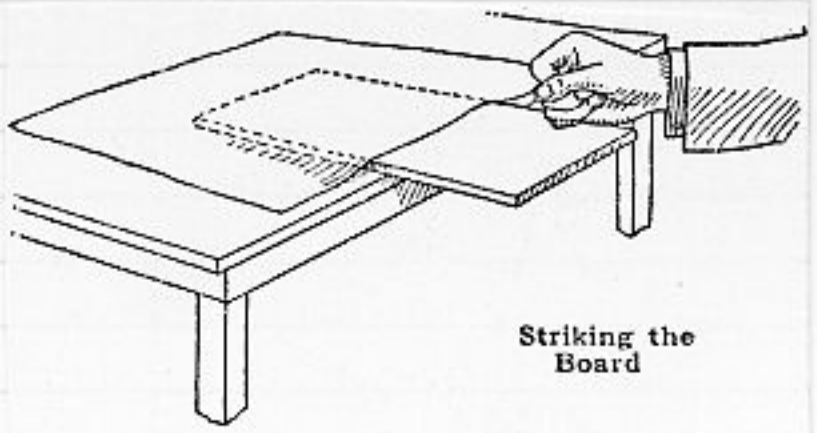
The trick to be described is one of the simplest and at the same time one of the most effective, and but little "make-ready" is required to perform it. The magician, while sitting in a chair, allows his hands to be tied together behind the back of the chair. A ring is placed between his lips which he claims to be able to slip on his finger without untying his hands. This, to the audience, seems practically impossible, but it is easily accomplished.

A screen is placed in front of the performer before the trick is started, so that the audience will not see how it is done. As soon as he is hidden from view, he tilts his head forward and drops the ring in his lap. He then allows the ring to drop to the seat of the chair between his legs. The chair is tilted backward slightly, and he raises himself to allow the ring to slip to the back part of the chair seat, where he catches it in his hands and slips it on the finger. Any one finger may be mentioned, as he can slip the ring as readily on one as on another. Use a leather-bottom chair, if possible, as the least noise will then be made when the ring is dropped.—Contributed by Abner B. Shaw, N. Dartmouth, Massachusetts.

THE BOY MECHANIC - 1915

An Interesting Experiment

Take an ordinary board, 2 or 3 ft. long, such as a bread board, and place it on the table so that about one-third



Striking the Board

of its length will project over the edge. Unfold a newspaper and lay it on the table over the board as shown in the sketch. Anyone not familiar with the experiment would suppose the board could be knocked off by hitting it on the outer end. It would appear to be easy to do, but try it. Unless you are prepared to break the board you will probably not be able to knock the board off.

The reason is that when the board is struck it forces the other end up and the newspaper along with it. This causes a momentary vacuum to be formed under the paper, and the pressure of the air above, which is about 15 lb. to the square inch, prevents the board from coming up. This is an entertaining trick to play at an evening party, and also makes a simple and interesting school experiment.

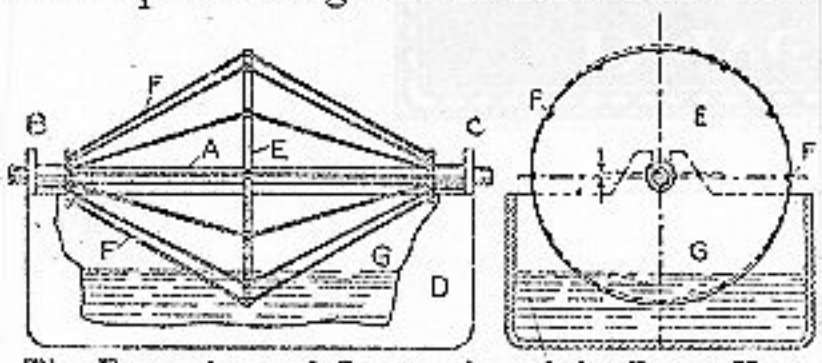
THE BOY MECHANIC - 1915

Revolving Shaft without Power

The device illustrated seems paradoxical for it apparently works without any power being applied to it, making from two to three revolutions per hour, which, though slow, is nevertheless motion, requiring energy.

The shaft A is supported on the edges, in the bearings B and C, of a tank, D. A disk, E, having a central hole larger in diameter than the shaft, is located at the middle of the latter. The disk is supported by 12 or more cotton ropes, F. The tank is filled to the level G with water. The lower ropes, being immersed in the water, shrink and lift the disk slightly above the center in the position of an eccen-

tric, as shown by the dotted lines in the sketch. The center of gravity of the disk in this position, being higher and slightly to one side of the shaft, the disk has a tendency to turn around. The motion drives the next rope into the water where it becomes soaked and shrinkage takes place again, lifting the disk to a higher position, while the rope coming out of the water dries



The Expansion and Contraction of the Ropes Keep the Disk Up and to One Side of the Center

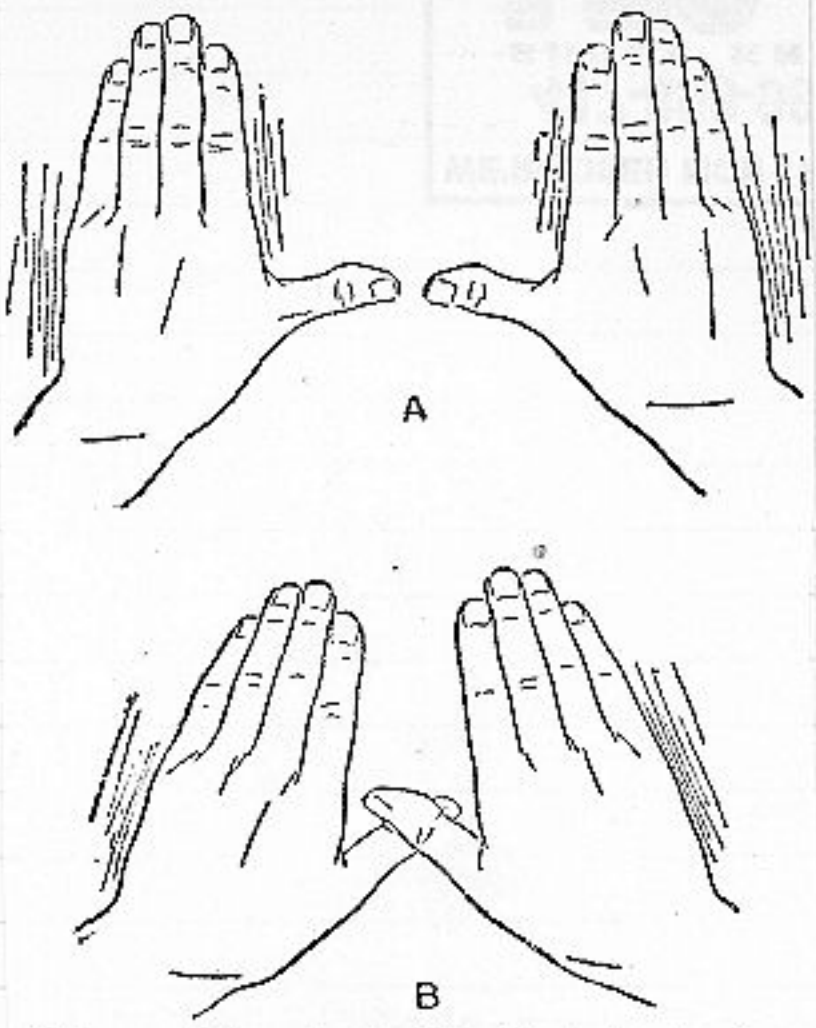
out. The ropes emerging from the water but not yet thoroughly dry cause the upper part of the disk to be in an eccentric position laterally with reference to the center of the shaft, thus causing the center of gravity to be not only above but also slightly to one side.—Contributed by Charles Roberts, Brooklyn, N. Y.

Tricks Performed with Thumbs Tied Together

THE BOY MECHANIC - 1915

To have one's thumbs securely tied together by any person in an audience and examined by the spectators, then have some one throw a hoop or bicycle rim on one of the performer's arms as if the thumbs were not tied, seems impossible, yet this trick can be done, and its simplicity is its own protection, even though performed close to a committee selected from the audience. A stick can be held perpendicularly by anyone with one hand at each end and the performer can thrust his arms at the stick which passes between them with the thumbs apparently tied tightly together. The same effect is produced on the arm of any person, while the hands are tightly clasped, and before and after each movement the tied thumbs are examined by the committee.

The two cords used for the trick are made as follows: The first should be about 17 in. long, ¼ in. in diameter

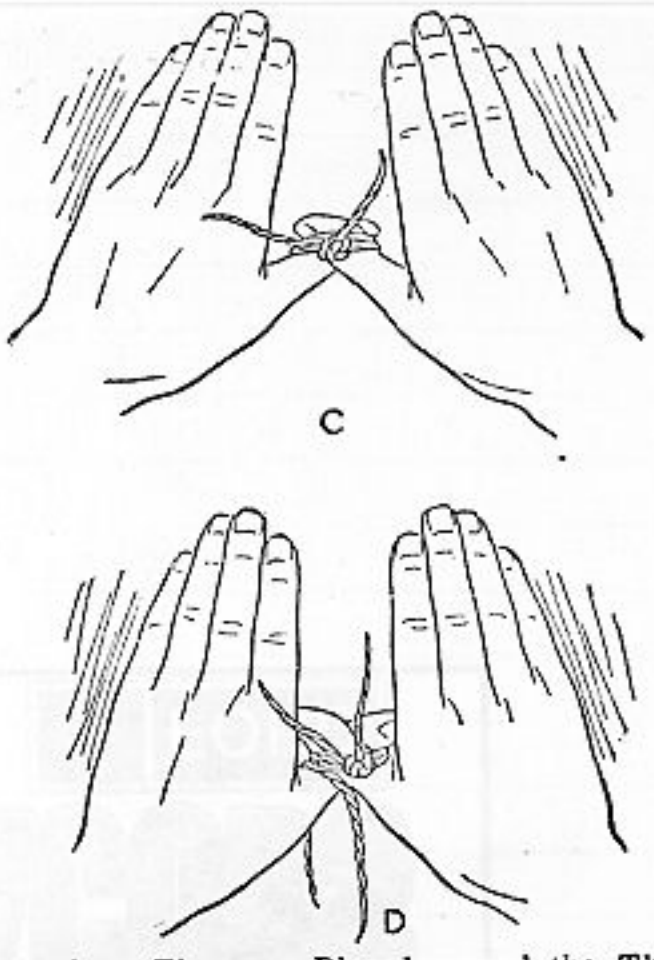


Manner of Crossing the Thumbs to Receive the Double Tie of the Cord

at its center and tapering to points at the ends. The other cord is about 13 in. long, ⅛ in. in diameter in the center and also tapering at the ends. They are constructed of Chinese or Japanese paper, which is a soft, but very tough, fibrous texture. Cut the paper into strips, 1 in. wide, taking care that the grain, or rather the fiber, runs lengthwise. Beginning at one end, twist the paper on itself at an angle as in rolling the old-fashioned paper lamp lighter. Each turn should lap over the former about half of its width. When within 3 in. of the end of the first strip apply another by moistening the joining ends and continue the twisting. When the length given is reached, break off the strip and start back over the first in the opposite direction. Lay on enough

layers to secure the diameter given. When finished, the cords should be strong enough to resist the pressure applied by the hands.

With all fingers pressed together spread both thumbs away from the hands, as shown at A. Lay the right thumb across the left as at B, the large knuckle bone of one lying directly over that of the other. The largest cord is laid over the crossing and both ends brought down, crossed under the



The Cords as They are Placed around the Thumbs and Tied in a Double Knot

thumbs, then up again, and tied in two knots on top of the right thumb, as at C. The trick in the tying is at this point. Just as the tie is being made pull the left thumb until the smallest-diameter joints reach the cord and pull down with the left hand. Push the right thumb so that the fleshy part enters as far as possible into the cords. Insist on the tie being made tightly.

The second and smaller cord is laid below the right thumb as shown at D, and on top of the left against the first cord, crossed, brought back and tied twice. When this is being done reverse the pushing and pulling as described, pushing the left thumb and pulling out on the right. Secure all the slack on the left thumb, the right being pushed into the cords at its smallest diameter and the second cord being tied high up and as near the right thumb as possible, with knots tightly drawn. If this second knot is not tight it will give trouble in performing the trick.

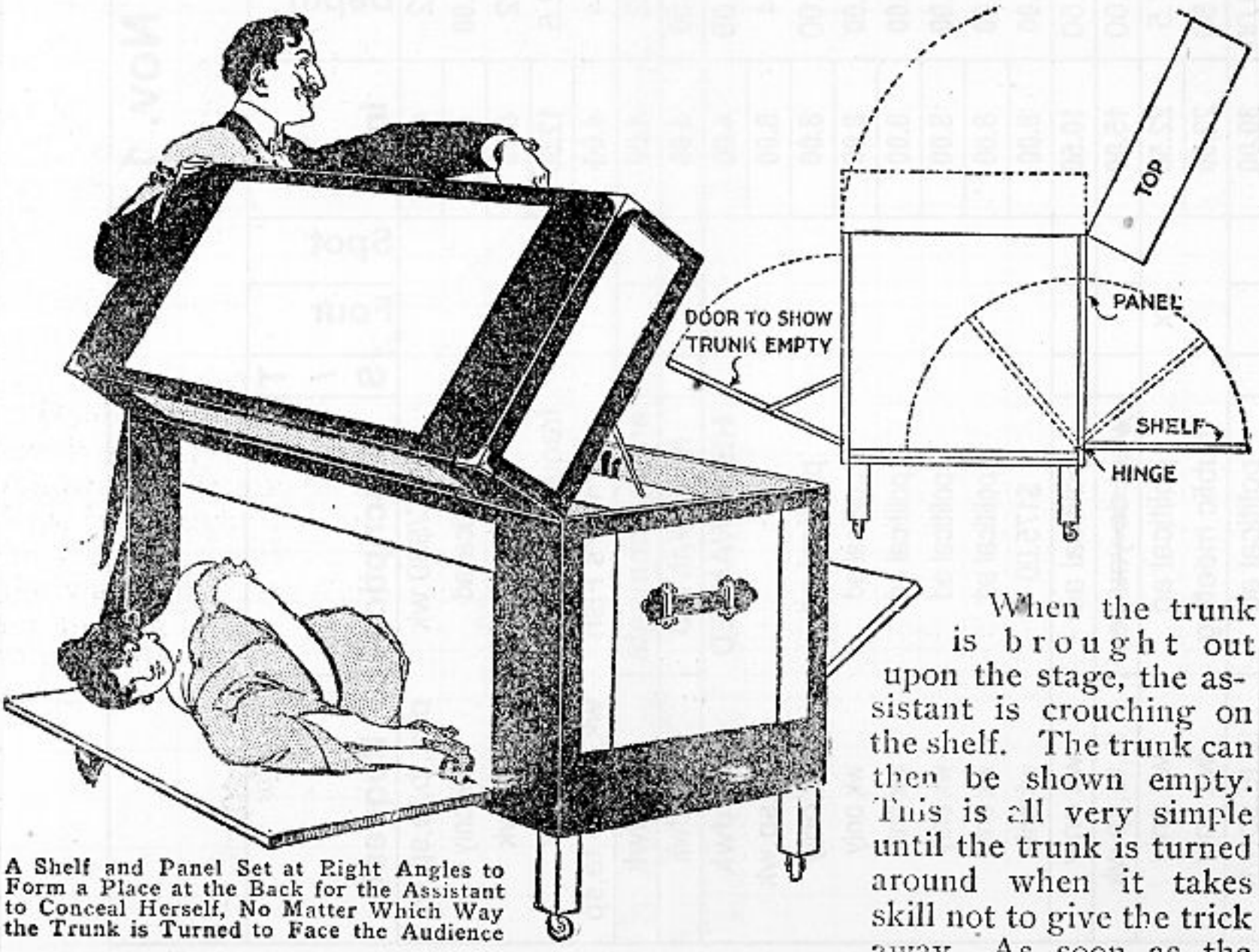
The release is made by bringing the tips of the fingers together and placing the thumbs into the palms. If the ties have been carefully made there will be no trouble to withdraw the left thumb as it is masked by the hands. The peculiar nature of the paper cord causes the loop from which the thumb was removed to remain open and rigid as a wire loop, and if the last tie was tightly drawn, the second cord will not slip down to close the loop. In approaching the hoop, stick, or arm, touch the thing to be passed with the finger tips and withdraw them, swaying backward a few times and, in the last swing before making the pass, remove the thumb from the loop. After passing, replace the thumb in the loop. In passing the object, open the finger tips, then close them and open the palms, and push the left thumb back into the loop, close the palms and apply a strain on both thumbs, then show the tie. Be careful to press both thumbs closely into the palms in passing so that they will not strike the object.

Always exhibit the tie from the back of the hands with the palms spread out. If there is any difficulty in drawing out or replacing the thumb in the loop, it is because the ties have not been properly made or tied when the thumbs were in the right place. It requires some practice to do the trick quickly.

THE BOY MECHANIC - 1915

A Trunk Mystery

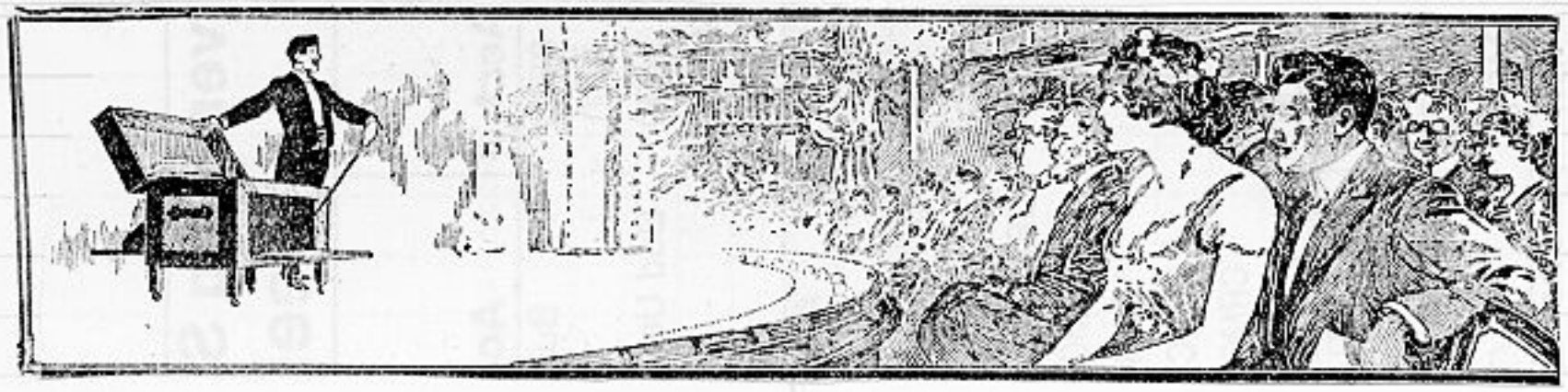
Doubtless every person has seen the trunk mystery, the effect of which is as follows: A trunk, mounted upon four legs, is brought out on the stage and proven to be empty by turning it all the way around to show that there is nothing on the back, whereupon pieces of plate glass are placed along the back, sides, and front, the trunk is closed and given a swift turn and then opened, when to the amazement of all, a lady steps out appearing to come from nowhere. The secret of this trick is very simple, and the trunk can be made up very cheaply.



A Shelf and Panel Set at Right Angles to Form a Place at the Back for the Assistant to Conceal Herself, No Matter Which Way the Trunk is Turned to Face the Audience

In the back of the trunk there is a movable panel with a shelf exactly the same size as the panel attached to its bottom, forming a right angle, the corner of which is hinged to the bottom of the trunk. The back panel can be turned in until it rests on the bottom of the trunk and, when this is done, the shelf part rises and takes its place, making the back of the trunk appear solid.

When the trunk is brought out upon the stage, the assistant is crouching on the shelf. The trunk can then be shown empty. This is all very simple until the trunk is turned around when it takes skill not to give the trick away. As soon as the performer starts to turn the trunk around, the assistant shifts her weight on the panel, thus causing it to fall inward and bring the shelf up to make the back appear solid. The assistant is now in the trunk, and the back can be shown clear of any apparatus. When the trunk is turned to the front again,



the lady repeats the previous operation in the opposite direction, thus bringing her body to the back of the trunk again.

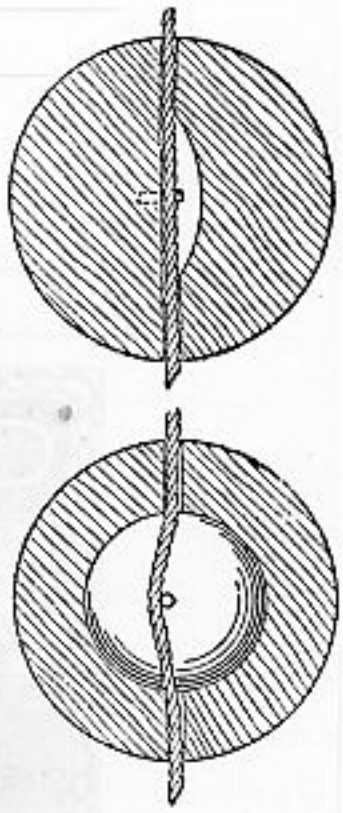
To make the trick appear more difficult, glass plates are made to insert in the ends, front and back of the trunk. In making the trunk, have the back the same size as the bottom. Fit the piece of glass for the back into a light frame, similar to a window frame. This frame is hinged to the bottom of the trunk and is ½ in. smaller all around than the back of the trunk, so that the two pieces of glass can be put in the ends and also allow the back frame and glass to fall flush in the bottom of the trunk. A few rubber bumpers are fastened in the bottom of the trunk to catch the glass without noise as it falls. The best way to work this is for the performer to let the frame down with his right hand while he is closing up the front with his left.

As soon as the trunk is closed, the assistant again shifts her weight to cause the panel to fall in and then the trunk can be turned to show the back, or whirled around and turned to the front again, then opened up, whereupon the assistant steps out, bows to the audience, and leaves the stage.

THE BOY MECHANIC - 1915

String-and-Ball Trick

The stopping of a ball on a string at any desired point is understood by almost every person, but to make one that can be worked only when the operator so desires is a mysterious trick.



Procure a wooden ball, about 2 in. in diameter, and cut it into two equal parts. Insert a small peg in the flat surface of one half, a little to one side of the center, as shown, and allow the end to project about $\frac{3}{16}$ in. The flat surface of the other half is cut out concave, as shown, to make it ½ in. deep. The two halves are then glued together, and a hole is drilled centrally on the division line for a string to pass through.

To do the trick, hold an end of the string in each hand tightly and draw it taut with the ball at the top, then slacken the string enough to allow the ball to slide down the string. To stop the ball at any point, pull the string taut.

Before handing the ball and string out for inspection, push the string from each side of the ball and turn it slightly to throw it off the peg. This will allow the string to pass freely through the ball, and it cannot be stopped at will. To replace the string reverse the operation.—Contributed by Wm. O. Swett, Chicago.

THE BOY MECHANIC - 1915

Trick of Taking Dollar Bill from Apple

A rather pleasing, yet puzzling, de-

ception is to pass a dollar bill into the interior of an examined lemon or apple. This can be accomplished in several ways, either mechanically or purely by sleight of hand. The mechanical method, of course, is the easier and really just as effective. In performing, a plate with three apples is first ex-



The Dollar Bill is Hidden in the Knife Handle That Cuts the Apple

hibited, and the audience is given choice of any one for use in the experiment. The selected one is tossed out for examination and then returned to the performer, who places it in full view of the spectators while he makes the dollar bill vanish. Taking the knife he cuts the apple into two pieces, requesting the audience to select one of them. Squeezing this piece he extracts the dollar bill therefrom. The entire secret is in the unsuspected article—the table knife.

The knife is prepared by boring out the wooden handle to make it hollow. Enough space must be made to hold a dollar bill. The knife lies on the plate with the fruit, the open end facing the performer. After the bill has been made to vanish and the examined apple returned to the entertainer, he takes it and cuts it in half. One of the halves is chosen, the performer impaling it on the end of the knife blade and holding it out to view. While still holding the knife he turns the blade downward and grasps the half apple and crushes it with a slight pass toward the knife-handle end where the bill is grasped along with the apple, which makes a perfect illusion of taking the bill out of the apple.

As to the disappearance of the dollar bill, there are many ways in which this may be accomplished. Perhaps the method requiring the least practice is to place the bill in the trousers pocket, and then show the audience that the latter is empty. This can be done by rolling the bill to small compass, and pushing it into the extreme upper corner of the pocket where it will remain undetected while the pocket is pulled out for inspection. Other combinations can be arranged with the use of the knife, which is simple to make and very inexpensive.

THE BOY MECHANIC - 1915

Mind-Reading Effect with Cards

Five cards are shown, and some one person is asked to think of two cards in the lot, after which the performer places the cards behind his back and removes any two cards, then shows the remaining three and asks if the two cards in mind have been removed. The answer is always yes, as it cannot be otherwise.

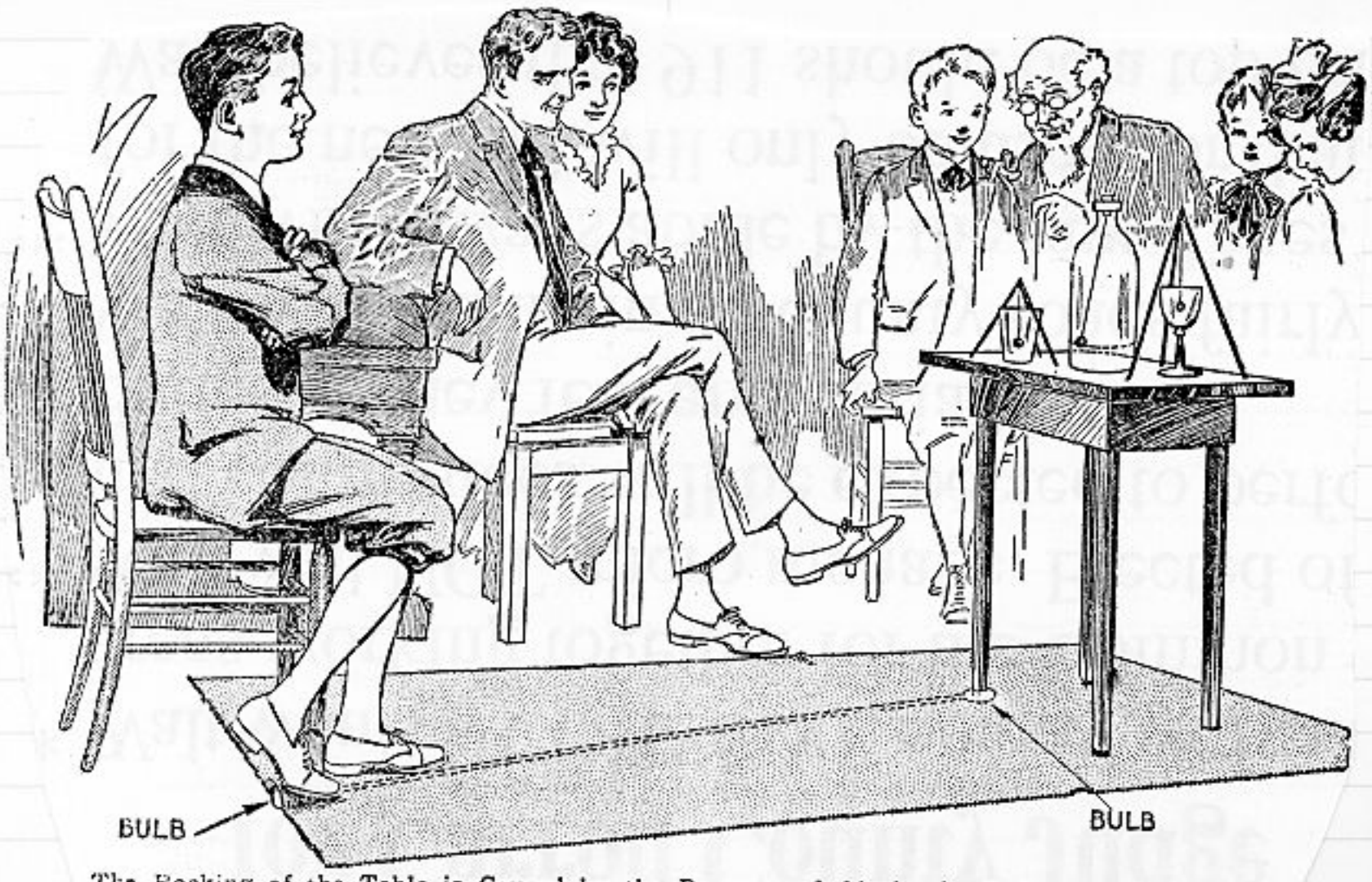
To prepare the cards, take any 10 cards from the pack and paste the back of one card to another, making five double cards. Removing any two cards behind the performer's back reduces the number of cards to three, and when these are turned over they will not have the same faces so that the ones first seen cannot be shown the second time even though all five cards were turned over and shown.

THE BOY MECHANIC - 1915

A Mystic Fortune Teller

Fortune telling by means of weights striking glasses or bottles is quite mysterious if controlled in a manner that cannot be seen by the audience. The performer can arrange two strikes for "no," and three for "yes" to answer questions. Any kind of bottles, glass, or cups may be used. In the bottles the pendulum can be suspended from the cork, and in the glasses from small tripods set on the table.

The secret of the trick is as follows: A rubber tube with a bulb attached to each end is placed under a rug, one bulb being located under one table leg and the other near the chair of the performer set at some distance from the table where it can be pressed with the foot. Some one selects a pendulum; the performer gazes intently at it, and presses the bulb under his foot lightly at first; then, by watching the swaying of the pendulum selected, he will know when to give the second impulse, and continue until the weight strikes the glass. As the pendulums are of different lengths they must necessarily swing at different rates per second. The impulses must be given at the proper time or else the pendulum will be retarded instead of increased in amplitude. A table with four legs is best to use, and the leg diagonally opposite that with the bulb beneath it must not touch the carpet or floor. This can be arranged by placing pieces of cardboard under the other two legs. ---Contributed by James J. McIntyre.



The Rocking of the Table is Caused by the Pressure of Air in the Bulb under the Foot, the Movement Causing the Pendulum to Swing and Strike the Glass

THE BOY MECHANIC - 1915

A Mystery Coin Box

The effect of this trick is as follows: A small metal box, just large enough to hold a half dollar and about ½ in. high, with a cover that fits snugly over the top, is passed out to be examined, and when handed back to the performer he places it on the finger ends

of his left hand, and a half dollar is dropped into it and the cover put on. The box is then shaken to prove that the coin is still there. The performer then taps the box with his fingers and picks it up with the other hand and the coin will appear to have fallen through the bottom. Both the coin and box are then handed out for examination.

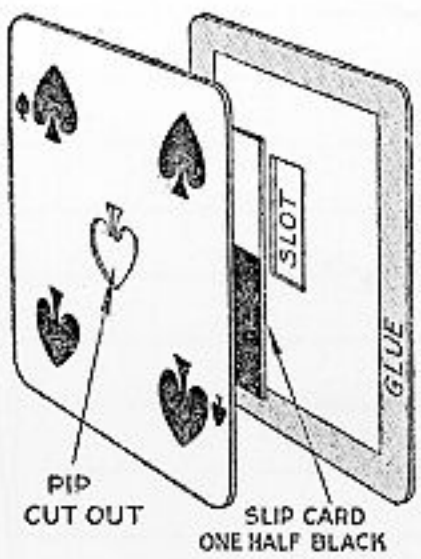
This seemingly impossible effect is made when the performer places the cover on the box. The box is resting on the fingers of the left hand and the cover is held between the thumb and forefinger of the right hand, but just before placing the cover on, the box is turned over with the right thumb, and the cover is placed on the bottom instead of the top.

The trick can be done within a foot of the spectators without their seeing the deception. It is a good plan to hide the box with the right hand when placing the cover, although this is not necessary.

THE BOY MECHANIC - 1915

Changing Pip on a Card

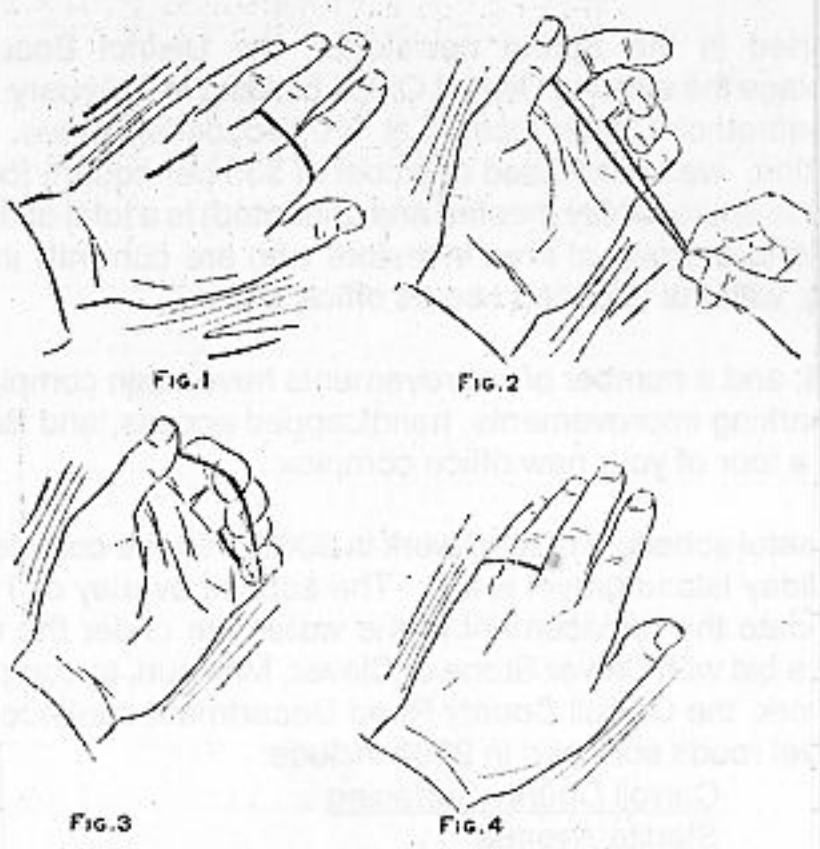
Cut out the center pip on the five-spot of spades with a sharp knife. Cut a slot centrally in another card, about ⅜ in. wide and 1¼ in. long. Glue the surfaces of both cards together near the edges to form a pocket for a slide, which is cut from another card and has one-half of its surface colored black. A drop of sealing wax attached to the back of the sliding part, so that it projects through the slot, provides a means of moving the slide in the pocket. A lightning change can be made from a five-spot to a four-spot while swinging the card.



THE BOY MECHANIC - 1915

Rubber-Band-Change Trick

The trick of changing a rubber band from the first and second fingers to the third and fourth, if done quickly, can



Transferring Rubber Band from the First Two Fingers to the Last Pair, Like Magic

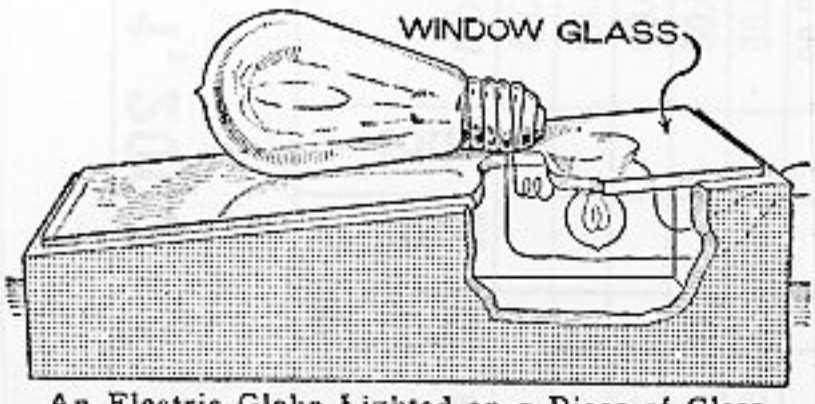
be performed without detection by any one. The band on the first two fingers is shown to the spectator as in Fig. 1, with the back of the hand up. The hand is then turned over and the band drawn out quickly, as shown in Fig. 2, in a manner as to give the impression that the band is whole and on the two fingers. While doing this, quickly fold all the fingers so that their ends enter the band, and turn the hand over and let go the band, then show the back with the fingers doubled up. In reality the fingers will be in the band, as in Fig. 3, and the back will still show the band on the first two fingers. Quickly straighten out all the fingers, and the band will snap over the last two fingers, as shown in Fig. 4.—Contributed by E. K. Marshall, Oak Park, Ill.

THE BOY MECHANIC - 1915

Wireless-Lighted Lamp Deception

Window displays of puzzling nature usually draw crowds. A lighted globe

lying on its side in full view, yet apparently not connected to any source of electricity, could easily be arranged as a window display, deceiving the closest observer. A mirror, or window glass, backed with some opaque material, should be used for the foundation of the device. For the display lamp, it is best to use a 25 or 40-watt tungsten, as these will lie flatter on the glass than the larger sizes, and the deception will not be as easily discovered. The place where the brass cap of the lamp touches the glass should be marked and a small hole drilled through to the wire connecting the tungsten filament to the plug on the top of the lamp. At any suitable place, a hole should be drilled in the glass plate, no larger than is necessary, to permit two small cotton-covered magnet wires to pass through. One of the wires should be looped, passed through the hole in the cap and hooked onto the bare wire connecting with the plug on top of lamp. The other wire should be fastened to the brass cap, near the drilled hole, after which the lamp may be placed in position and the two wires connected to a source of electricity. If proper care has been taken and no crosses occur, the lamp will light, and if the display is placed in the proper surroundings, it will prove very deceiving. To protect against a fuse blow-out from a short circuit, it is advisable to run another lamp in series with the display lamp, as shown.—Contributed by Clyde W. Epps, Mineola, Tex.



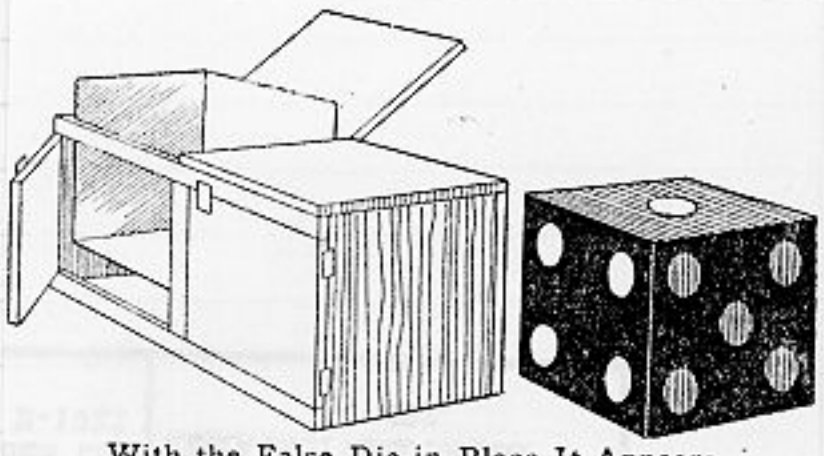
An Electric Globe Lighted on a Piece of Glass Makes a Good Window Attraction

The Die-and-Box Trick

The die-and-box trick, so often performed on the stage, is a very interesting and mystifying one. The apparatus, however, is simple, consisting of a box, die, a piece of tin in the form of three adjacent sides of the die, and a hat. The die and box are constructed entirely of wood, ⅛ in. thick, and the piece of tin can be cut from any large coffee can. The box is closed by four doors, as shown in Fig. 1, two of which are 2¾ in. square, and the others, 3⅛ in. by 3¼ in. The first two are the front doors and are preferably hinged with cloth to the two uprights A and B. Small pieces of tin are fastened on the doors at C and D, to provide a means to open them. The other doors are placed on top and are hinged to the back, as shown.

The die is 3 in. square on all sides, and is constructed of two pieces, 3 in. square; two pieces, 2¾ in. by 3 in., and two pieces, 2¾ in. square. These are fastened together with ½-in. brads. The tin, forming the false die, is cut out as shown in Fig. 2, and is then bent on the dotted lines and soldered together on the joint formed by the two edges E and F. All parts should be painted a dull black with white spots on the die and false die.

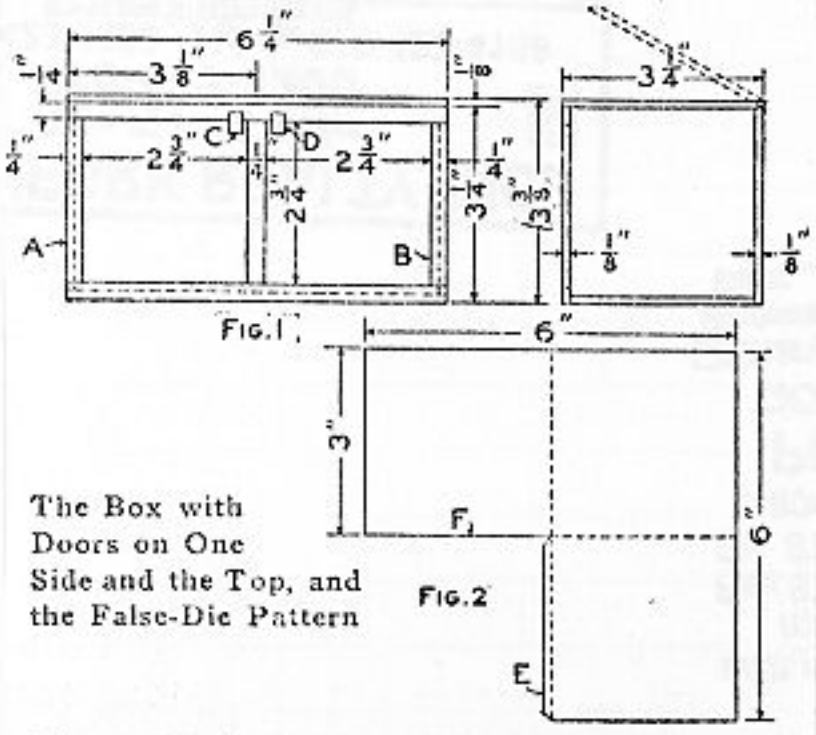
The trick is performed as follows:



With the False Die in Place It Appears as If the Box Were Empty

Procure a hat from some one in the audience and place in it the die with the tin false die covering three sides

of the block, at the same time telling the audience that the block will be caused to pass from the hat into the box, the latter being placed some distance away. Inform the audience that it would be more difficult for the die to pass from the box into the hat. Remove the tin piece from the hat and leave the die, holding the surfaces of the false die toward the audience. This will give the impression that the die has been removed. Set the hat on the table above the level of the eyes of the audience. With the back of the box toward the audience, open one top door and insert the tin piece in the right-hand compartment so that one side touches the back, another the



The Box with Doors on One Side and the Top, and the False-Die Pattern

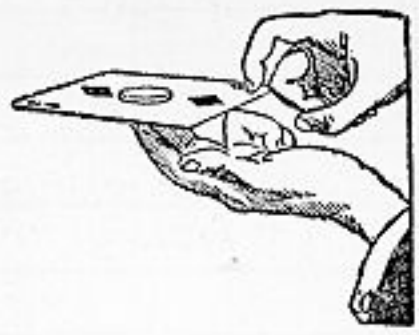
FIG. 2

side and the other the bottom of the box. Close the door and open the two doors of the opposite compartment which, when shown, will appear to be empty. Tilt the box to this side and open the doors of the side opposite to the one just opened, which, of course, will be empty. This should be done several times until some one asks that all doors be opened at the same time. After a few more reversals and openings as given, open all doors and show it empty, then take the die from the hat.—Contributed by Harold L. Groesbeck, Salt Lake City, Utah.

THE BOY MECHANIC - 1915

Card-and-Coin Trick

If a card is balanced on the finger and a coin placed on the card directly over the finger, one would not think that the card could be flipped out leaving the coin on the finger end. This is easily accomplished, if care is taken to snap the card sharply and squarely.—Contributed by R. Neland, Minneapolis, Minn.



THE BOY MECHANIC - 1919

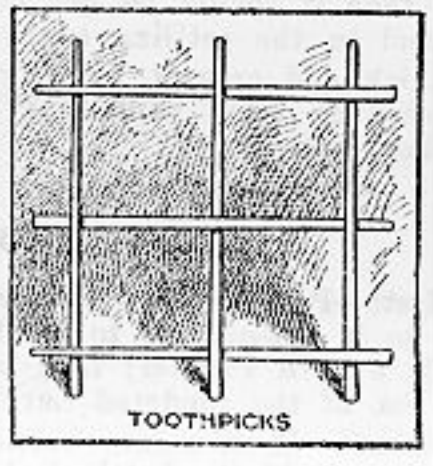
A Mystery Sounding Glass

Procure a thin, tapering drinking glass, a piece of thin, black thread, about 2 ft. long, and a long lead pencil. Cut a small groove around the pencil near one end. Make a slip noose in each end of the thread and slip one into the notch and place the thin glass in the other with the thread near the top. When the pencil is revolved slowly the thread will be wound on it slightly and it will slip back with a jerk that produces a ring in the glass. This may be kept up indefinitely. The movement necessary is so small that it is imperceptible. The glass can be made to answer questions by two rings for "yes" and one ring for "no."

THE BOY MECHANIC - 1919

A Toothpick "Bomb"

This particular "bomb" is made from six toothpicks, and is entirely harmless. The toothpicks are arranged as shown in the drawing. The center slivers put the others under considerable tension, and at the same time hold them together. To "touch off" this bomb, it is held in the hand,

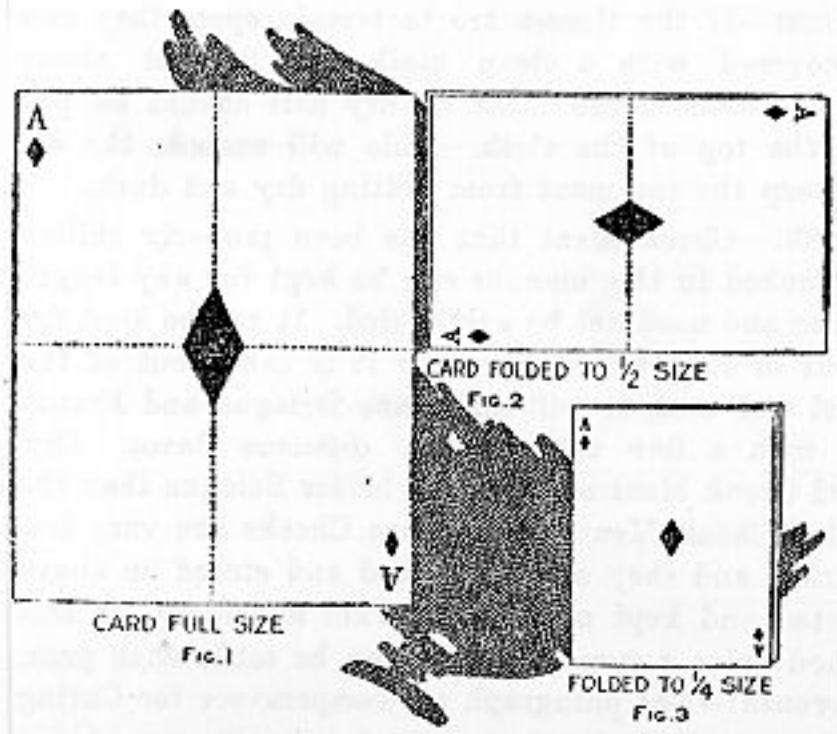


and one corner lighted with a match. As the corner ends are weakened by the flame, the toothpicks will fly apart with considerable force. The experiment should be performed only in a place where there is no danger of fire, and the "bomber" should be careful of his eyes.—Vernon Brooks, Pittsburgh, Pa.

THE BOY MECHANIC - 1919

A Diminishing Card Trick

A clever diminishing card trick may be played with a piece of paper made up as shown in the illustration. Show the audience the whole card, Fig. 1, then fold it halfway and show again, Fig. 2, then again, Fig. 3. If this is done quickly it will not be noticed. A piece of paper is used the size of a regular playing card, and an ace is made on one side. When it is folded over, one side of the reduced size is made to



Reducing the Size of a Playing Card While Holding It in One Hand

show the same ace, then another fold is made and the smaller ace is made.—Contributed by Louis Waherer, Tiffin, Ohio.

THE BOY MECHANIC - 1919

Magic-Paper Fortune Telling

At outdoor carnivals and fairs there is usually a fortune teller who uses a glass wand to cause one's fortune to appear on a pad of paper. Anyone may perform this trick by observing the following directions.

Instead of a glass wand use a long, narrow bottle of glass. Dip a new pen into copper sulphate, diluted with six parts of water, and write out the "fortune" on a piece of paper. The writing, when dry, will not be visible. Next procure two corks to fit the bottle. An unprepared cork is placed in the bottle and the other is pocketed, after hollowing it out and inserting a small sponge soaked in pure ammonia.

The bottle with the cork is passed out for examination. The cork is casually placed into the pocket after it is returned by a bystander. A pad of paper is then proffered and an initial is placed on the pad of paper by the person whose "fortune" is to be told. The paper is rolled up, with the prepared side on the inside, and inserted into the glass bottle. The fumes of ammonia will develop the mysterious message. The trick can be repeated if several prepared sheets of paper are on hand, and always proves of interest in a party of young persons.

THE BOY MECHANIC - 1919

Moth-Ball Puzzle as Window-Advertising Novelty

A druggist recently puzzled thousands with a novel window display. A small white ball in a 1-in. glass tube, about 10 in. long, displayed in a show window, would sink to the bottom, then slowly ascend, only to sink as before. A sign reading "What Makes It Move?" kept the crowd guessing. The tube was apparently filled with water. The construction is simple. The tube is about three-quarters full of carbonated soda water. The white ball is an ordinary moth ball. The ball sinks, and when it becomes soaked gradually as it lowers, bubbles of gas cling to it, carrying it to the top of the solution. There the gas escapes, destroying the ball's buoyancy, and causing it to sink again.

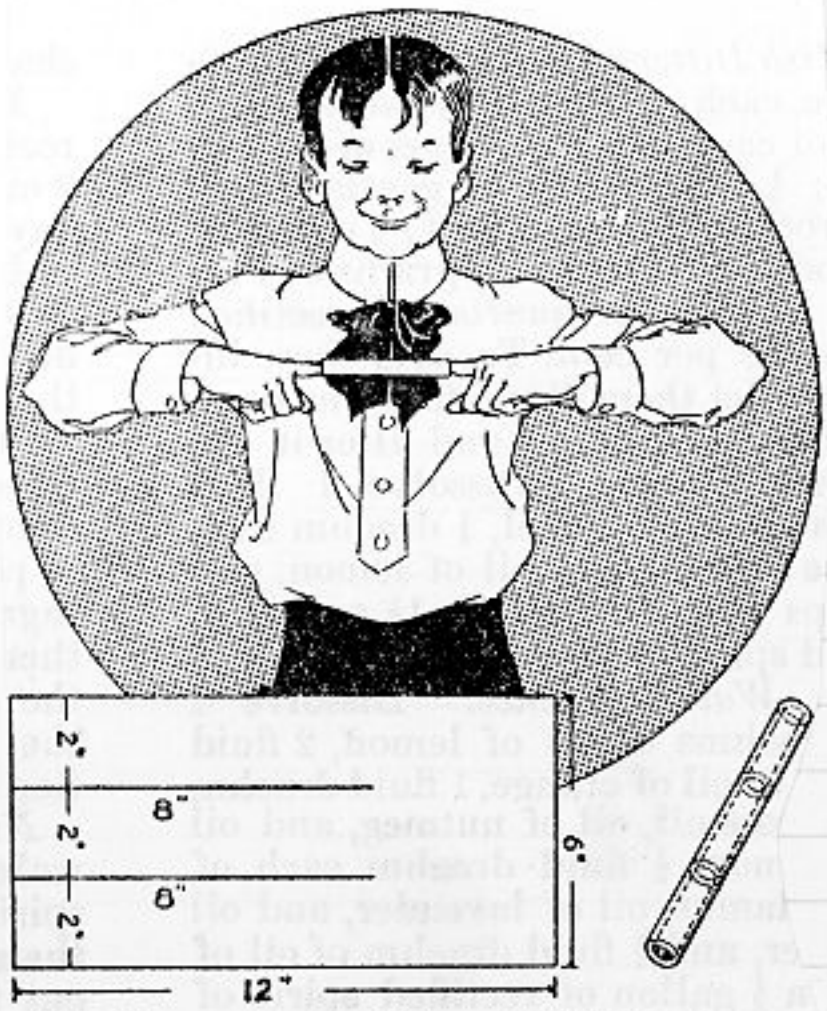
This process is repeated over and over. —David J. Lonergan, Minneapolis, Minnesota.

THE BOY MECHANIC - 1919

A Finger-Trap Trick

It is easy to fool one's friends with the little joker made to trap a finger. It consists of a piece of paper, about 6 in. wide and 12 in. or more long. To prepare the paper, cut two slots in one end, as shown, and then roll it up in tube form, beginning at the end with the cuts, then fasten the end with glue. The inside diameter should be about ½ inch.

When the glue is dry, ask some one to push a finger into either end. This will be easy enough to do, but to remove the finger is a different matter. The end coils tend to pull out and hold



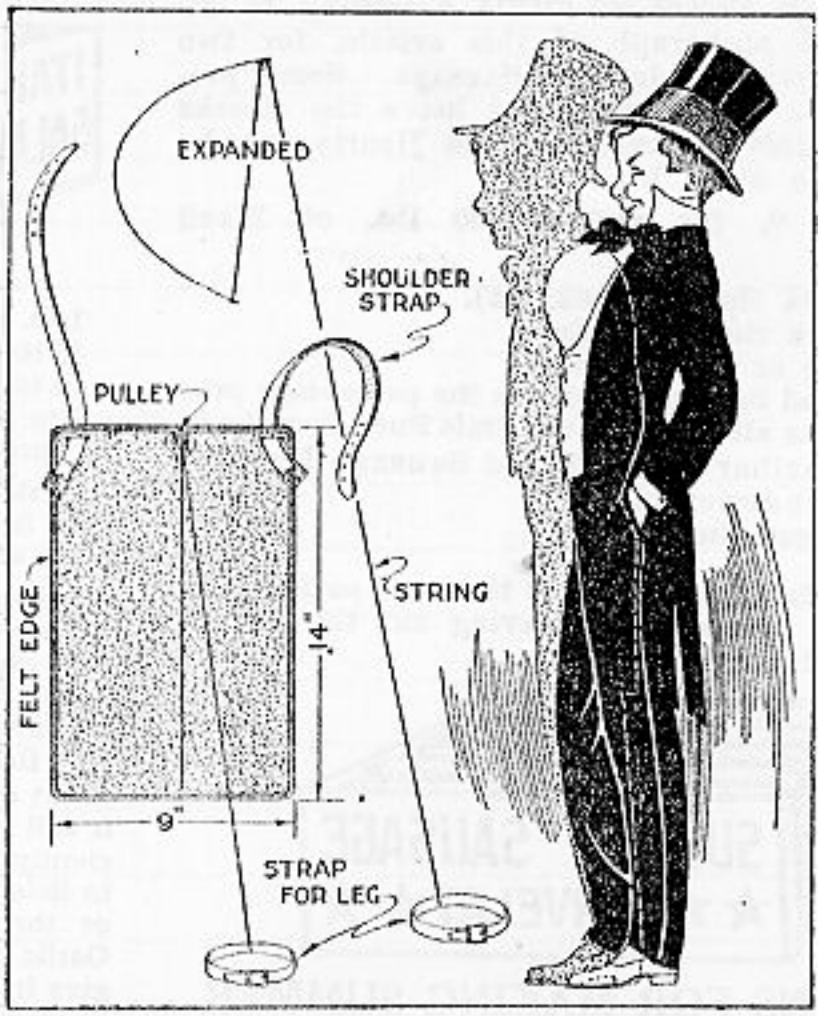
It is Easy to Insert a Finger in the Tube, but to Get It Out is Almost Impossible

the finger. If the tube is made of tough paper, it will stand considerable pull.—Contributed by Abner B. Shaw, N. Dartmouth, Mass.

THE BOY MECHANIC - 1919

Comic Chest Expander for Play or Stage Use

A device used in an amateur vaudeville sketch with good effect, and



The Performer's Chest "Swells with Pride" When He Draws on the String by Shifting His Position

which is interesting for play purposes, was made of a 1/32 by 9 by 14-in. piece of sheet spring brass, rigged as shown. In the center, near the upper edge, a small pulley was soldered, and at the center of the bottom edge a small hole was drilled. In it was fastened one end of a 4-ft. string which ran up through the pulley. The other end was fastened to a strap to fit around the leg just above the knee. At the two upper corners of the brass sheet two slots were cut to accommodate similar straps, as fastenings. When the wearer stands in a normal position the chest is as usual, but by straightening the body and slightly moving the strapped leg back, the brass sheet is bowed outward, giving the appearance indicated.—Arthur L. Kaser, South Bend, Ind.



THE BOY MECHANIC - 1919

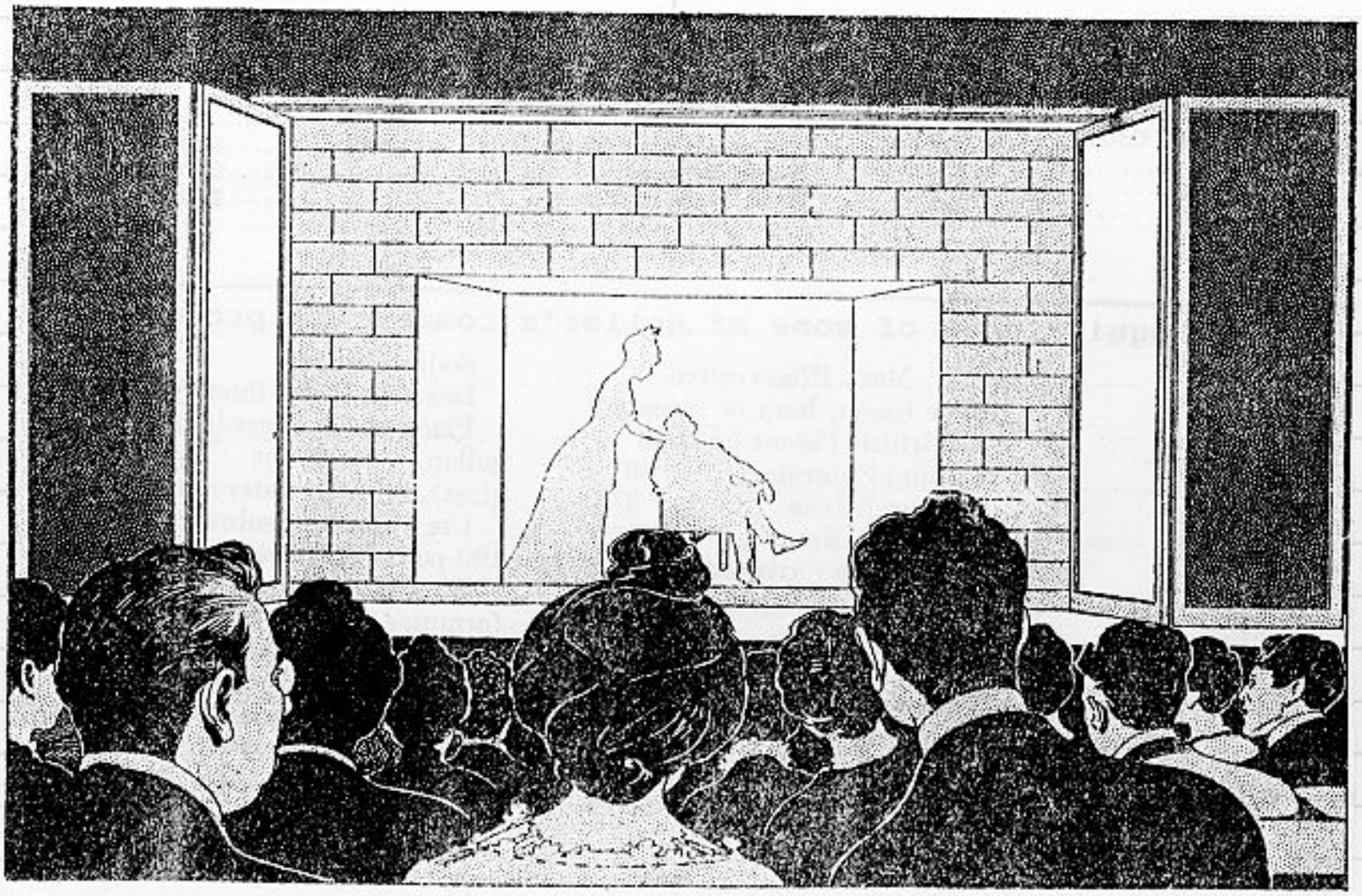
Fireside Dissolving Views

By SUSAN E. W. JOCELYN

TO those interested in amateur theatricals the following method of showing dissolving views in the firelight of pipe dreams and mind pictures will be appreciated.

A frame made of light material, A, Fig. 1, covered with red cloth and chalked to represent brick, is placed in the center of the stage. The central opening, representing the fireplace, must be rather large, about 12 ft. wide and 7 ft. high, because it is at the back of this opening that the pictures are produced. From the chimney back, 2½ ft. behind this opening, the sides, B, of the fireplace slope outward to the imitation brickwork. The walls of the fireplace are covered with sheet asbestos, for safety, and painted black; then ashes are rubbed on the chimney back and scattered over the hearthstone, to make the appearance more realistic.

The chimney back is removable, in



The Tableau is Played Out behind the Screens and is Dimly Seen through the Fireplace Opening When the Lights are Properly Controlled and the Screens Drawn Slowly

fact it is one of a series of a half dozen screens, the others being behind it, the proper manipulation of which, together with changing lights, gives to the audience the effect of dissolving views of the dreams that are being acted out directly behind the screens.

The screens are carried in a light frame, the top of which is shown in Fig. 2, with position of runs. The runs are made of narrow strips of wood, fastened to the under side of two end pieces, for the screen frames to slide in. Corresponding strips are placed in a suitable position on the floor, to keep the screens steady in sliding. The frames holding the run pieces are longer than the chimney back is wide, and the upper one is placed as high as the brickwork, the shelf, or mantel, over the fireplace being an extension of the upper part, or frame. The screens are in pairs, as shown in Fig. 3, each one extending to the center of the fireplace. They consist of light frames covered with black mosquito netting. The upper and lower sides of the frames are sandpapered smooth so that they will move easily in the runs. The vertical sides of a pair of screen frames that meet in the center of the fireplace are made of one strand of wire, instead of wood, so that their motion will not be noticeable. To complete the apparatus, andirons and a gas log are needed in the fireplace, and whatever arrangements are necessary for the action of the views to be shown behind the screens.

If gas is available, an asbestos log is used in the fireplace, and it has a connecting pipe to the footlights, where four or five jets are located on the floor just back of the screens. A narrow board, painted black, is placed in front of the lights, which should be wide enough to conceal the lights from the spectators and reflect the light on the tableau. If the light is thrown above the imitation brickwork, then it should be made higher.

In most halls, and some houses, electric lights are used instead of gas, and in this case ordinary logs are piled in the fireplace on the andirons, and one or more red globes are introduced to produce the effect of glowing embers. The gas is more effective, however, because it is not easy to get a gradual rise and fall in the glow of electric lights. Four or five footlights are sufficient.

The working of the dissolving views can be best explained by an illustration from "Reveries of a Bachelor." The gas log is turned low to make

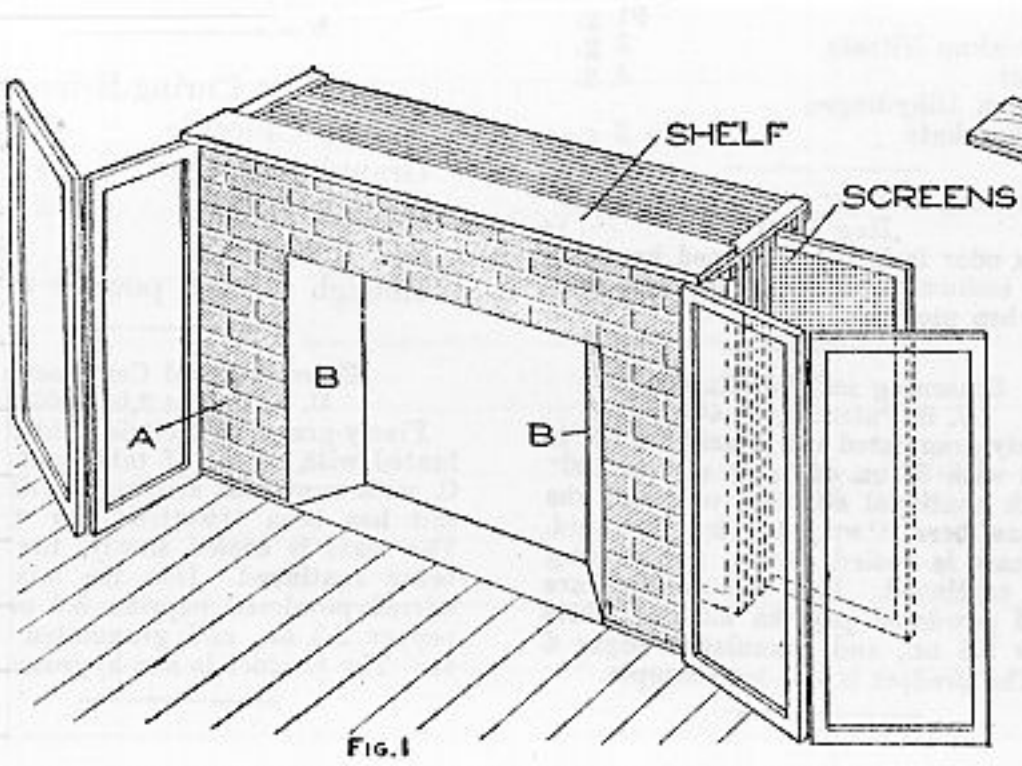


FIG. 1

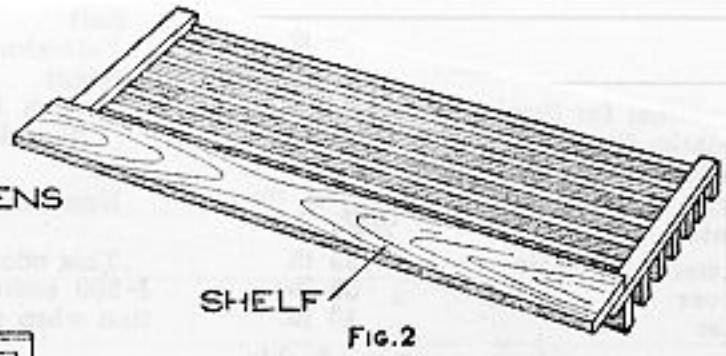
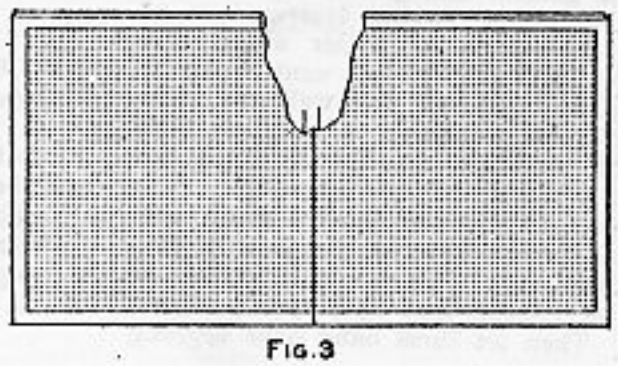


FIG. 2


FIG. 3

Frames Made of Light Material and Covered with Black Mosquito Netting Serve as Screens Which are Operated in Runs Located behind the Fireplace That is Made Up in a Like Manner and Penciled to Represent Brick

the stage dimly lighted, and the tableau to be shown is all arranged behind the chimney back and the screens. There should be barely sufficient light to reveal the bachelor on the hearthstone smoking in the gloaming. Then the chimney back almost imperceptibly parts, that is, the screens of the first pair are gradually pulled apart, the footlights and gas log are gradually turned on, and the tableau behind the fireplace, being more brightly illuminated, is dimly seen through the series of screens. Slowly the successive pairs of screens are drawn aside, and the tableau becomes quite distinct. Then the process is reversed, the screens are gradually replaced, the lights are lowered and the dream fades away; brightens and fades again; brightens and fades, till gone entirely. The screens are always slowly moving while the tableau is exposed, and this makes the illusory effect. It is evident that the success of this plan depends principally on the coördination with which the screens are operated. "Cinderella," and many other tales based on the vagaries of the mind and having their source in glowing embers, can thus be presented.

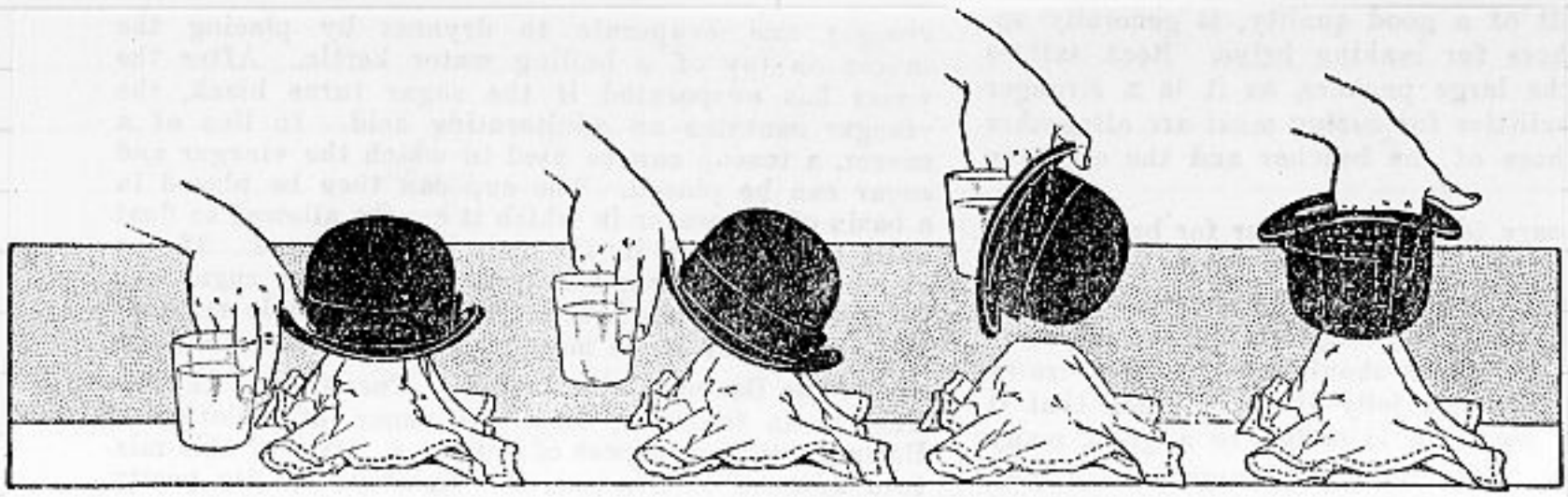
THE BOY MECHANIC - 1919

The Glass-and-Hat Trick

The effect of this trick is as follows: The performer first exhibits a small table, about 2 ft. square, the top of which is covered with black velvet. He requests the loan of a Derby hat and a handkerchief, then takes an ordinary glass, filled with water, and places it on the table top, covers it with the handkerchief, and sets the hat on top of the glass. He then withdraws a short distance, and at a command, the glass appears to pass slowly through both handkerchief and hat until the hat rests on the table top. The hat is then taken up and is handed to the owner, who finds the glass of water in the hat.

While this is seemingly impossible, the effect can be easily accomplished and the necessary apparatus can be made up cheaply if a table of suitable size can be had, although a kitchen table may be used if so desired, but a table about 2 ft. square is preferred, because it can be easily carried. The table is prepared as follows: Procure a block of wood, about 2 in. square and 1½ in. thick, and glue it to the under side of the table in the center. Bore a ¼-in. hole through both the table top and the block of wood. The top of the table must be covered with some black cloth, such as velvet. Using the hole bored as a center, cut out a piece of the table top to correspond with the diameter of the glass to be used, and about ⅛ in. deep. Fit into this depression a piece of round sheet brass. Procure a ¼-in. rod, about 6 in. long, and fasten the brass disk to one end of it so that the disk will fit into the round depression when the rod is run through the hole in the table top and block. The other, or lower, end of the rod is filed flat, and a small hole is drilled through it, the edges being smoothed to receive a thread. The top of the brass disk is covered with the same material as is used for covering the table top. This will make it appear to be one piece covering the table top. Fasten a strong black thread to one corner of the table top on the under side, and run it through the hole drilled through the end of the rod, then over a small window-curtain roller fastened into the opposite corner of the table top, where the thread is run down a table leg and through another pulley out under a rug or the floor to an assistant where the thread will not be seen. The metal disk can then be controlled without any apparent power. If the rod extends under the table too far, drape some velvet or fancy cloth around the table edge to cover it.

To begin the trick, the performer exhibits the glass of water, then sets it on the table just back of the disk, and in placing the borrowed handkerchief it is put on the disk rather than the glass. As the handkerchief is held in

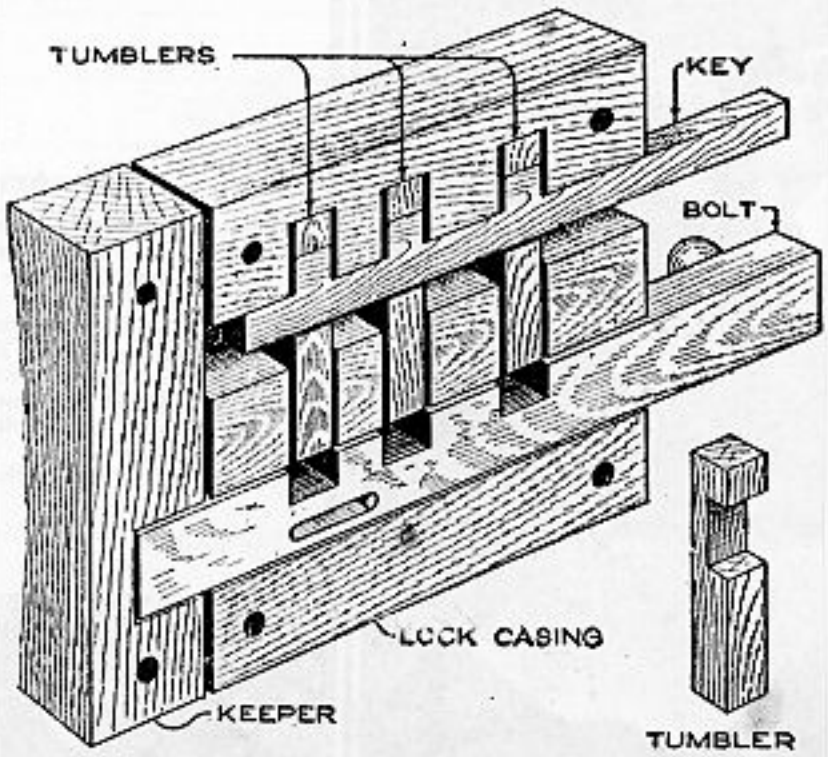


front of the glass the assistant pulls the disk up; thus the handkerchief is placed on the disk and the glass of water is left uncovered just behind it. The performer then starts to put the borrowed hat on the glass, crown up, and when, seeing his mistake, he apologizes, turns the hat over, and in doing so picks up the glass of water and places it in the hat. The hat is then set on the disk with the crown down. In turning the hat the glass is taken up with the first two fingers of the right hand. When the hat is raised, the glass is also raised with it, and while doing this the hat is slanted so as to hide the glass. In turning the hat over, the glass is brought into it. This is quite hard to explain, but a little practice will enable the performer to make no mistake. When the hat is placed on the disk the assistant slowly lets the disk down. It is very necessary to let the hat down slowly, as a sudden jerk is apt to tumble the hat over and spoil it as well as the trick. When the hat comes to rest on the table top, it is removed and handed to the owner with the glass of water in it.

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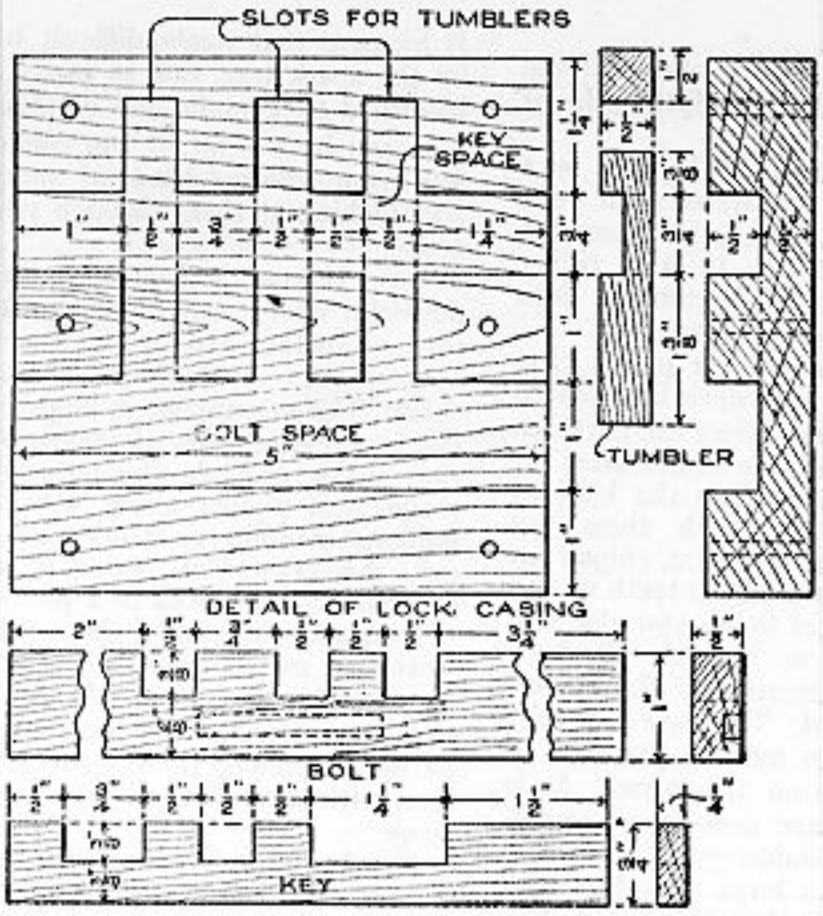
Wooden Lock with Combination Key

The lock shown in the sketch and detailed drawings is made entirely of wood, and it is nearly impossible to pick or open it without the use of the key. The casing of the lock is 5 by 5 in. and 1 in. thick, of hard wood, oak being suitable for this as well as for the other parts. Three tumblers, a bolt, and a keeper are required. The key is shown inserted, indicating how the tumblers are raised by it. The bolt is slotted and a screw placed through it to prevent it from being moved too far. The lock and keeper are bolted into place on a door with carriage oolts, the heads being placed on the outer side.



This Lock is Made Entirely of Wood and cannot be Picked Easily

The detailed drawing shows the parts, together with the dimensions of each, which must be followed closely. The lock casing is grooved with two grooves, extending the length of the grain and connected by open mortises, all ½ in. in depth. The spacing of the mortises and the grooves is shown in the views of the casing. Three tumblers, ½ in. square and 2½ in. long, are required. The bolt is ½ by 1 by 8 in.,



The Details of Construction must be Observed Carefully and the Parts Made Accurately to Insure Satisfactory Operation

and the key ¼ by ¾ by 5½ in., and notched as shown. All the parts of the lock must be fitted carefully, sandpapered smooth, and oiled to give a finish that will aid in the operation, as well as protect the wood. Aside from its practical use, this lock is interesting as a piece of mechanical construction. —B. Francis Dashiell, Baltimore, Md.

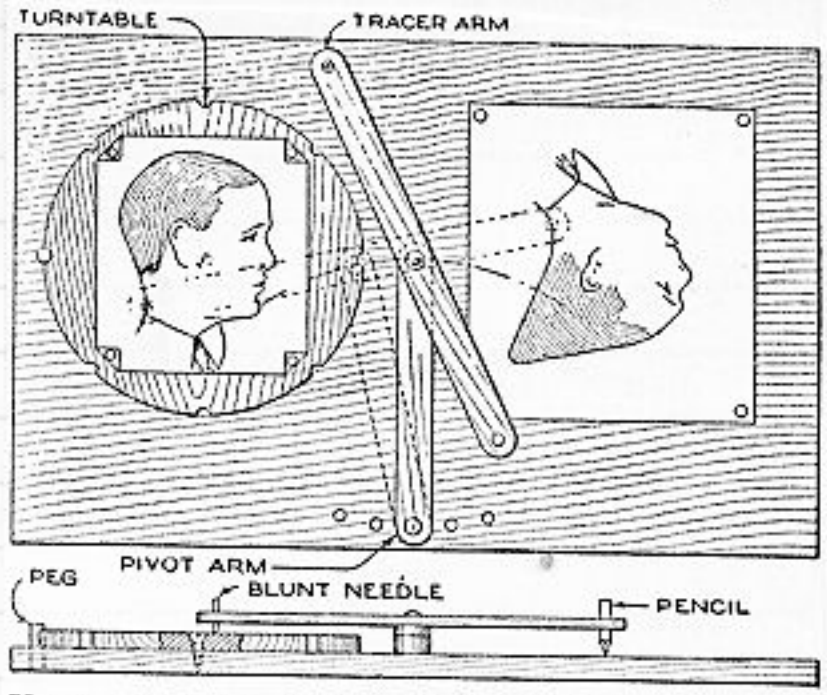
THE BOY MECHANIC - 1919

A Caricature Pantograph

A simple little device that will afford endless amusement to the youngsters, and to the elders also, is the caricature pantograph illustrated.

For the base, a piece of soft wood, about 18 in. square, is selected. The tracer and pivot arms may also be of soft wood, and should be about 10 in. long. The turntable should be laid out on a piece of thin soft wood, and eight equidistant holes, about ¼ in. in diameter, drilled around the line marking the circumference. The table is then cut out, leaving eight semicircular notches on the periphery, as shown. The turntable being mounted on the base with a flat-head screw, countersunk flush, a ¼-in. hole is drilled in the base, in line with one of the notches in the table, and a peg fitted. This holds the table firmly. At the front of the baseboard, five holes are drilled to fit the pin on which the pivot arm swings. These holes are laid out on a 10-in. arc.

Before screwing down the pivot arm, place one or two small washers between it and the tracer arm, and between pivot



Very Ludicrous and Mirth-Provoking Pictures are Made With the Simple Pantograph Illustrated. Try It on a Profile Picture of One of Your Friends

arm and base, so that the tracer arm will be about ½ in. above the turntable.

Tack a profile, or silhouette picture, to the turntable, and a sheet of blank paper to the other end of the base. Trace the profile by means of the blunt needle; a comical picture will be produced by the pencil on the other end of the tracer arm.

It is possible to obtain five different pictures from one copy by merely moving the pivot successively from one of the holes in the base to another, while, by removing the peg, turning the table until another notch registers with the hole, and reinserting the peg, many other transformations are produced.

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The Enchanted Card Frame

A mystifying card trick, in which the performer makes use of the enchanted card frame shown in detail in the illustration, is as follows: A pack of playing cards is given to one of the spectators, who selects a card, noting the number and suit. The card is then placed in an envelope and burned by the spectator. The performer takes the ashes and loads them into a pistol, which he aims at a small frame, shown

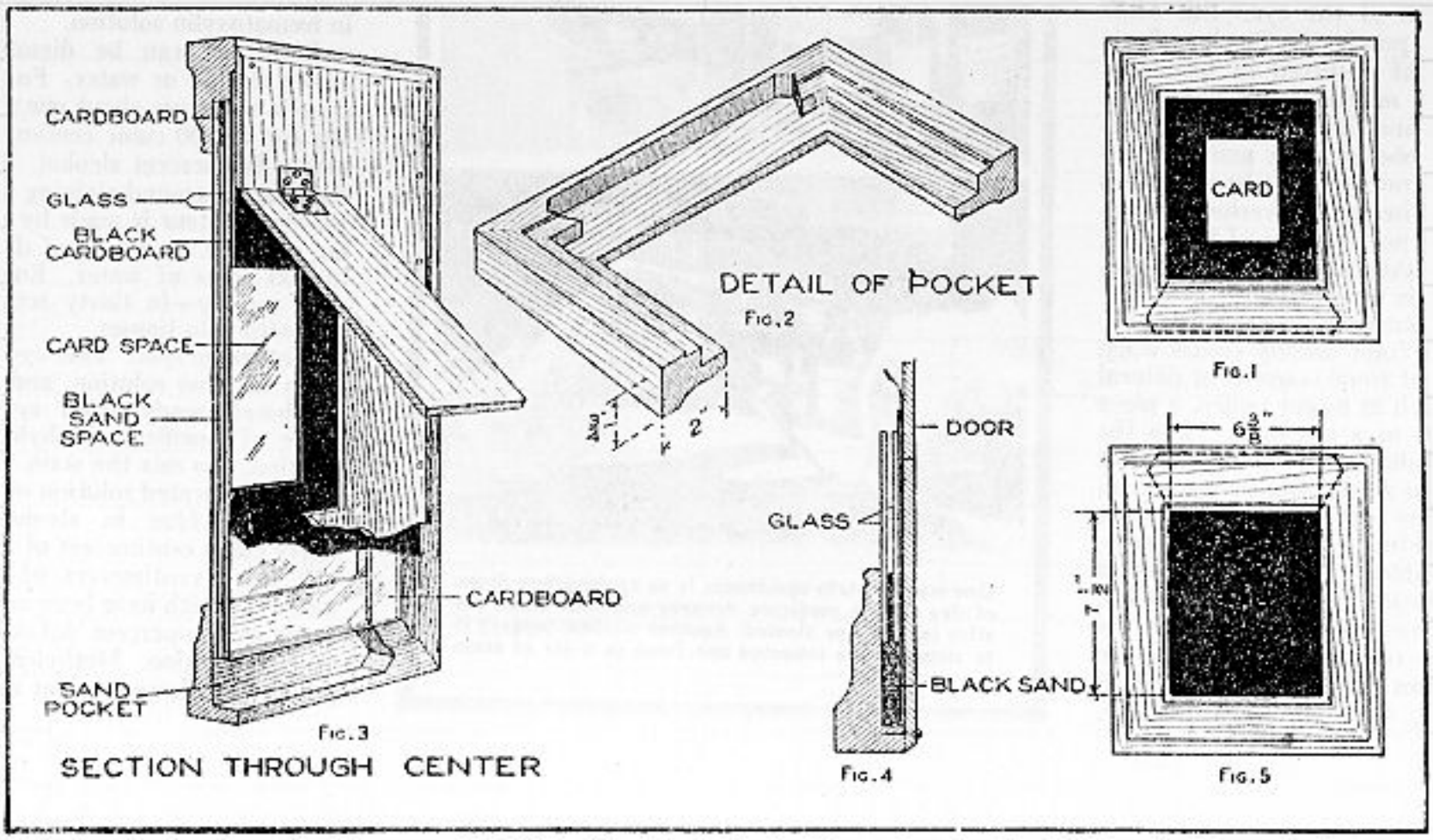


Fig. 1. Fig. 2. Fig. 3. Fig. 4. Fig. 5.

A Pocket is Cut into the Frame, and Filled with Black Sand, Obscuring the Card When the Frame is Inverted

as empty, and set upon a table a few feet distant. The frame is covered with a handkerchief, and the pistol is fired at the frame. On removing the handkerchief the selected and destroyed card appears in the frame, from which it is taken at the back.

The trick is performed as follows: A forced deck is prepared having 24 like cards, and the backs of the cards are held to the spectators when a card is selected. The frame is made of a molding 2 in. wide, mitered at the corners, and of the size indicated, the opening being 6⅜ by 7½ in. The general views of the frame in normal position and inverted are shown in Figs. 1 and 5. A pocket is cut in the lower edge of the frame at the back, as shown in detail in Fig. 2. A pane of glass is fitted into the frame, and on the three edges other than the one having a pocket, strips of cardboard, ⅛ in. thick, are glued, as a bearing for a second piece of glass, as shown in Fig 4. The back of the frame is fitted with a cover of thin wood, and a hinged door is arranged in the center of the back, as shown in Fig. 3.

A mat of black cardboard is fitted into the frame to form a background behind the card, Fig. 1. The pocket at the bottom is filled with black sand—that used by sign painters is satisfactory—and the frame is ready to receive the card for the performance of the trick. One of the cards from the forced deck is placed in the frame. By inverting the latter the sand is caused to run between the glass partitions, concealing the card on the black mat behind it. In this condition it is exhibited to the spectators and then placed upon the table. A handkerchief is thrown over it. The pistol is one of the toy variety and a cap is fired in it. In picking up the frame the performer turns it over, while removing the handkerchief, so that the black sand runs back into the pocket in the frame.
—Harry Marcelle, Honolulu, H. I.

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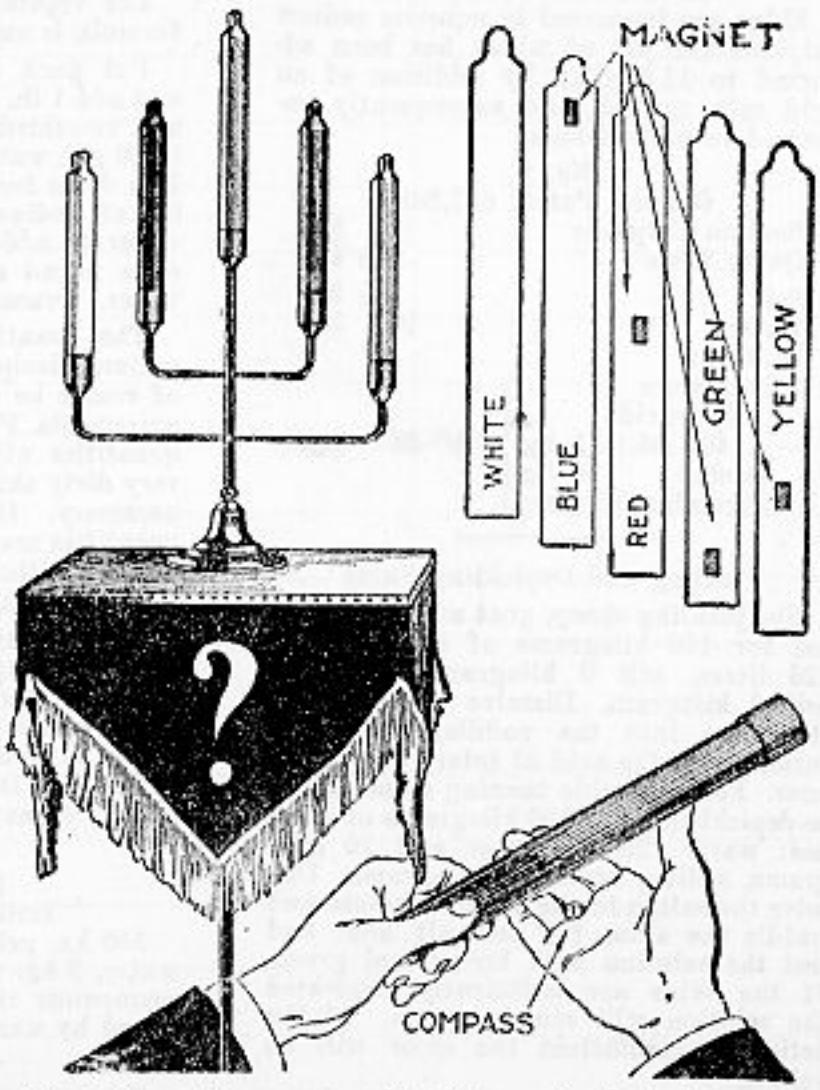
Magic Candles Explained

By CLIFFORD WAYNE

CLEVER and baffling though it may be, the magic-candle trick may be performed easily and with professional skill by a person who has made a few simple preparations. The illustration shows the candles arranged on a table made of a music stand.

Candles, cigars, or pencils may be used, but for the purpose of this description the former will be used. The candles are of different colors but of the same size and weight. The manipulation is as follows:

Exhibit a tube of brass, cardboard, or other suitable material, just large enough to contain a candle. Then retire from the room, leaving the tube on the table while one of the spectators selects one of the candles and places it into the tube, covering the end of the latter securely with a small cap. The other candles are hidden before the performer is permitted to return. The trick is to announce the color of the candle contained in the box by merely passing the hand over it several times. The box and candle are passed out for inspection and will bear it if properly prepared.



Mysterious Passes over the Concealed Candle are Made and Its Color Announced

The secret of the trick is this: The first candle, for example, the white one, is unprepared. The second, a blue one, has concealed in it, ½ in. from the top, a small piece of magnetized steel. The third candle, a red one, has a similar bar concealed at the middle; the fourth, a magnetized bar ½ in. from the bottom, and the fifth candle has the bar at a point halfway between the middle and the bottom. The candles are made of wood and the magnets may readily be imbedded in them. They are made of two pieces glued together like a pencil.

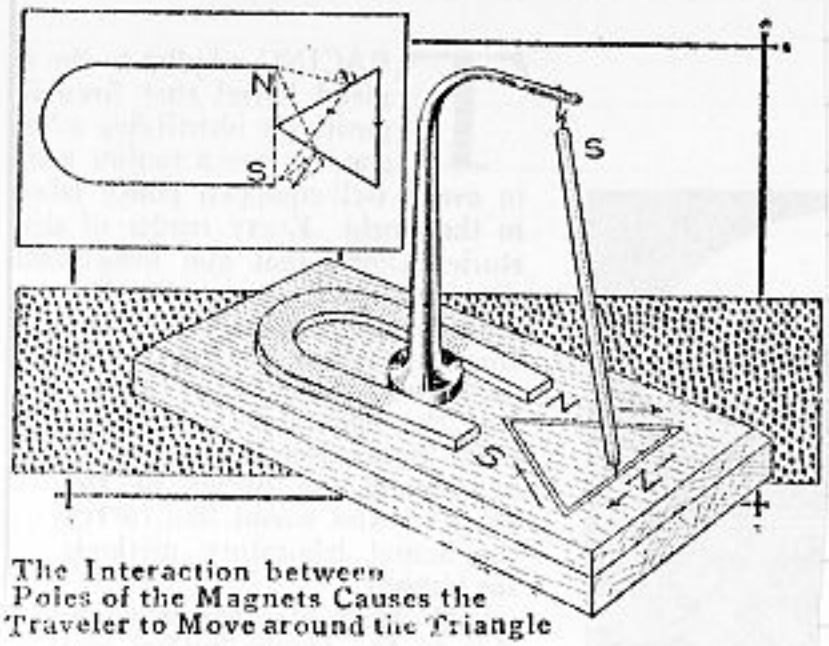
The performer hides a small compass in his palm. It is held in place by a wire clip, gripped between the second and third fingers near the knuckles. A wave of the hand over the tube containing a candle will affect the compass if any candle other than the white one is used. Its needle will vibrate when approaching the concealed magnet, and by determining quickly the position of the magnet, the color may be announced.

Those who offer guesses usually insist that some electrical device is used.

THE BOY MECHANIC - 1919

A Perpetual-Motion Puzzle

The fallacy of perpetual motion is now so generally understood that the description of a new scheme for attaining it is only justified in so far as it may be instructive. The sketch illustrates such a device, apparently successful, and the discovery of the error in it is both instructive and interesting.



The Interaction between Poles of the Magnets Causes the Traveler to Move around the Triangle

Mount a horseshoe magnet on a wooden base, and into the latter cut a continuous groove along the three sides of a triangle opposite the poles of the magnet, N and S. Suspend a long, narrow bar magnet on a universal joint from a standard. A pin projects into the groove from the lower end, which is its north pole, and can move only along the triangular course.

Start the device with the suspended magnet in the position shown. The lower end will tend to move in the direction of the arrows, because in so doing it is getting farther away from the repelling north pole of the horseshoe magnet and nearer the attracting south pole, which action will bring it to the corner of the triangle in the foreground. It will next move down the side as indicated by the arrow, because along that line it is nearer the attracting south than the repelling north pole. When it reaches the end of its trip, at the angle between the poles of the magnet, the attraction and repulsion will be balanced, but a slight jar will carry the traveler beyond the angle.

The third leg of the triangle will be covered similarly, the north pole repelling the traveler. On this basis the motion should continue indefinitely, but a test will show that it will not do so.

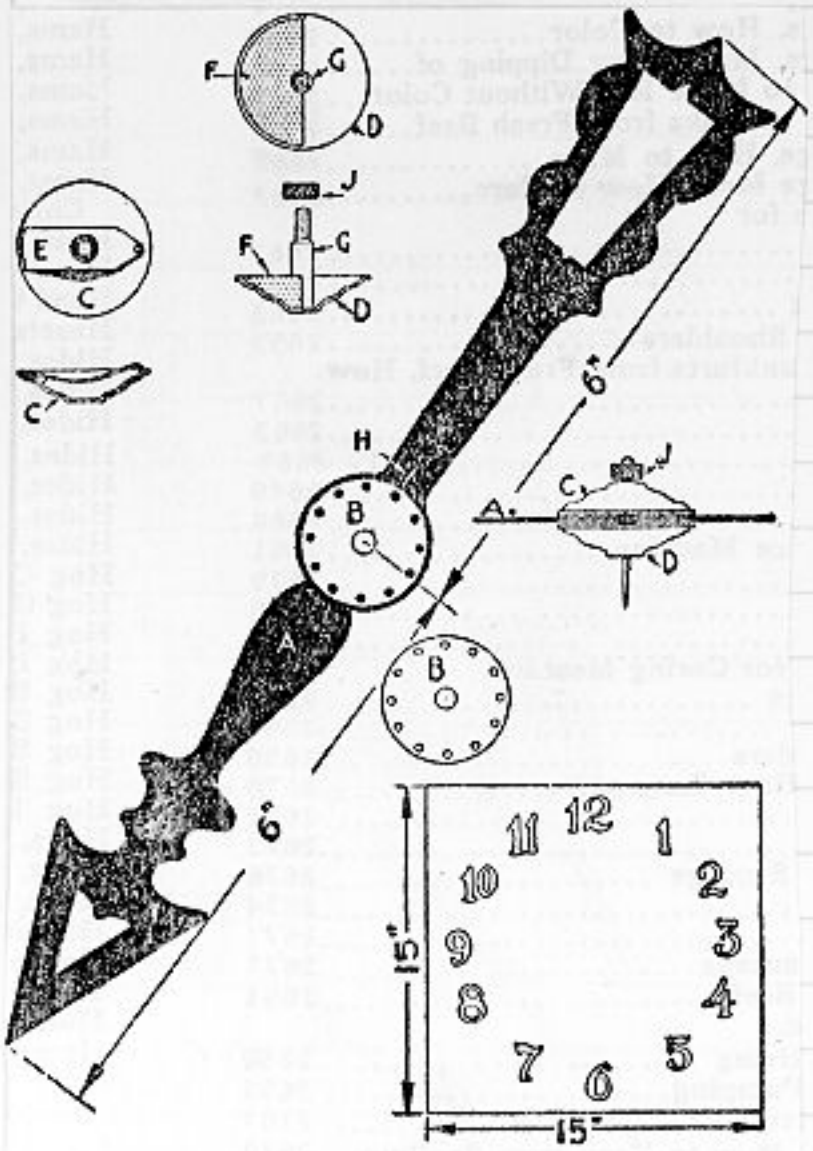
The corners of the triangle should be rounded slightly and it would be better to use several hanging magnets, flexibly connected, so that when one is at the dead center the others will carry the traveler on.

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The Magic Clock Hand

The hand, or pointer, is the only working part needed to perform the trick. A clockface can be drawn on any piece of white paper, and a pin stuck in its center on which the hand revolves. The hand A is cut from a piece of sheet brass, and may be in any form or design desired, but it must balance perfectly on the axle, which passes through a ¼-in. hole in the center, or else the magic part will fail. The illustration shows a good design with dimensions that will cause it to balance well; however, this can be adjusted by removing some metal from the end that is heavier with a file or tinner's snips, or a bit of solder may be stuck to the lighter end.

A disk, B, is cut from a piece of sheet brass, 1⅛ in. in diameter, twelve 3/32-in. holes are drilled at equal distances apart near the edge, and a ¼-in. hole is drilled in its center. This disk is soldered to the hand where both ¼-in. holes will coincide. It is necessary to procure two washers, C and D, that are embossed, or raised, in the center, and about 1¼ in. in diameter. These can be purchased from a dealer in curtain rods, the rod parts wanted being the washers used on the ends. A careful mechanic can raise the center por-



Design of a Hand That will Balance Well and the Parts for Its Axle

tion of a brass disk by beating it over a hole with a ball-peen hammer.

One of the washers, C, has a spring, E, soldered at one end, and the other carries a small projection that will engage the holes in the disk, B. The projection can be made by driving the metal out with a center punch, set on the opposite side.

The washer D is provided with a lead weight, F, and a ¼-in. stud, G, is soldered in the center. The stud has a 1/16-in. hole drilled through its center for the pin axle. The weight is made by filling the washer with melted lead, which when cold is removed and sawn in two. One piece is then stuck in the washer with shellac. The stud is ⅞ in. long with the upper part, about ¼ in. in length, filed, or turned down, smaller, and threaded. Just below the thread, or on the shoulder, the body is filed square to fit a square hole filed in the face washer C carrying the spring. This square hole and stud end are necessary in order that both washers may turn together.

The dial can be made of a piece of thick cardboard, or thin wood, with the numbers from 1 to 12 painted on, like a clockface. A pin, 1/16 in. in diameter, or an ordinary large pin, is run through the center so that it will project on the face side on which the hand is to revolve.



A Number is Mentioned and the Performer Gives the Washers a Twist to Set the Concealed Weight so That the Hand When Hung on the Dial will be Drawn to Point Out the Number Selected

The washer D with the weight is placed on the rear side of the hand with the fixed stud run through the hole in the center of the hand; then the washer C is placed on the square part of the stud, and the nut J, which should have a round, knurled edge, is turned on the threads. This will cause the projection on the spring E to engage one of the small holes on the disk B. In turning the two washers, C and D, with the thumb and first finger of the right hand, the projection snapping into the holes of the disk B

can be felt. The hand is placed on the pin of the clockface, and the washers are turned so that the weight will make it point to 12. Scratch a mark on the hand at H, also mark a line on the front washer at this point. These lines are necessary, as they enable the performer to know how many holes to snap the spring over to have the hand point at any desired number.

By reversing the hand it will point to a different number; for instance, if set for 8 and put on the pin backward, it will point to 4, and so on, with other settings. The dial can be held in the hand, hung on a stand, or fastened to a wall, and can be used to tell the day of the week, time of day, cards selected, etc. The audience can call for any number on the clockface, and the setting of the disks is an easy matter while holding the hand, or pointer, in the hands, so that it cannot be detected

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The Magic of Numbers

By JAMES L. LANYON

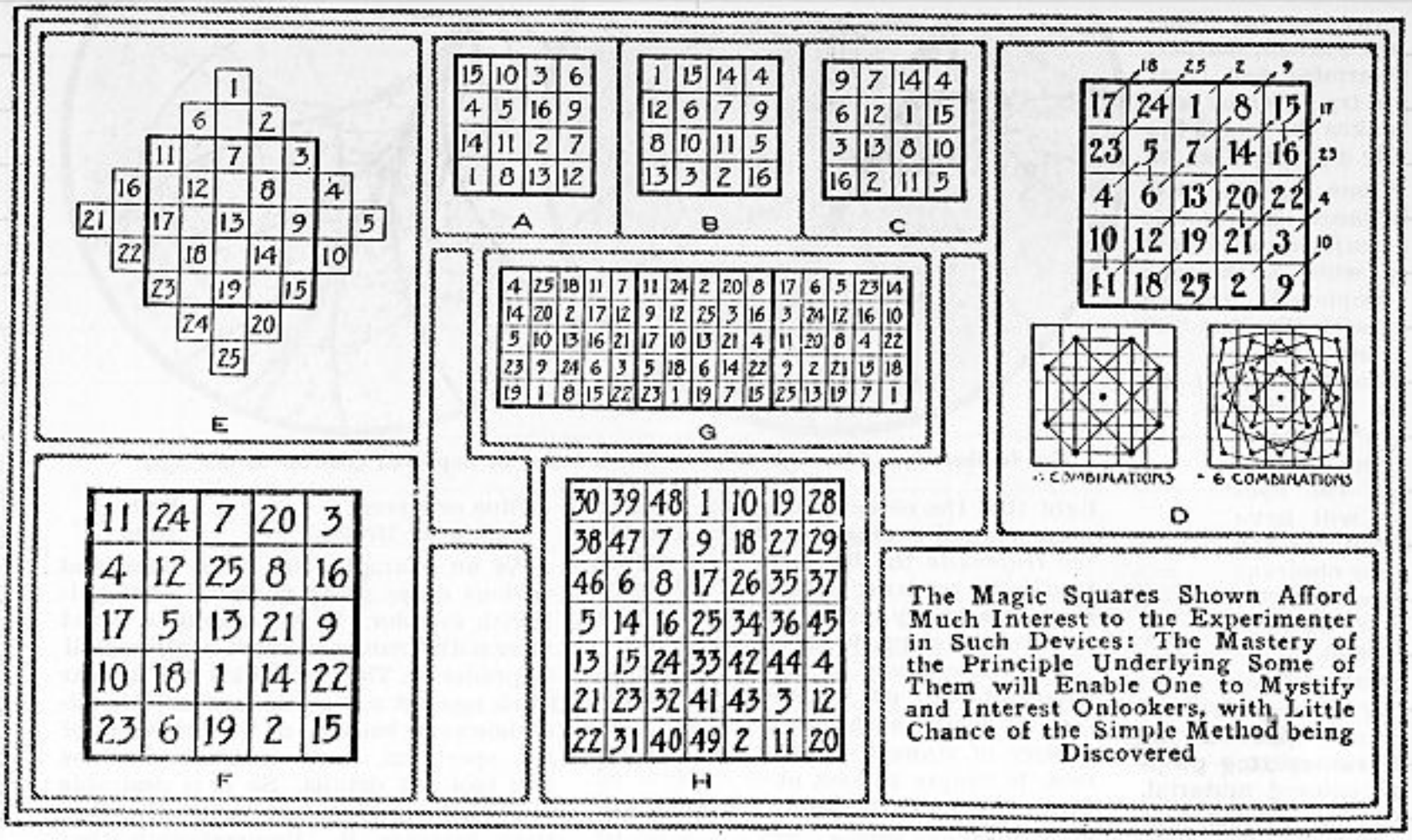
That there are a great many magic squares; that the numbers in these squares are arranged according to a definite system; that squares with very remarkable properties are easily constructed, are facts not generally known.

Consider the magic square A of 16 numbers. Add up any four numbers straight across, up and down, or diagonally—10 ways in all—and the sum in each case will be 34. But that is not all: Take the four numbers in any one quarter of the square, as for example, 15, 10, 4, and 5, and the sum will be 34; or take the four central numbers, or the four corner numbers, and the result will be the same. But even this does not exhaust the magic of the square. Add any four numbers arranged symmetrically around the center, as 3, 10, 8, and 13, or 10, 4, 7, and 13, and the result will also be 34. In fact, it is really not necessary to have them arranged symmetrically, because it will be found that four numbers arranged as are 6, 10, 11, and 7, or 1, 4, 16, and 13 will produce the same magic number of 34.

There are two other combinations of the 16 numbers that will give the same result. They are shown at B and C. In fact the second one, B, not only exhibits some of the former combinations, but also includes such sets of four as 14, 5, 3, and 12, or 15, 8, 2, and 9, which places to the credit of this square numerous combinations. Such special features as this simply add another element of mystery and interest. Thus, while the square B has these two combinations exclusively to its credit, the first, A, and the third, C, have such special arrangements as 5, 16, 1, and 12, or 15, 6, 11, and 2. Also 10, 3, 5, and 16, or 4, 5, 14, and 11, making the total number of such combinations for the first square 34.

Magic squares of 25 numbers also have remarkable properties. Examine the square D and note the many possible combinations graphically set forth in the small diagrams. Not only do any five numbers in a row or along a diagonal make 65, but almost any four arranged around the center, with the center number 13 added, will give the same result.

This square is a good example by which to illustrate one of the methods of construction of these interesting devices. Thus, place 1 in the middle square of the top row, and then write the numbers down consecutively, always working in the direction of the arrows as indicated. When any number falls outside, as number 2 does at the start, drop down to the extreme



square in the next row and insert the number there, as was done in this case. It will be observed that 4 falls outside, and so it is moved to the proper square as suggested, which will be at the extreme left of the next row above. Continuing, it is found that at 6 it is necessary to drop down one square and continue in the direction of the arrows. At 9 it is necessary to drop down to the proper extreme square as shown. The next number, 10, must again be provided for at the square on the left of the next higher row. The square ahead being already filled, 11 is placed below; after this there is "clear sailing" for a time. In this manner magic squares with seven or nine numbers to the side may be made easily. When puzzles and catch problems are under discussion, it is always mystifying to take one's pencil and quickly make out a magic square according to this easily remembered method. The small diagrams at D suggest some of the combinations.

Another method of constructing a square of 25 numbers diagonally is shown at E. Place the outside numbers in the open spaces at the opposite side of the square, maintaining the same triangular relation, which results in the arrangement shown at F. While this combination is entirely different from the previous one, it exhibits the same mysterious properties.

Although they do not contain quite so many combinations, the three magic squares shown at G all add up to this same magic number of 65, straight across, diagonally, and many other ways. A square with seven numbers to the side, worked out according to the first method described, is illustrated at H. The magic number here is 175. Since the general principle is similar to that involved in the squares described in detail, the working out of the numerous combinations of the squares shown at G and H will be left to the interested experimenter.

THE BOY MECHANIC - 1919

A Simple Cipher Code

Adapted for Use in Private Correspondence

By CAPT. W. H. WALDRON, U. S. Army

HAVE you ever needed a secret code in which to couch the con-

tents of a message intended for the eyes of one person alone? If you have, you will remember the difficulties that were experienced in making up the code and enciphering your letter. Here is a cipher code that may be mastered

G	R	A	N	T
F	IJ	E	L	D

Fig. 1

G	R	A	N	T
B	C	H	K	M
F	IJ	E	L	D
O	P	Q	S	U
V	W	X	Y	Z

Fig. 2

C	H	A	IJ	R
B	D	E	F	G
K	L	M	Q	S
O	P	T	U	N
V	W	X	Y	Z

Fig. 3

The Cipher Code Illustrated in These Diagrams may be Adapted for Wide Uses by the Substitution of Appropriate Key Words for Those Shown

in a few minutes; one that is most difficult to decipher by any person other than those having the key words, and that is very simple when once understood.

It is commonly known as the "Play Fair" code and is in use in some of the foreign military services. It is a substitutive cipher which operates with one or more key words, two letters in the code being substituted for each two letters in the text of the message. In preparing the cipher code by this method the key words are selected by the correspondents and their location in the cipher square mutually agreed upon. A large square divided into 25 smaller squares is drawn, as shown in Fig. 1, and the letters of the key words entered into their proper spaces, the remaining spaces being filled by other letters of the alphabet. The key words must not contain duplicate letters. The letters I and J are considered as one and entered in the same space, the letter I being invariably used in enciphering.

Suppose that the two words "grant" and "field" have been selected for the key, the same to be entered respectively in the spaces on the first and third horizontal lines of the square. Then the basis of the construction would be as indicated in Fig. 1. Now fill in the remaining fifteen spaces of the square with other letters of the alphabet, beginning at the blank space at the left of the second line, entering the letters in rotation and not using any letter of the key words. The completed cipher would then appear as shown in Fig. 2.

The text of the message to be sent is then divided into groups of two letters each and the equivalent substituted for each pair. Where two like letters fall in the same pair the letter X is inserted between them and when the message is deciphered this additional letter is disregarded. If one letter is left over after the last pair, simply add an X to it and make a pair.

Suppose it is desired to send this message in the cipher: "Will you meet me as agreed." Having three pairs of the same letter, it will be necessary to break them up by placing the letter X between them. The message will then be paired off as follows:

WI LX LY OU ME XE TM EA SA GR EX ED

The message may now be enciphered, after considering three simple rules for guidance: Every pair of letters in the square must be either in the same vertical line; in the same horizontal line; or at the diagonally opposite corners of a rectangle formed by the smaller squares within the large square.

In the first case, R and P are in the same vertical line (the second), and the next letter below, in each case, is substituted for R and P, which are C and W. If the pair consists of K and Y (fourth vertical), substitute L for K and go to the first horizontal line (fourth vertical) for Y, substituting N for Y. In the second case B and H are in the same horizontal line (the second), and thus substitute the next letters to the right, which are C and K. If the pair consists of P and U (fourth horizontal), substitute Q for P and then go back to the first vertical line (fourth horizontal) and substitute O for U. In the third case, R and S are at the opposite corners of a rectangle. Each letter of the pair is substituted by the letter in the other corner of the rectangle on the same horizontal line

with it. Then R would be represented by N, and S would be represented by P. To illustrate further, NE would be represented by AL; BZ would be represented by MV; TP by RU.

The message may now be enciphered, applying the rules:

WI LX LY OU ME XE TM EA SA GR EX ED
RP EY SN PO HD AQ MD QH QN RA QA LF

In sending this message, to make it more difficult for the inquisitive cipher expert, divide the substituted letters into words of five each and give him the added task of determining whether the cipher used is the transposition or the substitution method. The message ready to hand to the telegrapher would read:

RPEYS NPOHD AQMDQ HQNRA QALFX

In deciphering a message the method is reversed. Take the message as received, divide the letters into pairs, and disregard the final X, which was put in to make a five-letter word. Then apply the key reversed. Practice it on the above message to get the system with respect to letters occurring at the end of the lines. Where the letters of a pair are in the same vertical line, substitute for each the letter above; where they are in the same horizontal line, substitute the letter to the left; where they are in the corners of a rectangle, substitute the letters at the opposite corners on the same horizontal line. To test the understanding of the system, the message given in Fig. 3, with the key words "chair" in the first horizontal line and "optun" in the fourth line, may be deciphered. The message to be deciphered is as follows:

FQVUO IRTEF HRWDG APARQ TMMZM RBFVU
PICXM TRMXM AGEPA DONFC BAXAX.

A Magic Cabinet

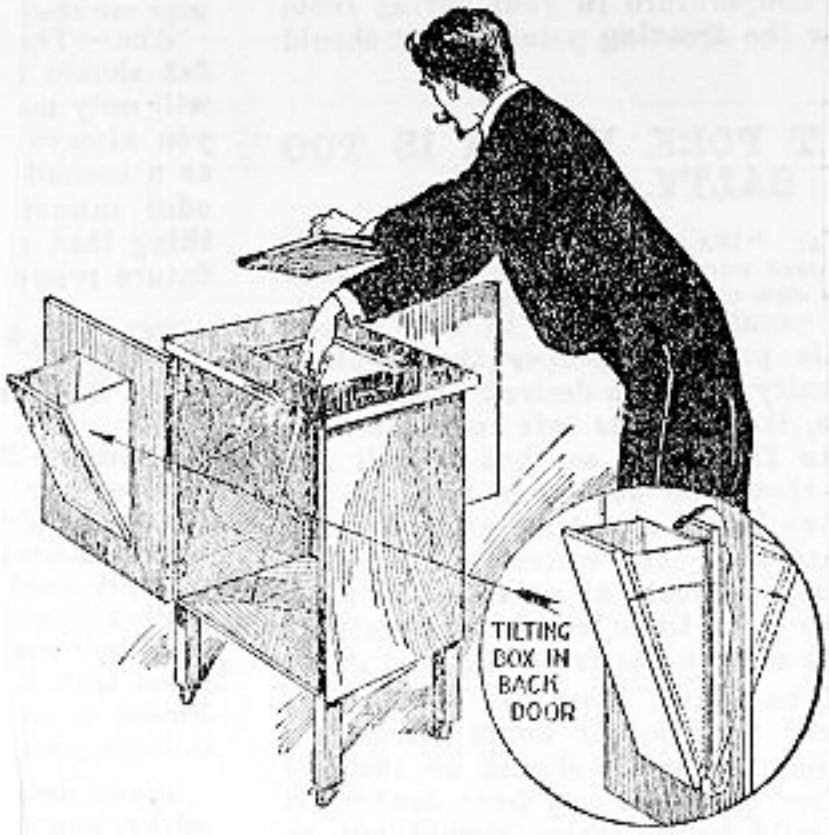
THE BOY MECHANIC - 1919

The performer calls the attention of his audience to a cabinet mounted on short legs and having doors in the front, back, and top. The back door is opened, then the top and front, and an arm is thrust through to show that the cabinet is empty and without double doors or double walls. The performer also puts his wand beneath the box to show that there is no deception there. The doors are then closed, except the top, and reaching down, he takes out any number of articles, from handkerchiefs to rabbits, and then the front door is opened to show the box is empty, but upon closing the front door again, he is still able to produce articles until the supply is exhausted. Wonderful though this trick may appear, it is very simple, and if a person is handy with tools, it can be made from lumber taken from a packing box.

To make the cabinet, nail together, in the shape of a rectangle, two pieces, 16 in. long, 14 in. wide, and ½ in. thick, and two pieces 14 in. square and ½ in. thick. To one of the latter pieces fasten four legs, one at each corner. In the opposite piece, or the top, make an opening in the center, 8 in. square. This opening is covered with a door 8½ in. square, supplied with a knob to open it easily. A piece, 16 in. long and 14 in. wide, with an attached knob, is hinged to the front, for a door; also another for the back, hinged in the same manner and with a knob. In the back there is a cutout made, 9 in. long and 7 in. wide, in the center. In this opening a swinging box is hung to hold the articles taken from the cabinet. The swinging box is made of two pieces, 9 in. long and 7 in. wide, and two pieces about ½ in. larger each way, nailed together on ends, cut triangular. This box is hinged in the opening so that it will swing in or out as desired and show a panel on either side of the door. The front door should have a panel nailed on each side of equal size, to make both doors appear alike.

After loading all the things desired to be shown in the triangular box, start the trick by pushing this box into the cabinet and showing the outside; then open the back, and in doing so, push the triangular box out as the door swings back and away from the au-

dience. This shows that there is noth-



Open the Front Door and Top of the Cabinet and It will Appear Empty

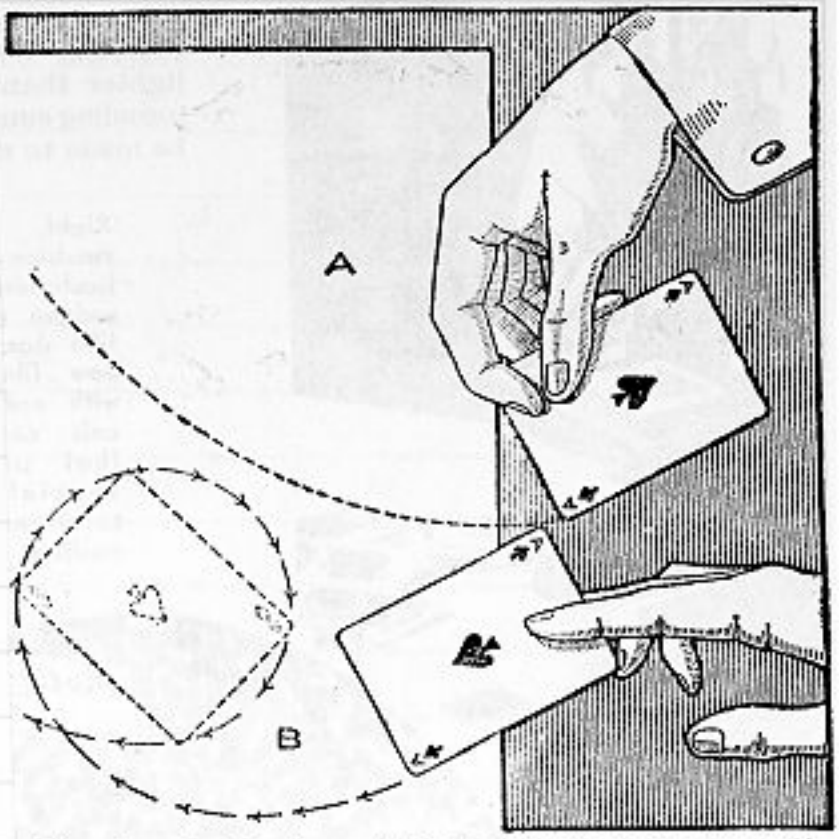
ing to be seen but the panel. Open the front door and top, and the cabinet will appear empty. Close both front and back doors, and in making this change, push the triangular box in, and begin to take the things out through the top door.

By careful construction the cabinet can be made so that the doors will open freely and the triangular box swing easily so that it will not be seen in operating it. With a clever performer this trick is without an equal, as many variations can be made in the performance.

THE BOY MECHANIC - 1919

Tossing a Card at a Mark Accurately

There is an interesting old game that can be played instead of solitaire. It consists in trying to toss the greatest number of cards into a small basket or an upturned stiff hat, set at a distance. If the cards are held as shown at A, and tossed as at B, they may be thrown with surprising accuracy.



Tossing Cards Accurately so That They will Fall into a Receptacle Set at a Distance

THE BOY MECHANIC - 1919

The Mystic Climbing Ring

The performer hands out a wand for examination and borrows a finger ring. He holds the wand in his hand, point upward, and drops the ring on it, then makes mesmeric passes over the wand with the other, and causes the ring to climb toward the top, stop at any place desired, pass backward, and at last fall from the wand. The wand and ring are examined again by the audience.



To produce this little trick, the performer must first provide himself with a round, black stick, about 14 in. long, a piece of No. 60 black cotton thread, about 18 in. long, and a small bit of beeswax. Tie one end of the thread to the top button on the coat and to the free end stick the beeswax, which is stuck to the lower button until ready for the trick.

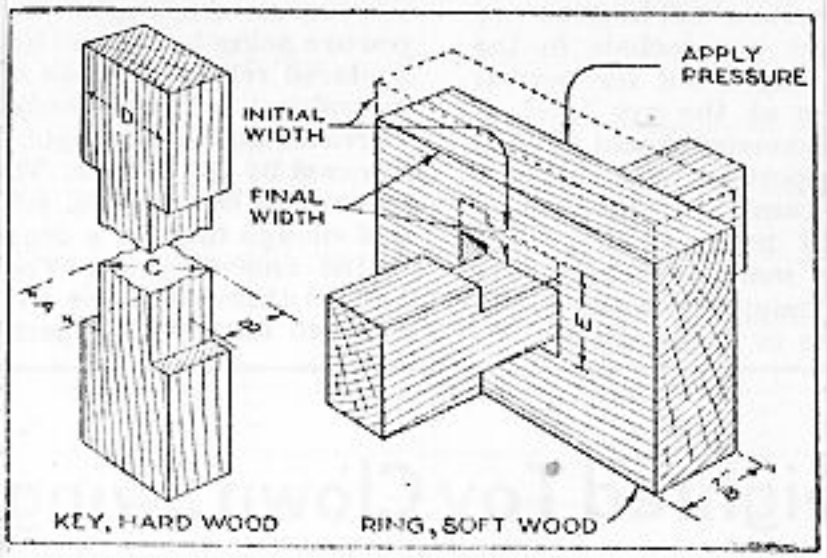
After the wand is returned, secretly stick the waxed end to the top of the wand, then drop the ring on it. Moving the wand slightly from oneself will cause the ring to move upward, and relaxing it causes the ring to fall. In the final stage remove the thread and hand out the wand for examination.

A Wooden Key-and Ring-Puzzle

By E. K. WEHRY
THE BOY MECHANIC - 1925

A PUZZLE which will baffle the ingenuity of many a skilled mechanic is illustrated by the drawing. The mystery of course is as to how the two blocks are put together. The small block, or key, may be made to slide very tightly in the hole in the larger one; it is thus apparent that it could not have been fitted in by any cutting process. The frame, or ring, should be made of good straight-grained soft wood, and the key of hard wood, both of about the same thickness. The surface of both blocks may be planed smooth, so that the blocks can be inspected all over for glued joints; there are no joints in either block.

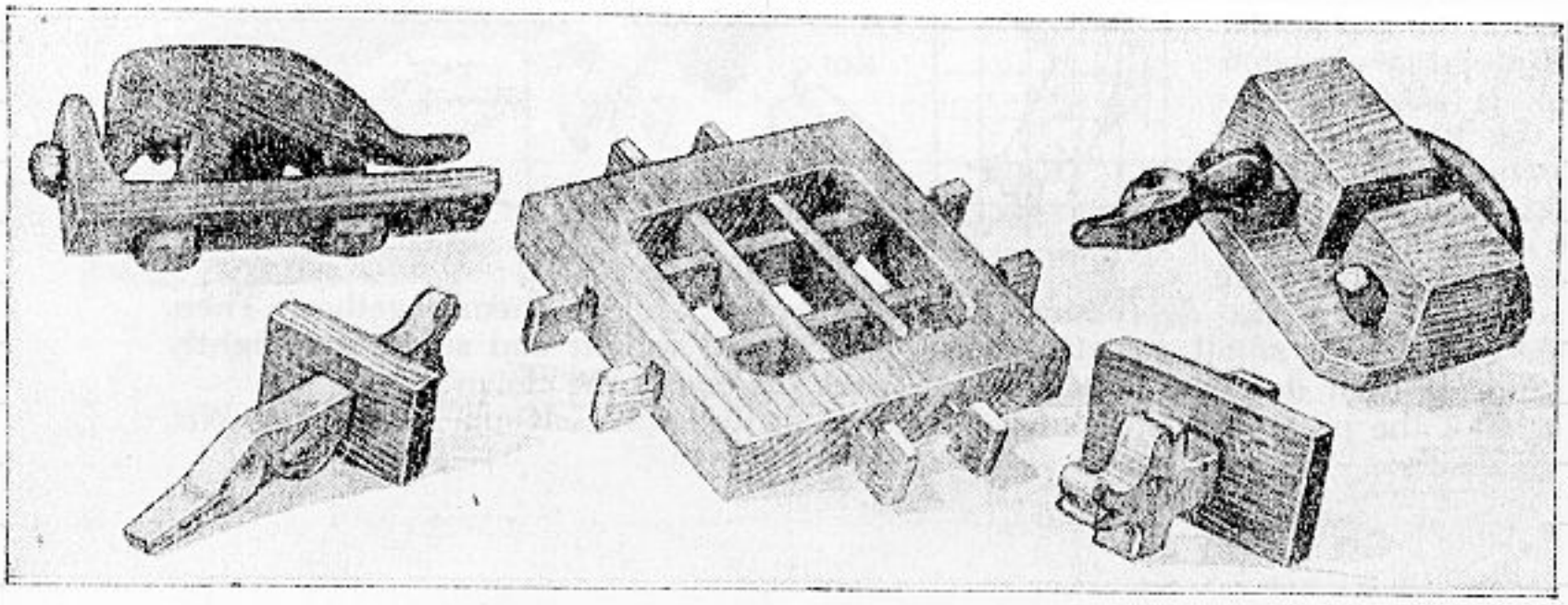
The method of making the puzzle is as follows: Cut the two blocks to shape outside, and cut notches in the sides of the key so that dimension A, in the drawing, will be just slightly less than dimension B. Now caliper the diagonal of this smaller section, this giving the dimension C. Cut a rectangular hole in the center of the large block, of a width E, just slightly greater than this diagonal, and a length greater than the width D of the smaller block. Some notches can be made in the sides of the rectangular hole, as illustrated; these have nothing to do with the puzzle except that they are quite likely to lead the victim astray in guessing at its solution. If the hole is made according to these directions, the small block can be thrust through it, and



Not Only the Amateur but Even the Skilled Mechanic may be Mystified by a Puzzle Which Any Boy can Make Out of Two Wooden Blocks

turned upon its side, so as to occupy the position it will have in the completed puzzle.

The ring block is now thoroughly steamed or boiled in water, for one hour. It is then gripped in a good bench vise, with the key fitted into it, and screwed up as tightly as possible. When the wood has yielded a little, the vise is screwed up again, and so on until the ring is compressed to grip the key tightly between its two sides. Then let the puzzle stand in the vise until the next day, when it will be dry, and can be re-



Various Wooden Animals are Shown Held in Wooden Frames or "Traps," All Made on the Same Principle as the Simple Puzzle. In the Center Is a Rather More Complicated Specimen, but Also Made without Joints of Any Kind

moved. Two stout, hard clamps can be used instead of a vise.

After one's friends have been sufficiently mystified by the question of how the two blocks were ever put together in this fashion, it is a simple matter to place the puzzle in boiling water again for about 20 minutes, when the ring block will swell to its original dimensions, and the key can be taken out quite easily.

The photograph shows a number of modifications of the puzzle. All of them involve the same principle as the simple key-and-ring puzzle. Such a collection will form a curious ornament to the craftsman's shop or home.

THE BOY MECHANIC - 1925

Mystifying Transformation of Water into Ink and Wine

Seen by the audience, the magician exhibits a pitcher of water and drinks some of it to show it has not been "doctored." Eight empty water glasses are arranged on a board across two chairs. The magician pours water into the first glass and it remains water, but when water is poured into the second it turns inky black. The third glass will remain clear, and the fourth assumes the appearance of ink. The contents of the four glasses are poured into the pitcher and all has the aspect of ink. The magician then pours the "ink" into glasses 1, 2, 3, and 4. He pours the inky fluid into the fifth glass and it turns to water again. He pours all back into the pitcher and all is water. The first five glasses are filled with the water, but in the sixth it changes to the appearance of claret wine. The contents of all six glasses are poured back, and he has a pitcher of wine. The first six glasses are filled with the wine-colored fluid which turns to water when poured into the seventh glass. The liquid is again returned to the pitcher, and all is water again. All eight glasses are filled with water from the pitcher and no change occurs in any but the last, the water assuming the appearance of milk.

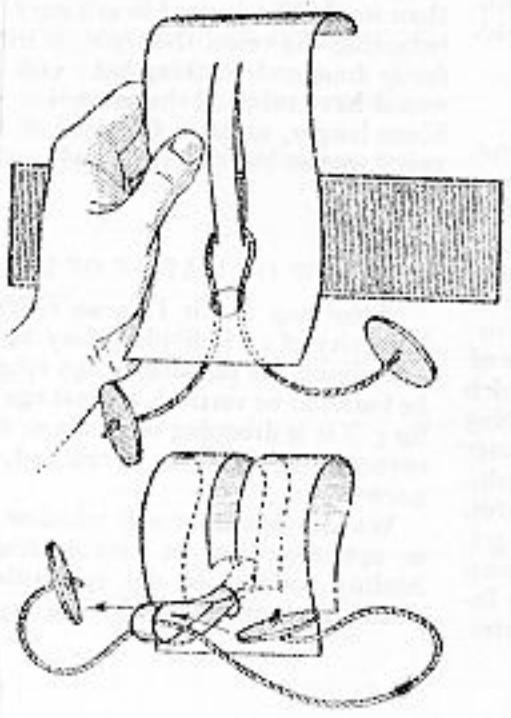
The preparation is simple. Glasses 1 and 3 are unprepared; glasses 2 and 4 contain 10 drops of a strong solution of ferric chloride; glass 5 contains 10 drops of a saturated solution of oxalic acid; glass 6 has 10 drops of ammonia; glass 7 holds 60 drops of sulphuric acid, the last glass contains a teaspoonful of tincture of resin, and the pitcher, a pinch of tannic acid. The chemicals are all poisonous and should be carefully handled.

The operation is also simple. Fill the first four glasses, pour them back; fill the first five, pour them back; fill the first six and return to the pitcher, and then fill all eight glasses.—Frederick C. Davis, St. Joseph, Mo.

THE BOY MECHANIC - 1925

A Simple Paper Puzzle

An entertaining and clever puzzle can be made from a piece of paper and some string. It will give the puzzle fan something to worry about in getting the large cardboard disks seemingly to pass through a very much smaller hole.



A piece of strong paper, about 3 by 6 in., has two slits cut in the center about 3 in. long and ½ in. apart, so that the paper between the cuts can be pulled up like a loop. About ½ in. below the slits, a hole a little over ½ in. in diameter is made; this hole should be wide enough to permit the paper loop to pass through it as shown in the lower drawing. A cardboard disk, about 1 in. in diameter, is tied to each end of a short piece of string.

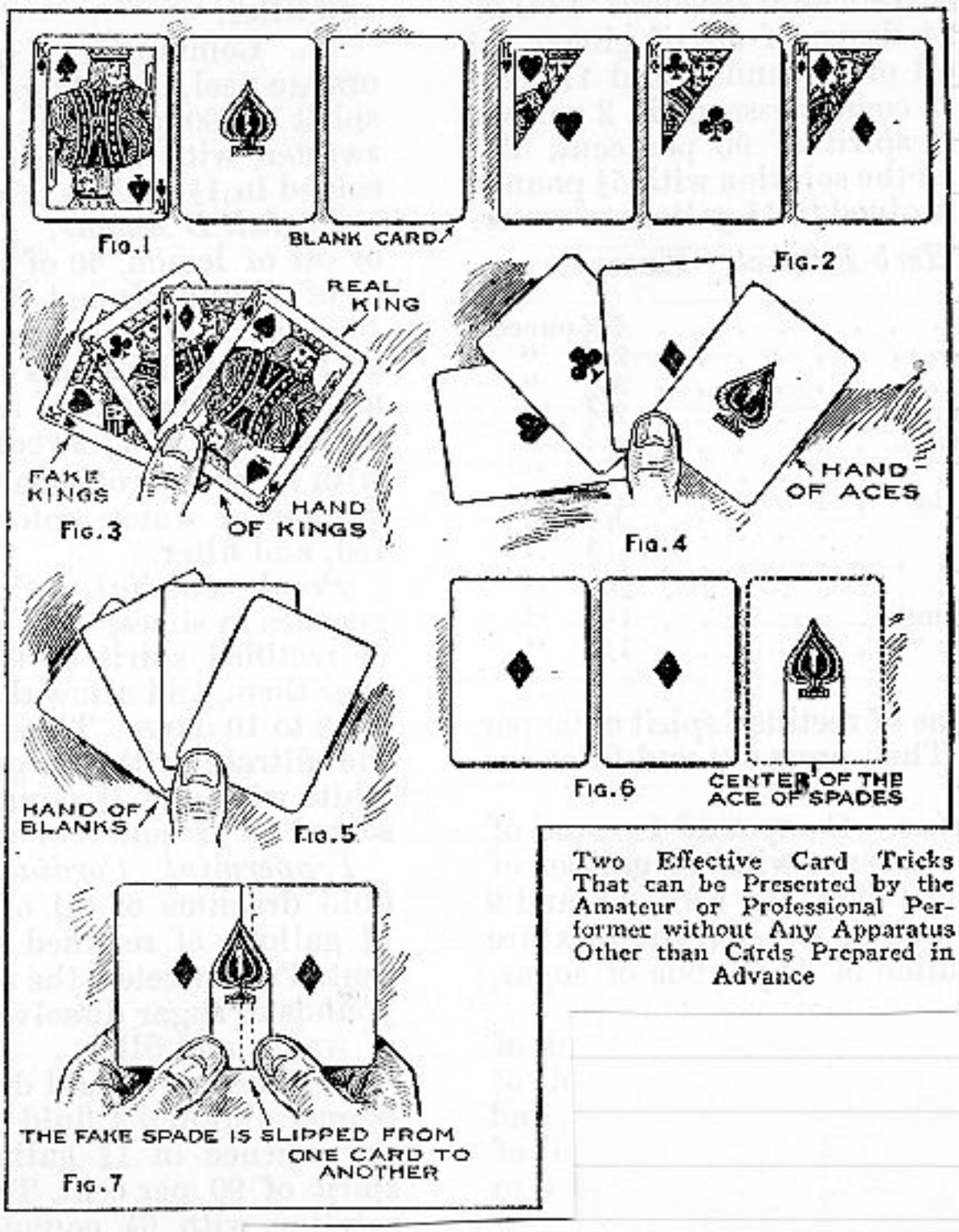
The puzzle apparently consists of passing the twine through the loop in the paper and the pasteboard disks through the round hole, which, it should be remembered, is only half their diameter. The trick is easily accomplished by pulling the loop of paper formed by the slits through the smaller hole as far as it will come, passing one of the disks through it, as indicated in the lower drawing, and then allowing the loop to go back to its original position.—S. Leonard Bastin, Bournemouth, Eng.

Two Effective Card Tricks

THE BOY MECHANIC - 1925

The first trick involves the use of four cards, which are "fanned" out, to show a corresponding number of kings, the performer repeats the magical "abracadabra," and, presto! the same hand has changed to four aces when it is again displayed—a third pass, and only blank cards are shown. Six cards are required for this trick, three of which are unprepared, the other three being "prepared." The three unprepared cards are the king, ace, and blank card shown in Fig. 1, the three other cards being prepared by pasting a part of the remaining three kings over a corner of the aces of their corresponding suits as shown in Fig. 2. In the presentation of this trick, the four kings are first displayed to the audience. The real king being on top, the cards are fanned as in Fig. 3, so as to show only the kings on the corners of the other three cards. Then, the performer picks up the ace of spades, which has been left face up on the table, and announces that he will place it directly behind the king of spades, which he does. He then lays the king of spades on the table. The cards are then closed up and turned over so that the cards are held at what is the top of the cards in the first presentation of the four kings. Then, the cards are fanned out to show the four aces, as in Fig. 4. The index numbers in the corners of the aces should be erased or covered up, otherwise it will be impossible to show the blank cards.

The manipulator now states that by placing a blank card, which he picks up from the table, where the ace of spades is, the spots will disappear from all the cards. The ace of spades is placed on the table, the blank card taking its place. The cards are then closed and fanned out, the hand showing four blank cards, as in Fig. 5. In the second trick, an ace of diamonds is held in one hand and an ace of spades in the other, but while held in full view of the audience, the cards change places. The prepared cards are made from two aces of diamonds, from which the corner index pips and letters have been erased. An ace of spades is also required, the center of which is cut from the rest of the card as indicated in Fig. 6, which shows the appearance of the three prepared cards. In presenting this particular trick, an ace of diamonds is held in each hand, but only one of them is visible to the audience, the



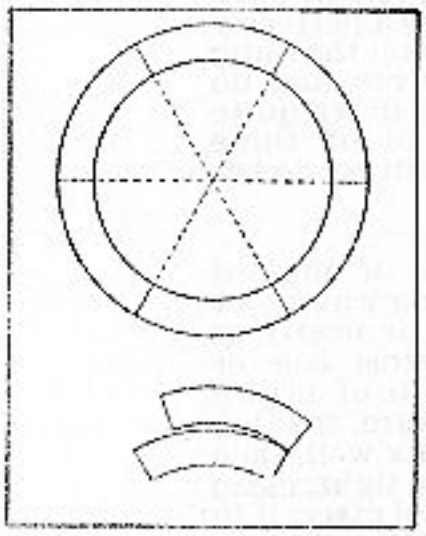
Two Effective Card Tricks That can be Presented by the Amateur or Professional Performer without Any Apparatus Other than Cards Prepared in Advance

other being concealed underneath the ace that has been cut from the card. The performer then announces his intention of making the cards change places. He turns the backs of the cards toward the audience, and, with the hands apart, begins moving the cards back and forth, bringing them a little closer to each other at each pass. Finally, when the edges touch, as in Fig. 7, the false center from the card is slipped over and onto the other card; this done, the cards are moved back and forth, gradually separating them, and their faces are again turned to the audience, when, to all appearance, the cards have changed their positions.

THE BOY MECHANIC - 1925

A Simple Geometrical Trick

A simple geometrical trick that can be made from a piece of cardboard will provide plenty of entertainment at the efforts of others to prove that two identical circular-ring sectors are of different sizes.



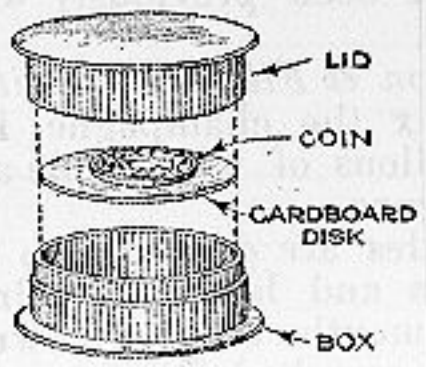
Two concentric circles are drawn on the cardboard with a compass, and these are carefully divided into six equal parts, and two ring sectors are cut out. Then place the sectors one above the other as below, and ask someone how much longer one piece is than the other. Unless the person has seen the experiment before, he will invariably say that one is considerably longer than the other. Now reverse the pieces and repeat the question. The fact that the two pieces are the same size can be established to the satisfaction of anyone by placing one on top of the other.—Norman Hazen, Montreal, Que.

THE BOY MECHANIC - 1925

The Magic Pill Box

The magic pill box makes coins disappear and return at will; the trick is very simple, and any pill box can be fixed for performing it in a few minutes.

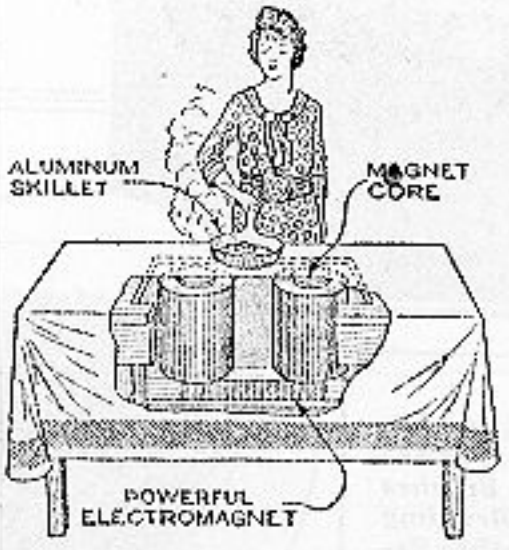
Get a regulation round pill box, and cut a cardboard disk just large enough to fit into the bottom. Drop a coin in the box and put the lid on; then, turn it upside down and shake it, calling attention to the fact that the coin is still there, by the rattling inside. Now, pull the box apart, holding the lid in the left hand, so that the cardboard disk covers the coin, which has vanished. Then, still holding the lid upside down, put them together again and reverse the operation, holding the bottom in the right hand; upon opening the box the coin will reappear.



THE BOY MECHANIC - 1925

Frying Eggs over an Unheated Table

The entertainer who can get hold of a powerful electromagnet, as, for example, the field of an old-fashioned two-pole generator, will be able to arrange an exhibition that will puzzle many who consider themselves well-informed on electricity. He has before him what appears to be an ordinary wooden table. He announces that he will fry eggs over it in an aluminum skillet. Some matches may be scattered over the table to prove that it is not heated, and spectators invited to satisfy themselves of the absence of heat by touching the table. After cracking and dropping an egg or two into the skillet, the latter is held a few inches above the table, and the eggs are speedily fried. An iron frying pan could be used, but the aluminum article is more effective, as no one can claim it is "magnetic."



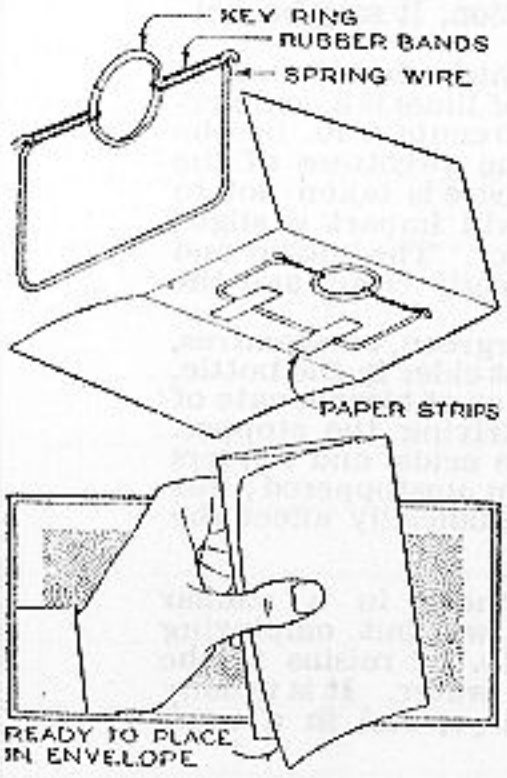
The explanation is, that under the table top are the two powerful magnetic poles which are energized with ordinary alternating current. The lines of magnetic force between the poles will, of course,

penetrate any nonconducting material, such as wood, without the production of heat. But, when any sheet metal, such as the skillet, is held in the magnetic field, the rapid alternation in its direction, produces electric currents in the metal, which are known to motor designers under the name of "eddy currents." These currents, traversing the metal frying pan, have no other effect than to heat it by the ordinary process of heat production whenever a current encounters resistance. The fact that aluminum is nonmagnetic reduces the heating effect somewhat, as the lines of force are "crowded out" of the aluminum instead of being "drawn in," as they would be with an iron skillet. However, if the magnet is sufficiently strong, there is still enough heat to fry the eggs. If there is too much, the skillet can be held a little farther above the "stove," that is, a little farther out of the direct line between the magnet poles. The matches on the table will remain unlighted, but caution must be taken to prevent bringing the skillet against them or they will ignite from its heat.—Curtis Ralston, Chicago, Ill.

THE BOY MECHANIC - 1925

A Trick "Letter"

Endless amusement will be obtained from the simple device illustrated, which is attached to an ordinary sheet of letter paper, folded up and placed in an envelope. On opening the supposed "letter," the recipient gets something of a surprise when the ring revolves rapidly.

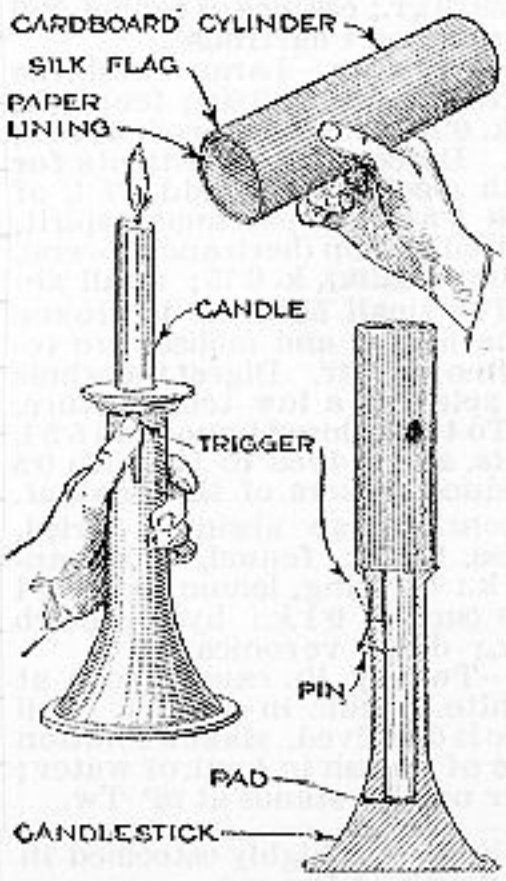


A U-shaped piece of spring wire is fastened to the paper by paper strips. An iron washer, or ring of the type shown, is held across the open part of the "U" by rubber bands. In use, the rubber bands are twisted so that as soon as the letter is opened they begin to untwist and the ring to revolve, causing it to whiz and whir as though there were something very much alive in the letter.

THE BOY MECHANIC - 1925

The Magic Candle and Flag

This is a trick that can easily be performed by the amateur with very mystifying effect, and the necessary apparatus is simple to make. The trick is this: A candlestick, with a candle in it, is placed on a table; a cylinder is shown to be empty, after which it is placed over the candle so that the latter is concealed; the "magician" makes a few appropriate passes, at the same time saying one of the seven magic words, of which "abracadabra" is the most "potent"; when the cylinder is removed, the candle will have disappeared, and the tube is still shown to be empty. Then a flag or handkerchief is extracted from it. While the audience is still wondering how it was done the operator reaches into a coat pocket, produces the candle lighted, and places it back in the candlestick.



The apparatus required consists of the trick candlestick illustrated, two imitation candles, a cardboard cylinder, and a silk flag, or handkerchief. The base of the candlestick is hollow, and when the cylinder is placed over it, a trigger is pressed that allows the candle to drop out of sight into the hollow base. The flag is folded and placed like a lining within the cylinder, and is kept from sight of the audience by a paper lining, as indicated in the drawing. The cylinder is prepared and the second candle placed in the magician's pocket before the performance. This candle has a match head for a wick, and as it is taken from the pocket

the match is struck on a piece of sandpaper that is pinned in a convenient place on the inside of the coat. The candlestick can be bought ready-made, or it may be made from wood. The hole in which the candle drops must be large enough to make a snug but free fit, and deep enough to conceal the candle entirely when resting upon the bottom. A small wire pin projects through the candlestick just far enough to hold the candle in place, yet so that a very little movement will release it. A bent strip of sheet metal serves as a trigger, and this is fastened at its center to the candlestick, very loosely. When the cylinder is placed over the candle the performer presses the trigger and lets the candle fall. In this position the top of the candle should be even with the wire pin, so that when the second lighted candle is set in the candlestick it will rest on top of the first one. The candles can be made from metal, paper tubes, or wood. If tubes are used, corks are inserted into the ends to hold wicks. In any case, have a wick on one candle and a small hole for a wick on the other. Enamel them white. For the light effect in the second candle, a match end is inserted in the wick hole. The cylinder which is put over the candle to hide it can be made from cardboard or sheet metal and finished as desired. Fold the flag and place it so as to be close to one end of the tube. When taking the flag from the cylinder, hold the cylinder and the paper lining tightly together, at the end farthest from the flag, so that the latter can be pulled out without disturbing the paper.—Norman B. Taylor, Pomona, Calif.

Forcing Plants with Steam

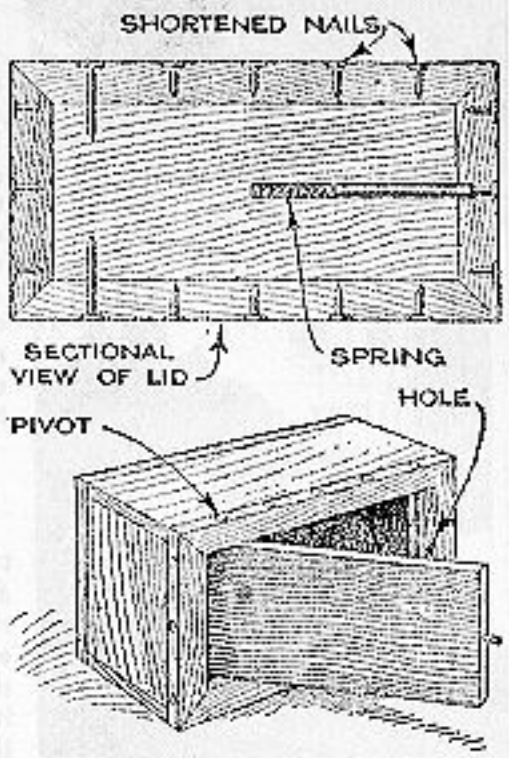
THE BOY MECHANIC - 1925

Plants of all kinds expand their blossoms much more rapidly when given an occasional steam bath. A framework, large enough to cover the plant to be treated, is made and covered with cloth. Steam is generated in an ordinary teakettle on a portable stove, and admitted under the covering through a tube attached to the spout of the kettle. The length of time a certain plant should be steamed, depends upon the development of the buds, and different plants require longer or shorter treatment.—S. Leonard Bastin, Bournemouth, Eng.

THE BOY MECHANIC - 1925

A Secret Box Lid

A simple secret box lid, that is proof against being opened by anyone who does not know the secret, is made by pivoting the lid, near one end, by means of two nails driven through the sides of the box into the edges of the cover. A hole is drilled in the middle of the opposite end of the lid to take a spring and a nail from which the point and head have been cut. When the lid is closed, the nail is pushed into a hole drilled in the end of the box, locking it securely. To open the box, it is necessary to push the bolt out of the hole in the box by inserting a heavy pin through a small hole, which leads from the outside to the nail socket, and by pressing down on the short end of the lid. The lid can be given the appearance of being solidly nailed by using shortened nails, and some other side may be made to appear as the cover. A shortened nail can be pushed into the small hole leading to the bolt, and, when in position, will conceal this perfectly. Some kind of mark should be made on the head of this nail, to distinguish it from the corresponding one on the opposite end.—Frank Presnell, Chillicothe, Ohio.



THE BOY MECHANIC - 1925

Making Varicolored Flash Papers for Stage Effects

Amateur plays are often produced in small communities where there is no electric-lighting current. If the play calls for fire scenes, lightning, artillery fire, explosions, etc., it is difficult to produce much of an effect without electric lights. For

just such occasions, a set of varicolored flash papers will produce the effects desired. These papers can be prepared at home at small cost.

It is well, at this point, to call attention to the danger attending the use of these sheets, as well as of colored fires, etc., in close proximity to scenery, costumes, and other "props" that have not been fireproofed. Sheets of tissue paper, about 12 in. square, are used; these are cut in half for small, weak flashes, while, for longer ones, a whole sheet can be used. The tissue paper is soaked in aqua fortis, which should be bought ready-mixed from the druggist. The paper is thoroughly soaked, but is taken out of the solution as soon as possible, rinsed in running water, and hung up to dry. A wooden clothespin, or something of the sort, should be used to remove the paper from the acid, which should be prevented from contact with the fingers or clothing. When the papers thus treated have dried, they are pinned to a stick, held at arm's length and touched off with a match at one corner. They will burn with a brilliant white flash.

Colored flashes are made as follows: In all cases the paper is first treated as described above, and dried before immersion in the chemical solutions that produce the colors.

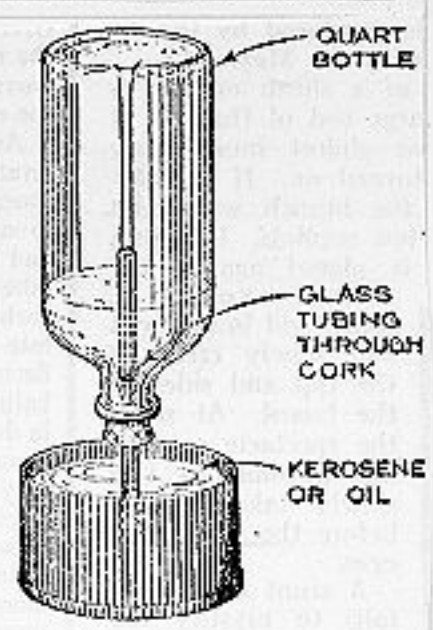
For red, dip the treated sheets in a solution of water and nitrate of strontium. Blue is obtained by soaking in copper-nitrate solution. Green can be produced from a solution of copper chloride, while a solution of calcium nitrate will produce another red. A beautiful violet flash is made from a solution of saltpeter and water.

Be sure to pin the paper to the end of a stick, which can be held at arm's length, or else fasten to a tin reflector before lighting.

THE BOY MECHANIC - 1925

Vapor-Absorbing Power of Oils

An interesting experiment, that shows the tremendous absorbing power of oils for the lighter vapors from gasoline, is easily made. A quart bottle is dried, and then slightly warmed. When warm to the touch, a spoonful, or less, of ordinary gasoline is put into the bottle and allowed to stand for a minute. A cork, having a small hole drilled through its center and a short piece of glass tubing inserted through it, is placed in the neck of the bottle, which is now filled with gasoline vapor heavier than air.



Then place the bottle upside down into a vessel containing some kerosene, or light lubricating oil, as shown in the drawing. Slowly at first, the oil in the outer vessel will rise in the tube and be drawn into the bottle, and when it overflows, the absorbing surface is increased so much and so quickly that there is formed a partial vacuum in the bottle, causing the kerosene or oil to rush in with a great deal of force so that the jet strikes the top of the bottle and continues to play until the bottle is almost entirely filled.

This fact that the lighter vapors are so readily absorbed in heavy oils, is made use of in the manufacture of gasoline from natural gas by the absorption process.—E. Stetson, Okmulgee, Okla.

THE BOY MECHANIC - 1925

The Knight's Tour

The knight's move in chess can be made the basis of a very effective "memory" feat, suitable for presentation by any ama-

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

1	11	5	15	32	22	39	56
62	45	60	50	33	43	26	9
3	20	14	8	23	29	12	2
19	25	35	41	58	52	37	47
64	54	44	59	49	34	17	27
10	4	21	6	16	31	48	38
55	61	51	57	42	36	53	63
46	40	30	24	7	13	28	18

The Moves of the Knight in Its Tour around the Board are Outlined in the Left-Hand Drawing. This Trick may be Used with Telling Effect as a Master "Memory" Feat

teur magician. This move is a peculiar one, the piece moving two squares straight across the board, then one square at right angles to the first one, or one square straight across the board, then two squares at right angles; the first move may be in any direction, forward, backward, or to the right or left, except diagonal. The tour may begin at any square on the chessboard, the problem being to move the knight in such a manner that it will, in the course of the tour, cover every square on the board, without stopping twice on the same square, returning finally to the square from which it started.

A blackboard is ruled off into 64 squares, corresponding to the chessboard, and the squares are numbered as shown in the left-hand drawing; the board is placed on an easel in full view of the audience. This done, a member of the audience is asked to call out the number of the square he wishes the performer to start from, which, for example, will be number 37. The person giving the number is furnished with a piece of chalk, and instructed to draw a straight line from square to square as the performer calls out the numbers. By examining the drawing, it will be seen that these straight lines, while not showing the actual right-angled move of the knight, show the starting and stopping points of each move.

The performer steps well away from and to the back of the blackboard, so that it is impossible for him to see it. As the numbers are called out the knight's path is traced until the piece is back at the starting point, in this case number 37 square.

The trick requires an indicator, which is a card, 1¾ in. square, divided into 64 squares, and each row numbered from left to right as shown in the right-hand drawing, the numbers representing the consecutive moves of the knight. Beginning with the number called, the consecutive numbers are read from left to right, then the numbers in the next row below, and so on, always reading from left to right, and when the last number, 18, is called, the performer goes to the upper left-hand corner and calls out number 1, continuing until number 37 is again reached.

When the performer steps away from the board, he casually folds his arms, so that the indicator is concealed in his right hand; it is then only necessary to glance down at the indicator and call off the number, beginning at 37, or any other number specified.

In working up the effect, the numbers should not be read off in too much of a hurry; for example, say, "You are on 37 —go down—down to 47, now—away down to 64, in the corner,—up to—er—54, now to 44," and so on.

Properly presented, this trick gives the audience the impression that the performer has a master memory.

THE BOY MECHANIC - 1925

Bewitched-Cube Puzzle

This simple puzzle, which requires six numbered cubes, will require considerable concentration to "make it come out right." Six wooden cubes are provided, and numbered on each of their six faces from 1 to 6, the order of numbering being different for each cube, as shown in Figs. 1 and 2.



FIG. 1: SHOWING FRONT OF THE SIX CUBES IN THE PUZZLE

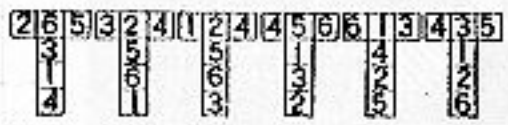


FIG. 2: PLANE VIEW SHOWING HOW EACH CUBE IS NUMBERED ON ITS SIX FACES

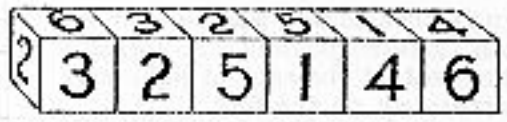


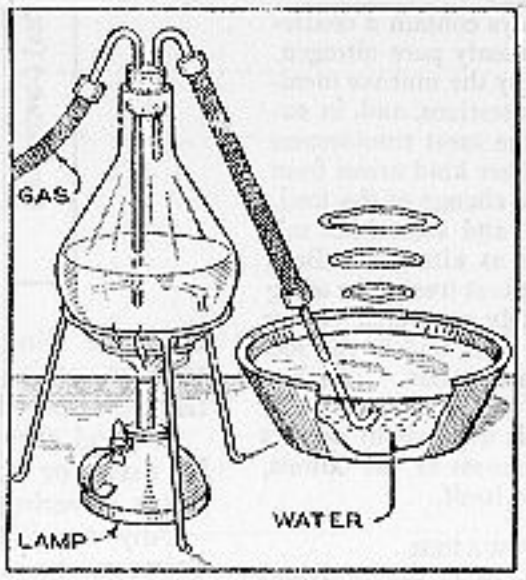
FIG. 3: SHOWING ONE SOLUTION OF THE PUZZLE

The object is to arrange the six cubes in any shape, preferably in a straight line, as in Fig. 3, so that the figures 1, 2, 3, 4, 5, and 6 will appear at once on the top, bottom, front, back, and right and left-hand faces. They will not be in consecutive order, but the six numbers must each show from every side. Separating the cubes slightly will show the right and left-hand faces. When once properly arranged, the blocks may be transposed hundreds of different ways in a straight line, fulfilling the conditions each time.—Dr. L. K. Hallock, Roodhouse, Ill.

THE BOY MECHANIC - 1925

A Self-Igniting Gas

One of the most interesting of simple chemical experiments is the making of a gas which ignites spontaneously on exposure to the air. A glass flask is fitted with a cork bored to take two bent pieces of glass tubing, one piece being long enough to

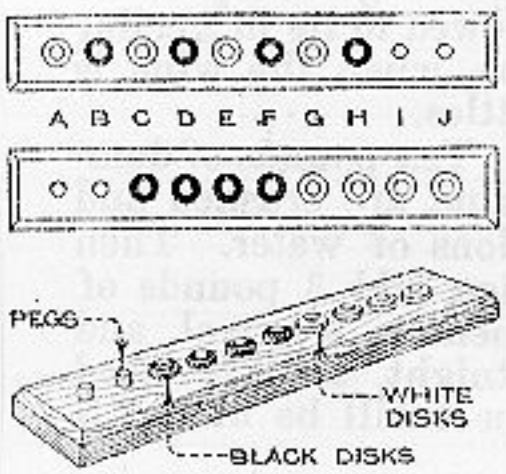


reach within a short distance of the bottom of the flask, the other one coming just below the cork. The flask is about half filled with a strong solution of sodium or potassium hydroxide, and a piece of yellow phosphorous, about the size of a pea, is added. These materials must be prevented from coming in contact with the skin, as, owing to their caustic character, burns would result. The longest glass tube is connected to the house supply of gas, and the other is joined to a length of rubber tubing at the opposite end of which is inserted a second piece of glass tubing, as indicated; this is submerged in a basin of water. The flask is supported on a stand, and a lighted alcohol lamp is placed underneath. The gas is turned on, and, as the solution in the flask begins to boil, the resulting mixture of gas and vapor is forced through the tube submerged in the basin. As soon as the bubbles reach the surface of the water they burst, and appear as rings which ignite as they come into contact with the air.

THE BOY MECHANIC - 1925

A Ring-and-Peg Puzzle

A short piece of board is provided with 10 short wooden pegs, and eight wooden disks are drilled through the center to fit over the pegs easily; four of the disks are white and the others are either made of dark wood, or painted black. When the block and disks have been made, the latter are placed on the first eight pegs, white disks alternately with black, the last two pegs being left vacant. The object of the puzzle is to get the four white and four black disks grouped together without leaving any pegs vacant, except two at either end. The disks must be moved two at a time and the rearrangement made in four moves, two disks at a time.

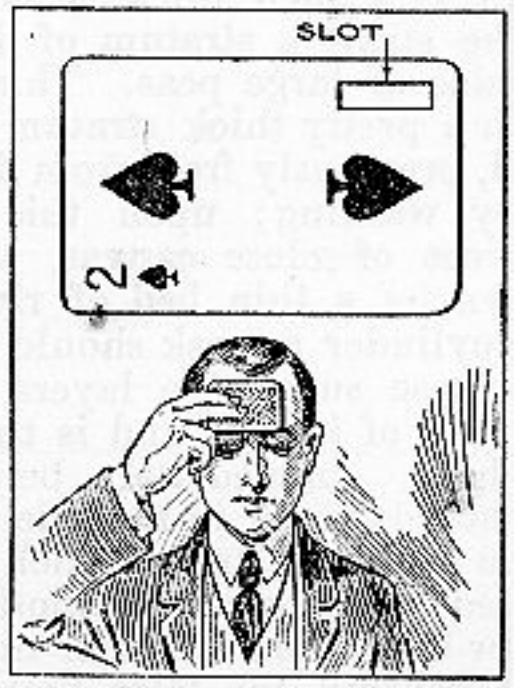


The upper drawing shows the arrangement of the disks at the commencement of the puzzle and the center one shows how the disks should appear at the conclusion. The secret of the puzzle is as follows: Move the disks B and C to the vacant pegs I and J; E and F to B and C; H and I to E and F, and A and B to H and I; this gives the necessary transposition, and the disks can be returned to their original positions by reversing the movements.

THE BOY MECHANIC - 1925

The "X-Ray" Pack of Cards

This trick is a "mind-reading" stunt which is worked on a new principle, and is very puzzling. A full pack of cards is shown and half of them are handed out, the other half being kept by the performer. A spectator is asked to select any card from those he holds, and insert it in the pack held by the performer, while the latter's eyes are closed or his head is turned. Without manipulating the pack in any way, the performer places it against his forehead and instantly names the card chosen by the spectator.



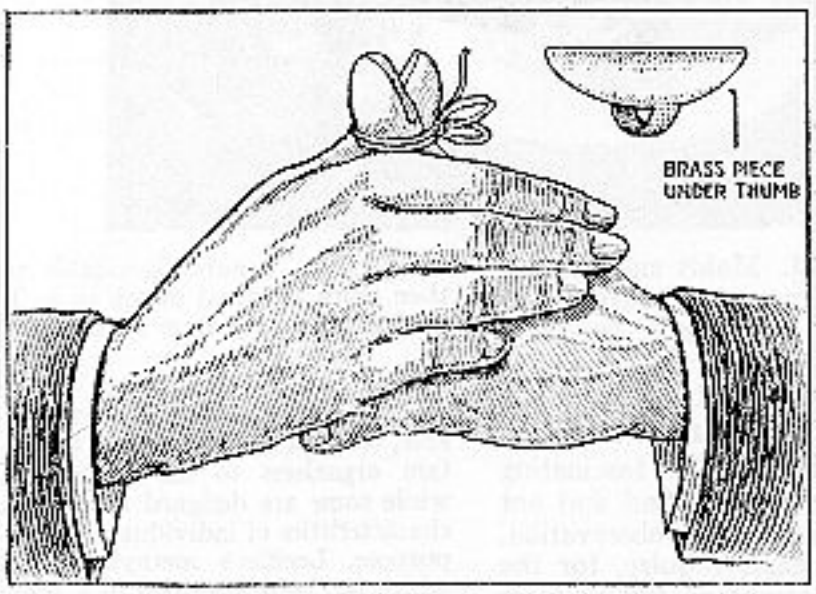
The cards held by the performer are prepared for the trick by cutting a slot ⅛ in. wide and 1 in. long in one corner of 25 cards, with the sharp point of a penknife, in such a manner that all the slots coincide. In presenting the trick the performer keeps all the prepared cards, and also one card which has no slot, the latter being kept on top of the pack so that the slots cannot be seen by the spectators. The performer's thumb is held over the slots when the bottom of the pack is

shown. A spectator is asked to insert a card face down into the cards the performer holds in his hand. When this is done the thumb is lifted from the slot as the cards are raised to the forehead, when the performer can look through the pack and see the index on the card the spectator has selected. After the forehead "stall," the performer announces the card selected. The trick is repeated by "fanning" out the cards and extracting the card named.

THE BOY MECHANIC - 1925

The Magic Thumb Tie

The prestidigitator crosses his thumbs and requests some one from the audience



"There Are Tricks in All Trades;" Catching a Hoop on the Arm, with the Thumbs Tied Together, Is One of the Magician's Tricks

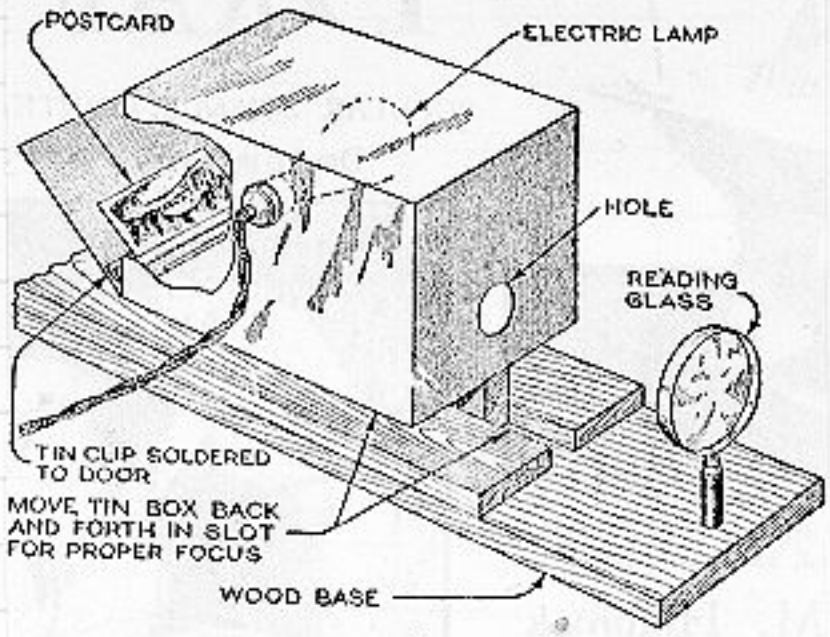
to tie them together with a piece of tape, as shown in the drawing. A hoop is then thrown at the performer and, to the surprise of the audience, it is seen hanging upon one of his arms, although his thumbs are still securely tied.

The explanation of this, like most other tricks of legerdemain, is simple. A piece of sheet brass, or heavy tin, is made into the ring shown in the small drawing, to fit over the right thumb, the broad portion being next to the ball of the thumb; the tape is tied around this ring, the thumbs being crossed, so that the ring is on the underside of the thumb and quite without the knowledge of the person tying the knot. To minimize the possibility of detection, the ring is painted a flesh color. When the hoop is thrown, the performer quickly removes his thumb from the ring, catches the hoop on his arm and slips his thumb back into the ring too rapidly to be detected.—George N. Sleight, Saugatuck, Mich.

THE BOY MECHANIC - 1925

A Postcard Projector

A simply constructed postcard projector that will throw the pictures from



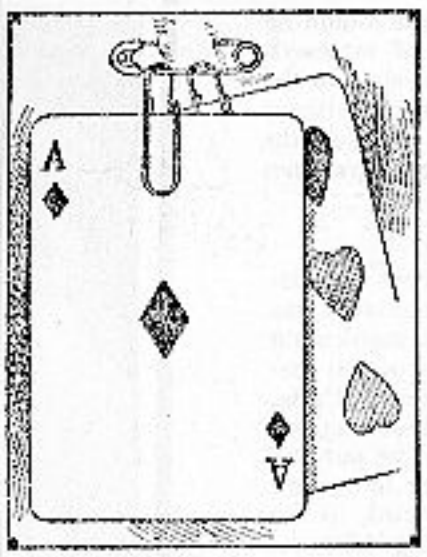
A Postcard Projector Made from a Tin Cracker Box That Throws the Pictures on Postcards, and Magazine and Newspaper Illustrations on a Screen

postcards, and magazine and newspaper illustrations, on a screen, is made from a tin cracker box. A round hole is cut in the bottom of the box, somewhat out of center, and another hole is cut at one side for the insertion of an electric lamp; this latter hole should be at such a height that the lamp will be well above the opening in the bottom, as indicated, and a metallic filament lamp should be used. A tin clip is soldered to the tin lid of the box, which should be hinged, for holding the pictures to be shown; care should be taken to locate this clip so that the center of the picture will be in line with the center of the hole at the front. A wooden base, with a groove in the center, is provided, and a strip of wood is nailed on the underside of the box to fit into it, so that the whole can be moved back and forth. The projection lens is an ordinary reading glass mounted at the front end of the base in line with the hole. The inside of the box should be brightly polished, as its successful operation depends largely upon the amount of light that is reflected onto the picture. In use, the light is turned on, the cover is lowered, and a picture is inserted in the clip, upside down; the cover is then closed, and the box is moved back and forth on the guides until the image on the screen is in focus.—Glenn O. Wilson, Denver, Colo.

THE BOY MECHANIC - 1925

Paper Clips Make Magician's Card Holder

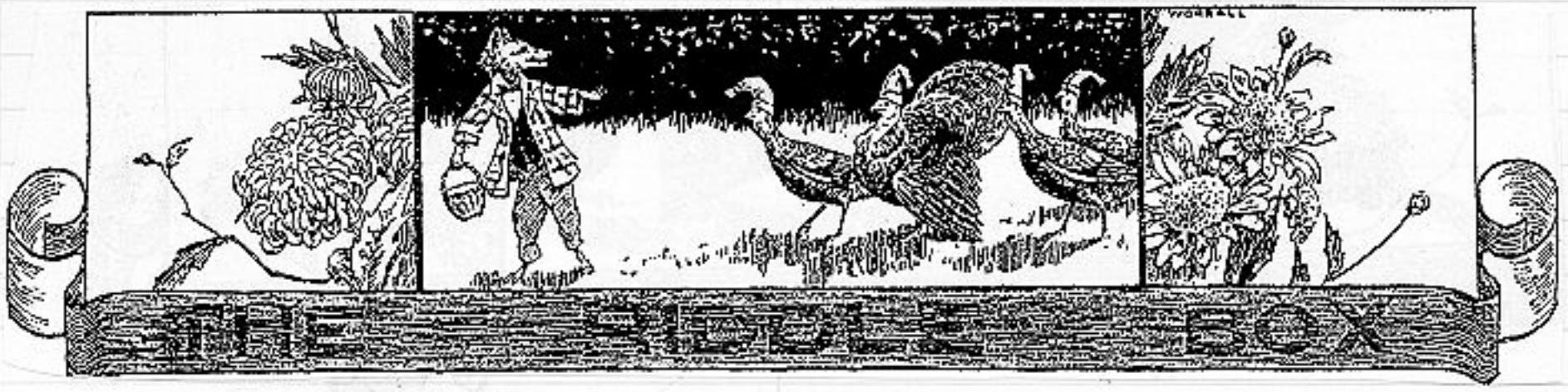
A quickly arranged card holder, for performers of magic and legerdemain, is found in the ordinary wire paper clips obtainable at any stationery store. These clips are sewed to the lining of the clothing, or held by means of a safety pin, in the manner shown in the drawing. A great number of cards can be held "in reserve" by this method, and while held securely, they may be drawn with only the slightest effort.—Elmer O. Tetzlaff, Milwaukee, Wis.



"Perpetual" Soap Bubbles

THE BOY MECHANIC - 1925

A soap bubble that lasts indefinitely may be formed by the following method: Place 2 oz. of distilled water into a 6-oz. bottle. Put the bottle in a pan of water on the fire, and heat until steam issues from the bottle, then add a piece of soap, about the size of a pea. Remove the bottle from the pan and immediately cork it, pressing the cork in firmly, and finally covering it thickly with sealing wax. To get the bubble, hold the bottle horizontally, and give it a sudden upward movement. This will throw the liquid over the inside of the bottle, leaving a film of the soapy solution behind. As the liquid drains to the bottom of the bottle, a bubble forms in the upper part which will last indefinitely.

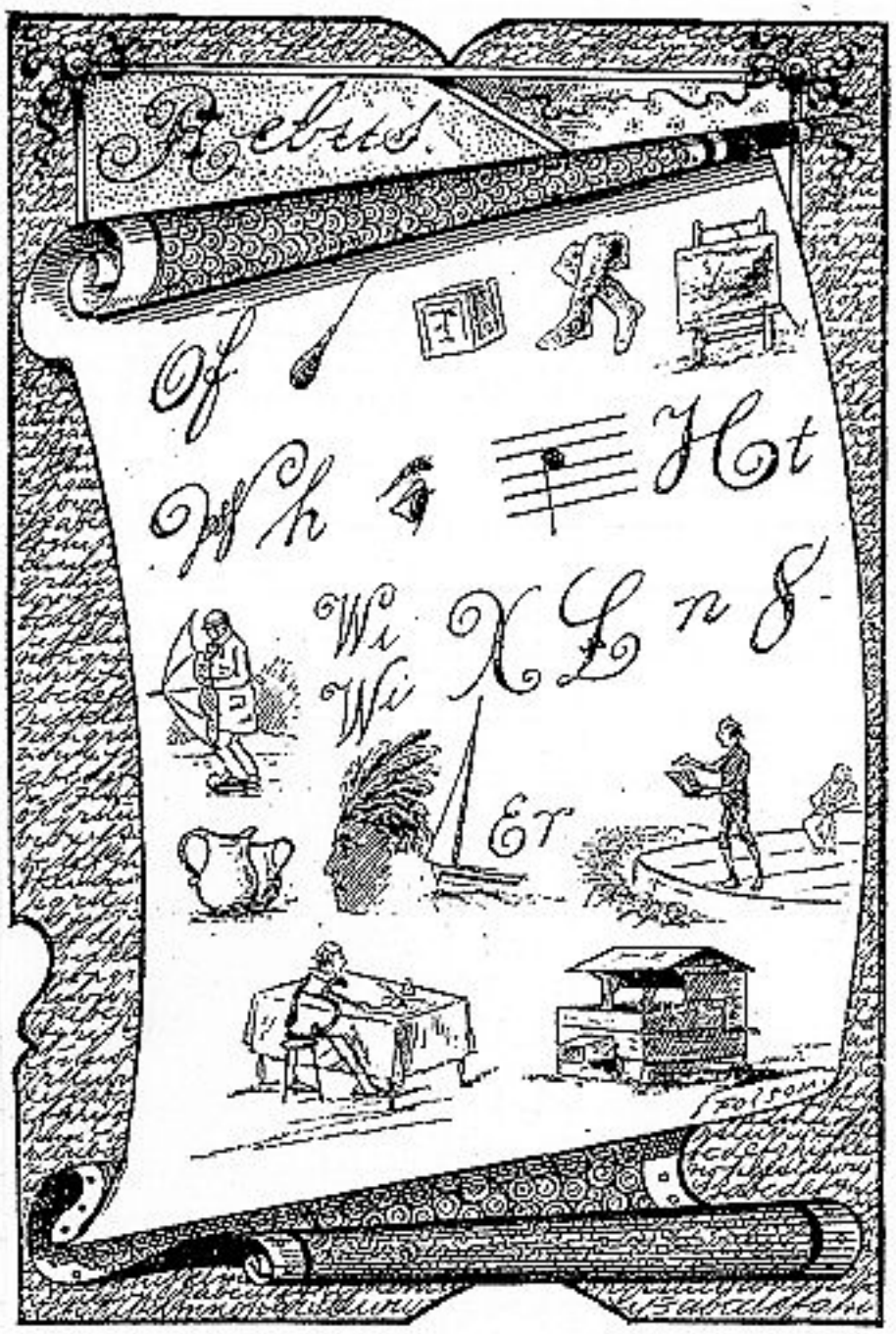


ST. NICHOLAS

St. Nicholas was a publication for children ranging in age from five to thirteen in the late nineteenth and early twentieth centuries. They loved to read and do mind challenging games. The average seven-year old could read at today's high school level. Most of them could do a lot of the puzzles and riddles and some could do them all. These puzzles and riddles are on today's college level. Moreover, the riddles, puzzles, etc., were also created and submitted by the children. They were certainly up on their current events. Aside from their current events, which you are not expected to relate to, see if you can match wits with our ancestors as children.

St. Nicholas November 1884

THE RIDDLE-BOX.



THE answer to the above rebus is a couplet from "Essay on Poetry," by Sheffield, Duke of Buckingham.

NUMERICAL ENIGMA.

THE answer, consisting of one hundred and one letters, is a four-line stanza, and expresses a sentiment appropriate for Thanksgiving-day.

FIRST LINE.

My 2-6-1-3-5-22 is a meal. My 15-4-19-27-18 is a large stream. My 7-25 is an exclamation. My 23-8-17-9 is a kingdom in Farther India. My 10-11-21-24-20-12 is to cherish. My 16-13-14-26 is a division of time.

SECOND LINE.

My 28-47-53-51-46 is a large bird. My 31-39-30-42-45-29 is to remain firm. My 34-35-50-32-41 is dirt. My 33-44-37-40-38-48 is a hangman's rope. My 49-36-52-43 is to whip.

THIRD LINE.

My 54-56-68-65-73 is to embellish. My 74-63-58-60-55 is a sharp shoot from the stem of a tree or shrub. My 71-61-59-64-69 is engaged for wages. My 62-67-76-57 is a kind of covering for the head. My 77-75-72-66-70 is an arrow.

FOURTH LINE.

My 100-78-94-98-88 is a peg. My 80-87-83-89-82-79-91-81-86-92 are low tracts of land inundated with water. My 85-84-97-101 are small watch-pockets. My 96-90-99-95-93 is to gleam.

FRANK SNELLING.

CHARADE.

My angry *first* did lash and roar amain;
My *second*, all undaunted, saw the rage.
My *third*, meanwhile, did bow and bow again
With courtesy this fury to assuage.
"Ho," laughed my *second*, "you shall quickly see
Whether my *third* and I have fear of thee;
Roar as thou wilt, we take our destined path,
And with my *whole* will overcome thy wrath."

M. A. H.

INVERTED PYRAMID.

ACROSS: 1. An uncivilized person. 2. A large earless seal. 3. Falls in drops. 4. The close of the day. 5. In breakfasting.

DOWNWARD: 1. In breakfasting. 2. A conjunction. 3. A color. 4. Unadorned. 5. Living. 6. Mature. 7. Exclamations of joy or triumph. 8. An article. 9. In breakfasting. "LYON HART."

HALF-SQUARE.

1. Taunting. 2. Hatred. 3. To fall back. 4. Beseeches. 5. A species of poplar. 6. To hiss. 7. A part of the body. 8. Within. 9. A consonant. "ROYAL TARR."

METAMORPHOSES.

THE problem is to change one given word to another given word, by altering one letter at a time, each alteration making a new word, the number of letters being always the same, and the letters remaining always in the same order. Sometimes the metamorphoses may be made in as many moves as there are letters in each given word, but in other instances more moves are required.

EXAMPLE: Change LAMP to FIRE, in four moves. ANSWER, LAMP, LAME, FAME, FARE, FIRE.

1. Change ONE to TWO, in ten moves. 2. Change FISH to BIRD, in five moves. 3. Change NORTH to SOUTH, in twelve moves. 4. Change EARTH to WATER, in eleven moves. 5. Change EAST to WEST, in three moves. 6. Change CALF to VEAL, in five moves. 7. Change PINK to BLUE, in eleven moves. 8. Change LION to BEAR, in seven moves. F. W.

PI.

IN what poem by William Cullen Bryant do the following lines occur?

Soulriog rea het swodo ni rethi stealt dolg dan serimno,
Tey rou lufl-veadle swollwi ear ni reith sthefres nereg.
Cush a kylind muntau, os luciferlym leandig
Hitw eth storghw fo muserm, I renve tey heav nese.

COMBINATION PUZZLE.

CONCEALED DOUBLE ACROSTIC. In each of the following sentences a cross-word is concealed, the definition of which is given in the same sentence.

1. Can Ella give me a pretty name for a pretty girl? 2. It will teach Edwin not to row so far, if he would avoid the pain in his wrists. 3. The psalm is solemn, if I do not err. 4. I gave Elsie a long squirming fish.

The initials (which mean a cognomen) and the finals (meaning smaller) may both be found in the following

DOUBLE CROSS-WORD ENIGMA:

In knoll, not in mound;
In lake, not in ground;
In homes, not in land;
In heads, not in hands;
You 'll find the answer rather tame,
As for it I can find no name.

GILBERT FORRESTER.

PECULIAR ACROSTICS.

EACH of the words described contains nine letters. When rightly selected and placed one below the other in the order here given, the fourth row of letters (reading downward) will spell an act of expressing gratitude, and the sixth row, a publication by authority. These two lines, read in connection, name an important document which is issued annually.

CROSS-WORDS: 1. Manifold. 2. Practicing arithmetic. 3. Thumped soundly. 4. Shells which adhere to rocks and timbers. 5. A coarse texture worn as a mark of mourning. 6. An officer of the peace. 7. Having three sorts of flowers in the same head. 8. Having several leaflets arranged like the fingers of the hand, at the extremity of a stem. 9. Need. 10. Determinations. 11. The whooping-cough. 12. Of the same nature or disposition.

CYRIL DRANE.

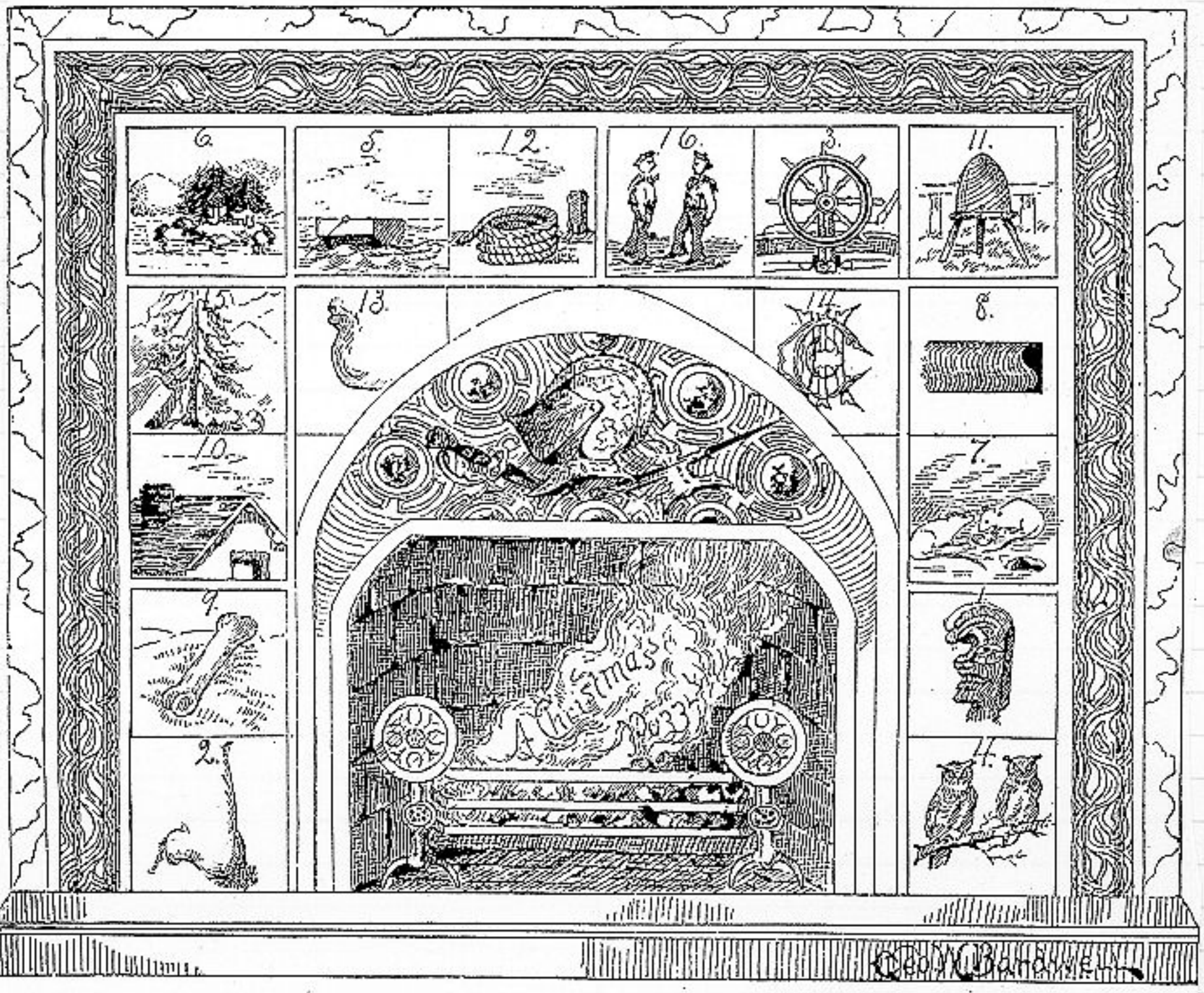
CUBE.

		1	.	.	.	.	2
		.	.			.	.
3	.	.	.	.	4		.
		.	.		.		.
		.	.		.		.
		.	5	.	.	.	6
		.	.		.	.	
7	.	.	.	.	8		

FROM 1 to 2, a rogue; from 2 to 6, foliage; from 5 to 6, utensils; from 1 to 5, bordered; from 3 to 4, a titmouse; from 4 to 8, to tie; from 7 to 8, one who tans; from 3 to 7, a disturbance; from 1 to 3, a small animal; from 2 to 4, illuminated; from 6 to 8, a title; from 5 to 7, a small spot.

FRED.

St. Nicholas December 1884. THE RIDDLE-BOX.



EACH of the sixteen small pictures in the above illustration may be described by a word of four letters. Take the first letter of the first four words, the second of the second four, the third letter of the third four, and the last letter of the last four words. These sixteen letters will form a Latin quotation that is always associated with the Emperor Constantine.

DOUBLE CROSS-WORD ENIGMA.

THIS differs from the ordinary cross-word enigma, by requiring two answers instead of one. The first letter of each answer is "in noisy, not in still," the second "in slaughter, not in kill," and so on until the two words have been spelled. One of these words is a name for Christmas Day; the other, a name for the season.

In noisy, not in still;
In slaughter, not in kill;
In trammel, not in hook;
In viewing, not in look;
In rivet, not in wed;
In living, not in dead;
In trident, not in prong;
In yearning, not in long.

FRANK SNELLING.

PECULIAR ACROSTICS.

EACH of the words described contains eight letters. When rightly selected and placed one below the other in the order here given, the third row of letters (reading downward) will spell a festive season; and the sixth row, a parasitic growth much in use at that season.

CROSS-WORDS: 1. Appeased. 2. Acting. 3. Fondled. 4. Archbishops. 5. Assaulted. 6. Those who provide food. 7. One who reckons. 8. Soldiers trained to serve either on horseback or on foot. 9. Those who examine metallic ores. CYRIL DEANE.

CHARADE.

MY *first* was so dense that *second* lost my way. "Oh, *third!*" said *second*, "this *first* is enough to *whole* anybody." MAX.

SYNCOPATIONS.

1. SYNCOPATE a blemish from to fail of the intended effect, and leave muddy. 2. Syncopate a limb of a man from heating, and leave a limb of a fowl. 3. Syncopate a little demon from artlessly, and leave artful. 4. Syncopate a negative from to imply, and leave the fruit of the pine. 5. Syncopate a label from the childishness of old age, and leave a deer. 6. Syncopate a pony from the weight of goods carried in a ship, and leave sound. 7. Syncopate a tavern from a small fish, and leave to cut grass. 8. Syncopate the oily part of milk from shrieking, and leave to utter melodious sounds. 9. Syncopate a possessive pronoun from at what place, and leave a personal pronoun. 10. Syncopate a sign from an instant, and leave a familiar abbreviation. 11. Syncopate to cut off from muddy, and leave an emissary. 12. Syncopate an emmet from a closet, and leave to inspect closely. 13. Syncopate to work for from cautious, and leave a color.

The initials of the syncopated words, arranged in the order here given, will spell the name of an ancient bishop whose feast is celebrated in December. PAUL REESE.

HALF-SQUARE.

1. NOT liberal toward the opinion of others. 2. Reflected. 3. Measured. 4. An architectural embellishment. 5. A boy's nickname. 6. A boy's nickname. 7. To emend. FRANK.

BEHEADINGS.

1. BEHEAD an exclamation, and leave to need. 2. Behead a shelf, and leave a margin. 3. Behead a summary of Christian belief, and leave a pastoral pipe. 4. Behead oxygen in a condensed form, and leave a belt. 5. Behead a pronoun, and leave an inheritor. 6. Behead a hard blow, and leave a bunch.

The beheaded letters will spell the name of a well-known writer. IDA C.

DIAMOND.

1. IN diamond. 2. A title. 3. Lakes. 4. Chooses. 5. Guidance. 6. To correct. 7. Inflexible. 8. A kind of sauce for fish. 9. In diamond. "NAVAJO."

DIAGONALS.

* . . . . .
. * . . . .
. . * . . .
. . . * . .
. . . . * .
. . . * . .
. . * . . .
. * . . . .
* . . . . .

THE diagonals, beginning at the top, spell the name of a plant sometimes called the Christmas-flower.

CROSS-WORDS: 1. An evergreen. 2. To break. 3. A military salute. 4. To pace. 5. A strong rope. 6. A manufacturing town of England. 7. An inundation. 8. A subterranean chapel. 9. To elevate. DYCIE.

ANSWERS TO PUZZLES IN THE NOVEMBER NUMBER.

REBUS. "Of all those arts in which the wise excel,
Nature's chief masterpiece is writing well."

NUMERICAL ENIGMA.

"Praise Him for our harvest store,
He hath filled the garner floor;
And for richer food than this,
Pledge of everlasting bliss."

CHARADE. Sea-man-ship.

INVERTED PYRAMID. Across: 1. Barbarian. 2. Sealion. 3. Drips. 4. Eve. 5. E.

HALF-SQUARE. 1. Sarcastic. 2. Aversion. 3. Relapse. 4 Craves. 5. Aspen. 6. Siss. 7. Toe. 8. In. 9. C.

PECULIAR ACROSTICS. Fourth line, Thanksgiving; sixth line Proclamation. Cross-words: 1. mulTiPlex. 2. cipHeRing. 3. belAbOred. 4. barNaCles. 5. sacKcLoth. 6. conStAble. 7. triGaMous. 8. digItAted. 9. priVaTion. 10. decIsIons. 11. chiNcOugh. 12. conGeNial.

CUBE. From 1 to 2, rascal; 2 to 6, leaves; 5 to 6, dishes; 1 to 5, rimmed; 3 to 4, tomtit; 4 to 8, tether; 7 to 8, tanner; 3 to 7, tumult; 1 to 3, rat; 2 to 4, lit; 6 to 8, sir; 5 to 7, dot.

COMBINATION PUZZLE. Primals, Name; finals, Less. Cross-words: 1. NelL. 2. AchE. 3. MisS. 4. EelS.

METAMORPHOSES. 1. One, ode, odd, add, aid, rid, rod, cod, coo, too, two. 2. Fish, fist, gist, girt, gird, bird. 3. North, forth, forts, fords, lords, loads, roads, roods, roots, boots, booth, sooth, south. 4. Earth, garth, girth, girts, girls, gills, galls, gales, gates, hates, hater, water. 5. East, last, lest, west. 6. Calf, call, cell, sell, seal, veal. 7. Pink, pick, peck, peak, beak, beam, seam, slam, slag, slug, slue, blue. 8. Lion, lien, lies, ties, tier, bier, beer, bear.

PI. Glorious are the woods in their latest gold and crimson,
Yet our full-leaved willows are in their freshest green.
Such a kindly autumn, so mercifully dealing
With the growths of summer, I never yet have seen.
"Third of November."

St. Nicholas January 1885

THE RIDDLE-BOX.

NOVEL ACROSTIC.

Each of the words described contains five letters. When rightly arranged,— not in the order here given,— the initials, reading downward, will spell the name of an American poet; and the third row of letters, reading upward, will spell the name of an English poet.

Cross-Words: 1. Consequently. 2. Makes smooth by pressing. 3. An insurgent. 4. A person — usually a mischievous one. 5. A cloth for wiping the hands. 6. One devoid of understanding. 7. Blunder. 8. To color slightly. BERTHA C.

CONCEALED LETTERS.

FOR YOUNGER PUZZLERS.



How many and what letters of the alphabet are concealed in the foregoing diagram? S. A. S.

SYNCOPATIONS.

1. Syncopate a fruit, and leave to yawn. 2. Syncopate food, and leave formed by education. 3. Syncopate to weave, and leave a nail. 4. Syncopate to fetch, and leave a vessel with two masts. 5. Syncopate a piece of furniture, and leave a narration. 6. Syncopate discovered, and leave capital. 7. Syncopate oscillation, and leave to utter melodious sounds.

The syncopated letters will spell the name of something occasionally seen in summer. PATIENCE.

CHARADE.

If from my *first* my *second* you take,
My *whole* you do attain;
If to my *first* my *second* you join,
My *whole* you have again. W. H. A.

NUMERICAL ENIGMA.

I am composed of seventy letters, and am a couplet from Pope's "Essay on Criticism."

My 44-25-66-26-38-42 is gloomy. My 47-15-21-6-24 is to walk in a pompous way. My 64-34-11-59-70 is a young person. My 8-68-27-63 is part of a stocking. My 41-14-12-39-48-17-67 is a bed or layer. My 49-20-31-33-13 are troublesome to gardeners. My 37-29-46-4-22-1-58-23 is to forbid. My 36-3-65-51-45 is a seat without a back. My 57-61-53-7-18-16-56 are rags. My 19-43-69-30-5-32 is one who gains favors by flattery. My 52-9-54 is a large body of water. My 50-35-62-60-55 is abounding with hills. My 10-40-28-2 is a small wind-instrument used chiefly to accompany a drum. "CORNELIA BLIMBER."

PI.

Smope, kile rustpice, rea fo tefidfern torss,
Mose treteb ta a snadtice, stoher earn;
Mose velo het kard, mose hoosee het searclet tilgh,
Dan lydobl angelehle eth stmo cierping yee;
Mose sealep orf nece, mose liwl reevrof sleepa.

CAROLINE M. WHEELER.

EASY ANAGRAMS.

The letters of each of the anagrams here given may be transposed to form the name of an important city.

1. Ipsar. 2. Donoln. 3. More. 4. Erbnil. 5. Damdir. 6. Noblis. 7. Yenkowr. 8. Amsdar. 9. Pilrolveo. 10. Vedren. 11. Tiasun. 12. Tatucale. J. C. H.

HALF SQUARE.

1. A church festival occurring in January. 2. A Sound in the east part of North Carolina. 3. To inclose within walls. 4. A feather. 5. To engage. 6. A single point on a card or die. 7. A word of negation. 8. A vowel. PENNYWIG.

DOUBLE CROSS-WORDS.

This differs from the ordinary cross-word enigma by requiring two answers instead of one. The first letter of each answer is "In Nathan but not in Will," the second "In Walter but not in Bill," and so on until the two answers have been spelled. The first answer is a time for merry-making, and also the name of a play by Shakespeare; the second answer is a pleasant greeting.

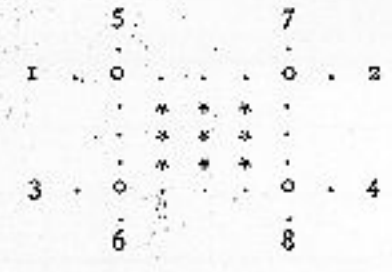
In Nathan, not in Will;
In Walter, not in Bill;
In Stephen, not in Lon;
In Alphin, not in John;
In Fanny, not in Sue;
In Tina, not in Lou;
In Henry, not in Nick;
In Newton, not in Dick;
In Milly, not in Ann;
In Gertrude, not in Nan
In Martha, not in Poll;
In Chester, not in Sol. CYRIL DEANE.

HOUR-GLASS.

The centrals, reading downward, name a certain kind of puzzles.

Cross-words: 1. Problems. 2. Seasoning. 3. Era. 4. In cognizant. 5. The god of shepherds. 6 Attendants. 7. A gift. FRED.

FRAMED WORD-SQUARE.



Frame: From 1 to 2, a name by which the frost-weed is sometimes called; from 3 to 4, a storm with falling snow; from 5 to 6, a shop where books are kept for sale; from 7 to 8, nameless.

Included Word-square: 1. The name of a cold substance, crystals of which late in autumn shoot from the cracked bark of the plant named by the letters from 1 to 2. 2. To study. 3. To terminate. J. P. B.

EASY WORD-SQUARES.

I. 1. A color. 2. A regulation. 3. A girl's name. 4. A division of time. II. 1. To be conveyed. 2. A notion. 3. Beloved. 4. A title of nobility. III. 1. False. 2. Robust. 3. A plant found in warm countries. 4. To encounter.

"BLOSSOM" AND C. G. B.

DOUBLE ACROSTICS.

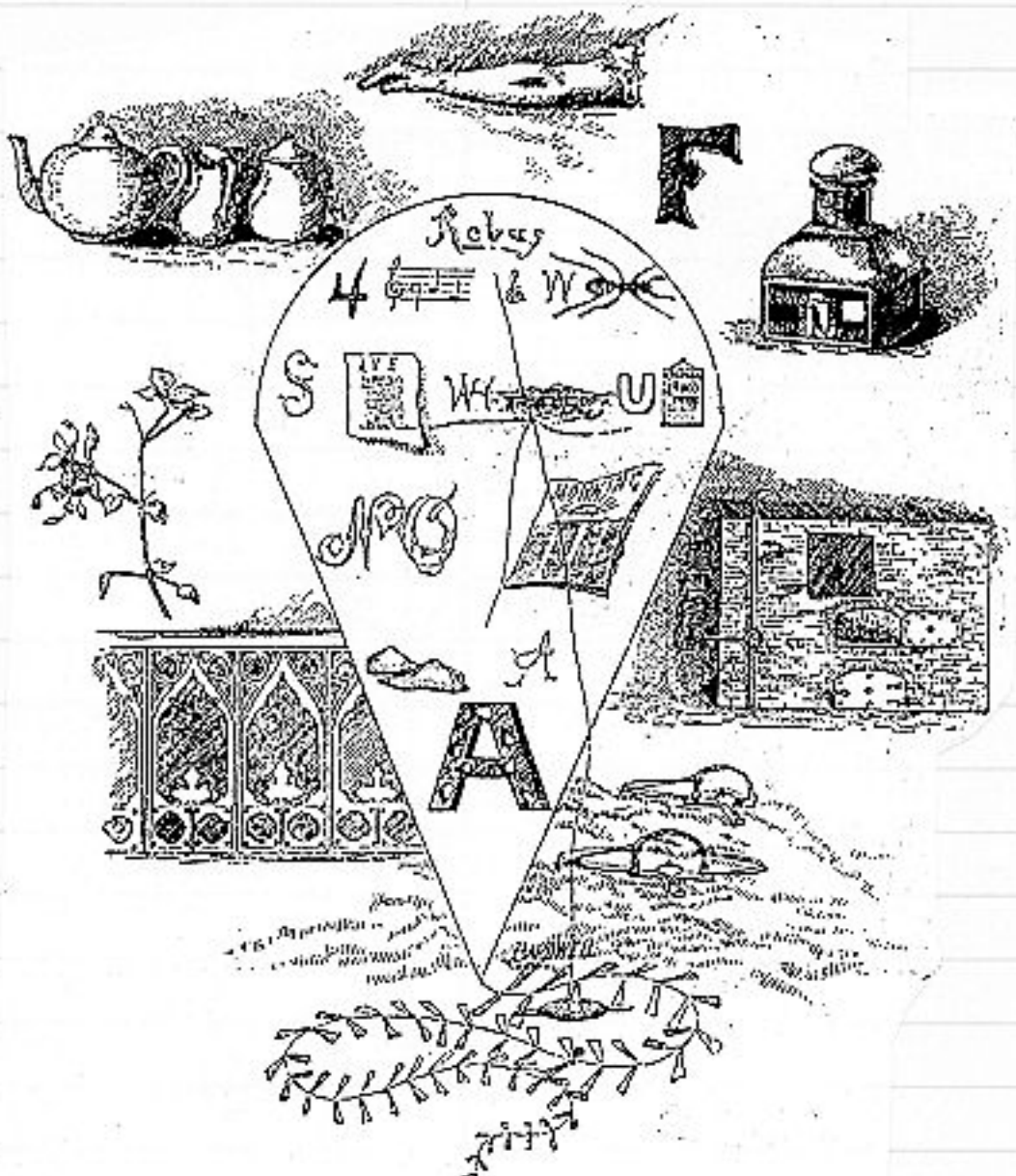
The cross-words are of unequal length.

I. The primals and finals each name a philosopher who died recently: one an Englishman, one an American.

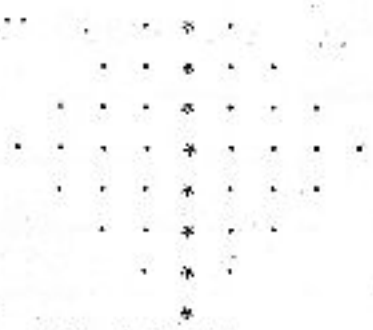
Cross-words: 1. To long for. 2. Fright. 3. A train of attendants. 4. An animal resembling a monkey, peculiar to Madagascar. 5. The edible roots of a creeping plant. 6. A place of restraint. 7. Release.

II. The primals will name the home of the philosopher named by the primals of the foregoing acrostic; the finals will name the home of the philosopher named by the finals of the previous acrostic.

Cross-words: 1. A fine, thin fabric. 2. A man of distinguished valor. 3. To surround. 4. Concise. 5. A dry starch prepared from the pith of certain palms. 6. A kind of duck. 7. One of the small planets whose orbit is situated between those of Mars and Jupiter. DYCIE.



ILLUSTRATED KITE PUZZLE.



PLACE the names of the eight objects around the kite in such a way that the number of their letters will correspond to the number of dots in the foregoing diagram. The central letters, reading from the bottom upward, will spell the name of a famous American born in January, many years ago. He is the author of the rebus on the kite.

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

CHRISTMAS PUZZLE. In hoc signo vinces (Under this standard thou shalt conquer). 1. Idol. 2. Nose. 3. Helm. 4. Owls. 5. sCow. 6. iSle. 7. mIce. 8. oGee. 9. boNe. 10. roOf. 11. hiVe. 12. coIl. 13. chiN. 14. chiC. 15. treE. 16. tarS.

DOUBLE CROSS-WORD ENIGMA. Nativity, Yule-tide.

PECULIAR ACROSTICS. Christmas, Mistletoe. Cross-words: 1. beCalMed. 2. beHavIng. 3. caResSed. 4. prImaTes. 5. asSaiLed. 6. caTerErs. 7. coMpuTer. 8. drAgoOns. 9. AsSayErs. — CHARADE. Mistify.

BEHEADINGS. Alcott. Cross-words: 1. A-lack. 2. L-edge. 3. C-reed. 4. O-zone. 5. T-heir. 6. T-hump.

SYNCOPATIONS. Saint Nicholas. Cross-words: 1. mi-Scar-ry. 2. w-Arm-ing. 3. s-Imp-ly. 4. con-Not-e. 5. do-Tag-e. 6. ton-Nag-e. 7. m-Inn-ow. 8. s-Cream-ing. 9. w-Her-e. 10. m-Omen-t. 11. s-Lop-py. 12. p-Ant-ry. 13. re-Serve-d.

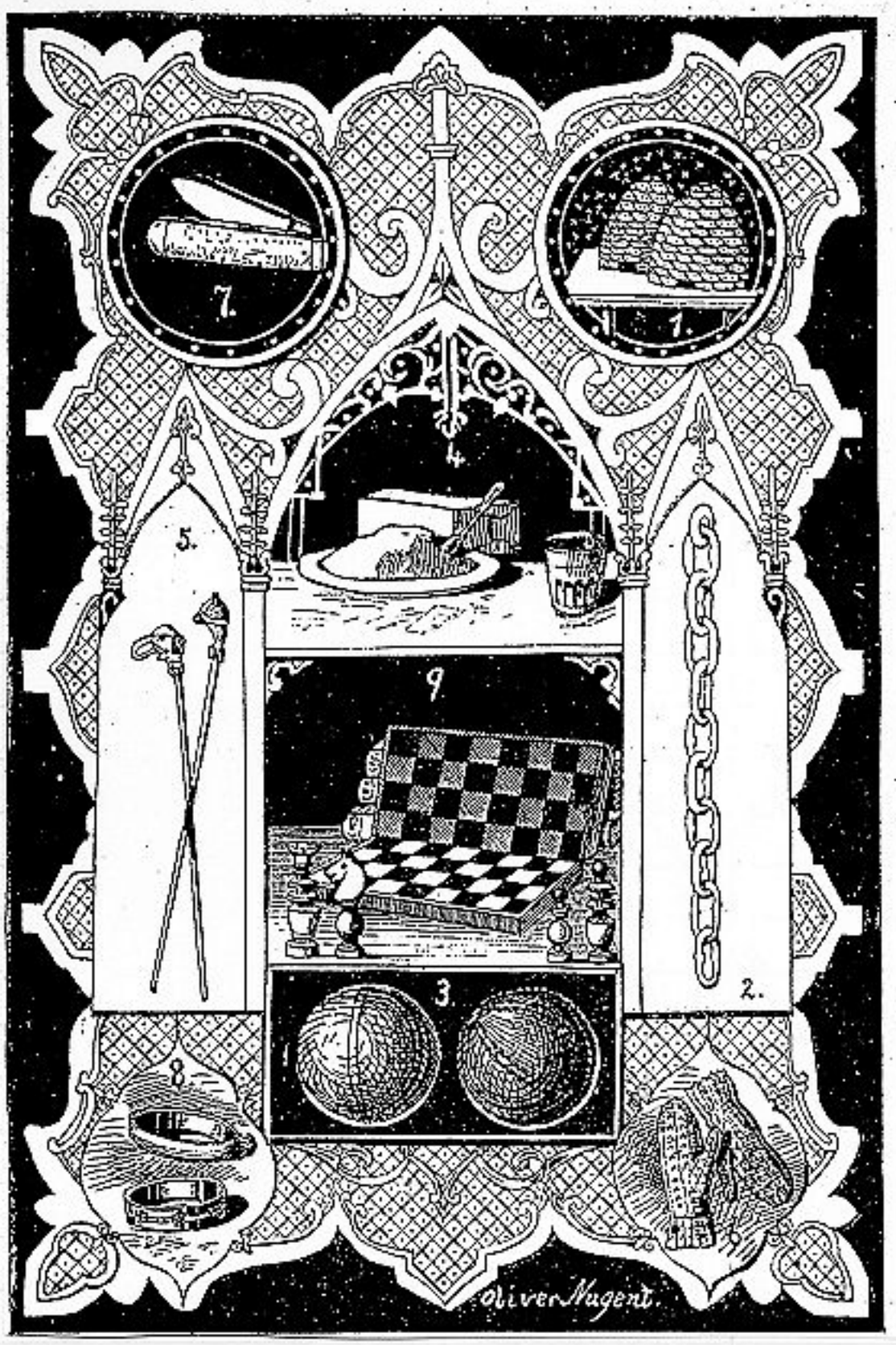
HALF-SQUARE. 1. Bigoted. 2. Imaged. 3. Gaged. 4. Ogee. 5. Ted. 6. Ed. 7. D.

DIAMOND. 1. D. 2. Sir. 3. Meres. 4. Selects. 5. Direction. 6. Rectify. 7. Stiff. 8. Soy. 9. N.

DIAGONALS. Hellebore. Cross-words: 1. Holly. 2. sEver. 3. saLvo. 4. ambLe. 5. cablE. 6. DerBy. 7. flOod. 8. cRypt. 9. Exalt.

St. Nicholas February 1885

THE RIDDLE-BOX.



A FEBRUARY PUZZLE.

Each of the nine small pictures may be described by a word of five letters. When the words are rightly guessed and placed one below the other, in the order here given, the central letters, reading downward, will spell the name of a familiar object.

MONUMENT PUZZLE.

3

1 . . . 5

2 . 4 . 6

From 1 to 2, a testator; from 3 to 4, named for an appointment or an office; from 5 to 6, softens in temper.

Cross-words: 1. A consonant. 2. A wand. 3. To delay. 4. To cut off or suppress, as a syllable. 5. Mercenary. 6. An effigy. 7. The chief of the fallen angels. 8. Open to view. 9. Is conveyed.

"ALCIBIADES."

WORD-SQUARE.

1. Extensive. 2. A kind of musical composition. 3. To enrich. 4. To reverence. 5. A citadel.

MABEL T.

CHARADE.

My *first* asserts your power to do;
My *second*, that you 've done it;
Pray be my *whole*, and tell me now
The answer, if you 've won it.

"MYRTLE."

AN "AGED" PUZZLE.

Example: The age of watching. Answer, espionage. The age of weakness. Answer, dotage.

1. The age of learning. 2. The age of servitude. 3. The age of method. 4. The age of submission. 5. The age of favors. 6. The age of commissions. 7. The age of examination. 8. The age of security. 9. The age of thievery. 10. The age of equality. 11. The age of cultivation. 12. The age of diminution. 13. The age of reproach. 14. The age of plenty.

M. A. P.

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

Novel Acrostic. First line, Whittier; third line, Browning. 1. WiGht. 2. HeNce. 3. IdIot. 4. TiNge. 5. ToWel. 6. IrOns. 7. ErRor. 8. ReBel.—— Charade. Cur-tail.

Concealed Letters. E, F, H, I, K, L, M, N, T, V, X, Y, Z.

Syncopations. Rainbow. 1. g-R-ape. 2. bre-A-d. 3. bra-I-d. 4. bri-N-g. 5. ta-B-le. 6. f-O-und. 7. s-W-ing.

Numerical Enigma.

Be thou the first true merit to befriend;
His praise is lost, who stays till all commend.

Pi. Poems, like pictures, are of different sorts,
Some better at a distance, others near;
Some love the dark, some choose the clearest light,
And boldly challenge the most piercing eye;
Some please for once, some will forever please.

Easy Anagrams. 1. Paris. 2. London. 3. Rome. 4. Berlin. 5. Madrid. 6. Lisbon. 7. New York. 8. Madras. 9. Liverpool. 10. Denver. 11. Austin. 12. Calcutta.

Half-square. 1. Epiphany. 2. Pamlico. 3. Immure. 4. Plume. 5. Hire. 6. Acc. 7. No. 8. Y.

Double Cross-words. Twelfth Night, Happy New Year.

Illustrated Kite Puzzle. Central letters, Franklin. Cross-words (beginning at the top): 1. iNk. 2. chIna. 3. raiLing. 4. chicKweed. 5. furNace. 6. trAps. 7. aRm. 8. F. Rebus on the kite:

For age and want save while you may;
No morning sun lasts a whole day.

Hour-glass. Centrals, Zigzags. Cross-words: 1. puzZles. 2. spIce. 3. aGe. 4. Z. 5. PAn. 6. paGes. 7. preSent.

Framed Word-square. From 1 to 2, frOstwOrt; from 3 to 4, snOwstOrm; from 5 to 6, boOkstOre; from 7 to 8, anOnymOus; Included word-square: 1. Ice. 2. Con. 3. End.

Easy Word-squares. I. 1. Gray. 2. Rule. 3. Alma. 4. Year. II. 1. Ride. 2. Idea. 3. Dear. 4. Earl. III. 1. Sham. 2. Hale. 3. Aloe. 4. Meet.

Double Acrostics. I. Primals, Carlyle; finals, Emerson. Cross-words: 1. CravE. 2. AlarM. 3. RetinuE. 4. LemuR. 5. YamS. 6. LimbO. 7. EmancipatioN. II. Primals, Chelsea; finals, Concord. Cross-words: 1. CambriC. 2. HerO. 3. EnviroN. 4. LaconiC. 5. SagO. 6. EideR. 7. AsteroiD.

HOUR-GLASS.

CENTRALS, reading downward, a watering-place of New Jersey.
Cross-words: 1. Sometimes on the dinner-table. 2. To construct. 3. To mimic. 4. In definite. 5. A girl's name. 6. To adorn. 7. Petitions.

LOU.

COMBINATION ACROSTIC.

1 . . 5 . . 9
2 . . 6 . . 10
3 . 7 . . 11
4 . . 8 . . 12

FROM 1 to 5, a portion of food; from 2 to 6, a stronghold; from 3 to 7, a small Turkish coin; from 4 to 8, a species of salmon; from 5 to 9, a wise man: from 6 to 10, harmony; from 7 to 11, competent; from 8 to 12, tumult; from 1 to 9, a communication; from 2 to 10, luck; from 3 to 11, a fable; from 4 to 12, a state carriage.

The letters represented by the letters from 5 to 8 may be transposed to form words meaning sailors, small quadrupeds, artifices, and a luminous body.

DYCIE.

BEHEADINGS.

1. BEHEAD a large flat-bottomed boat, and leave an animal. 2. Behead an agreement, and leave to perform. 3. Behead to discover, and leave an emissary. 4. Behead dainty, and leave something gathered in winter. 5. Behead to examine with care, and leave a cup for liquids. 6. Behead an office in the king's household where they take care of the linen for the king's table, and leave distorted. 7. Behead to stagger, and leave a snake-like fish.

The beheaded letters will spell the name of an English poet much admired but seldom read.

JOHN BLACK.

CROSS-WORD ENIGMA.

My first is in Punch, but not in Judy;
My second in brisk, but not in moody;
My third and my fourth you can find if you strive
In knitting and flitting; my next, number five,
Is in singular, strange, and is found in amusing;
My sixth, in abuse as well as abusing;
My next is in urgent, in urchin, in hurry,
And if you look farther you 'll find it in flurry;
My eighth is in grass-plot, but not in a lawn;
My ninth is in morning, but not in the dawn;
My tenth is in hurt, in head, and in hand,
And more than this surely you can not demand.
My whole is a town in the old Keystone State,
And its name — but I 'll leave that for you to relate.

"NIP AND TUCK."

ILLUSTRATED DOUBLE ACROSTIC.



THE primals name a mischievous elf who "looks not with the eyes, but with the mind," and the finals, a supposed affliction of his. Each of the five small pictures represents a cross-word, and may be described by a word of four letters.

DOUBLE DIAGONALS.

THE diagonals, from left to right, reading downward, spell a small anchor having several flukes; from right to left, insnared.

CROSS-WORDS: 1. Courageous. 2. To make ready. 3. One of the Southern States. 4. To offer for consideration. 5. Relies upon. 6. Resolute. 7. To pillage.

F. S. F.

St. Nicholas March 1885

THE RIDDLE-BOX.

CONCEALED PROVERB.

IN each of the following sentences a word is concealed. When the words are rightly guessed, and read in the order here given, they will form a familiar proverb.

1. A naughty cat ran away. 2. They found a closely written roll in gathering up the rubbish. 3. It is the best one that I have ever seen. 4. The rug at her stairway is not a valuable one. 5. He is an old acquaintance of mine. 6. Amos soon saw through the queer stratagem.

"LADYBIRD."

BEHEADINGS.

1. BEHEAD the flesh of animals, and leave to consume. 2. Behead barren, and leave to free from. 3. Behead long ago, and leave metal. 4. Behead close at hand, and leave part of the head. 5. Behead a paradise, and leave a cavern. 6. Behead a contest of speed, and leave a unit. 7. Behead to discern, and leave an emissary. 8. Behead a contraction meaning "in the same place," and leave to command. 9. Behead a valley, and leave a beverage.

The beheaded letters will spell the name of a well-known writer.

JOHN M. M.

American naval officer prominent at the battle of Lake Erie. 6. To deposit. 7. In lapidary.

V. LOWER RIGHT-HAND DIAMOND: 1. In lapidary. 2. A small lump or mass. 3. To hinder. 4. Toiled. 5. Stripped of covering. 6. A color. 7. In lapidary.

"LYON HART."

ANAGRAMS.

EACH of the following anagrams may be transposed to form the title of a book by a well-known American authoress.

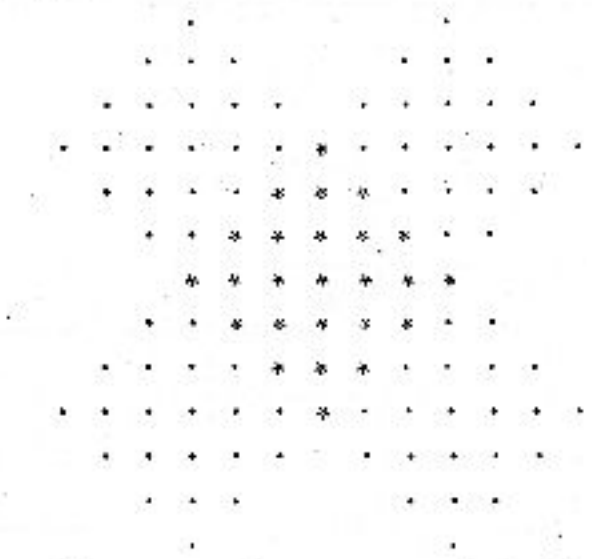
1. Count Bemi's Clan.
2. Feloil's Text.
3. Miss Otrie on the Wing.
4. Floskton Wold.

Name of authoress,

Esther Whitoree Brace.

DAISY.

ST. ANDREW'S CROSS OF DIAMONDS.

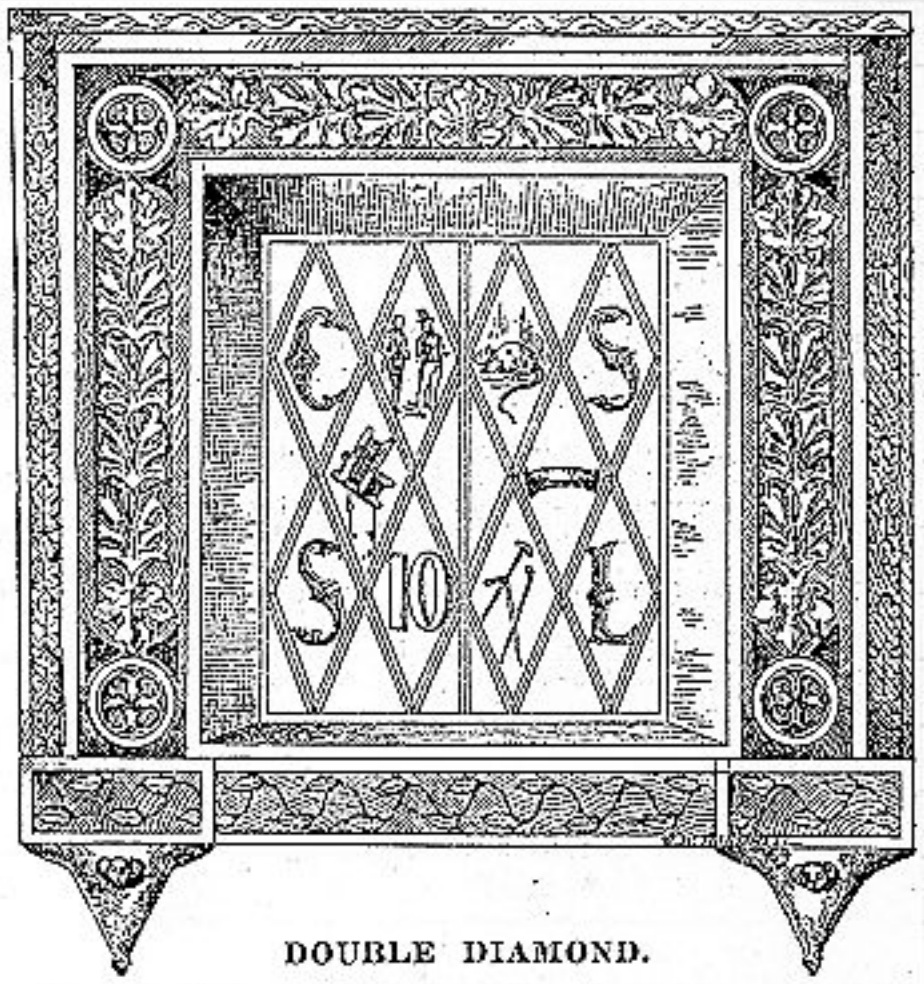


I. Upper Left-hand Diamond: 1. In lapidary. 2. Equal value. 3. A famous city of Europe. 4. A small umbrella. 5. Ascended. 6. An heir. 7. In lapidary.

II. Upper Right-hand Diamond: 1. In lapidary. 2. The nickname of Philip Pirrip. 3. Part of a flower. 4. Not figurative. 5. Shaved off. 6. A boy. 7. In lapidary.

III. Central Diamond: 1. In lapidary. 2. A siesta. 3. Pertaining to one's birth. 4. Proceeding from the side. 5. Shaved. 6. A youth. 7. In lapidary.

IV. Lower Left-hand Diamond: 1. In lapidary. 2. An edge. 3. To lampoon. 4. Generous. 5. The surname of an



DOUBLE DIAMOND.

Arrange the ten objects pictured above in such a way that they will form a double diamond, which is a diamond that forms new words when read across and up and down. G. B.

NUMERICAL ENIGMA.

I am composed of thirty-three letters, and form a proverb.

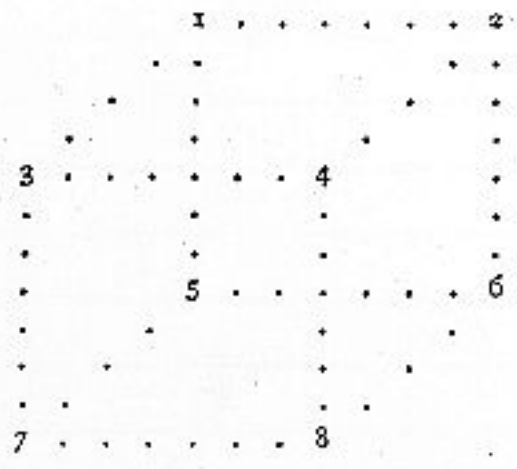
My 30–9–22–29–18–3 is a thief. My 8–16–26–6 is part of the face. My 15–32–21–11 is a piece of pasteboard. My 25–27–20–1–7–4 is not wavering. My 33 is as good as five hundred. My 28–10–13–19–31 is a serf. My 2–5–14–17 is to repair. My 24–23–12 is a precious stone. C. B.

DOUBLE ACROSTIC.

My primals and finals form the name of an illustrious painter and sculptor who was born in March.

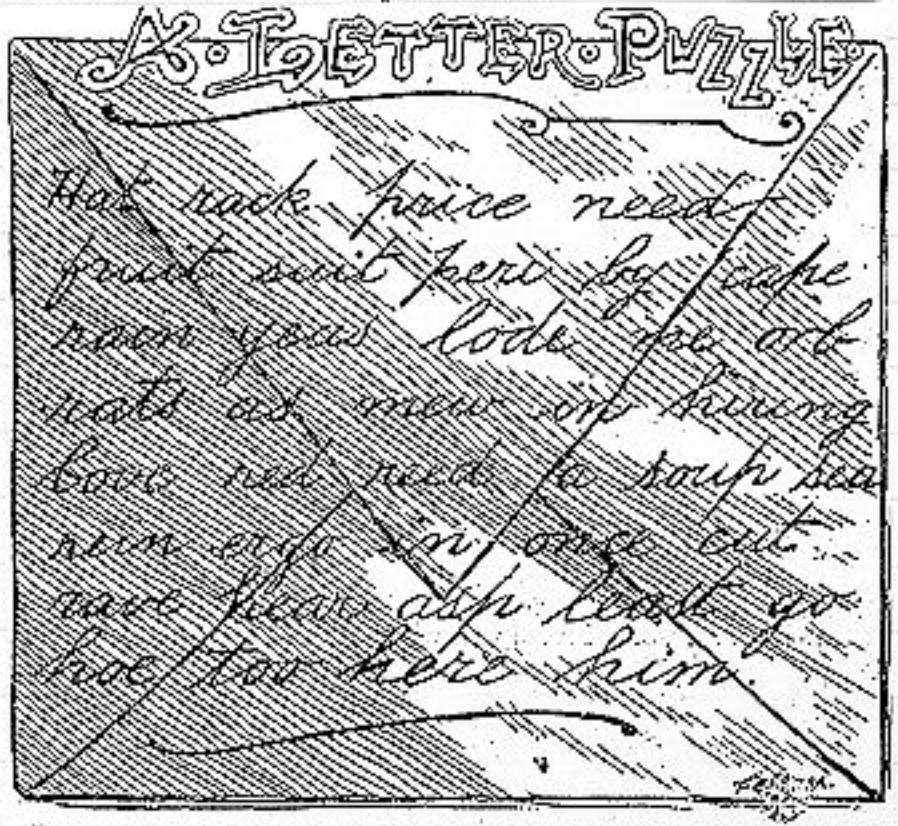
Cross-words (of unequal length): 1. Insanity. 2. The act of making persons known to each other. 3. A steep, rugged rock. 4. The joint on which a door turns. 5. Uniform. 6. A game at cards. Dycie.

CUBE.



From 1 to 2, pertaining to iron; from 2 to 6, a state of uncertainty; from 5 to 6, a small nail used by shoemakers; from 1 to 5, fictitious; from 3 to 4, drawing along the ground; from 4 to 8, a body of troops in a fort; from 7 to 8, a kind of leather; from 3 to 7, places of amusement; from 1 to 3, weak; from 2 to 4, to draw up the shoulders to express dislike; from 6 to 8, consumed; from 5 to 7, closes. Cyril Deane.

A LETTER PUZZLE.



By starting at the right letter in one of the foregoing written words, and then taking every third letter, a maxim by *Poor Richard* may be formed. H. V.

AN OCTAGON.



1. Woolly substance on cloth. 2. In Rome, a public place where orations were delivered. 3. Part of the face. 4. One skilled in any art. 5. Followed. 6. Very minute spiders. 7. Induced. F. S. F.

WORD-SQUARES.

I. 1. A field-marshal's staff. 2. To expiate. 3. Batrachian reptiles. 4. A flying report. 5. Habitations.

II. 1. To make of a red color. 2. Possessor. 3. Beneath. 4. Domestic fowls. 5. Strayed.

The first word of each of the foregoing word-squares, when read in connection, will name a city of the Southern States.

"ALCIBIADES."

ANSWERS TO PUZZLES IN THE FEBRUARY NUMBER.

A FEBRUARY PUZZLE. Valentine. Cross-words: 1. hiVes. 2. chAin. 3. baLls. 4. crEam. 5. caNes. 6. miTts. 7. knIfe. 8. riNgs. 9. chEss.

MONUMENT PUZZLE. From 1 to 2, Devisor; 3 to 4, Nominated; 5 to 6, Relents. Cross-words: 1. N. 2. Rod. 3. Demur. 4. Elide. 5. Venal. 6. Image. 7. Satan. 8. Overt. 9. Rides.

WORD-SQUARE. 1. Great. 2. Rondo. 3. Endow. 4. Adore. 5. Tower.

CHARADE. Can-did.

AN "AGED" PUZZLE. 1. Pupilage. 2. Bondage. 3. Usage. 4. Homage. 5. Patronage. 6. Brokerage. 7. Rummage. 8. Anchorage. 9. Pillage. 10. Average. 11. Tillage. 12. Shrinkage. 13. Disparage. 14. Fruitage.

HOUR-GLASS. Cape May. Cross-words: 1. chiCken. 2. frAme. 3. aPe. 4. E. 5. AMy. 6. grAce. 7. praYers.

COMBINATION ACROSTIC. From 1 to 9, message; from 2 to 10, fortune; from 3 to 11, parable; from 4 to 12, chariot. Letters from 5 to 8, tars, rats, arts, star.

BEHEADINGS. Spenser. Cross-words: 1. S-cow. 2. P-act. 3. E-spy. 4. N-ice. 5. S-can. 6. E-wry. 7. R-eel.

CROSS-WORD ENIGMA. Pittsburgh.

ILLUSTRATED DOUBLE ACROSTIC. Primals, Cupid; finals, Blind. Cross-words: 1. CraB. 2. UraL. 3. PerI. 4. IroN. 5. DeeD.

DOUBLE DIAGONALS. Grapnel, trapped. Cross-woods: 1. GallanT. 2. pRepaRe. 3. AlAbAma. 4. proPose. 5. dePeNds. 6. dEcidEd. 7. DespoiL.

St. Nicholas April 1885

THE RIDDLE-BOX.

SHAKESPEAREAN NUMERICAL ENIGMA.

FOR OLDER PUZZLERS.

I AM composed of seventy letters, and form a couplet by Shakespeare.

"14-27-70-24-30-33 and ministers of grace defend us!"

"For stony 29-26-37-11-57-22 can not hold love out."

"I do beseech you to 43-4-9-63-20-46-51-28-60-19 my purposes aright."

"Or like a 1-41-45-18-61? Very like a 1-41-45-18-61."

"The lady 47-16-55-44-21-46-66-23 too much, methinks."

"An old religious uncle of mine taught me to speak, who was in his 54-52-8-40-58 an inland man."

"So 1-17-34-31-21-49-12-25 and so wild in 66-38-3-59-35 attire."

"Still 2-39-6-10-32-69-70 on my daughter."

"Slaying is the word; it is a deed in 53-39-22-67-68-7-27."

"—That quench the fire of your pernicious rage with 42-56-64-15-18-61 fountains issuing from your veins—."

"I do not set my life at a 5-50-69-23 fee."

"There's a 13-48-62-36-4-36-40-65 that shapes our ends,
Rough-hew them how we will."

F. A. W.

HOUR-GLASS.

THE centrals, reading downward, spell a name famous in history.

CROSS-WORDS: 1. Wept noisily. 2. Pertaining to a canon. 3. Beloved by good housewives. 4. A mariner. 5. In trepidation. 6. What worth is said to make. 7. An assembly. 8. A vessel used by soldiers for carrying liquor for drink. 9. Buying provisions.

C. G. D.

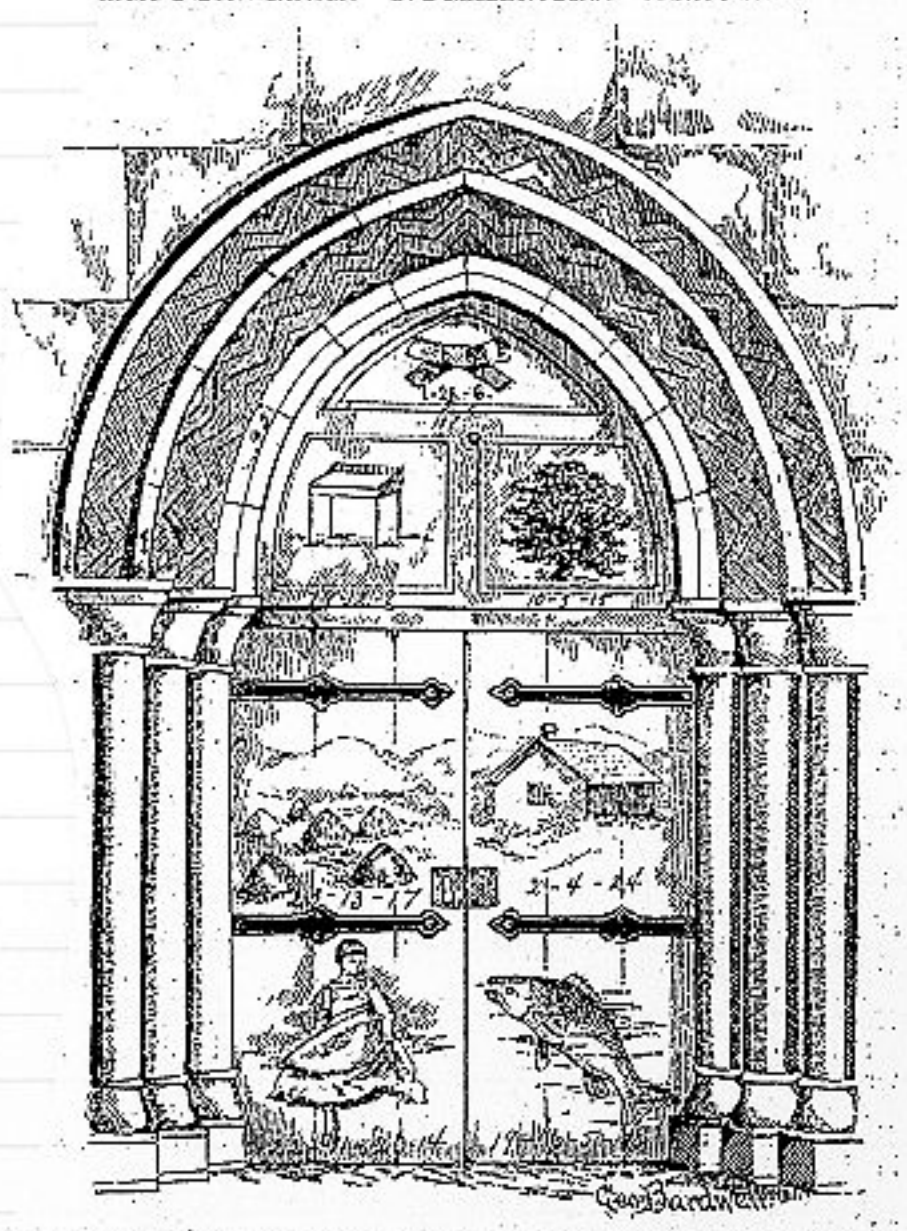
CUBE.

1 2
. . . . . .
3 . . . . . 4 .
. . . . . .
. . . . . .
. 5 6
. . . . . .
7 8

FROM 1 to 2, cheated; from 2 to 6, forces along; from 5 to 6, escapes by stratagem; from 1 to 5, an instrument of correction; from 3 to 4, to clothe; from 4 to 8, eaten away; from 7 to 8, guarded; from 3 to 7, to accompany; from 1 to 3, compensation for services; from 2 to 4, to color; from 6 to 8, dismal; from 5 to 7, to consume.

IDA G.

ILLUSTRATED NUMERICAL ENIGMA.



THIS differs from the ordinary numerical enigma, in that the words forming it are pictured instead of described. The answer is a maxim of "Poor Richard's," commending industry.

CHARADE.

OFT, with my *second* nestling near,
While under foot my *whole* you press,
You by my *first* are borne along.
(—When safe at home my riddle guess.)

"OEDIPUS."

DOUBLE ACROSTIC.

My primals and finals name two very famous writers born in April.
Cross-words (of equal length): 1. An exhibition. 2. A nimbus. 3. To affirm. 4. Species. 5. Huge bodies of water. 6. The fore-part of a ship. 7. A river of Spain. 8. In the distance. 9. A float. 10. A distributive adjective pronoun.

DYCIE."

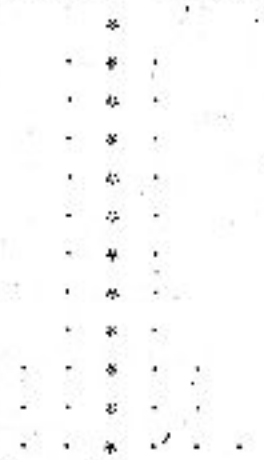
PI.

In what poem by John G. Whittier do the lines occur from which the following "pi" is made?

Fro weske het douds dah kedra eth shill,
Nad vedex het laves twih arinnig,
Adn lal eth wsodo weer ads wih simt,
Nad lla het brosok palincoming.

SADIE M. W.

MONUMENT PUZZLE.



The central letters (indicated by stars), when read downward, spell the name of a brave general in the Revolutionary War.

Cross-words: 1. In Clinton. 2. A reptile. 3. An antique vessel. 4. The foot of beasts of prey having claws. 5. A number. 6. A beverage. 7. A monkey. 8. A young animal. 9. Devoured. 10. Imagination. 11. Certain shell-fish. 12. Apparel.

"ROBIN HOOD."

HALF-SQUARE.

1. Of the same country. 2. The surname of a prominent character in the play, "A New Way to Pay Old Debts." 3. A salt consisting of meconic acid and a base. 4. To attain. 5. Earthnuts. 6. Rends. 7. Rank. 8. A cold substance. 9. An exclamation. 10. In elevate.

"ROYAL TARR."

INVERTED PYRAMID.



Across: 1. Of the nature of a parasite. 2. A series of violent declamations. 3. Became dim. 4. The cry of a certain animal. 5. In pyramid.

Downward: 1. In pyramid. 2 A preposition. 3. To tear. 4. The nationality of Mohammed. 5. An Eastern salutation. 6. A notion. 7. A boy's nickname. 8. A verb. 9. In Alcibiades.

"LYON HART."

DIAMOND.

1. In debate. 2. An abbreviation of the name of a month. 3. Fretted. 4. Allured. 5. A girl's nickname. 6. The governor of Algiers. 7. In debate.

CHARLOTTE.

ANAGRAMMATICAL SPELLING-LESSON.

In each of these examples, the problem is to arrange the grouped letters so that they will form a word agreeing with the accompanying definition.

1. LAMNEEOSRYV. Relating to charity.
2. TAAVIEELL. To mitigate.
3. BLATTEEDDH. Weakened.
4. CONHPPAARTT. The act of sharing in common with others.
5. SCATTLHINNO. The act of emitting sparks. MARION V. W.

ANSWERS TO PUZZLES IN THE MARCH NUMBER.

Concealed Proverb. A rolling stone gathers no moss.

Beheadings. Mayne Reid. 1. M-eat. 2. A-rid. 3. Y-ore. 4. N-ear. 5. E-den. 6. R-ace. 7. E-spy. 8. I-bid. 9. D-ale.

St. Andrew's Cross of Diamonds. I. 1. P. 2. Par. 3. Paris. 4. Parasol. 5. Risen. 6. Son. 7. L. II. 1. L. 2. Pip. 3. Petal. 4. Literal. 5. Pared. 6. Lad. 7. L. III. 1. L. 2. Nap. 3. Natal. 4. Lateral. 5. Pared. 6. Lad. 7. L. IV. 1. L. 2. Lip. 3. Libel. 4. Liberal. 5. Perry. 6. Lay. 7. L. V. 1. L. 2. Dab. 3. Debar. 4. Labored. 5. Bared. 6. Red. 7. D.

Anagrams. Authoress, Harriet Beecher Stowe. 1. Uncle Tom's Cabin. 2. Little Foxes. 3. The Minister's Wooing. 4. Oldtown Folks.

Double Diamond. Across: 1. C. 2. Rat. 3. Lines. 4. Men. 5. S. Downward: 1. L. 2. Rim. 3. Canes. 4. Ten. 5. S.

Double Acrostic. Primals, Michel; finals, Angelo. Cross-words: 1. ManiA. 2. IntroductioN. 3. CraG. 4. HingE. 5. EquaL. 6. LoO.

Cube. From 1 to 2, ferreous; 2 to 6, suspense; 5 to 6, sparable; 1 to 5, fabulous; 3 to 4, trailing; 4 to 8, garrison; 7 to 8, shagreen; 3 to 7, theatres; 1 to 3, faint; 2 to 4, shrug; 6 to 8, consumed; 5 to 7, shuts.

Word-squares. I. 1. Baton. 2. Atone. 3. Toads. 4. *On dit.* 5. Nests. II. 1. Rouge. 2. Owner. 3. Under. 4. Geese. 5. Erred.

Numerical Enigma. A dry and cold March never begs its bread.

A Letter Puzzle. Start at the letter "i" in "price." Industry pays debts, while despair increaseth them.

An Octagon. 1. Nap. 2. Forum. 3. Nostril. 4. Artiste. 5. Pursued. 6. Mites. 7. Led.

St. Nicholas May 1885

THE RIDDLE-BOX.

PI.

In what poem by Oliver Wendell Holmes do the lines occur from which the following pi is made?

Hewn weak het litsove, trinew side;
Hewn stropu het mel-sudb, grispn si erna;
Hewn sillea sobmsol, rummes seric,
"Dub, letti ersso! ripsgn si heer!"

GRACE J.

ZIGZAG.

Each of the words described contains four letters. The zigzag, beginning in the upper left-hand corner, will name what Longfellow says "fill the air with a strange and wonderful sweetness."

Cross-words: 1. The Christian name of an unfortunate queen. 2. A young woman. 3. Indentations. 4. Without the sense of hearing. 5. A glossy fabric. 6. To double over. 7. A fierce animal. 8. A useless plant. 9. A biped. 10. Useful insects.

FRED.

DIAMOND.

1. In porringer. 2. A capsule of a plant. 3. Cut off. 4. An allotment. 5. To condescend. 6. To put on. 7. In porringer.

EDITH LEAVITT.

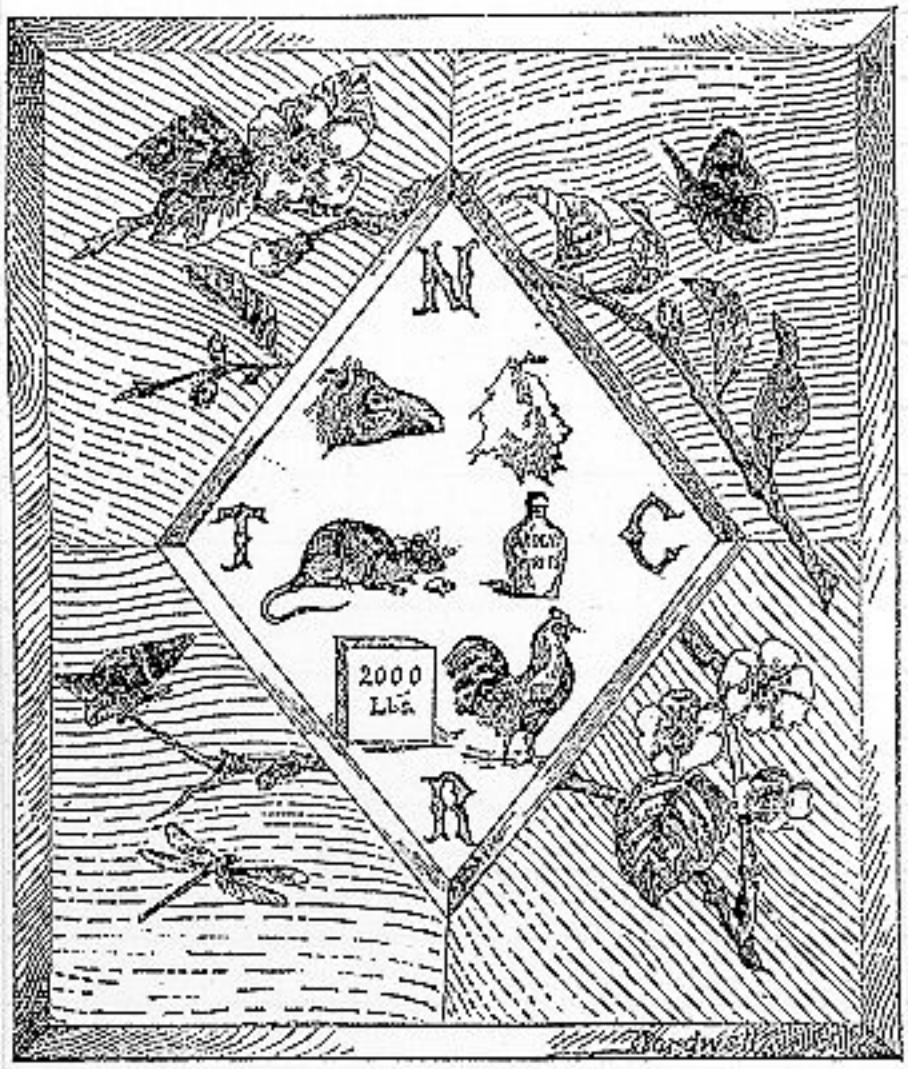
A NOVEL PUZZLE.



From 3 to 4, a memorable time in a certain city; from 1 to 2, the most important person in that city.

CROSS-WORDS: 1. A governor of Algiers. 2. Close at hand. 3. To assist. 4. A pool or collection of water. 5. Self (a term used in metaphysics). 6. Benefit. 7. One who creates. 8. Deception. 9. Called for a repetition of. 10. From end to end. 11. Winter vehicles. 12. Eats greedily. 13. A rich fabric. 14. A city of Greece. 15. A prominent European nation.

ILLUSTRATED DOUBLE DIAMOND.



ARRANGE the names of the ten objects pictured above, in such a way that they will form a double diamond, which is a diamond that forms new words when read across and up and down.

COMBINATION ACROSTIC.

1 . . 5 . . 9
2 . . 6 . . 10
3 . . 7 . . 11
4 . . 8 . . 12

FROM 1 to 5, a father; from 2 to 6, precise; from 3 to 7, to merit; from 4 to 8, advanced; from 5 to 9, a confederate; from 6 to 10, the Christian name of Charles Lamb's sister; from 7 to 11, an abode; from 8 to 12, always; from 1 to 9, popishly; from 2 to 10, original; from 3 to 11, zealous; from 4 to 12, eternally.

The letters represented by the figures from 5 to 8 may be transposed to form words meaning an appellation, a word signifying "so be it," ignoble, and part of a horse.

DYCIE.

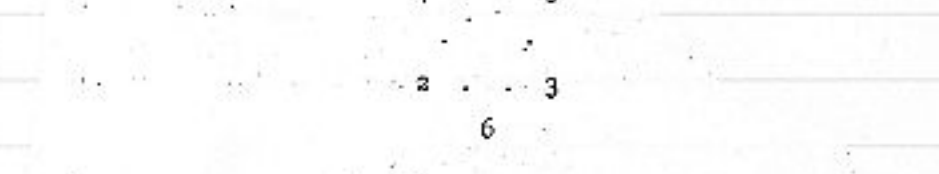
NUMERICAL ENIGMA.

I AM composed of seventy-four letters, and am part of a poem by "H. H."

My 29–9–41–67–35 is an animal of the deer kind. My 4–66–33–48 is to withhold assent to. My 38–19–30–40–3 is to annoy. My 7–15–56–22–42 is important. My 34–11–5–23 is part of the feet of certain animals. My 21–52–8–57 is the flesh of certain animals. My 72–6–12–24–62–73–58–49 is a fabulous monster; my 59–37–51–74–25–60–65–27–39 is what he dwelt in. My 55–50–32–1–63 is part of a rake. My 43–54–45–28 was the wife of Jupiter. My 61–71–16–18–36 is to bend. My 14–69–26–31 is a period of time. My 20–46–53 is a large body of water. My 10–44–47–13 is smoke. My 68–70–64–17–2 is to balance.

"CORNELIA ELIMBER."

EASY STAR PUZZLE.



FROM 1 to 3, a portion of even ground; from 2 to 3, an uproar; from 1 to 2, a fruit; from 4 to 5, to dissolve; from 6 to 5, a ditch; from 4 to 6, to cripple.

"ŒDIPUS."

CROSS-WORD ENIGMA.

My first is in spoke but not in hub;
My second in pail but not in tub;
My third is in can but not in will;
My fourth is in slope but not in hill;
My fifth is in cry but not in call;
My whole is a flower beloved by all.

"MONA."

DOUBLE ACROSTIC AND DIAGONALS.

EACH of the words described contains four letters. When rightly guessed, the initials will spell a landed estate, and the finals a residence. The diagonals, from the upper left-hand corner to the lower right-hand corner, spell a mass of floating ice; the diagonals, from the lower left-hand corner to the upper right-hand corner, will spell a common lepidopterous insect.

CROSS-WORDS: 1. A kind of food. 2. The part between tenor and soprano. 3. Space. 4. Produced.

"JOHNNY DUCK."

WORD-SQUARES.

I. 1. A fen. 2. A variety of quartz. 3. A fast horse. 4. A horse. 5. Numbers of animals.

II. 1. To efface. 2. A black bird. 3. To turn aside. 4. To wait on. 5. To record.

PAUL REESE.

SYNCOPATIONS AND BEHEADINGS.

The syncopated and beheaded letters will name a famous warrior and orator of ancient times.

1. Behead an infraction of law, and leave hoarfrost. 2. Syncopate a European country, and leave to draw out into threads. 3. Syncopate a grain, and leave that which. 4. Behead a country of Europe, and leave to torment. 5. Syncopate vapor, and leave a stalk. 6. Syncopate a fruit, and leave to gaze.

H. F. D.

INVERTED PYRAMID.

Across: 1. A state carriage. 2. To draw out. 3. A fermented beverage. 4. In creature.

Downwards: 1. In creature. 2. A pronoun. 3. A girl's name. 4. Regulation. 5. To frost. 6. A diphthong. 7. In creature.

GOLDWIN G.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

Shakespearean Numerical Enigma.

When proud-pied April, dressed in all his trim,
Hath put a spirit of youth in everything.

Sonnet XCVIII.

Monument Puzzle. Central letters. Israel Putnam. Cross-words: I. 2. aSp. 3. uRn. 4. pAw. 5. tEn. 6. aLe. 7. aPe. 8. cUb. 9. aTe. 10. faNcy. 11. clAms. 12. raiMent.

Half-square. 1. Compatriot. 2. Overreach (Sir Giles). 3. Meconate. 4. Procure. 5. Arnuts. 6. Tears. 7. Rate. 8. Ice. 9. Oh. 10. T.

Inverted Pyramid. Across: 1. Parasitic. 2. Tirades. 3. Paled. 4. Baa. 5. M.

Diamond. 1. T. 2. Feb. 3. Fumed. 4. Tempted. 5. Betty. 6. Dey. 7. D.

Anagrammatical Spelling-lesson. 1. Eleemosynary. 2. Alleviate. 3. Debilitated. 4. Participation. 5. Scintillation.

Hour-glass. Central letters, Bonaparte. Cross-words: 1. blubBered. 2. canOnic. 3. liNen. 4. tAr. 5. P. 6. mAn. 7. paRty. 8. canTeen. 9. markEting.

Cube. From 1 to 2, fooled; 2 to 6, drives; 5 to 6, eludes; 1 to 5, ferule; 3 to 4, enrobe; 4 to 8, eroded; 7 to 8, tended; 3 to 7, escort; 1 to 3, fee; 2 to 4, dye; 6 to 8, sad; 5 to 7, eat.

Double Acrostic. Primals, Shakspeare; finals, Wordsworth. Cross-words: 1. ShoW. 2. HalO. 3. AveR. 4. KinD. 5. SeaS. 6. ProW. 7. EbrO. 8. AfaR. 9. RafT. 10. EacH.

Illustrated Numerical Enigma. The used key is always bright. —— Charade. Car-pet.

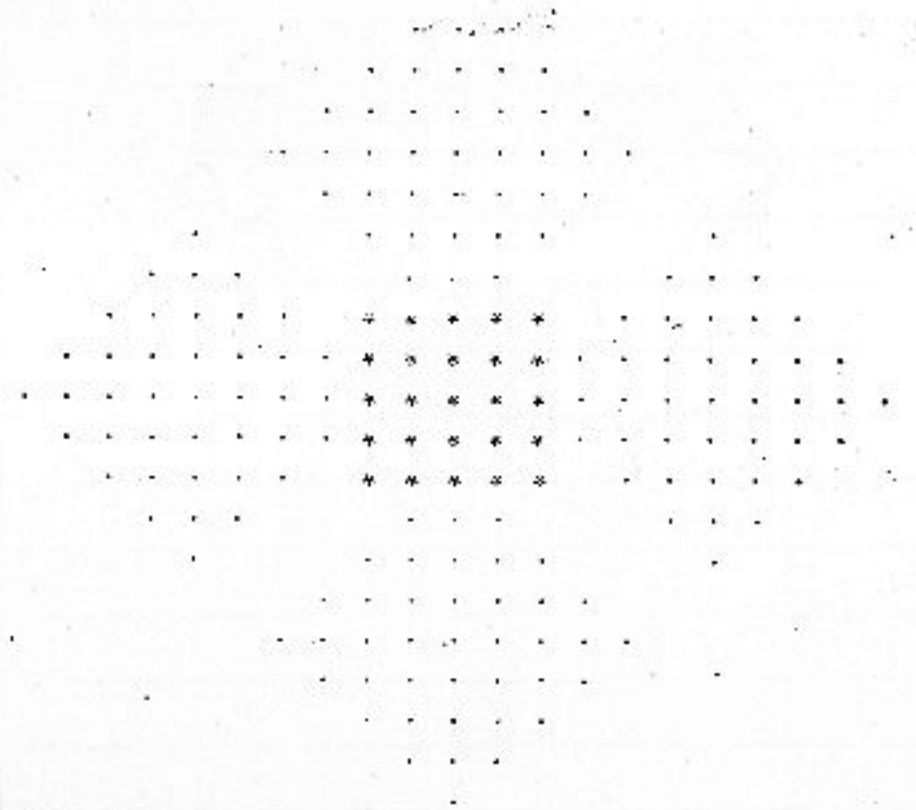
Pi. For weeks the clouds had raked the hills,
And vexed the vale with raining;
And all the woods were sad with mist,
And all the brooks complaining.

"Among the Hills."

St. Nicholas June 1885

THE RIDDLE-BOX.

PUZZLERS' CROSS.



The above cross consists of four nine-letter diamonds, connected in the center by a five-letter word-square. The letter of each of the four diamonds which is nearest to the square helps to form the middle word of the square.

Upper Diamond: 1. In "A. P. Owder, Jr." 2. A projecting part of a wheel. 3. Small fishes of the gudgeon kind. 4. To comfort. 5. Pertaining to sparrows. 6. The act of confining a ship to a particular place by means of anchors, etc. 7. A familiar contrivance for throwing stones. 8. An abbreviation for a certain country. 9. In "Cyril Deane."

Right-hand Diamond: 1. In "Royal Tarr." 2. The plural of the syllable representing the second tone in the gamut. 3. Denominations. 4. Asylum. 5. Refreshes. 6. Fumed. 7. Surfeits. 8. To scatter. 9. In "Alcibiades."

Lower Diamond: 1. In "Rex Ford." 2. An undeveloped flower. 3. One who inquires narrowly. 4. Quite new. 5. Demolition. 6. The bony part of the teeth directly beneath the enamel. 7. Restrains. 8. Misery. 9. In "Lyon Hart."

Left-hand Diamond: 1. In "Hyperion." 2. The cry of a cat. 3. Plays with dice. 4. An error. 5. A variety of the peach, with a smooth rind. 6. Having on. 7. Peels. 8. An abbreviation for a certain country. 9. In "Dycie."

Central Square: 1. A fall of hail or snow mingled with rain. 2. To depart. 3. Impetuous. 4. Levels. 5. Concise.

"Navajo."

PI.

What famous poet translated from the German the lines from which this "pi" is made?

Ojy dan prenematee nad sporee
Smal het odor no eth codrot's osen.

E. M. S. and B. H. P.

NUMERICAL ENIGMA.

I am composed of one hundred and four letters, which form two lines from Longfellow's *Tales of a Wayside Inn*.

My 63-93-15 is a beverage. My 51-36-54-23 is to whip. My 60-25-72-12 is an elevation. My 5-27-56-102-78 is an important country of Asia. My 79-33-48-61 is part of a bellows. My 50-66-84-29-7 is to bewitch. My 41-13-99-75 is to stir. My 74-37-20-95 is a message. My 90-43-17-45-22 is a musical composer. My 77-32-68-34-9 is to change. My 71-88-38-1 is a clenched hand. My 39-81-86-96-55-100 is a long step. My 4-82-62-16-104 is a hard outside covering. My 67-85-31-19 is a small bundle of straw. My 24-21-57-80-94-87 is an opening in the wall of a building. My 70-3-58-10 is a masculine name. My 46-103-2-53-91-11-69 was the founder of Islam. My 44-83-59 is a snare. My 6-76-35-47-89-30-18 is an early spring flower. My 14-49-40-52-97-65 is another spring flower. My 64-73-98-8 is a summer flower. My 28-42-26-92-101 is a fall flower.

"Cornelia Blimber."

HALF-SQUARE.

1. Harmonies. 2. A territory belonging to the United States. 3. A siesta. 4. An expression of inquiry. 5. In prognostication.

Fred.



THE central picture is a rebus, and represents a word of nine letters. This forms the central word of the hour-glass. The cross-words are pictured around the rebus.

CONCEALED WORD-SQUARE.

SELECT five words concealed in the following sentences, and arrange them so that they will form a word-square.

There was a youth from Posen selected for the dangerous journey. The dense undergrowth in the forest delayed him as he started. To have nobody see him grasp a decidedly rusty fowling-piece was consoling, to say the least.

GERTRUDE.

DOUBLE CROSS-WORD ENIGMA.

My firsts are in high, but not in low;
My seconds, in bread, but not in dough;
My thirds are in lark, but not in dove;
My fourths, in slipper, but not in glove;
My fifths are in bird, but not in lark;
My sixths are in nut, but not in park;
My sevenths in taught you may find if you wish.
Both of my answers name salt-water fish.

MARION V. W.

EASY DOUBLE ACROSTIC.

CROSS-WORDS (of equal length): 1. A girl's name meaning "good" or "kind." 2. A boy's name meaning "fame of the land." 3. A girl's name meaning "the ruler of the house."

Primals, to furnish with weapons; finals, a girl's name meaning "happiness." Primals and finals connected, a squadron.

DYCIE.

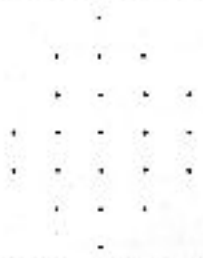
CUBE.



FROM 1 TO 2, a kind of stone; from 2 to 6, huge birds; from 5 to 6, fears; from 1 to 5, failed; from 3 to 4, to cuddle; from 4 to 8, a boy's name; from 7 to 8, wished; from 3 to 7, a relative; from 1 to 3, human beings; from 2 to 4, part of the face; from 6 to 8, sorrowful; from 5 to 7, moisture.

ALBERT W. (7 YEARS OLD).

HEXAGONS.



I. ACROSS: 1. In drawing. 2. Something steeped in liquid. 3. To wander. 4. The Ottoman court. 5. A constellation of the zodiac. 6. To know. 7. In drawing. Downward: 1. A watering place. 2. A large bird. 3. Troubled. 4. A small plate. 5. An affirmation. II. Across: 1. In stranger. 2. A projection on a wheel. 3. Washed. 4. A Roman magistrate. 5. That part of a piece of wood which enters a mortise. 6. A number. 7. In stranger. Downward: 1. To permit. 2. A military pupil. 3. Gorges. 4. A fruit. 5. A cave.

F. S. F.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

PI. When wake the violets, Winter dies;
When sprout the elm-buds, Spring is near;
When lilacs blossom, Summer cries,
"Bud, little roses! Spring is here!"
From "*Spring Has Come.*"

DIAMOND. 1. P. 2. Pod. 3. Pared. 4. Portion. 5. Deign. 6. Don. 7. N.

A NOVEL PUZZLE. 1 to 2, Grover Cleveland; from 3 to 4, Inauguration Day. Cross-words: 1. Dey. 2. Anear. 3. Aid. 4. Lm. 5. Ego. 6. Avail. 7. Creator. 8. Fallacy. 9. Encored. 10. Through. 11. Sleighs. 12. Devours. 13. Brocade. 14. Corinth. 15. English.

ZIGZAG. Mayflowers. Cross-words: 1. Mary. 2. mAid. 3. baYs. 4. deaF. 5. siLk. 6. fOld. 7. Wolf. 8. wEed. 9. biRd. 10. beeS.

NUMERICAL ENIGMA.

The voice of one who goes before, to make
The paths of June more beautiful, is thine,
Sweet May!

COMBINATION ACROSTIC. From 1 to 9, papally; 2 to 10, primary; 3 to 11, earnest; 4 to 12, forever. The letters from 5 to 8 may be transposed to form name, amen, mean, and mane.

STAR PUZZLE. From 1 to 3, plat; 2 to 3, riot; 1 to 2, pear; 4 to 5, melt; 6 to 5, moat; 4 to 6, maim.

ILLUSTRATED DOUBLE DIAMOND. Across: 1. C. 2. Rag. 3. Tapir. 4. Ton. 5. N. Downward: 1. T. 2. Rat. 3. Capon. 4. Gin. 5. R.

CROSS-WORD ENIGMA. Pansy.

SYNCOPATIONS AND BEHEADINGS. Caesar. Cross-words: 1. C-rime. 2. Sp-a-in. 3. Wh-e-at. 4. S-pain. 5. Ste-a-m. 6. G-r-ape.

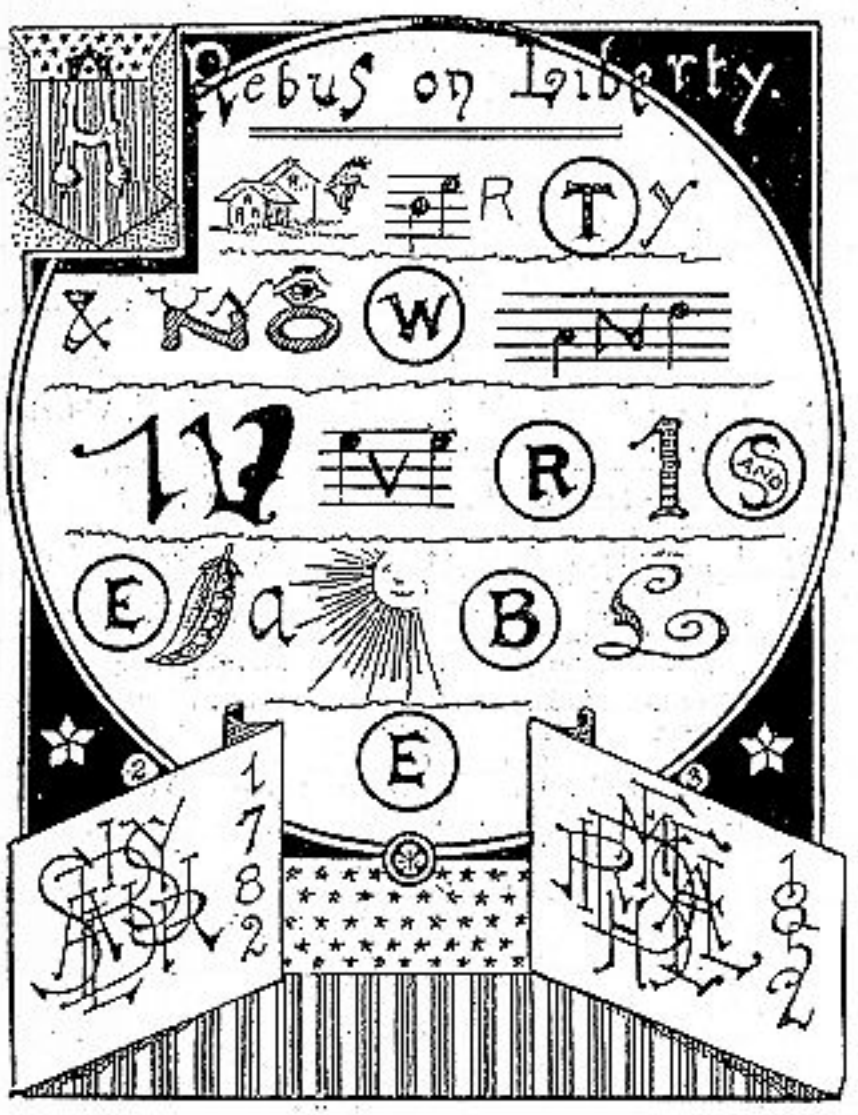
DOUBLE ACROSTICS AND DIAGONALS. Cross-words: 1. Fish. 2. Alto. 3. Room. 4. Made.

WORD-SQUARES. I. 1. Marsh. 2. Agate. 3. Racer. 4. Steed. 5. Herds. II. 1. Erase. 2 Raven. 3. Avert. 4. Serve. 5. Enter.

INVERTED PYRAMID. Across: 1. Chariot. 2. Educe. 3. Ale. 4. E.

St. Nicholas July 1885

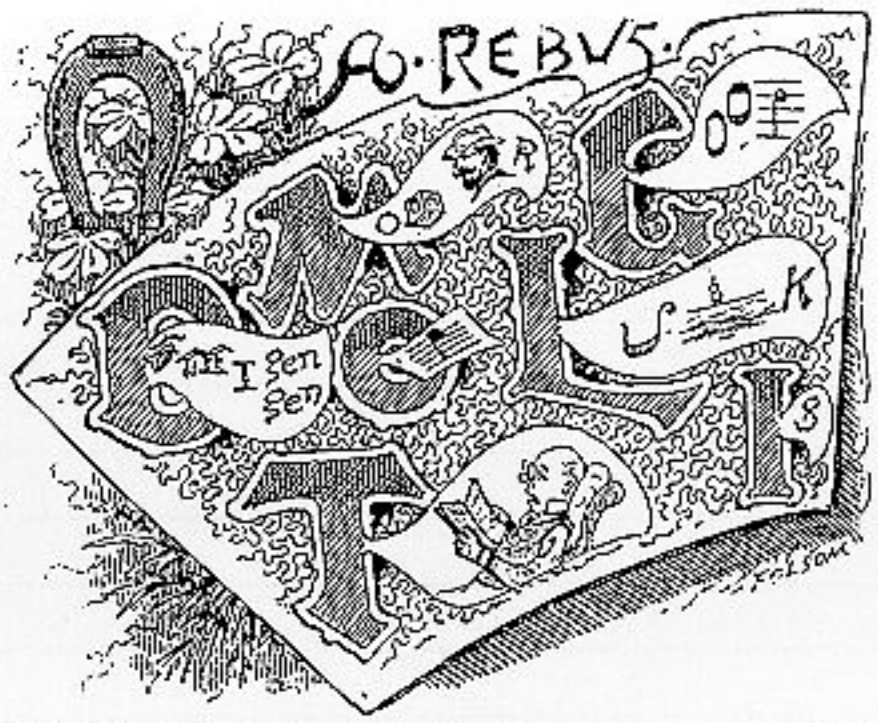
THE RIDDLE-BOX.



THE answer to this rebus is an extract from an oration. The seven letters, inclosed in seven similar circles, will spell the name of the orator. The letters of the monogram in the lower left-hand corner will spell his birth-place, and the right-hand monogram will spell the place where he died.

WORD-SQUARE.

1. To save. 2. An instrument for paring. 3. The central part of an amphitheater. 4. Splits. 5. To obliterate. "LYON HART."



EACH of the seven letters in the above rebus has an addition, which, when read in connection with the letter, makes a word. When properly arranged, these seven words will form a maxim of *Poor Richard's*.

NUMERICAL ENIGMA.

I AM composed of fifty-nine letters, and am the patriotic utterance of a great statesman, and his surname.

My 55-6-35-57-6-33 is a city famous in American history. My 57-28-43-57-48-3-40-23 is a business which was seriously interfered with at the beginning of the Revolution. My 27-11-14-56-36-26-20-39 is an American statesman and jurist who was born in Virginia in 1755. My 40-9-52-21-58-38 2-47-5-4-57-13-29 is the Christian and surname of our author. My 17-46-42-7-1-31-24-10 is his nationality. My 51-40-37-12-4 is the surname of a statesman upon whom our author pronounced a famous eulogy. My 16-45-5-19-44-54-57 is an official body of which our author was the leading member during 36-32-59-7-41-35-6-25's administration. My 53-34-56-50-6-8 4-30-18 became a State during Polk's administration. My 22-15-49, when read as Roman numerals, will hint at the age at which our author died.

"MISS GUSSY."

DOUBLE DIAGONALS.

```
1 . . . . . 2
. . . . . .
. . . . . .
. . . . . .
. . . 3 . . .
. . . . . .
. . . . . .
. . . . . .
4 . . . . . 5
```

ACROSS: 1. Given to luxury. 2. Complete views. 3. Sentenced. 4. One who is proposed for an office. 5. Placed. 6. Minute portions of matter. 7. Offers. 8. Untainted. 9. An opening through which cannon are discharged.

DIAGONALS. From 1 to 3, regions; from 2 to 3, particles of stony matter; from 3 to 5, to get away from; from 3 to 4, a hard substance; from 1 to 5, a familiar sort of picture; from 2 to 4, a kind of rock.

CYRIL DEANE.

DIAMONDS.

I. 1. In July, 2. A margin. 3. Gowns of state. 4. Independence. 5. Gay. 6. An inclosure. 7. In July.

II. 1. In firearms. 2. To proclaim. 3. A basket used by anglers. 4 Independence. 5. A city of Japan. 6. A game at cards. 7. In firearms.

"DYCIE."

DOUBLE ACROSTIC.

MY primals form a famous and familiar saying (in Latin) of Cæsar's. My finals form the modern name of the country to which Cæsar's saying referred.

Cross-words (of unequal length): 1. A city which surrendered to General Grant on July 4, 1863. 2. A republic of South America. 3. The most celebrated river of the ancient world. 4. An island in the Mediterranean that was visited, not long since, by a terrible earthquake. 5. One of the New England States. 6. A river of Afghanistan. 7. The capital of the State of Delaware. 8. One of the loftiest mountains of the Bolivian Andes. 9. A river of Holland which flows into the Zuyder Zee. 10. One of the north-central of the United States. 11. The capital of Sardinia. 12. A famous city, formerly the metropolis of Persia.

"IMMO."

BEHEADINGS.

EACH of the words described contains the same number of letters; and the beheaded letters, when read in the order here given, will spell the name of a very prominent person.

1. Behead one, and leave the egg of an insect. 2. Behead a fine fabric, and leave a single point. 3. Behead a measure of time, and leave something which contains a drum. 4. Behead active, and leave to meddle. 5. Behead to dispatch, and leave to terminate. 6. Behead to discover, and leave an emissary. 7. Behead to barter, and leave a measure. 8. Behead a sheet of canvas, and leave to be ill. 9. Behead harness, and leave part of the head. 10. Behead to rave, and leave a small insect. 11. Behead to assist, and leave a wager. 12. Behead exact, and leave a summer luxury. 13. Behead recited, and leave ancient.

"THE CARTERS."

BEHEADINGS AND CURTAILINGS.

1. BEHEAD and curtail egg-shaped, and leave a tank. 2. Behead and curtail to venerate, and leave always. 3. Behead and curtail a Mohammedan nymph, and leave a possessive pronoun. 4. Behead and curtail a surly look, and leave an uproar. 5. Behead and curtail high in situation, and leave to arrange. 6. Behead and curtail a French coin, and leave hastened. 7. Behead and curtail a straggler, and leave an ancient engine of war. 8. Behead and curtail a girl's name, and leave a useful article. 9. Behead and curtail a speech, and leave proportion. 10. Behead and curtail a Scotch landholder, and leave a time. 11. Behead and curtail to long, and leave a part of the head. 12. Behead and curtail custom, and leave to bend for want of support.

The beheaded letters, when transposed, will spell a national holiday; and the curtailed letters, when transposed, will spell what it celebrates.

PAUL REESE.

REVERSIBLE DIAGONAL.

1 . .
. 2 .
. . 3
. 4 .
5 . .

CROSS-WORDS: 1. A sheltered place; reversed, a long, snake-like fish. 2. Moisture; reversed, to marry. 3. The juice of plants; reversed, a step. 4. A snare; reversed, a number. 5. To scour; reversed, the prickly envelope of a seed.

Diagonals, from 1 to 5, a person afflicted with a certain incurable disease; from 5 to 1, to drive back.

"ALCIBIADES."

NOVEL CROSS-WORD ENIGMA.

My first is in Ohio; my second, in Pennsylvania; my third, in Indiana; my fourth, in Vermont; my fifth, in New Hampshire; my sixth, in Kentucky; my seventh, in Maine; my eighth, in Florida; my ninth, in Nebraska; my tenth, in California; my eleventh, in Michigan; my twelfth, in New York. My whole is what our forefathers fought for.

F. A. W.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

PUZZLER'S CROSS. Upper Diamond: 1. P. 2. Cam. 3. Josos. 4. Console. 5. Passerine. 6. Mooring. 7. Sling. 8. Eng. 9. E. Right-hand Diamond: 1. R. 2. Res. 3. Seets. 4. Retreat. 5. Recreates. 6. Steamed. 7. Sates. 8. Ted. 9. S. Lower Diamond: 1. R. 2. Bud. 3. Prier. 4. Brannew. 5. Ruination. 6. Dentine. 7. Reins. 8. Woe. 9. N. Left-hand Diamond: 1. N. 2. Mew. 3. Dices. 4. Mistake. 5. Nectarine. 6. Wearing. 7. Skins. 8. Eng. 9. E. Central Square: 1. Sleet. 2. Leave. 3. Eager. 4. Evens. 5. Terse.

HEXAGONS ACROSS. I. 1. W. 2. Sop. 3. Stray. 4. Porte. 5. Aries. 6. Ken. 7. D. II. 1. R. 2. Cam. 3. Laved. 4. Edile. 5. Tenon. 6. Ten. 7. S.

HALF-SQUARE. 1. Tunes. 2. Utah. 3. Nap. 4. Eh. 5. S.

AN HOUR-GLASS PUZZLE Centrals, Vacations. Cross-words: 1. Baseviols. 2. Heralds. 3. Maces. 4. Man. 5. T. 6. Lid. 7. Smoke. 8. Oranges. 9. Footsteps.

NUMERICAL ENIGMA.

Thus came the lovely spring with a rush of blossoms and music;
Flooding the earth with flowers, and the air with melodies vernal.

Elizabeth. Part III

DOUBLE CROSS-WORD ENIGMA. Herring, Halibut.

EASY DOUBLE ACROSTIC. Primals, Arm; finals, Ada. Cross-words: 1. Agatha. 2. Roland. 3. Martha.

CUBE. From 1 to 2, marble; 2 to 6, eagles; 5 to 6, dreads; 1 to 5, missed; 3 to 4, nestle; 4 to 8, Edward; 7 to 8, wanted; 3 to 7, nephew; 1 to 3, men; 2 to 4, eye; 6 to 8, sad; 5 to 7, dew.

CONCEALED WORD-SQUARE. 1. Ashes. 2. Spade. 3. Haven. 4. Edens. 5. Sense.

Pi. Joy and Temperance and Repose
Slam the door on the Doctor's nose.

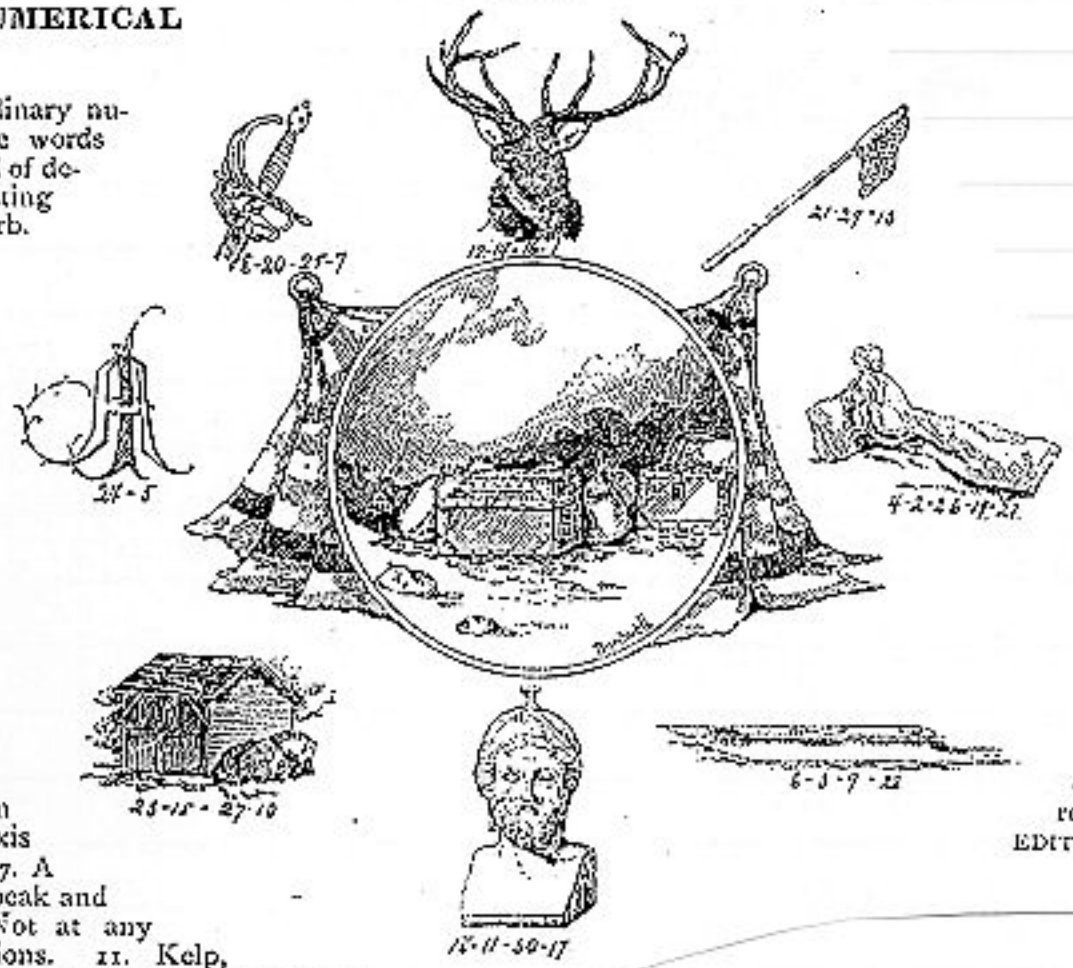
LONGFELLOW.

St. Nicholas August 1885

THE RIDDLE-BOX.

ILLUSTRATED NUMERICAL ENIGMA.

THIS differs from the ordinary numerical enigma, in that the words forming it are pictured instead of described. The answer, consisting of thirty letters, forms a proverb.



DOUBLE ACROSTIC.

MY Primals name a collection of books, and my finals name the author (born August 15, 1771) and his title.

CROSS-WORDS (of equal length): 1. Flies. 2. A legal term used when a prisoner can prove his absence from the place where a crime is committed. 3. Mist. 4. To settle an income upon. 5. A botanical term meaning a kind of dry fruit, consisting of three or more cells, each of which, from its own elasticity, bursts from the axis into two valves. 6. Even. 7. A manifesto. 8. A mountain-peak and two rivers of Hayti. 9. Not at any time. 10. Solemn affirmations. 11. Kelp, or incinerated sea-weed. 12. The muse who presided over lyric poetry. 13. Boundary. 14. Diversion.

DYCIE.

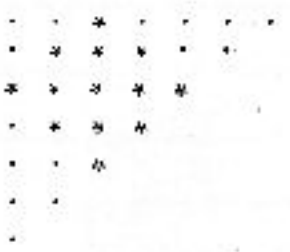
DIAMONDS.

I. 1. In nectarine. 2. Divided. 3. Remedied. 4. A portière. 5. To annoy. 6. To perish. 7. In nectarine.

II. 1. In reprimand. 2. A small, sharp report. 3. Part of a door. 4. An iron-clad war-vessel having a revolving turret. 5. Small. 6. A separate part. 7. In reprimand.

EDITH LEAVITT AND "IRON DUKE."

DIAMOND IN A HALF-SQUARE.



HALF-SQUARE. Across: 1. Knotted. 2. Disclosed to view. 3. A county in England. 4. Soon. 5. A number. 6. A boy's nickname. 7. In deed.

INCLUDED DIAMOND. 1. In deed. 2. To write. 3. A county in England. 4. A prefix meaning "not." 5. In dent.

CYRIL DEANE.

BEHEADINGS.

THE beheaded letters, read in the order here given, will spell the surname of a popular author.

1. Behead to revile, and leave a female relative. 2. Behead a wanderer, and leave above. 3. Behead a fruit, and leave to subsist. 4. Behead anger, and leave early. 5. Behead to cook upon a gridiron, and leave to render turbid. 6. Behead a river of Europe, and leave a stone for sharpening instruments. 7. Behead fanciful, and leave a portion. 8. Behead to train in the military art, and leave a brook. 9. Behead a familiar substance, and leave a girl. 10. Behead an occurrence, and leave an opening.

"VICI."



ARRANGE the names of the four objects in the above illustration so that they will form a word-square.

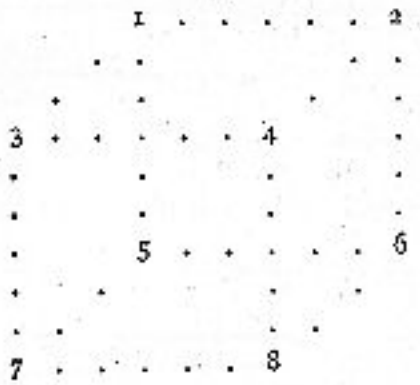
HOUR-GLASS.

MY centrals, reading downward, spell what, according to one little girl's theory, makes the ocean salt.

CROSS-WORDS: 1. Roosts. 2. To verify. 3. A lyric poem. 4. To satisfy. 5. A young animal of a certain kind. 6. A substance useful to violinists. 7. Very often seen on fine beaches.

EFFIE E. H.

CUBE.



FROM 1 to 2, to fall by succession.; from 2 to 6, bears: from 5 to 6, novelty; from 1 to 5, style of language; from 3 to 4, to amend; from 4 to 8, more youthful; from 7 to 8, to authorize; from 3 to 7, to perform a revolution; from 1 to 3, an animal; from 2 to 4, a small whirlpool; from 6 to 8, to fly; from 5 to 7, appellation.

MARY B. B.

WORD-SQUARES.

I. 1. The surname of a poet. 2. Junction. 3. To cleanse by washing. 4. A nozzle. 5. To scoff.

II. 1. A brittle, transparent substance. 2. Airy. 3. To coincide. 4. Straight up and down. 5. Severe.

"ANNETTE" AND R. F. D.

NUMERICAL ENIGMA.

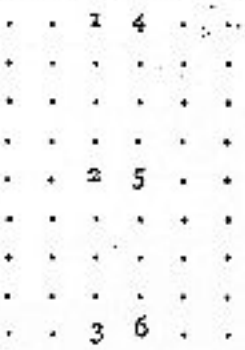
I AM composed of eighty-two letters, and embody, in a quotation from Shakespeare, the same idea that is conveyed in the following quotation from Seneca:

"Qui sibi amicus est, scito hunc amicum omnibus esse."

My 35-21-67-12 is to decrease. My 68-48-6-74-50-17-53 is under. My 80-66-36-23-31-9 is a tract of low or level grass land. My 26-42-73-60 is fog. My 37-4-69-81-30 is a bundle of the stalks of grain, bound together. My 25-16-58-63 is the dwelling of the Bedaween Arab. My 14-24-15 is a falsehood. My 70-34-33-13-79 is foolishness. My 44-20-5-82-76-55-11 is very wicked. My 27-22-65-77-10-49 is to loose from the hand. My 28-45-8-41-51 is very hard. My 43-72-19-64-1-54-78 is a gormandizer. My 59-3-71-32-40 is not fresh. My 39-2-46-38-7-61-75-62-52 is one of a certain savage and degraded tribe of South Africa. My 56-47-57-18-29 is a map.

"CORNELIA BLIMBER."

DOUBLE CENTRAL ACROSTIC.



FROM 1 to 2, to face; from 2 to 3, rows; from 4 to 5, animals resembling frogs; from 5 to 6, a seat; from 1 to 3, boundaries; from 4 to 6, a sort of mushroom.

CROSS-WORDS: 1. A roof timber of a building. 2. A metal from which colored preparations are made. 3. Mournful sounds. 4. Ingenuous. 5. Beginning. 6. A sea demi-god. 7. Ancient Greek theaters. 8. Very brave. 9. Led into error. "ANN O'TATOR."

CROSS-WORD ENIGMA.

My first you 'll find in "hunting," my second in a "bear,"
My third and fourth, you 'll find them both in "polo," I declare.
My fifth you 'll see in "telescope," my sixth is in your "eye,"
My seventh is in "hexagon," my eighth in "nullify."
My whole, a famous general, whose name I must decline
To tell you. He was born in August, seventeen-sixty-nine.

HORACE J. M. PRESTON.

LETTER PUZZLES.

$$\frac{\text{RIO}}{\text{TA}}$$

A word of seven letters.

$$\frac{\text{T}}{\text{S}}$$

A word of ten letters.

"ALCIBIADES" AND "WILL O. TREE."

ANSWERS TO PUZZLES IN THE JULY NUMBER.

DIAMONDS. I. 1. L. 2. Rim. 3. Robes. 4. Liberty. 5. Merry. 6. Sty. 7. Y. II. 1. F. 2. Cry. 3. Creel. 4. Freedom. 5. Yeddo. 6. Loo. 7. M.

NOVEL CROSS-WORD ENIGMA. Independence.

REBUS. Diligence is the mother of good luck.

BEHEADINGS AND CURTAILINGS. 1. O-vat-e. 2. R-ever-e. 3. H-our-i. 4. F-row-n. 5. U-plan-d. 6. F-ran-c. 7. T-ram-p. 8. J-an-e. 9. O-ratio-n. 10. L-air-d. 11. Y-ear-n. 12. U-sag-e. Beheaded letters, transposed, Fourth of July; curtailed letters, transposed, Independence.

REVERSIBLE DIAGONAL. Cross-words: 1. Lee. 2. Eel. 3. Sap. 4. Net. 5. Rub.

BEHEADINGS. Ulysses S. Grant. Cross-words: 1. U-nit. 2. L-ace. 3. Y-ear. 4. S-pry. 5. S-end. 6. E-spy. 7. S-ell. 8. S-ail. 9. G-ear. 10. R-ant. 11. A-bet. 12. N-ice. 13. T-old.

NUMERICAL ENIGMA. "I was born an American, I live an American, I shall die an American." Webster.

REBUS ON LIBERTY. "Liberty and Union, now and forever, one and inseparable." Webster (Daniel). Born at Salisbury; died at Marshfield.

WORD-SQUARE. 1. Spare. 2. Parer. 3. Arena. 4. Rends. 5. Erase.

DOUBLE DIAGONALS. From 1 to 5, landscape; from 2 to 4, sandstone. Cross-words: 1. Luxurious. 2. Panoramas. 3. Condemned. 4. Candidate. 5. Deposited. 6. Particles. 7. Proposals. 8. Incorrupt. 9. Embrasure.

DOUBLE ACROSTIC. Primals, Veni, vidi, vici; finals, Great Britain. Cross-words: 1. VicksburG. 2. EcuadoR. 3. NilE. 4. IschiA. 5. VermonT. 6. IrghendaB. 7. DoveR. 8. IllimaniI. 9. VechT. 10. IowA. 11. CagliarI. 12. IspahaN.

St. Nicholas October 1885

THE RIDDLE-BOX.

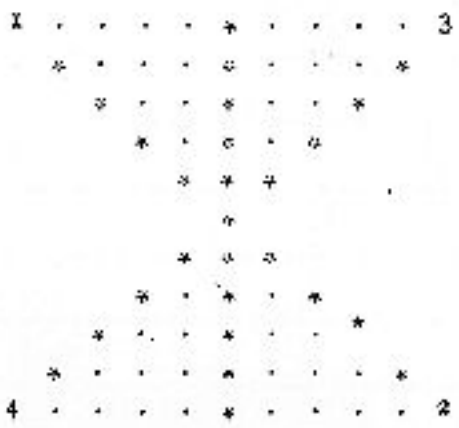
EASY TRANSPOSITIONS.

I. TRANSPOSE a word meaning parsimonious, and have a word meaning diminishes little by little; transpose again, and have fruits; again, and have an instrument of warfare; again, and have to describe grammatically; again, and have gathers.

II. TRANSPOSE a word meaning small spiders, and have to strike; transpose again, and have articles; again, and have sends forth; again, and have a daily paper.

HARRY B. SPARKS.

HOUR-GLASS.



ACROSS: 1. Having the quality of a director. 2. To do anything off-hand. 3. Leaping. 4. To writhe. 5. To disclose. 6. In party. 7. To fondle. 8. In music; a direction equivalent to "very." 9. Jamaica pepper. 10. A stretching. 11. Continues anew.

Centrals, reading downward, omnipresent; from 1 to 2, deviations from the natural shape or position; from 3 to 4, in every writing-desk.

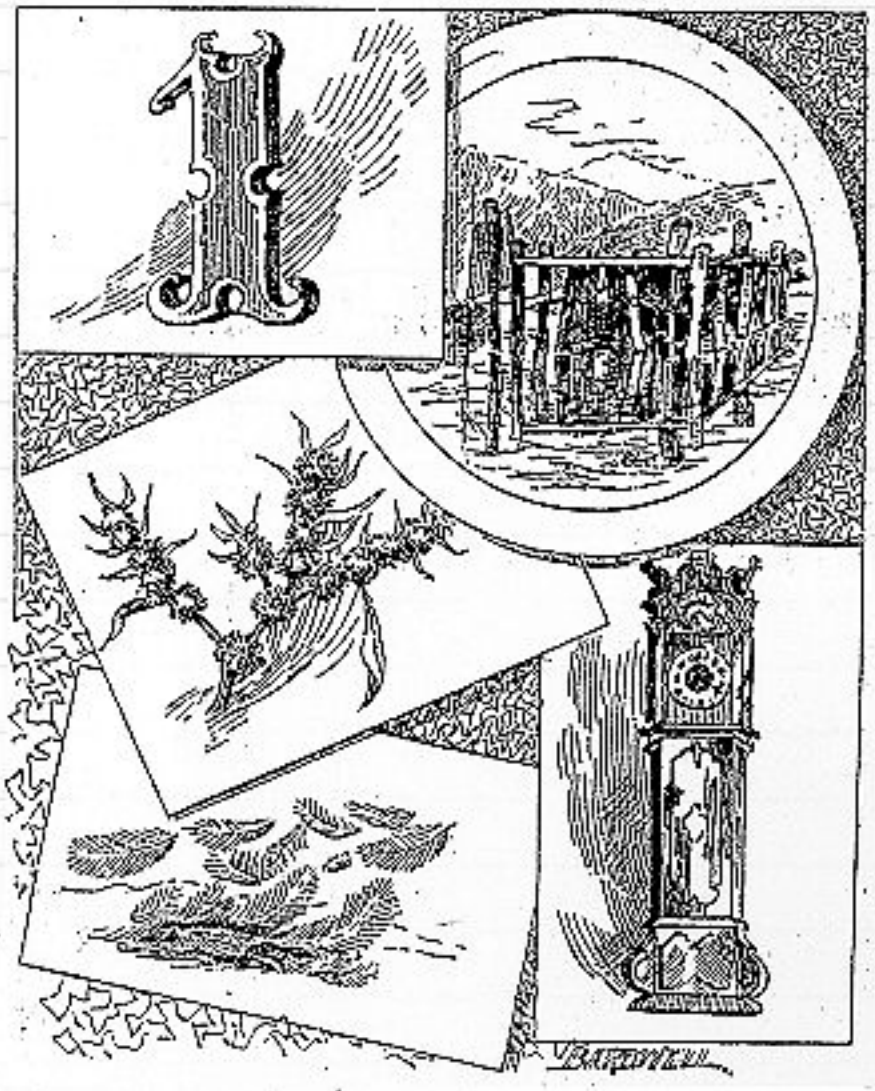
"NAVAJO."

BURIED GULFS AND BAYS.

1. Is carbon, Avis, taken from the earth? 2. Suppose we, for fun, dye the horse blue. 3. I have seen Booth, I am sure, in Hamlet. 4. You can stamp a piece of canvas for a tidy. 5. When gold is at par I am going to make a fortune. 6. You may put in the pan a mass of flour, and I will add milk and eggs. 7. I must take a nap lest I fall asleep on the journey. 8. Let us play one game more. 9. A glove nicely cut always fits well. 10. Well done, gallant soldiers! 11. Can you see Ben gallop toward us on his pony? 12. Apollo belongs to Greek mythology.

FRANK.

ILLUSTRATED PUZZLE.



THIS puzzle is based upon one of the Mother Goose rhymes. The pictures represent the last words of each of the five lines of the verse. What is the verse?

WORD-SQUARES.

I. 1. To furnish with a second mast. 2. One who makes proud. 3. A Jewish critical work. 4. Made amends. 5. Calm. 6. Barters.

II. 1. The snake-bird. 2. Opposed to. 3. Sets anew. 4. A weaver's cutting instrument. 5. Rank. 6. To force back against the current.

H. B. M.

CROSS-WORD ENIGMA.

My first is in bad, but not in good;
My second in turban, but not in hood;
My third is in town, but not in village;
My fourth is in thief, but not in pillage:
My fifth is in earl, but not in count;
My sixth is in stream, but not in fount;
My seventh in cat, but not in dog;
My eighth is in cloud, but not in fog;
My ninth is in loop, but not in ring;
My whole is a flower that comes in spring.

LILY WELLS.

DIAMOND.

1. In pickerel. 2. A porker. 3. A tinker. 4. The reports of proceedings in the British Parliament. 5. A poisonous trailing plant. 6. Sumptuously. 7. Comical. 8. Twenty-four hours. 9. In pickerel. "NAVAJO."

HALF-SQUARE.

1. A covering for the floor. 2. An Arabian prince, or military commander. 3. A break. 4. A fondling. 5. Two-thirds of a possessive pronoun. 6. In tents.

FRANK CHASE.

HEXAGONS.

I. Across: 1. In clothe. 2. The juice of plants. 3. Steam. 4. Occupying the axis of anything. 5. Famous. 6. A slight bow. 7. In clothe. Downward: 1. The front of an army. 2. A native of Saxony. 3. The edifice occupied by the Congress of the United States. 4. Impelled by poles. 5. A color.

II. Across: 1. In clothe. 2. A familiar game. 3. Blunders or contradictions. 4. A simpleton. 5. Stylish. 6. To regret. 7. In clothe. Downward: 1. A place to store grain. 2. A surname of a line of English kings. 3. A large fish. 4. A spherical body. 5. A pen.

H. H. D.

ILLUSTRATED NUMERICAL ENIGMA.



This differs from the ordinary numerical enigma, in that the words forming it are pictured instead of described. The answer, consisting of sixty-five letters, is a couplet by Herrick, and embodies the same idea as the Latin quotation given on the pictured book.

St. Nicholas May 1894

THE RIDDLE-BOX.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

NUMERICAL ENIGMA. Enigmatography.

INTERSECTING WORDS. From 1 to 2, correct; 3 to 4, snorted; 5 to 6, current. Cross-words: 1. Couches. 2. Columns. 3. Sorrows. 4. Florist. 5. Sateens. 6. Reënact. 7. Distant.

ZIGZAG. Sir Edwin Landseer. Cross-words: 1. Shed. 2. flIe. 3. foRk. 4. sirE. 5. daDo. 6. eWer. 7. Inch. 8. aNon. 9. foLd. 10. areA. 11. siNk. 12. aDds. 13. Sign. 14. sEre. 15. frEt. 16. mooR.

ILLUSTRATED PRIMAL ACROSTIC. Bayard. 1. Bird. 2. Angle. 3. Yacht. 4. Apple. 5. Revolver. 6. Dagger.

DOUBLE ACROSTIC. Primals, Francis Marion Crawford; finals, Frances Hodgson Burnett. Cross-words: 1. Feoff. 2. Recur. 3. Arena. 4. Nisan. 5. Civic. 6. Inane. 7. Signs. 8. Month. 9. Abaco. 10. Rabid. 11. Icing. 12. Orris. 13. Negro. 14. Canon. 15. Rhomb. 16. Adieu. 17. Waver. 18. Feign. 19. Olive. 20. Roost. 21. Daunt.—— CHARADE. Hem-i-sphere.

CENTRAL ACROSTIC. Swamp Fox. Cross-words: 1. paSte 2. doWdy. 3. stAin. 4. daMan. 5. taPer. 6. loFty. 7. knOck. 8. boXer.

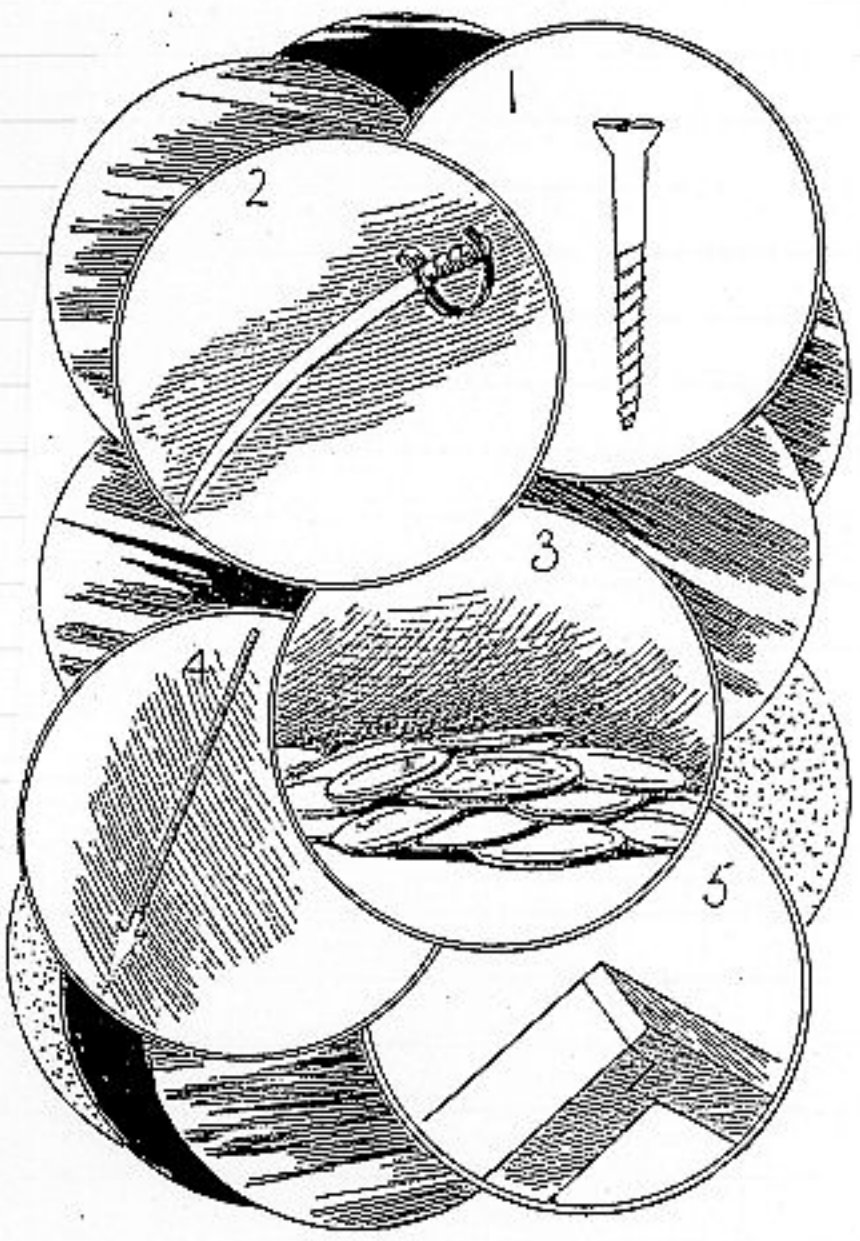
CONNECTED SQUARES. I. 1. Guess. 2. Unrip. 3. Erode. 4. Sidle. 5. Speed. II. 1. Yacht. 2. Abhor. 3. Chore. 4. Horse. 5. Trees. III. 1. Deist. 2. Error. 3. Irony. 4. Songs. 5. Tryst. IV. 1. Unapt. 2. Negro. 3. Again. 4. Prime. 5. Toned. V. 1. Tarts. 2. Avert. 3. Repay. 4. Trail. 5. Style.

CUBE. From 1 to 2, foliage; 1 to 3, foreign; 2 to 4, entered; 3 to 4, natured; 5 to 6, paresis; 5 to 7, phantom; 6 to 8, secular; 7 to 8, manager; 1 to 5, flap; 2 to 6, eats; 4 to 8, deer; 3 to 7, norm.

RHYMED TRANSPOSITIONS. Sutler, Ulster, rulest, luster, rustle, result.

WORD-SQUARES. I. 1. Mimes. 2. Ideal. 3. Metre. 4. Eared. 5. Sleds. II. 1. Dares. 2. Apode. 3. Rosin. 4. Edits. 5. Sense. III. 1. Event. 2. Valor. 3. Elite. 4. Notus. 5. Tress.

ILLUSTRATED DIAGONAL.



EACH of the objects in the above picture may be described by a word of five letters. When rightly guessed, and the words placed one below another, the diagonal (beginning at the upper, left-hand letter) will spell a long-winged bird.

CHARADE.

SOME ONE threw my *first* and *second* at me, and it hit my *third*. It did not hurt me, for it was only a branch of my *whole*.

PEARLE C.

CROSS-WORD ENIGMA.

MY first is in coffee, but not in tea;
My second, in river, but not in sea;
My third is in banter, but not in joke;
My fourth is in mantle, but not in cloak;
My fifth is in tocsin, but not in alarm;
My sixth is in village, but not in farm;
My seventh, in cash, but not in coin;
My eighth is in add, but not in join;
My ninth is in carol, but not in song;
My tenth is in chain, but not in thong;
My eleventh, in cork, but not in wood;
My twelfth is in cape, but not in hood.
My whole was a lord of the Spanish main,
Who sailed from England, a fortune to gain.

"SAMUEL SYDNEY."

DOUBLE ACROSTIC.

MY primals name those especially remembered by soldiers in the latter part of May; my finals show for what purpose certain decorations are prepared.

CROSS-WORDS: 1. A fissure. 2. Very corpulent. 3. A title of respect given to a lady. 4. A character in one of Shakspere's plays. 5. An autumn flower. 6. A famous city of India. 7. Additional. 8. Part of a flower.

CYRIL DEANE.

DIAMOND.

1. IN pomegranate. 2. A small quadruped. 3. Extremely violent. 4. Nourishment. 5. Covered with tiles. 6. Poor or ragged clothing. 7. In pomegranate.



NUMERICAL ENIGMA.

I AM composed of sixty-six letters, and form two lines of a poem by Thomas Buchanan Read.

My 24–35–63 is an inlet of the sea. My 51–14–9–45 is to draw near. My 58–4–29–8 is one of the United States. My 54–42–19–47 is combustible turf. My 17–32–27–56 is a cement. My 22–64–2–40 is high temperature. My 33–11–38–62 is the fermented juice of grapes. My 60–25–6–21–13 is peevish. My 3–34–65–49–28 is barm. My 7–52–46–26–57 is to swindle. My 41–23–53–36–48–16 is the abode of bliss. My 44–5–30–59–55–10 is a thin, indented cake. My 61–15–12–39–66–20 is having a keen appetite. My 43–31–18–1–37–50 is the highest point.

L. W.

PI.

TON eht wrod, tub eth solu fo het ginth!
Ton het mane, tub het ripsit fo grispn!
Dan os, ta grimnon realy,
Gothhur shoregwed shref dan parley,
Dekebced twih whathorne cransheb
Dan plape lossmobs yag,
Reh geldon hira doarun ehr,
Sa fi mose dog hda wronced reh,
Sarcos het dwey nodadlow
Scome dangein ni eht yam.

PRIMAL ACROSTIC.

WHEN the following words have been rightly guessed, and placed one below another, the initial letters will spell the name of a famous hero.

CROSS-WORDS (of equal length): 1. Endangers. 2. A vegetable. 3. To hold firmly. 4. To make into a law. 5. A knave. 6. An ancient Persian head-dress. 7. Cheerless. 8. A Russian coin. 9. To join. 10. A venomous serpent. 11. One hostile to another.

TILLIE S. TAYLOR.

WORD-SQUARE.

I. 1. A LIGHT kind of musket. 2. A Burman measure of twelve miles. 3. A portable chair. 4. An effigy. 5. Narrow passageways.

"SAMUEL SYDNEY."

TRIPLE ACROSTIC.

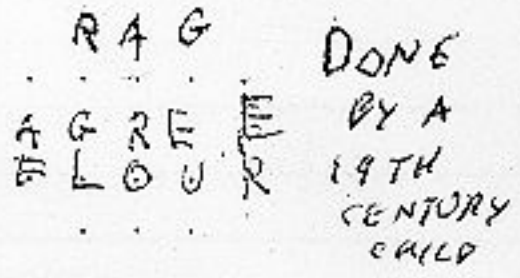
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8 . . .	16 . . .	24

FROM 1 to 8, and from 17 to 24, are geographical names that of late have been very often in the newspapers; from 9 to 16 is the name of a famous volcano, often mentioned in connection with these geographical names.

CROSS-WORDS: From 1 to 9, a king of Tyre; 2 to 10, a musical work; 3 to 11, the French word for "nephew"; 4 to 12, a body of water; 5 to 13, a South American ruminant; 6 to 14, common; 7 to 15, a rope with a running noose, used for catching cattle; 8 to 16, a city in New York State; 9 to 17, a Hebrew legislator and prophet; 10 to 18, a Greek letter; 11 to 19, belonging to a city; 12 to 20, a wanderer; 13 to 21, a weapon; 14 to 22, a river in Washington State; 15 to 23, pertaining to the eye; 16 to 24, the name the Arabs give to the Supreme Being.

G. B. D.

DOUBLE OCTAGON.

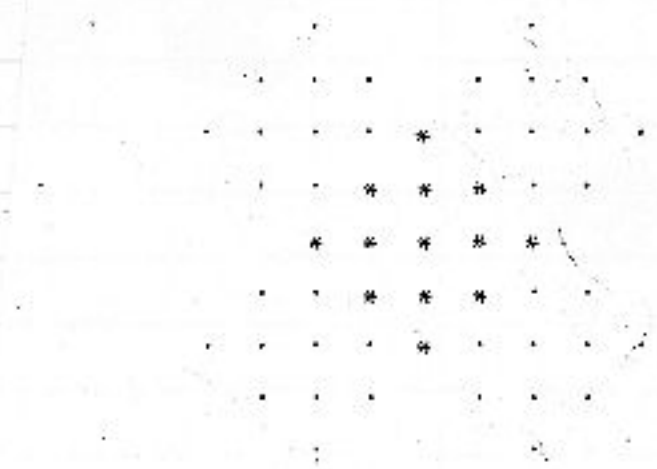


ACROSS: 1. A tattered piece of cloth. 2. Small game animals. 3. To be of one mind. 4. Something used in making bread. 5. A coloring substance.

DOWNWARD: 1. A kind of fodder. 2. Became furious with anger. 3. To adorn with dress. 4. Certain fowls. 5. To put in place.

H. W. E.

ST. ANDREW'S CROSS OF DIAMONDS.



I. UPPER LEFT-HAND DIAMOND. 1. In alter. 2. Termination. 3. A good spirit. 4. Moisture. 5. In alter.
II. UPPER RIGHT-HAND DIAMOND: 1. In alter. 2. A game. 3. Afterward. 4. A jewel. 5. In alter.
III. CENTRAL DIAMOND: 1. In alter. 2. A covering for the head. 3. An organ of the body. 4. To procure. 5. In alter.
IV. LOWER LEFT-HAND DIAMOND: 1. In alter. 2. A humorist. 3. A stratum. 4. To gain. 5. In alter.
V. LOWER RIGHT-HAND DIAMOND: 1. In alter. 2. To brown. 3. One who rates. 4. Unhackneyed. 5. In alter.

NINA AND JEAN.

St. Nicholas June 1894

THE RIDDLE-BOX.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

ILLUSTRATED DIAGONAL. Swift. 1. Screw. 2. Sword. 3. Coins. 4. Shaft. 5. Joint.—— CHARADE. Mistle-toe.

DOUBLE ACROSTIC. Primals, Comrades; finals, Memorial. Cross-words: 1. Chasm. 2. Obese. 3. Madam. 4. Romeo. 5. Aster. 6. Delhi. 7. Extra. 8. Sepal.

DIAMOND. 1. P. 2. Rat. 3. Rabid. 4. Pabulum. 5. Tiled. 6. Dud. 7. M.—— CROSS-WORD ENIGMA. Francis Drake.

NUMERICAL ENIGMA.

May has come in,—young May, the beautiful,
Weaving the sweetest chaplet of the year.

DOUBLE OCTAGON. Across: 1. Rag. 2. Hares. 3. Agree. 4. Yeast. 5. Dye.

ST. ANDREW'S CROSS OF DIAMONDS: I. 1. A. 2. End. 3. Angel. 4. Dew. 5. L. II. 1. L. 2. Tag. 3. Later. 4. Gem. 5. R. III. 1. L. 2. Wig. 3. Liver. 4. Get. 5. R. IV. 1. L. 2. Wag. 3. Layer. 4. Get. 5. R. V. 1. R. 2. Tan. 3. Rater. 4. New. 5. R.

WORD-SQUARE. 1. Fusil. 2. Uzema. 3. Sedan. 4. Image. 5. Lanes.

PRIMAL ACROSTIC. Robert Bruce. Cross-words: 1. Risks. 2. Onion. 3. Brace. 4. Enact. 5. Rogue. 6. Tiara. 7. Bleak. 8. Ruble. 9. Unite. 10. Cobra. 11. Enemy.

PI.

Not the word, but the soul of the thing!
Not the name, but the spirit of spring!
And so, at morning early,
Through hedgerows fresh and pearly,
Bedecked with hawthorn branches
And apple blossoms gay,
Her golden hair around her,
As if some god had crowned her,
Across the dewy woodland
Comes dancing in the May.

TRIPLE ACROSTIC. From 1 to 8, Honolulu; 9 to 16, Maunaloa; 17 to 24, Sandwich. Cross-words: From 1 to 9, Hiram; 2 to 10 opera; 3 to 11, neveu; 4 to 12, ocean; 5 to 13, llama; 6 to 14, usual; 7 to 15, lasso; 8 to 16, Utica; 9 to 17, Moses; 10 to 18, alpha; 11 to 19, urban; 12 to 20, nomad; 13 to 21, arrow; 14 to 22, Lummi; 15 to 23, optic; 16 to 24, Allah.

PI.

RAIF dan geren si het sharm ni unje;
Dwie dan wram si eht snyun nono.
Het wireflong shures grifen het loop
Whit drenels swodsha, mid dan loco.
Romf eht wol shebus "bbo twihe" slalc;
Toni shi snet a lorefase slafl,
Het glubflea defas; dan ghrouth het hate,
Raf fof, eht sae's fanit slupse tabe.

ANAGRAM.

A TITLE often applied to Hippocrates:

DO THE INFIRM FEET ACHE?

CENTRAL ACROSTIC.

ALL the words described contain the same number of letters. When rightly guessed, and placed one below the other, the central letters will spell the name of a character in the Iliad.

CROSS-WORDS: 1. A pattern of excellence or perfection. 2. The close of the day. 3. Screening. 4. To take away. 5. The lowest degree of honor that is hereditary. 6. A kind of ant, abundant in tropical countries, and noted for its destructive habits. 7. To twine around. 8. Earnest. 9. Pekans. 10. To separate.

"SAMUEL SYDNEY."

DIVIDED WORDS.

EXAMPLE: Take half of a costly metal, and two thirds of a public house, and form a word meaning to control. Answer, go-ld, ta-vern; govern.

1. Take half of a part of a gun, and half of a depression between hills, and make a kind of grain.

2. Take half of one of the months, and half of imperfect, and make something new.

3. Take half of to give up, and two thirds of skilful, and make always.

4. Take half of magnificent, and half of plainly, and make to provide.

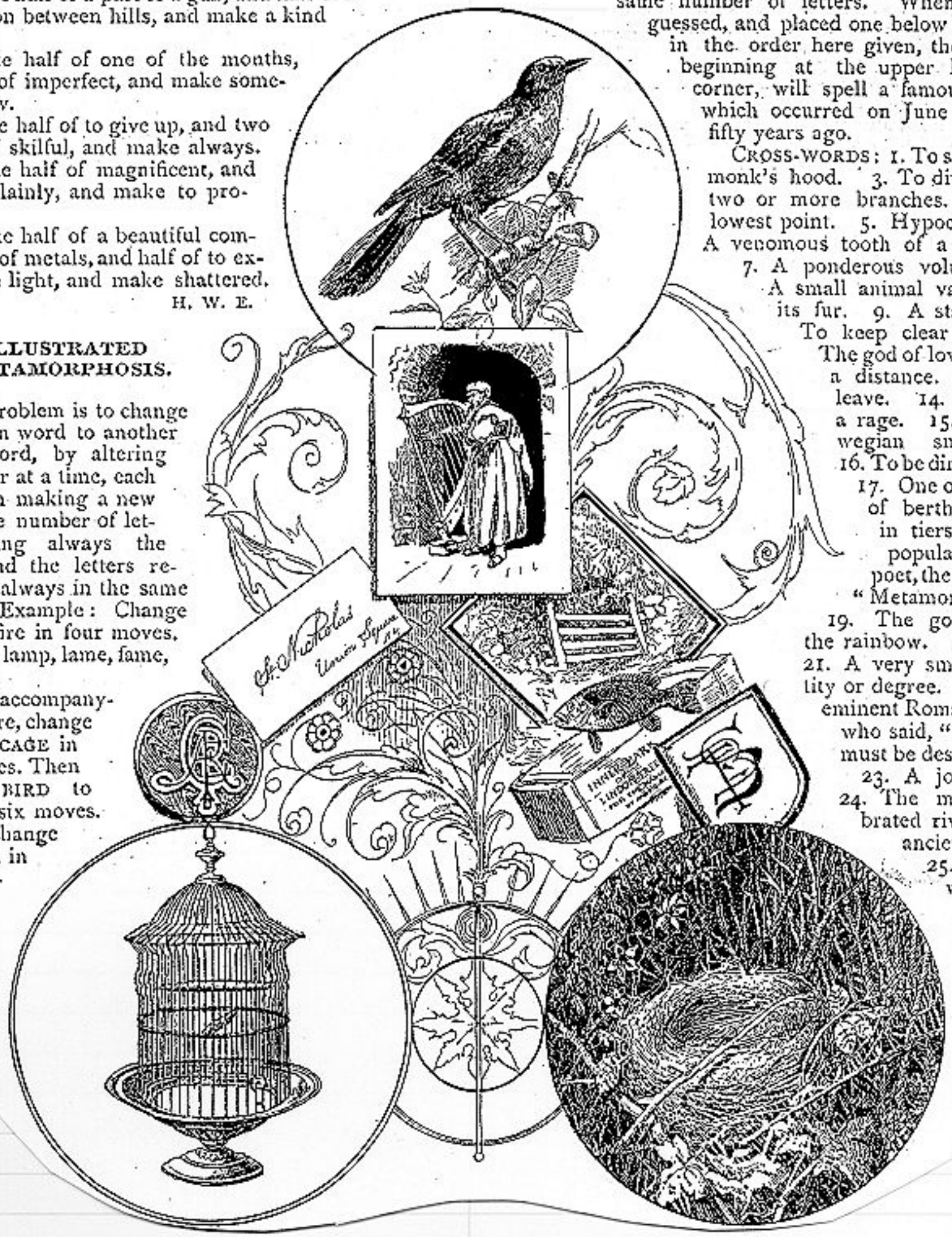
5. Take half of a beautiful combination of metals, and half of to exclude the light, and make shattered.

H. W. E.

ILLUSTRATED METAMORPHOSIS.

THE problem is to change one given word to another given word, by altering one letter at a time, each alteration making a new word, the number of letters being always the same, and the letters remaining always in the same order. Example: Change lamp to fire in four moves. Answer: lamp, lame, fame, fare, fire.

In the accompanying picture, change BIRD to CAGE in four moves. Then change BIRD to NEST in six moves. Each change is shown in the illustration.



ZIGZAG.

ALL of the words described contain the same number of letters. When rightly guessed, and placed one below another, in the order here given, the zigzag, beginning at the upper left-hand corner, will spell a famous event which occurred on June 28, over fifty years ago.

CROSS-WORDS: 1. To stuff. 2. A monk's hood. 3. To divide into two or more branches. 4. The lowest point. 5. Hypocrisy. 6. A venomous tooth of a serpent. 7. A ponderous volume. 8. A small animal valued for its fur. 9. A stain. 10. To keep clear of. 11. The god of love. 12. At a distance. 13. To leave. 14. To be in a rage. 15. A Norwegian snow-shoe. 16. To be diminished. 17. One of a series of berths placed in tiers. 18. A popular Roman poet, the author of "Metamorphoses." 19. The goddess of the rainbow. 20. Tart. 21. A very small quantity or degree. 22. The eminent Roman patriot who said, "Carthage must be destroyed!" 23. A jolly time. 24. The most celebrated river of the ancient world. 25. Parched with heat.

C. B.

DROP-LETTER PROVERBS.

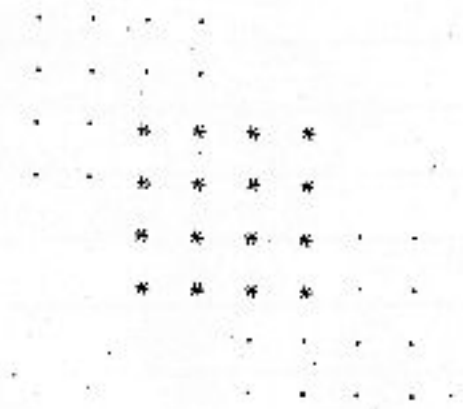
1. A b*r*t *h*l* d*e*d* t*e *i*e.
2. E*o*g* i* a* g*o* a* a *e*s*.
3. A *r*e*d *n *e*d *s * f*i*n* i*d*e*.
4. T*o *a*y *o*k* s*o*l *h* b*o*h. "CALAMUS."

WORD-SQUARE.

1. A sambo. 2. Audibly. 3. A large quadruped. 4. A. statue. 5. A kind of theater in ancient Greece.

"SAMUEL SYDNEY."

CONNECTED SQUARES.



I. UPPER SQUARE: 1. A burden. 2. At one time. 3. A continued pain. 4. An exploit.

II. MIDDLE SQUARE: 1. To observe. 2. A whirlpool. 3. To move sideways. 4. Colored.

III. LOWER SQUARE: 1. Precious stones. 2. To prepare for publication. 3. A transparent mineral. 4. To tarry.

H. W. E.

A FLUMINOUS ENIGMA.

WHEN the names of the following rivers have been rightly guessed, and placed one below another, the initials will spell a name sometimes given to the Hudson River.

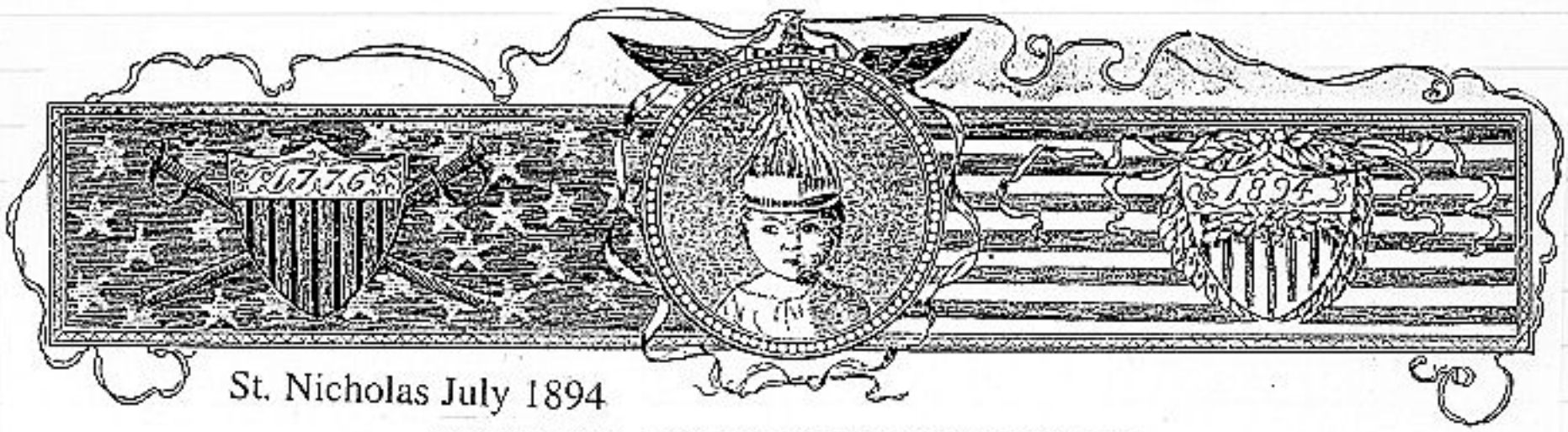
CROSS-WORDS: 1. A river of Italy. 2. A river of Massachusetts. 3. A river of Germany. 4. A river of enormous length and volume. 5. A river of Wisconsin. 6. A river of South Carolina. 7. A river of Mexico. 8. A large river of Asia. 9. A river of Texas. 10. A river of Eastern Asia. 11. A river of Africa. 12. A river of Europe, emptying into the Mediterranean. 13. A river of China. 14. A river of Southern Asia. 15. A great river of Western Africa. 16. A river of Spain.

E. W. W.

HOUR-GLASS.

MY central letters, reading downward, spell a name given to the northern portion of Africa.

CROSS-WORDS: 1. Cross and cynical. 2. Low, vulgar language. 3. Skill. 4. In barbarous. 5. Part of a locomotive. 6. A low style of comedy. 7. Actors.



St. Nicholas July 1894

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

WORD-SQUARE. 1. Zambo. 2. Aloud. 3. Moose. 4. Busto. 5. Odeon.

PI.

Fair and green is the marsh in June;
Wide and warm in the sunny noon.
The flowering rushes fringe the pool
With slender shadows, dim and cool.
From the low bushes "Bob White" calls;
Into his nest a roseleaf falls,
The blueflag fades; and through the heat,
Far off, the sea's faint pulses beat.

ANAGRAM. "The Father of Medicine."

CENTRAL ACROSTIC. Centrals, Andromache. Cross-words: 1. parAgon. 2. eveNing. 3. shaDing. 4. depRive. 5. barOnet. 6. terMite. 7. wreAthe. 8. sinCere. 9. fisHers. 10. divErge.

A FLUMINOUS ENIGMA. "The American Rhine." 1. Tiber. 2. Hoosac. 3. Elbe. 4. Amazon. 5. Milwaukee. 6. Edisto. 7. Rio Grande. 8. Irrawaddy. 9. Colorado. 10. Amoor. 11. Nile. 12 Rhone. 13. Hong-Kiang. 14. Indus. 15. Niger. 16. Ebro.

CONNECTED SQUARES. I. 1. Load. 2. Once. 3. Ache. 4. Deed. II. 1. Heed. 2. Eddy. 3. Edge. 4. Dyed. III. 1. Gems. 2. Edit. 3. Mica. 4. Stay.

DROP-LETTER PROVERBS. 1. A burnt child dreads the fire. 2. Enough is as good as a feast. 3. A friend in need is a friend indeed. 4. Too many cooks spoil the broth.

DIVIDED WORDS. 1. Bar-rel, val-ley, barley. 2. Nove-mber, fau-lty, novelty. 3. For-ego, el-ever, forever. 4. Sup-erb, sim-ply, supply. 5. Bro-nze, dar-ken, broken.

ILLUSTRATED METAMORPHOSIS. Bird, bard, card, care, cage. Bird, bard, bars, bass, bast, best, nest.

ZIGZAG. "Coronation of Queen Victoria." Cross-words: 1. Cram. 2. cOwl. 3. foRk. 4. zerO. 5. caNt. 6. fAng. 7. Tome. 8. mInk. 9. blOt. 10. shuN. 11. ErOs. 12. aFar. 13. Quit. 14. fUme. 15. skEe. 16. wanE. 17. buNk. 18. OVid, 19. Iris. 20. aCid. 21. ioTa. 22. CatO. 23. laRk. 24. NIle. 25. Arid.

HOUR-GLASS. Centrals, Barbary. Cross-words: 1. craBbed. 2. slAng. 3. aRt. 4. B. 5. cAb. 6. faRce. 7. plaYers.

ILLUSTRATED DOUBLE ACROSTIC.

THIS differs from the ordinary double acrostic in that the words forming it are pictured instead of described. When the seven objects have been rightly named, the initial letters will spell a word often heard on the Fourth of July; the final letters will spell the surname of an illustrious American.

WORD-SQUARE.

1. A COLLECTION of tents, arranged in an orderly way. 2. The agave. 3. One of a mixed race inhabiting Northern Africa. 4. Saucy.

H. H. S.



SEVEN FAMOUS AUTHORS.

1. My *first* in the earth will ever be found;
   My *second* 's a slight elevation of ground.

2. My *first* are often idle,
   We know not what they mean.
   My *second* is of value,
   In coin, or king, or queen.

3. In character most sweet and mild;
   In simple faith, a little child.
   His name, well, everybody knows,
   For on a farm it always grows.

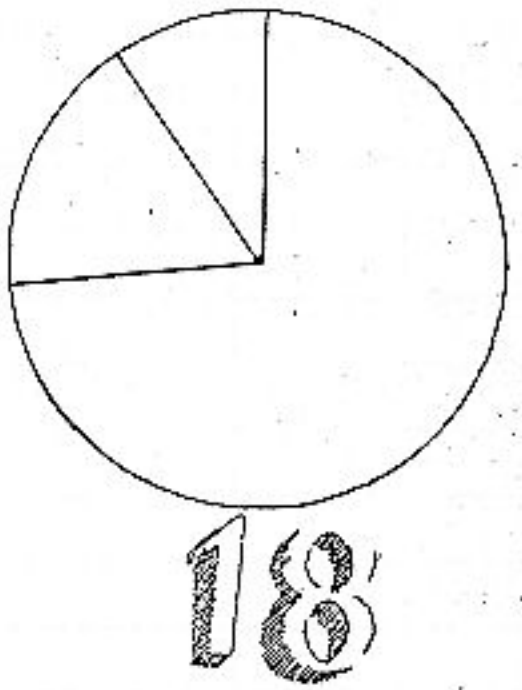
4. My name is but the title
   Of a very famous man,
   Whose word is law to all who go
   In deed or thought—to kiss his toe.

5. My *first* is but another name
   For color or for shade;
   My *second* 's what you 're loth to do
   When a pleasant call is made.

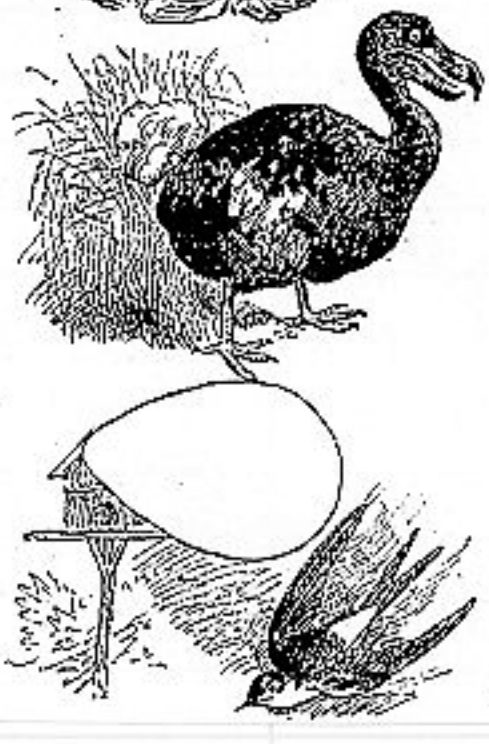
6. In my *first* you will travel,
   When fresher scenes you seek;
   My *second* is a kind of thread
   That silky looks, and sleek.

7. My *first* is an animal, gentle and kind;
   A more useful one you never could find.
   My *second* 's a sound of happy content,
   Another one makes,—not the one I first meant.

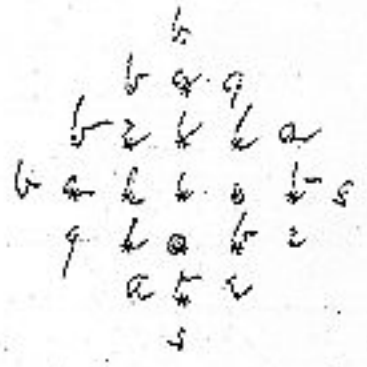
ELIZABETH SCHWEFEL.







A DIAMOND IN A DIAMOND.



1. IN bats. 2. To capture. 3. A feminine name. 4. Votes. 5. A sphere. 6. Consumed. 7. In bats.

INCLUDED DIAMOND: 1. In bats. 2. A measure of length. 3. To assign as a share. 4. The European pollock. 5. In bats.

CYRIL DEANE.

CENTRAL ACROSTIC.

ALL the words described contain the same number of letters. When rightly guessed, and placed one below the other, the central letters will spell the name of a man, famous in history, who was born July 5th, 1801.

CROSS-WORDS: 1. To offer for acceptance. 2. The common herring. 3. A state carriage. 4. A kind of trumpet, whose note is clear and shrill. 5. To render more comprehensive. 6. Hauled. 7. Filled. 8. Vestments.

L. W.

NOVEL ZIGZAG.

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. . . 1 8 . . . .
. . 2 . . 9 . . .
. 3 . . . . 10 .
4 . . . . . 11
. 5 . . . . 12 .
. . 6 . . 13 . . .
. . . 7 14 . . .
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FROM 1 to 7, a famous American; from 8 to 14, a famous Englishman.

CROSS-WORDS: 1. Surrendering. 2. Simple, or trifling. 3. To proclaim. 4. A book of directions and receipts for cooking. 5. A short, light cannon. 6. Pertaining to the lungs. 7. To convey from one place to another.

"CALAMUS."

NUMERICAL ENIGMA.

I AM composed of one hundred and two letters, and form a prose quotation, concerning success, from Longfellow's works.

My 23-37-77 is a plaything. My 69-33-92 is a pronoun. My 82-61-97-11 is the threads that cross the warp in a woven fabric. My 42-86-53-56 is to utter a loud, protracted, mournful sound or cry. My 99-3-47-59 is a quarrel between families or clans. My 95-29-78-51 is the surname of an English poet and wit. My 85-13-40-10 is the surname of a very famous French author. My 93-63-15-67-73 is a male relative. My 80-7-98-31-48-90 is an imperfection. My 18-101-45-30-35-71 is a city of Turkey. My 2-49-74-5-26-43 is a city of the West Indies. My 28-89-60-76-19-36 is a city of Spain. My 16-21-84-65-25-8-54 is to twist together. My 58-87-14-55-75-79-20 is a central mass or point about which matter is gathered. My 70-22-12-96-34-27-102 is a person given as a pledge that certain promises will be fulfilled. My 9-41-38-6-62-94-24-4 is the close of day. My 91-81-32-1-66-50-72-52-88 is one of a degraded and savage race of South Africa. My 39-46-17-44-100-68-64-83-57 is homesickness. "CORNELIA BLIMBER."

St. Nicholas August 1894

THE RIDDLE-BOX.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

HOUR-GLASS. Centrals, Fanatic. Cross-words: 1. saFron. 2. frAnc. 3. aNt. 4. A. 5. a'Te. 6. blInd. 7. penCils.

ILLUSTRATED DOUBLE ACROSTIC. Primals, Freedom; finals, Lincoln. Cross-words: 1. Fowl. 2. Radii. 3. Eighteen. 4. Ecclesiastic. 5. Dodo. 6. Oval. 7. Martin.

SEVEN FAMOUS AUTHORS. 1. Coleridge. 2. Wordsworth. 3. Lamb. 4. Pope. 5. Hugo. 6. Carlyle. 7. Cowper.

NUMERICAL ENIGMA. "The talent of success is nothing more than doing what you can do well; and doing well whatever you do, without a thought of fame." *Hyperion.*

A DIAMOND IN A DIAMOND. I. 1. B. 2. Bag. 3. Bella. 4. Ballots. 5. Globe. 6. Ate. 7. S.

CENTRAL ACROSTIC. Centrals, Farragut. Cross-words: 1. proFfer. 2. bloAter. 3. chaRiot. 4. claRion. 5. broAden. 6. draGged. 7. fraUght. 8. cloThes.

NOVEL ZIGZAG. From 1 to 7, Lincoln; from 8 to 14, Dickens. Cross-words: 1. Yielding. 2. Childish. 3. Announce. 4. Cookbook. 5. Howitzer. 6. Pulmonic. 7. Transfer.

CUBE. From 1 to 2, vulture; 1 to 3, varlets; 2 to 4, entwines; 3 to 4, sausage; 5 to 6, dialect; 5 to 7, decided; 6 to 8, twisted; 7 to 8, defaced; 1 to 5, void; 2 to 6, erst; 4 to 8, eyed; 3 to 7, stud.

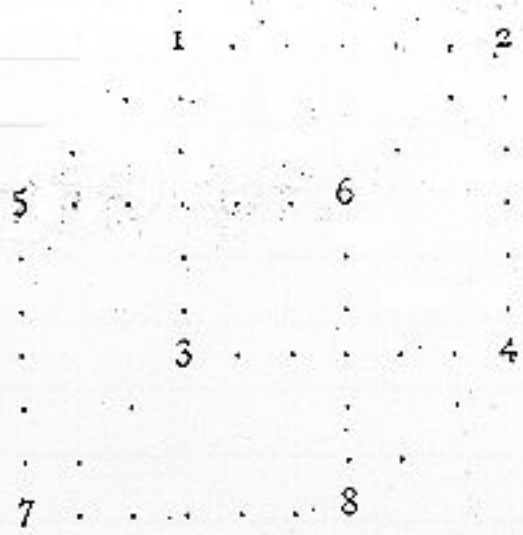
PI.

Hot midsummer's petted crone,
Sweet to me thy drowsy tone
Tells of countless sunny hours.
Long days; and solid banks of flowers;
Of gulfs of sweetness without bound,
In Indian wildernesses found;
Of Syrian peace, immortal leisure,
Firmest cheer, and birdlike pleasure.
EMERSON.—"To the Humble Bee."

SOME LETTER-WORDS. 1. B-calm. 2. X-changed. 3. E-numerated. 4. X-claimed. 5. D-famed. 6. X-pert. 7. D-pendent. 8. X-pounded. 9. D-graded. 10. X-communicating. 11. S-chewed. 12. C-rated. 13. B-moaned. 14. D-parted. 15. D-populated. 16. E-late. 17. M-I-grated. 18. X-E-crated.

WORD-SQUARE. 1. Camp. 2. Alone. 3. Moor. 4. Pert.

CUBE.



FROM 1 to 2, a grassy plain; from 1 to 3, an introduction; from 2 to 4, to extinguish from 3 to 4, to develop; from 5 to 6, a building; from 5 to 7, an abridgment; from 6 to 8, one who elects; from 7 to 8, to give authority to; from 1 to 5, to languish; from 2 to 6, a border; from 4 to 8, always; from 3 to 7, other. "ZUAR."

ILLUSTRATED PUZZLE.

THIS little man has the whole alphabet in his bag. What one letter must he take from it to complete the nine syllables shown in the picture?



NUMERICAL ENIGMA.

I AM composed of sixty-four letters, and form a quotation concerning brains, from the writings of Thomas Fuller.

My 17-2 is a conjunction. My 24-35-11-61 is a measure of length. My 15-48-58-43 is to dart along. My 26-30-8-55-41 is part of a saw. My 53-51-9-32-22 is a pleasure-boat. My 64-28-5-19-23 is a sweet fluid. My 37-7-46-34-45 is the pollox. My 38-12-36-60-4 is a Russian proclamation or imperial order. My 49-14-20-16-62-6 is the blue titmouse. My 29-21-42-57-39-10-31 is a very common bird. My 18-56-13-33-50-1-25 was a very wise man. My 44-59-47-63-27-3-40-52-54 is intensifies.

L. W.

DOUBLE CENTRAL ACROSTIC.

ALL of the words described contain the same number of letters. The two central rows, reading downward, spell the name of an eminent American author, and the name of one of the United States.

CROSS-WORDS: 1. Enchanting. 2. Swamp blackbirds. 3. A vindicator. 4. Affected niceness. 5. Inclined to one side, under a press of sail. 6. Fixed dislike. 7. Comforted. 8. Emitting. 9. Inclosed places constructed for producing and maintaining great heat. "CALAMUS."

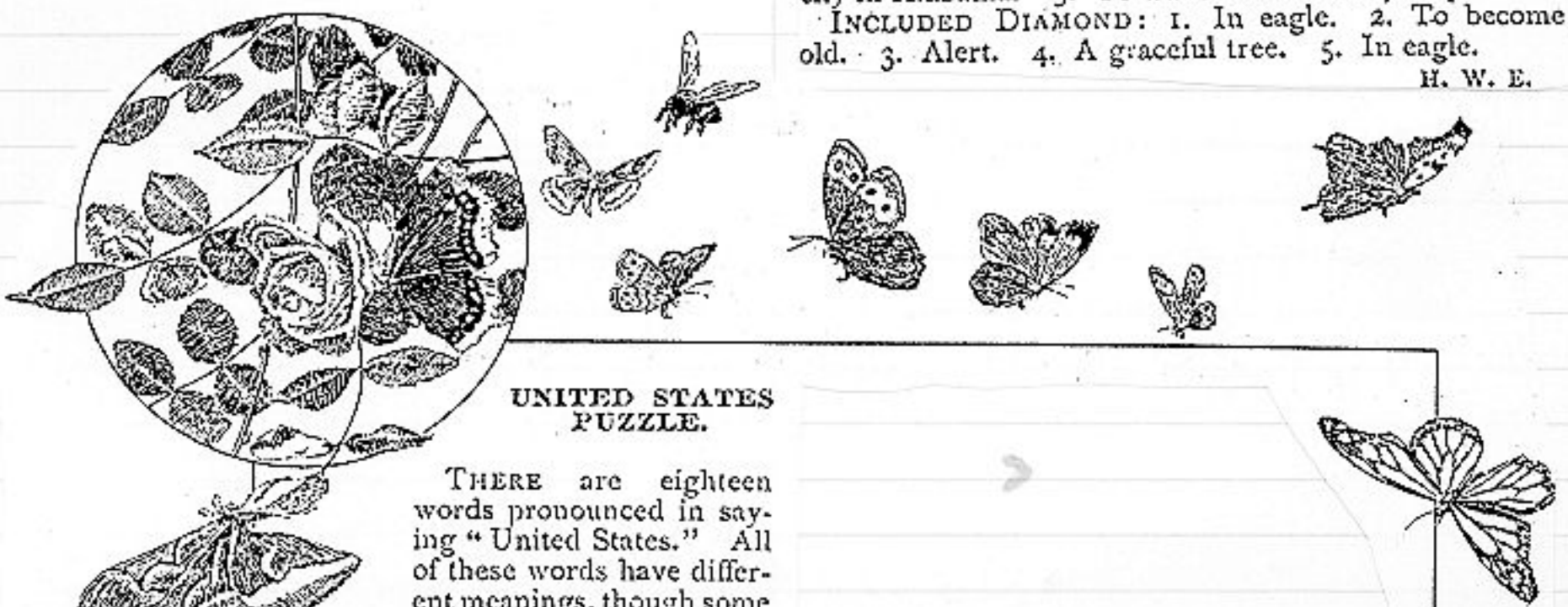
DIAMOND WITHIN A SQUARE.

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  . . * . .
  . * * * .
  * * * * *
  . * * * .
  . . * . .
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SQUARE: 1. Leaven. 2. Impetuous. 3. Active. 4. A city in Alabama. 5. To walk with a stately step.

INCLUDED DIAMOND: 1. In eagle. 2. To become old. 3. Alert. 4. A graceful tree. 5. In eagle.

H. W. E.



UNITED STATES PUZZLE.

THERE are eighteen words pronounced in saying "United States." All of these words have different meanings, though some are pronounced alike. For instance, unite, knight, night, etc. What are the other fifteen words?

H. W. ELLIS.

CHARADE.

MY *first* is something of which only man, alligators, serpents, and cats are capable.

My *second* is common to three of the above-named creatures.

My *third* is a short railway.

My *whole* is the only thing man has created.

LUCY E. ABBOT.

DIAMOND.

1. IN lock. 2. A vehicle. 3. An animal. 4. A color. 5. In lock.

S. STRINGER.

CROSS-WORD ENIGMA.

My first is in fly, but not in gnat;
My second, in weasel, but not in cat;
My third is in raven, but not in wren;
My fourth is in bittern, but not in hen;
My fifth is in crane, but not in stork;
My sixth is in tern, but not in auk;
My seventh, in heron, but not in teal;
My eighth is in lamprey, but not in eel;
My ninth is in lion, but not in boar;
My whole is a monster of mythical lore.

"SAMUEL SYDNEY."

QUADRUPLE ACROSTIC.

1	10	19	28
2	11	20	29
3	12	21	30
4	13	22	31
5	14	23	32
6	15	24	33
7	16	25	34
8	17	26	35
9	18	27	36

FROM 1 to 9, a famous general; from 10 to 18, a famous statesman; from 19 to 27, a famous author; from 28 to 36, a famous authoress.

From 1 to 10, piercing; 2 to 11, a severe test; 3 to 12, a misty or cloudlike object in the heavens; 4 to 13, within a ship; 5 to 14, a name given to South American plains; 6 to 15, unceremonious; 7 to 16, florid and fantastic in style; 8 to 17, a kind of plaid cloth, much worn in the Highlands of Scotland; 9 to 18, to come forth.

From 10 to 19, a town of Sind, British India; 11 to 20, a thin plate or scale; 12 to 21, a masculine name; 13 to 22, to pour into bottles; 14 to 23, to seek for; 15 to 24, a city of Spain, noted for its weapons; 16 to 25, one who is eloquent; 17 to 26, a people; 18 to 27, to pass away silently, as time.

From 19 to 28, to stick at small matters; 20 to 29, acknowledged openly; 21 to 30, arousing; 22 to 31, part of a bell; 23 to 32, a famous English school; 24 to 33, a city of Portugal; 25 to 34, inveterate hatred; 26 to 35, nothing; 27 to 36, sufficient. "SAMUEL SYDNEY."

MISPLACED NUMBERS.

REARRANGE the numbers given in the column in such a way that, reading by sound, one or more words may be formed. For instance, when the figure 1, now placed before the syllable "pins," is placed before the syllable "der," the word "wonder" will be formed. What are the remaining words?

9 wist,
6 on,
2 tell,
80 tor,
8 ply,
10 cup,
3 der,
4 pell,
1 pins.

J. C. B.

CENTRAL ACROSTIC.

ALL the words described contain the same number of letters; when rightly guessed, and placed one below another, in the order here given, the central row of letters, reading downward, will spell an old instrument of punishment.

CROSS-WORDS: 1. A kind of tree. 2. A sharp instrument. 3. Dirt. 4. A seaweed of a reddish brown color, which is sometimes eaten. 5. To scrutinize or examine thoroughly. 6. A body of men. 7. Upholding the lawful authority.

HERBERT J. SIDDONS.

St. Nicholas September 1894

THE RIDDLE-BOX.

ANSWERS TO PUZZLES IN THE AUGUST NUMBER.

DOUBLE CENTRAL ACROSTIC. Centrals, R. W. Emerson and Minnesota. Cross-words: 1. chaRMing. 2. redWIngs. 3. defENder. 4. priMNess. 5. carEEned. 6. aveRSion. 7. conSOled. 8. shoOTing. 9. furNAces.

ILLUSTRATED PUZZLE. The letter X

NUMERICAL ENIGMA. "Often the cockloft is empty in those whom nature hath built many stories high."

UNITED STATES PUZZLE. United, unite, you, yew, ewe, knighted, knight, night, nigh, eye, aye, I, states, state, stay, eight, ate, a.

CHARADE. History.

DIAMOND WITHIN A SQUARE. Square: 1. Yeast. 2. Eager. 3. Agile. 4. Selma. 5. Tread.

MISPLACED NUMBERS. Wonder, tutor, three-ply, foretell, sick-spell, atwist, nine-pins, tenon, a tea-cup.

CENTRAL ACROSTIC. PILLORY. Cross-words: 1. maPle. 2. knIfe. 3. fiLth. 4. duLse. 5. prObe. 6. coRps. 7. loYal.

CUBE. From 1 to 2, prairie; 1 to 3, preface; 2 to 4, eclipse; 3 to 4, educate; 5 to 6, edifice; 5 to 7, epitome; 6 to 8, elector; 7 to 8, empower; 1 to 5, pine; 2 to 6, edge; 4 to 8, ever; 3 to 4, else.

DIAMOND. 1. C. 2. Car. 3. Camel. 4. Red. 5. L.

CROSS-WORD ENIGMA. Leviathan.

QUADRUPLE ACROSTIC. From 1 to 9, Bonaparte; 10 to 18, Gladstone; 19 to 27, Hawthorne; 28 to 36, Edgeworth.

From 1 to 10, boring; 2 to 11, ordeal; 3 to 12, nebula; 4 to 13, aboard; 5 to 14, pampas; 6 to 15, abrupt; 7 to 16, rococo; 8 to 17, tartan; 9 to 18, emerge.

From 10 to 19, Goojah; 11 to 20, lamina; 12 to 21, Andrew; 13 to 22, decant; 14 to 23, search; 15 to 24, Toledo; 16 to 25, orator; 17 to 26, nation; 18 to 27, elapse.

From 19 to 28, haggle; 20 to 29, avowed; 21 to 30, waking; 22 to 31, tongue; 23 to 32, Harrow; 24 to 33, Oporto; 25 to 34, rancor; 26 to 35, naught; 27 to 36, enough.

HALF-SQUARE.

1. THE heroine of one of Shakspere's plays. 2. A constellation named after a celebrated hunter of Greek mythology. 3. A ceremony. 4. Part of a boot. 5. A preposition. 6. A letter. HORTON C. FORCE.

WORD-SQUARE.

I. 1. PERTAINING to one of the poles. 2. Od. 3. A kind of harp much used by the ancients. 4. Active and watchful. 5. Quiets. E. W. W.

TRIPLE ACROSTIC.

ALL of the words described contain the same number of letters. When rightly guessed, and placed one below another, the first row of letters will spell a word meaning to separate; the middle row, to rise; and the last row, goes in.

CROSS-WORDS: 1. To incapacitate. 2. Subterfuge. 3. A dense mass of trees or shrubs. 4. Opposed. 5. A long, narrow table on which goods are placed for examination. 6. Retards. H. W. E.

RIDDLE.

I 'M sometimes long, and sometimes round;
My native place is in the ground;
I wear a coat of royal red,
To little folks I am a dread;
'T is not because of strength or might,—
It 's worse than that; *I sometimes bite!*

M. F. RANKIN.

NOVEL ACROSTIC.

. . . . . *
. . . . . * . . .
. . . . . * . .
. . . . * . . .
. . . * . . . .
. . * . . . . .
* . . . . . .

THE letters represented by stars spell the surname of a famous scientist born in 1820.

CROSS-WORDS: 1. A storm. 2. A word which has the same meaning as another word. 3. A military officer. 4. Pertaining to the world. 5. Sobriety of demeanor. 6. Contrary to law. 7. A small European bird of the plover family.

DE WITT C. L.

ILLUSTRATED PUZZLE.

IN the accompanying illustration the names of seven common flowers are pictorially expressed. Which seven are they?



OCTAGONS.

. . .
. . . . .
. . . . .
. . . . .
. . .

I. 1. A FEMININE name. 2. To dwell. 3. A loon. 4. A feminine name. 5. Before.

II. 1. To hold a session. 2. Geometrical lines. 3. A passage by which an inclosed place may be entered. 4. Very small. 5. A pen.

"SAMUEL SYDNEY."

A DIAMOND IN A DIAMOND.

.
. * .
. * * * .
. * * * * * .
. * * * .
. * .
.

1. IN deed. 2. A pronoun. 3. A Scriptural proper name. 4. Drawn from. 5. Ran. 6. A color. 7. In deed.

INCLUDED DIAMOND: 1. In deed. 2. A feminine name. 3. To extract. 4. A unit. 5. In deed.

F. S. F.

TRANSPOSITIONS.

TRANSPOSE the first and last letters of one word to form another word. Example: Transpose serious and make dresses. Answer: S-obe-r, r-obe-s.

1. Transpose brought up, and make more precious.
2. Transpose to drive away, and make spoke brokenly.
3. Transpose corrected, and make one who gives by will.
4. Transpose a hollow place, and make to watch.
5. Transpose to gather, and make a kind of fruit.
6. Transpose a bar of wood, and make the couch of a wild beast.

H. W. ELLIS.

CENTRAL ACROSTIC.

ALL the words described contain the same number of letters; when rightly guessed, and placed one below another, in the order here given, the central row of letters, reading downward, will spell the name of a character in a novel by Charles Dickens.

CROSS-WORDS: 1. Heavy. 2. Enduring. 3. Fact. 4. A pattern of excellence. 5. Transit from one place to another. 6. Bestows liberally. 7. Side by side. 8. A physician. 9. To reel.

"MIMSEY."

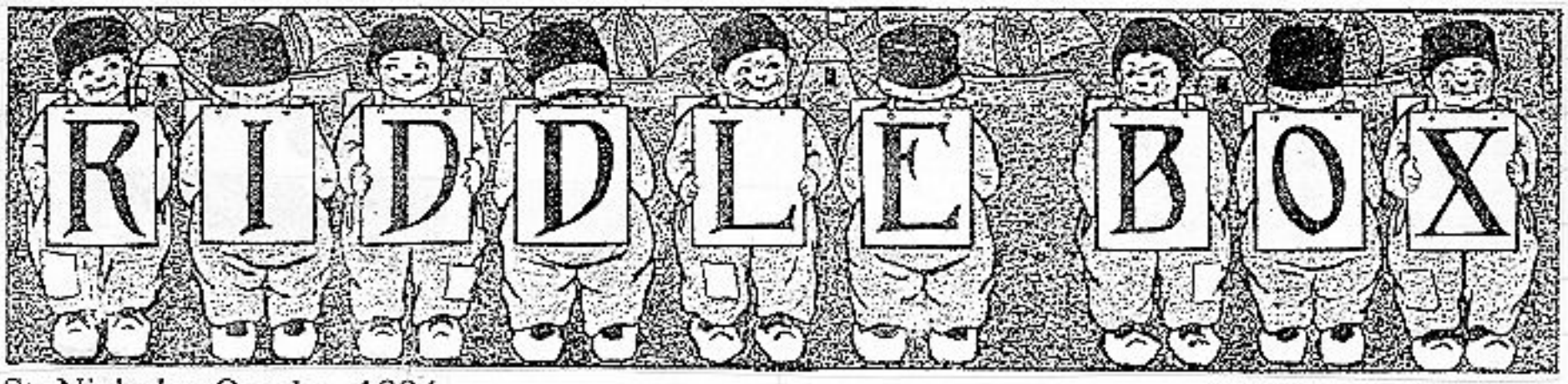
BURIED TREASURES.

TWENTY-THREE precious stones and minerals are concealed in the following story. Which are they?

I am in Mexico, that land of jewels,—truly named, if turquoise skies and sapphire streams can make it so. My host has a native wife, fat, indolent, so pale and listless one might think her always asleep but for her continual consumption of cigarettes and chocolate. She uses little sponge-cakes (dry as a dining-car bun) cleverly to dip up this beverage; and to see her eat it *thick* with sugar nettles me! She shows an ephemeral delight in yards of chambery, lawn, or linen, and a work-basket sits beside her, but she uses this utensil very seldom. The twins, Zaidee and Xavier, she utterly neglects; and the husband is looking old and disappointed. The children appear loving and generous; they succor all beggars, and stray dogs and cats.

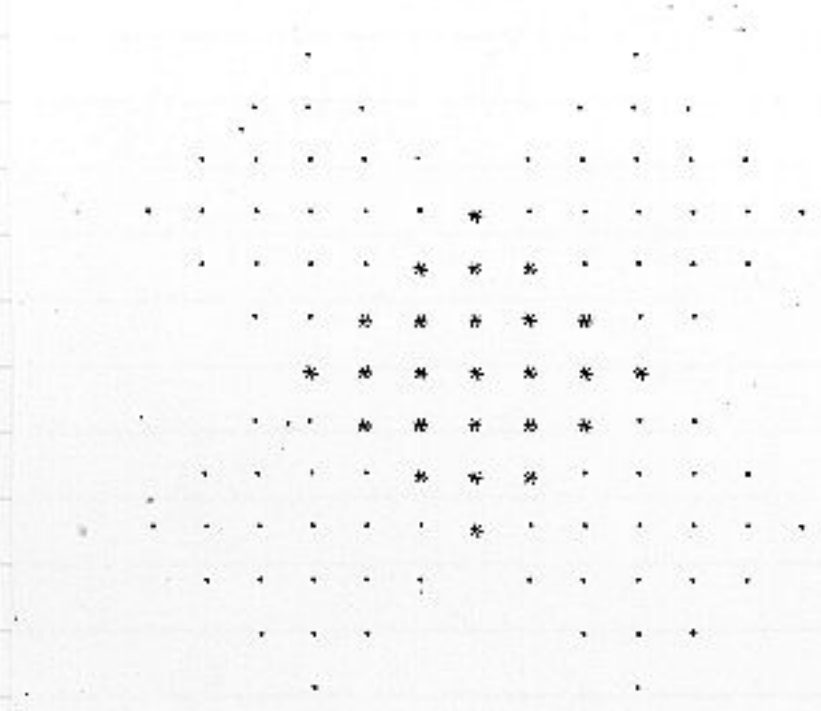
Eyes of jet, marble-white skins, and golden curls make them very beautiful; but if they approach this unnatural mother with caresses, it is "Thou givest me an agony, Xavier"; or, "Go to Pa, Zaidee. Why rub your hot hands on me?" Yesterday they went up the mountain hunting wild hyacinths, and stayed late. In the light of the moon, stones glittered like jewels, and in search of supposed treasures they wandered far. Rough cactus tore their hands and brought blood. Stones bruised their little feet, and finally, by accident, they clambered through the thicket and discovered a gate which led into their own premises. They reached home at midnight, finding the father wild with anxiety, and the mother asleep. When roused, she called Zaidee an animal, a chit, even a *cat!* and asked: "How came thy starched shirt so limp, Xavier?" and fell asleep again! Such indifference so aggravates me I find I am on dangerous ground here, and dear as are the father and children, I am on the eve of departure.

L. E. JOHNSON.



St. Nicholas October 1894

ST. ANDREW'S CROSS OF DIAMONDS.



I. UPPER LEFT-HAND DIAMOND: 1. In masonic. 2. To stitch. 3. The chief of the fallen angels. 4. Measurements of coal. 5. Carried on, as a war. 6. A masculine nickname. 7. In masonic.

II. UPPER RIGHT-HAND DIAMOND: 1. In masonic. 2. The flesh of a hog cured by salting and smoking. 3. Cavities. 4. Hails. 5. Measure 6. To Observe. 7. In masonic.

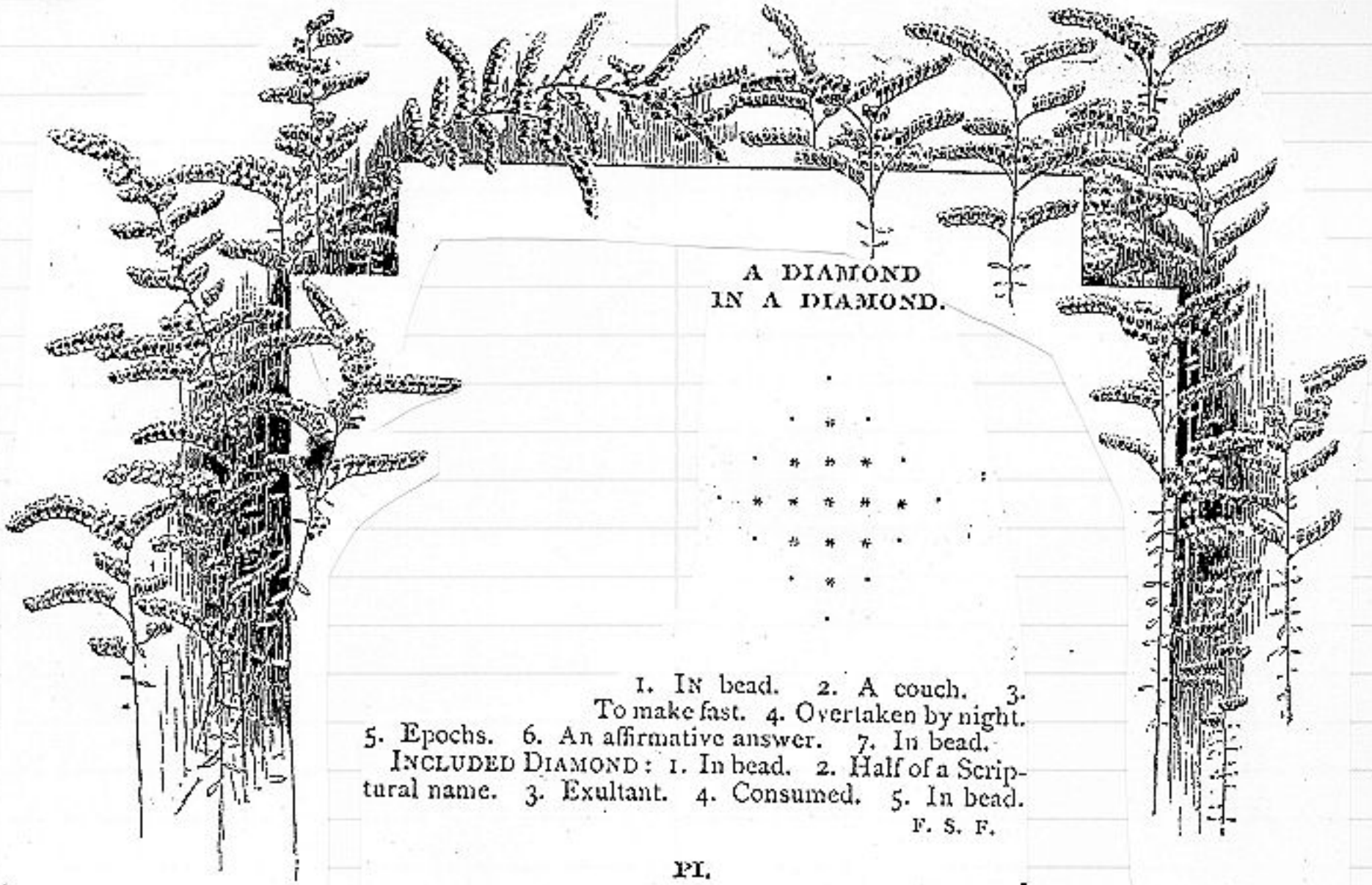
III. CENTRAL DIAMOND: 1. In masonic. 2. An obstruction. 3. Valleys. 4. Salt springs. 5. Repairs. 6. Half of a magic passwordused b the "Forty Thieves." 7. In masonic.

IV. LOWER LEFT-HAND DIAMOND: 1. In masonic. 2. An abreviation for the name of a political paty. 3. Small fishes. 4. Certain grasses. 5. A hand-to-hand conflict. 6. To discern. 7. In Masonic.

V. LOWER RIGHT-HAND DIAMOND: 1. In masonic. 2. A title of respect. 3. A mascline name. 4. Certain minerals. 5. Ran with speed. 6. Dejected. 7. In masonic.

ECHOING YET.

A DIAMOND IN A DIAMOND.



1. IN bead. 2. A couch. 3. To make fast. 4. Overtaken by night. 5. Epochs. 6. An affirmative answer. 7. In bead.

INCLUDED DIAMOND: 1. In bead. 2. Half of a Scriptural name. 3. Exultant. 4. Consumed. 5. In bead.

F. S. F.

PI.

EHT sayd rea tills, dan eht glon sti'ngh hudshe,
Dan eth raf kys bruns kile eht hater fo a soer;
Dan eht sodow, twih eth glod for umanut shelduf,
Savhil thire slorpend ni scirmon swons.

WORD-SQUARE.

1. FAMILIES. 2. Vigilant. 3. An evergreen tree. 4. To blot out. 5. To scatter.

E. W. W.

HOUR-GLASS.

MY centrals, reading downward, spell a kind of puzzle.

CROSS-WORDS: 1. A poster. 2. The supposed matter above the air. 3. A large tub. 4. In hour-glass. 5. A cooking utensil. 6. Loaded. 7. Freedom.

EDWARD WILSON WALLACE.

A HOLIDAY TRIP.

WHAT are the names of the thirty places here alluded to by fanciful or popular titles?

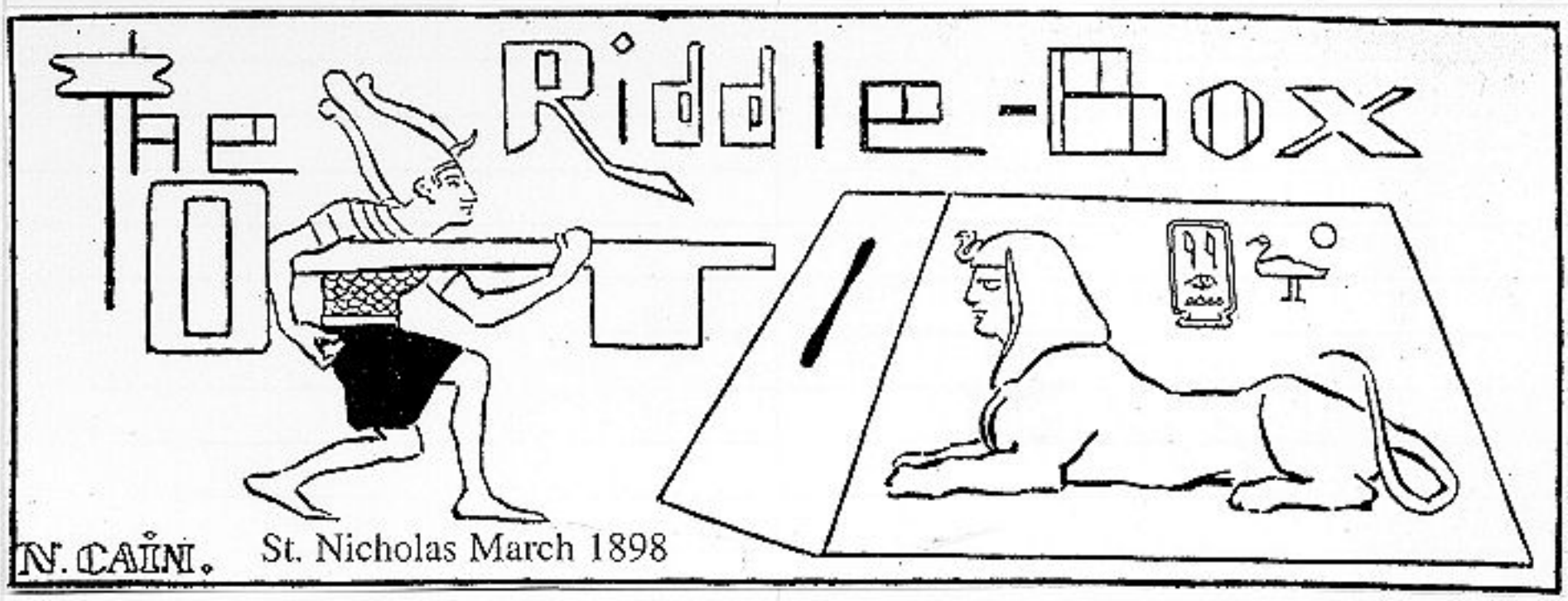
I was somewhat puzzled to know where to spend my vacation. A party of friends invited me to join them in visiting (1) the "City of Magnificent Distances," (2) the "Crescent City," and (3) the "Key of the Gulf," then, going southward, to sail up (4) the "King of Waters."

This I declined to do, but one sunny day I took the steamer at (5) the "City of the Straits" and passing (6) "Little Venice" I crossed (7) the "Lake of the Cat," and landed at (8) the "Forest City" in (9) the "Buckeye State." From there I went by rail to (10) the "Modern Athens," visiting at the same time (11) the "City of Spindles," and then went back as far as (12) "Gotham."

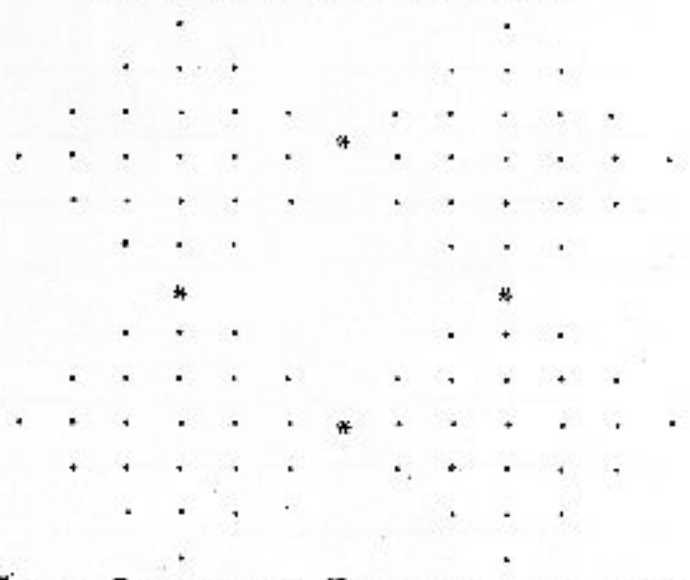
Crossing (13) "Davy Jones's Locker," I reached (14) the "Mistress of the Seas." Making my headquarters in (15) "Modern Babylon," I went north to (16) the "Land o' Cakes," for the purpose of seeing (17) "Auld Reekie," and then took the boat for (18) the "Isle of Saints," where I had relatives in (19) the "City of Violated Treaties."

After leaving here, I went direct to (20) the "Bride of the Sea," thence to (21) the "Nameless City"; I spent a short time in (22) the "Toe of the Boot" and in (23) the "Three-cornered Land"; and then I visited (24) the "Sick Man of the East." Passing on to (25) the "City of Victory," I sailed south through (26) the "Gate of Tears," and except for a short stay in (27) the "Land of the White Elephant," I did not again touch land till I reached (28) the "Celestial Empire." I spent a month in (29) the "Land of the Mikado," taking passage from there to (30) the "Golden Gate"; and from here a journey by rail, almost across the continent, brought me safely home.

PLEASANT E. TODD.



CONNECTED DIAMONDS.



I. UPPER LEFT-HAND DIAMOND: 1. In smolder. 2. An animal. 3. A weight. 4. Variegated in color. 5. The claw of a fowl. 6. A number. 7. In smolder.

II. UPPER RIGHT-HAND DIAMOND: 1. In smolder. 2. To beat or scrape with the forefoot. 3. A Turkish title. 4. One who meanly shrinks from danger. 5. A large animal. 6. A verb. 7. In smolder.

III. LOWER LEFT-HAND DIAMOND: 1. In smolder. 2. Part of a locomotive. 3. Confines. 4. Moistened. 5. Underneath. 6. To unite with stitches. 7. In smolder.

IV. LOWER RIGHT-HAND DIAMOND: 1. In smolder. 2. A body of water. 3. A humorous name for a negro. 4. Behaves. 5. Lower. 6. A number. 7. In smolder.

"JERSEY QUARTETTE."

WORD-SQUARE.

1. USEFUL on an ocean steamer. 2. One of the United States. 3. Pomp, show, or festivity. 4. False.

C. ROSE TROWBRIDGE.

OMITTED MEASURES.

(EXAMPLE: S-mile-S.)

S * * * * S

FIND a measure that will fit
In the space that 's left for it;
Now the new-found word contains
Many little spots and stains.

S * * * S

Change it, and the answer runs
What a baker does with buns.

E * * * E

Try another; this will say
That which means to eat away.

A. M. P.

DIAMOND.

1. IN declare. 2. Offered. 3. A support for pictures. 4. Tropical fruits. 5. Denial. 6. Indicated. 7. Decreed. 8. Gloomy. 9. In declare.

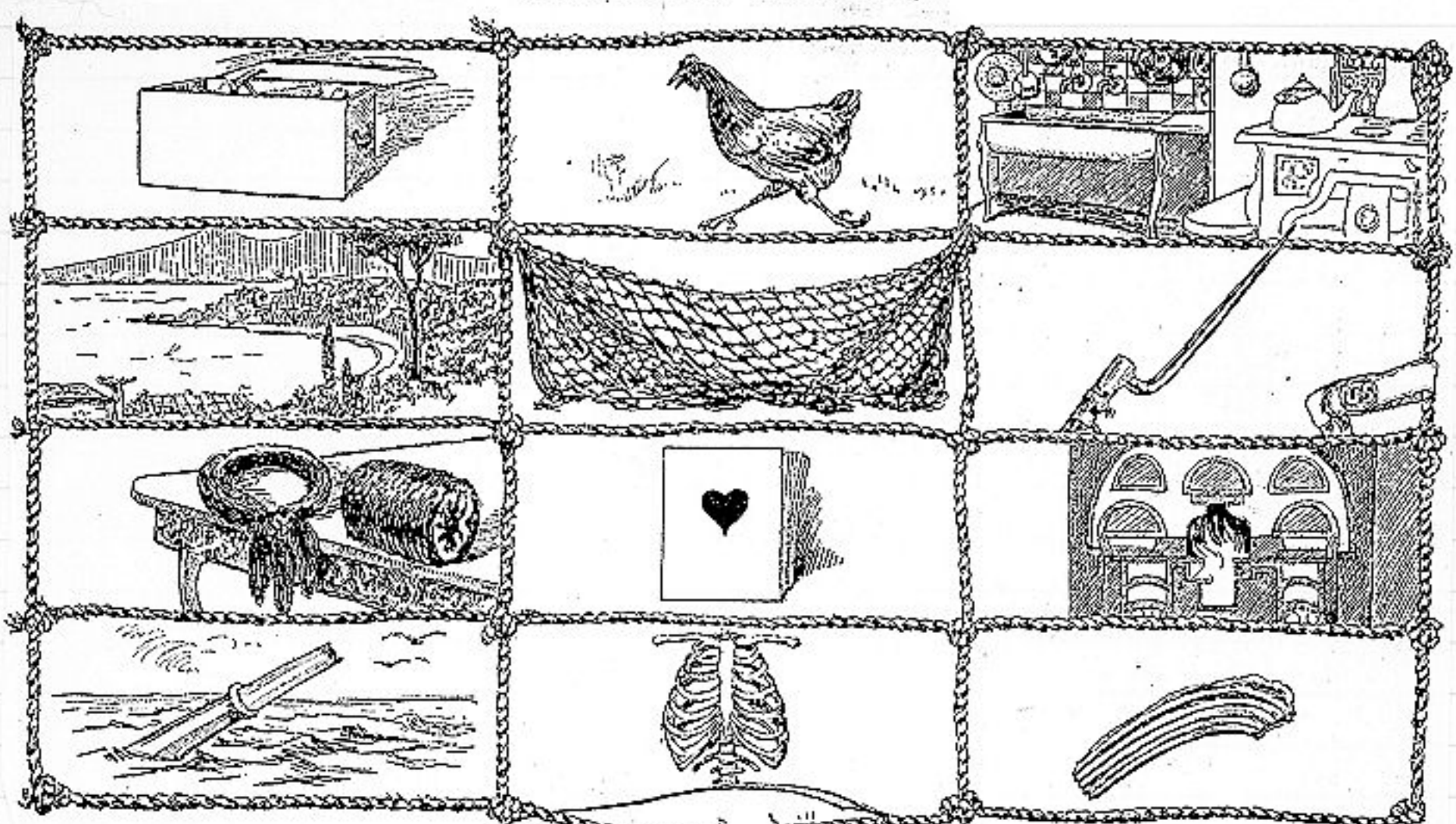
J. A. S.

SOME CURIOUS CREATURES.

1. A A A R R. The great black cockatoo of Australia.
2. E E E E T T. A small, soft-furred South American monkey.
3. O O O O D K. A large South African antelope.
4. A A K K P O. The owl-parrot of New Zealand.
5. U U O O T T K K. A burrowing South American rodent.
6. T T C C A A O O E R. An eight-armed marine creature.
7. I I L L T T P E R A. An edible fish common on the southern and middle coasts of the United States.
8. O O O K K A A L M B. A West African ape, allied to the gorilla.
9. T T T R R A A S H O. A humming-bird with feathers of metallic luster on its neck.
10. Y Y E E A A. A quadruped of Madagascar, of nocturnal habits.
11. O O O O O S S. The dolphin of the river Ganges.

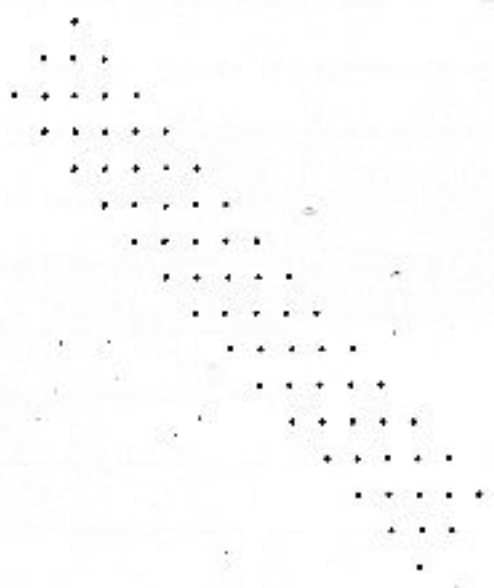
H. M. A.

ILLUSTRATED ADDITIONS.



JOIN the first picture to the second picture by a single letter, and the result will be the third picture. The four letters used in the additions will spell a word which describes the lowest picture. F. H. W.

OBLIQUE RECTANGLE.



CROSS-WORDS: 1. In grain. 2. Sooner than. 3. Of large size. 4. To go in. 5. An evil spirit. 6. Arrays. 7. Places of habitual resort. 8. To emit vapor. 9. Pertaining to the Salian Franks. 10. Less. 11. Approaches. 12. To repair. 13. Fascinating. 14. Character. 15. To be drowsy. 16. In grain.

"JERSEY QUARTETTE."

CONCEALED CENTRAL ACROSTIC.

WHEN loud winds chime comes fateful time,
When up the sun begins to climb.

CROSS-WORDS.

1. How Joseph Hill, when he is ill
And baffles homeopathic skill,

2. Can gladly touch and even clutch
A bitter cup, I question much.

3. The blue cohosh (a simple wash
That Smith, our surgeon, says is bosh)

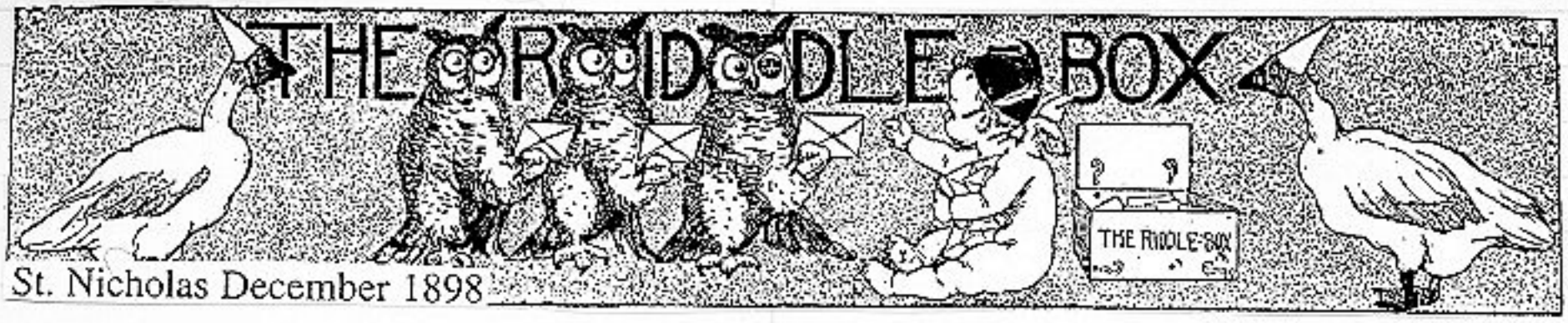
4. Could well be used if he were bruised,
For Jo in trouble gets confused.

5. No man or beast should ever feast
On drugs, or deadly drugs at least.

6. There are, 't is true, a harmless few;
Yet who can tell what one may do?

7. The man who tries to live on pies
May wax enormous in his size.

ANNA M. PRATT.



THE RIDDLE-BOX

St. Nicholas December 1898

NOVEL DOUBLE ACROSTIC.

```
        .  1  .  .  10
     .  2  .  .  .  .  11
  .  3  .  .  .  .  .  .  12
  4  .  .  .  .  .  .  .  .  13
5  .  .  .  .  .  .  .  .  .  .  14
  6  .  .  .  .  .  .  .  .  .  15
     7  .  .  .  .  .  .  16
        8  .  .  .  .  17
           9  .  .  18
```

CROSS-WORDS: 1. A close-fitting cap. 2. A European bird. 3. Shines. 4. Motive. 5. A cooling beverage flavored with the root of a familiar plant. 6. Consisting of trochees. 7. Numerous. 8. A genus of leguminous trees and shrubs. 9. A support.

Primals, from 1 to 9, a word that all love; finals, from 10 to 18, what we all strive to make it. "CALAMUS."

WORD-SQUARES.

I. 1. A METAL. 2. To travel. 3. Inequality. 4. A snug place.

II. 1. A PERIOD of time. 2. Otherwise. 3. Requests. 4. Repose.

III. 1. AUCTION. 2. An old word meaning "to lose." 3. An animal. 4. A volcano.

IV. 1. A KIND of fish. 2. A monster. 3. Weapons. 4. A table.

FLORENCE AND CELIA P.

DOUBLE ACROSTIC.

MY primals and finals each name a famous poet.

CROSS-WORDS: 1. A kind of wild goose. 2. To wash out. 3. Made of oak. 4. To rouse. 5. Clamorous. 6. Objects that are worshiped. 7. An African. 8. A deep moan.

J. O.

RHYMED BEHEADINGS.

ROUND and round and round I go,
Cause of pleasure, cause of woe.
Take off my head, and I am put
Wherever you may rest your foot.
Behead again; I 'm in the flood,
A creature not averse to mud.
Behead once more; your elbow 'd be
Quite fractured now, except for me.
Should you cut off my head again
I still am good for five times ten.

A. M. P.

ILLUSTRATED PRIMAL ACROSTIC.



WHEN the ten objects in the above picture have been rightly guessed and arranged in proper order, their initials will reveal a benefactor.

DIAMOND.

1. IN sailor. 2. Object. 3. Steel or iron covering. 4. Like. 5. Overgrown with a tiny fungus. 6. A kind of fish. 7. In sailor.

"CELERY."

CHARADE.

My *first* is full of sweetness,
  Yet fills the thief with dread;
My *last* is always silent
  When peevish words are said.
My *whole* is seldom written,
  Though recently 't was read.

ANNA M. PRATT.

ZIGZAG.

ALL of the words described contain the same number of letters. When these are rightly guessed, and placed one below another, in the order here given, the zigzag, beginning at the upper left-hand letter, will spell the name of a famous general.

CROSS-WORDS: 1. Benevolent. 2. An equal. 3. A desolate tract of land. 4. A wild animal. 5. A wise man. 6. An achievement. 7. Sly. 8. A poet. 9. Part of a ship. 10. Hasty. 11. Grasp. 12. Soon. 13. A high wind. 14. A heavenly body. 15. An apartment. 16. A pledge.

S. M. M.

FRAMED WORD-SQUARE.

```
1 . . . . . 2
.           .
.   5 * * 6 .
.   * * * * .
.   * * * * .
.   7 * * 8 .
.           .
3 . . . . . 4
```

FROM 1 to 2, what Shakspere says one should not be; from 1 to 3, a nostril in the top of the head of a whale; from 2 to 4, to refresh after wearying toil; from 3 to 4, to mount by means of ladders; from 1 to 5, a club; from 2 to 6, to regret; from 4 to 8, part of the head; from 3 to 7, part of the head.

INCLUDED SQUARE: 1. A weed. 2. To declare. 3. A kind of fever. 4. A pitcher.

FLORENCE AND CELIA P.

CENTRAL ACROSTIC.

ALL the words described contain the same number of letters. When these are rightly guessed and placed one below another, in the order here given, the central letters, reading downward, will spell the name of a famous locality.

CROSS-WORDS: 1. A name borne by many kings. 2. A confession of faith for public use. 3. Obscure. 4. To throw out forcibly and abundantly. 5. A plant from which is obtained a substance of great commercial value. 6. To repel by expressing displeasure. 7. Officers in a merchant vessel ranking next below the captain. 8. A machine for raising and lowering heavy weights. 9. Containing sensible moisture. 10. The characteristic fluid of any vegetable or animal substance. 11. Two.

S. H. K.

CONCEALED DOUBLE ACROSTIC.

THE primals spell the message here;
The finals bring us every year.

CROSS-WORDS.

1. The brightest joke, half understood,
   Is often not considered good.

2. And if 't was cracked ere we were born,
   We say, "a chestnut" quite in scorn.

3. Yet many an ancient jest and rhyme
   Are licensed till the end of time.

4. And if a germ in every joke
   Infects with joy some solemn folk,

5. Should one grow ill, I am quite sure
   He 'd rally with the "chestnut cure."

6. For though a joke is weak and frail,
   A cobweb blown before the gale,

7. 'T will make dyspepsia hide its head,
   And bundle ague out of bed.

8. So laugh at jests worn out and old,
   Though all that glitters is not gold.

ANNA M. PRATT.

RIDDLE.

PRAY note first my ubiquity:
  At home in every land,
Although of great antiquity,
  I 'm made each day by hand.

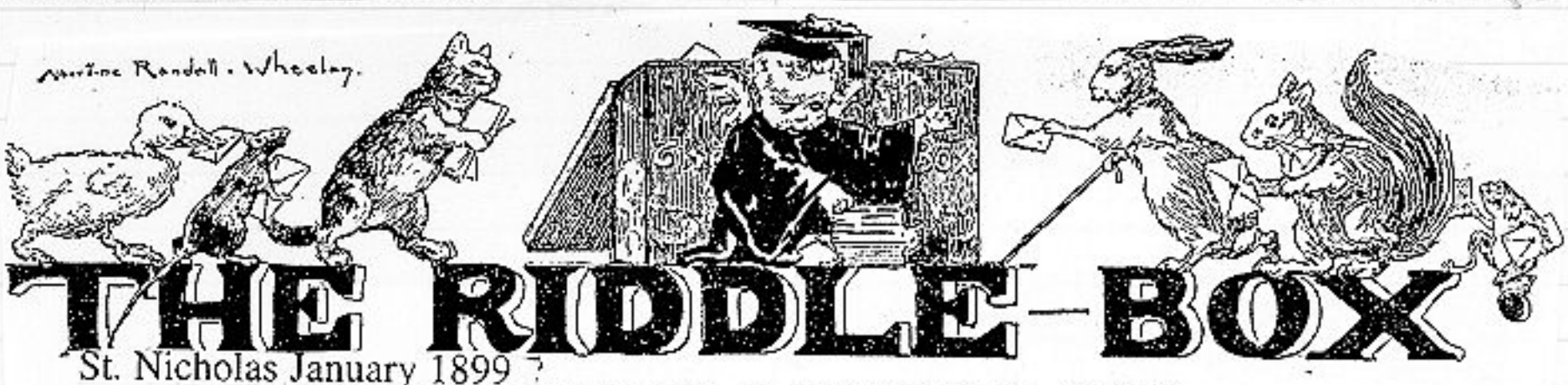
I cannot run to catch you
  With but one foot, you say;
In one respect I match you —
  I 've my clothes put on each day.

I am not economical;
  With maid I take the air,
But must look rather comical —
  She *never* combs my hair.

My head ne'er aches as yours may do,
  Nor can I nod and beck;
But no one would expect me to,
  Because I have no neck.

I pray you come and see me;
  At home all day I bide;
But evenings I am dreamy
  And often occupied.

S. S. GREEN.



THE RIDDLE-BOX

St. Nicholas January 1899

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

DOUBLE ACROSTIC. Primals, Browning; finals, Tennyson. Cross-words: 1. Brant. 2. Rinse. 3. Oaken. 4. Waken. 5. Noisy. 6. Idols. 7. Negro. 8. Groan.

RHYMED BEHEADINGS. Wheel.

NOVEL DOUBLE ACROSTIC. From 1 to 9, Christmas; from 10 to 18, festal day. Cross-words: 1. Coif. 2. Hoopoe. 3. Radiates. 4. Inducement. 5. Sarsaparilla. 6. Trochaical. 7. Manifold. 8. Acacia. 9. Stay.

WORD-SQUARES. I. 1. Iron. 2. Ride. 3. Odds. 4. Nest. II. 1. Year. 2. Else. 3. Asks. 4. Rest. III. 1. Sale. 2. Amit. 3. Lion. 4. Etna. IV. 1. Toad. 2. Ogre. 3. Arms. 4. Desk.

RIDDLE. A bed.

DIAMOND. 1. S. 2. Aim. 3. Armor. 4. Similar. 5. Moldy. 6. Ray. 7. R.

ILLUSTRATED PRIMAL ACROSTIC. Santa Claus. 1. Sword. 2. Apples. 3. Nuts. 4. Trumpet. 5. Abacus. 6. Cake. 7. Lute. 8. Accordion. 9. Uniform. 10. Slate.

CHARADE. Seldom.

ZIGZAG. George Washington. Cross-words: 1. Good. 2. Peer. 3. Moor. 4. Bear. 5. Sage. 6. Feat. 7. Wily. 8. Bard. 9. Mast. 10. Rash. 11. Grip. 12. Anon. 13. Gale. 14. Star. 15. Room. 16. Pawn.

FRAMED WORD-SQUARE. From 1 to 2, borrower; 1 to 3, blowhole; 2 to 4, recreate; 3 to 4, escalade; 1 to 5, bat; 2 to 6, rue; 4 to 8, car; 3 to 7, eye. Included square: 1. Tare. 2. Avow. 3. Rose. 4. Ewer.

CENTRAL ACROSTIC. Mesopotamia. Cross-words: 1. James. 2. Creed. 3. Misty. 4. Spout. 5. Poppy. 6. Frown. 7. Mates. 8. Crane. 9. Humid. 10. Juice. 11. Twain.

CONCEALED DOUBLE ACROSTIC. Primals, Farewell; finals, December. Cross-words: 1. Fund. 2. Ache. 3. Relic. 4. Ermine. 5. William. 6. Ebb. 7. League. 8. Litter.

A SWARM OF BEES.

EXAMPLE: Take a bee from to lie in warmth, and leave to request. Answer, b-ask.

1. Take a bee from yeast, and leave part of the body.
2. Take a bee from a hand-carriage, and leave a weapon.
3. Take a bee from a fish, and leave a quadruped.
4. Take a bee from a hunting-dog, and leave a bird.
5. Take a bee from a wild animal, and leave part of the body.
6. Take a bee from a hollow, metallic vessel, and leave part of a house.
7. Take a bee from a place of worship, and leave a feminine name.
8. Take a bee from a note, and leave indisposed.
9. Take a bee from dim or watery, and leave a very unfortunate old man.
10. Take a bee from a thicket, and leave a common garden utensil.
11. Take a bee from a hoarse cry, and leave a line of light.
12. Take a bee from mild, and leave to catch and bring to shore.
13. Take a bee from the strand, and leave every.
14. Take a bee from extending far and wide, and leave a highway.

ACHILLE POIRIER.

CHARADE.

My *first* on a dial you may see;
My *last* are Oriental tales;
My *whole* I hope you will do to me,
If this attempt to please you fails.

MARY A. GIBSON.

INCOMPLETE RHOMBOID.

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READING ACROSS: 1. To encounter. 2. Profound. 3. A sly look. 4. Humble. 5. A nobleman. 6. Dregs of wine. 7. Want. 8. To eat. 9. To think. 10. A kind of bird.

DOWNWARD: 1. A thousand. 2. A masculine nickname. 3. A fish. 4. To swarm. 5. The cry of a bird. 6. A spool. 7. Sharp. 8. A chain of rocks. 9. Part of a flower. 10. An animal. 11. A river. 12. A pronoun. 13. Five hundred.

The letters represented by stars are all the same.

CAROLYN WELLS.

DIAMOND.

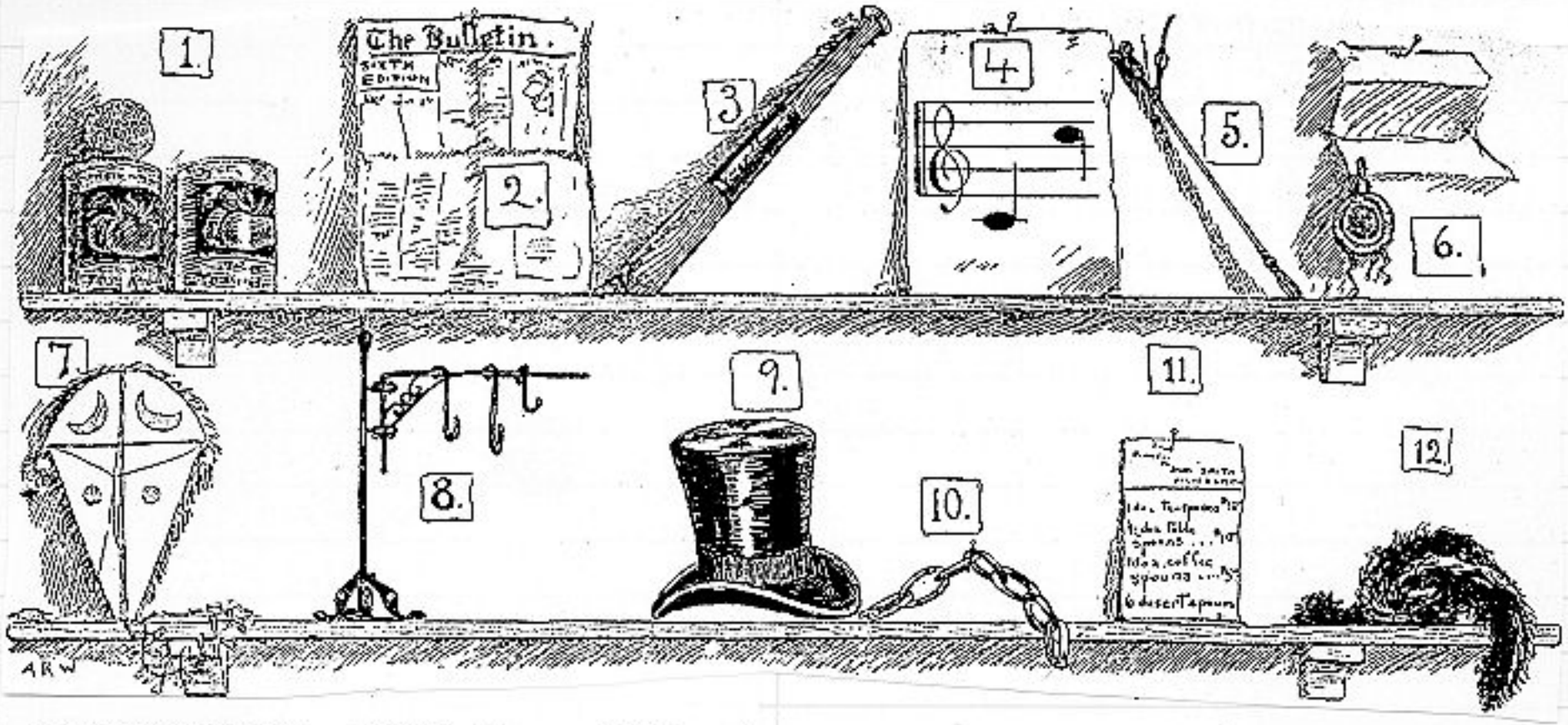
1. IN space. 2. An animal. 3. To dwell. 4. A slender point. 5. To draw out. 6. One half of a word meaning "chooses by ballot." 7. In space.

M. D.

WORD-SQUARE.

1. ONE who supports a heavy burden. 2. To express gratitude. 3. The first half of the name of a famous poem. 4. A little ring. 5. A fish.

E. B. R.



JOHNNY SHOWMAN wanted to give an exhibition of birds and animals. The only drawback was that he had none. But after ransacking the house from garret to cellar, he placed on exhibition the twelve articles pictured, which, he said, represented his menageric. What birds and animals were shown? F. H. W.

WORD-SQUARE PYRAMID.

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I. UPPER SQUARE: 1. A row. 2. An abbreviation often seen above a crucifix. 3. Formerly. 4. A feminine name.

II. LEFT-HAND SQUARE: 1. To burn. 2. A small animal. 3. Surface. 4. To raise up.

III. RIGHT-HAND SQUARE. 1. Capable. 2. A color. 3. To soothe. 4. Certain fishes. E. BLANC.

CONCEALED CENTRAL ACROSTIC.

SEARCH well for hidden words to find
What January brings to mind—
The first that ushers in the year,
The first to come, the earliest here.

WORD-SYNCOPATIONS.

EXAMPLE: Take principal from stayed, and leave a coarse plant. Answer, Re-main-ed, reed.

1. Take the personification of discord from revolves, and leave decays.

2. Take to be indebted to from bestowed copiously, and leave a fragment.

3. Take novel from renovated, and leave a musical instrument.

4. Take the entire sum from a rude couch, and leave to fondle.

5. Take astern from deceitful, and leave to lament audibly.

6. Take one of a certain tribe of Indians from defiles, and leave clips.

7. Take a pronoun from ecclesiastical societies, and leave a famous city.

8. Take a tavern from trespassing, and leave to utter musical sounds.

9. Take part of a fish from explained, and leave an act.

10. Take to incite from to impoverish, and leave to hinder.

11. Take a common article from heath, and leave to give audience or attention to.

12. Take consumed from irrigating, and leave to torture.

Each word removed contains the same number of letters. When these are placed one below another, the central letters will spell the name of a January festival.

C. D.

CROSS-WORDS.

1. "If I be rude," remarked the dude,
"'T will shatter the subjunctive mood;

2. "If I be rough, if I be tough,
You 'll see the reason plain enough.

3. "I crave excuse for talk so loose;
'T is slang lends English to abuse.

4. "And 't is my aim to scorch the same
With inextinguishable flame.

5. "While standing here in nervous fear,
Lest faulty syntax strike my ear,

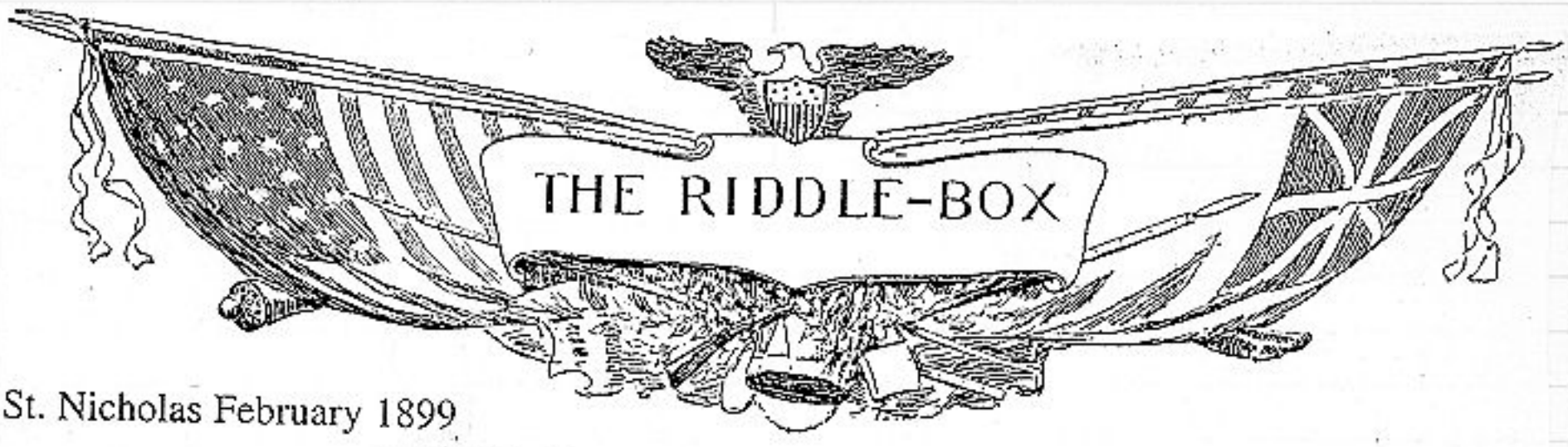
6. "My heart is sore in thinking o'er
My gilded ancestry of yore.

7. "They could not be aroused to see
The stir of life in tweedledee.

8. "But I confess what none could guess,—
That one subjunctive, more or less,

9. "Has wrung my pride until I cried,
And took some anti-germicide."

ANNA M. PRATT.



St. Nicholas February 1899

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

DIAMOND. 1. S. 2. Ape. 3. Abide. 4. Spicule. 5. Educe. 6. Ele (Elects). 7. E.

A SWARM OF BEES. 1. Barm. 2. Barrow. 3. Bass. 4. Beagle. 5. Bear. 6. Bell. 7. Bethel. 8. Bill. 9. Blear. 10. Brake. 11. Bray. 12. Bland. 13. Beach. 14. Broad.

INCOMPLETE RHOMBOID. Across: 1. Meet. 2. Deep. 3. Leer. 4. Meek. 5. Peer. 6. Lees. 7. Need. 8. Feed. 9. Deem. 10. Reed. Downward: 1. M. 2. Ed. 3. Eel. 4. Teem. 5. Peep. 6. Reel. 7. Keen. 8. Reef. 9. Seed. 10. Deer. 11. Dee. 12. Me. 13. D.

ILLUSTRATED PUZZLE. 1. Toucans. 2. Gnus. 3. Bat. 4. Dodo. 5. Tapir. 6. Seal. 7. Kite. 8. Crane. 9. Beaver. 10. Lynx. 11. Spoonbill. 12. Boa.

WORD-SQUARE PYRAMID. I. 1. Tier. 2. I N R I. 3. Erst. 4. Rita. II. 1. Char. 2. Hare. 3. Area. 4. Rear. III. 1. Able. 2. Blue. 3. Lull. 4. Eels.

CHARADE. Excuse.

WORD-SYNCOPATIONS. Twelfth Night. 1. Rot-ate-s. 2. Showe-red. 3. Re-new-ed. 4. P-all-et. 5. Cr-aft-y. 6. Poll-ute-s. 7. Pari-she-s. 8. S-inn-ing. 9. De-fin-ed. 10. B-egg-ar. 11. Hea-the-r. 12. W-ate-ring.

WORD-SQUARE. 1. Atlas. 2. Thank. 3. Lalla (Rookh). 4. Anlet. 5. Skate.

CONCEALED CENTRAL ACROSTIC. Beginning. 1. Fiber. 2. There. 3. Angle. 4. Thine. 5. Inner. 6. Dance. 7. Feint. 8. Tones. 9. Tiger.

ZIGZAG.

ALL of the words described contain the same number of letters. When these are rightly guessed, and placed one below another in the order here given, the zigzag, beginning at the upper left-hand letter, will spell the sobriquet of an American general.

CROSS-WORDS: 1. A measure of distance. 2. Unusual. 3. To await. 4. A state of profound insensibility. 5. Crooked. 6. A heavenly body. 7. A deception. 8. To couple. 9. A staff. 10. A float.

"JERSEY QUARTETTE."

DIAMOND.

1. IN richness. 2. A Greek letter. 3. Devises. 4. An English poet. 5. A kind of tape. 6. To observe. 7. In richness.

"JERSEY QUARTETTE."

CHARADE.

A WORD am I of sections four;
One body I make of many more.
Con well my *first*, and learn by this
Old Sol himself my *second* is;
I am my *third*, and not too late
To bring my *fourth* quite "up to date."

JULIA ROGERS.

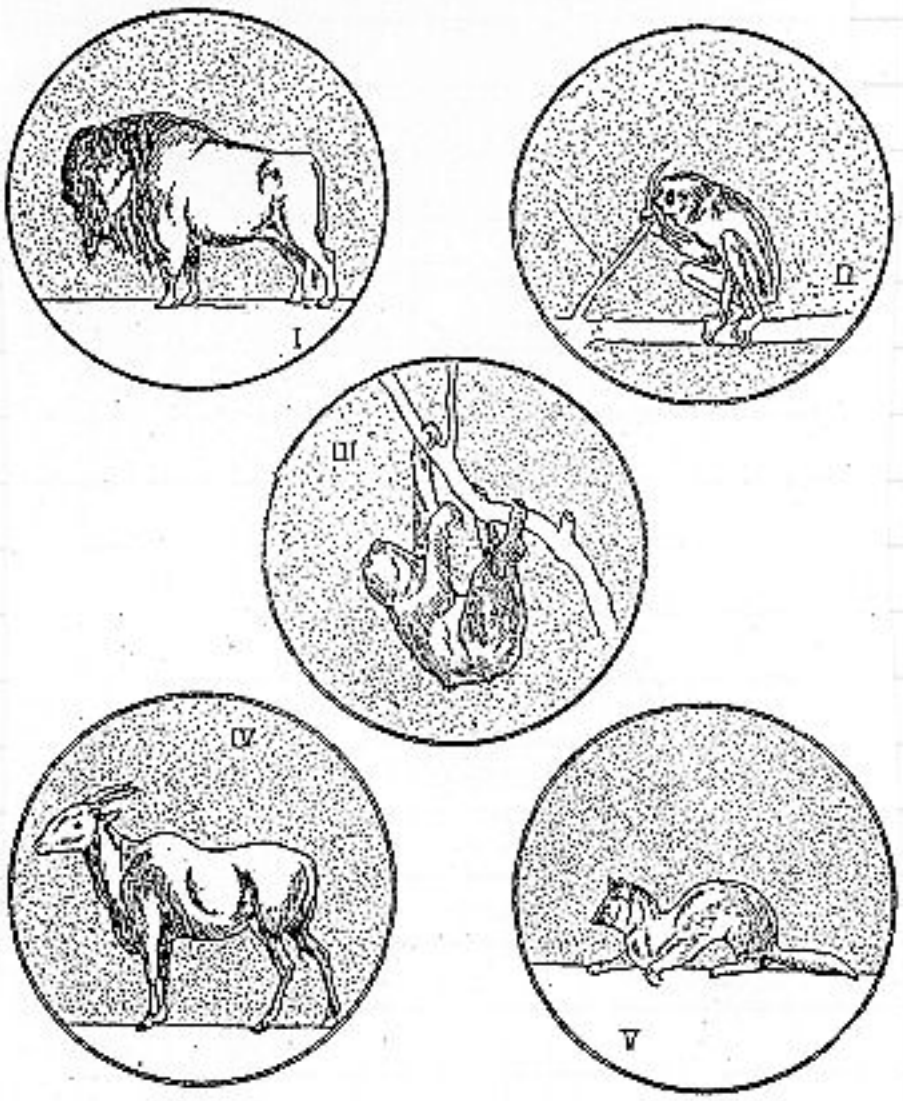
GEOGRAPHICAL PRIMAL ACROSTIC.

WHEN the following names have been rightly guessed and written one below another, their initials will spell the name of a famous place.

CROSS-WORDS: 1. An island belonging to Italy. 2. A town of Scotland. 3. A lake of Switzerland. 4. A city of Japan. 5. A county of Nova Scotia. 6. A lake and river of Canada. 7. A river of British India. 8. A river of Venezuela.

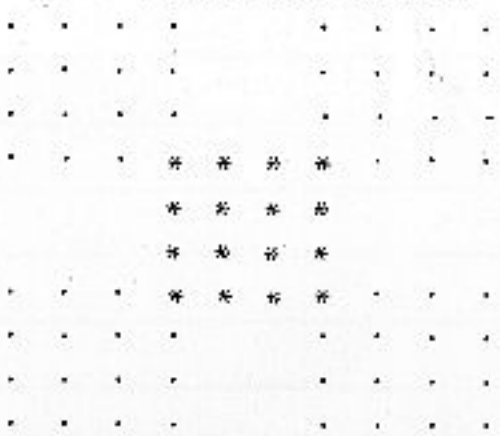
S. S. K.

ILLUSTRATED DIAGONAL.



ALL the words pictured contain the same number of letters. When rightly guessed, and placed one below the another, in the order numbered, the diagonal (from the upper left-hand letter to the lower right-hand letter) will spell the name of a famous American hunter and pioneer.

CONNECTED SQUARES.



I. UPPER LEFT-HAND SQUARE: 1. Common in many schools. 2. Part of a stove. 3. An island of Japan. 4. A pretentious, vulgar person.

II. UPPER RIGHT-HAND SQUARE: 1. Kitchen utensils. 2. A sign. 3. A country of South America. 4. To rebuff.

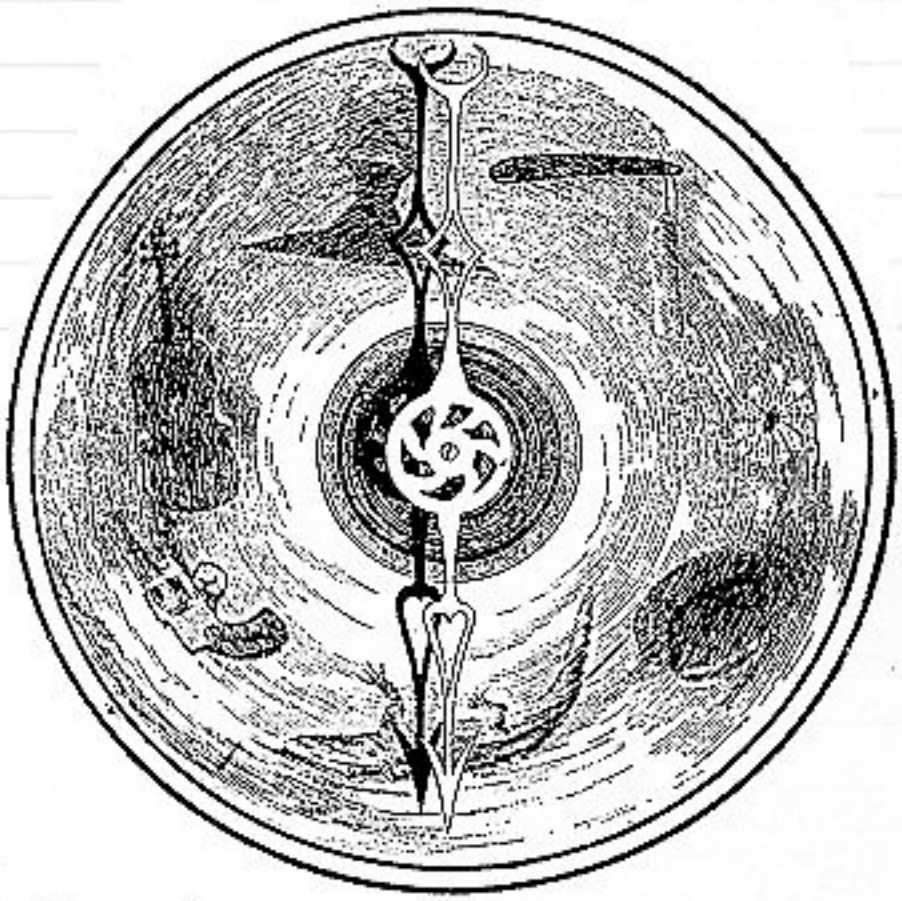
III. CENTRAL SQUARE: 1. Obstructs. 2. To project. 3. Impolite. 4. A stage of progress.

IV. LOWER LEFT-HAND SQUARE: 1. To assemble. 2. The ending of a prayer. 3. A scriptural name. 4. To close sharply.

V. LOWER RIGHT-HAND SQUARE: 1. A tree. 2. A heathen god. 3. Christmas. 4. Certain measures of length.

FLOYD AND JO.

A WHIRLIGIG.



WHEN the pointer is over the correct object, the initials of the seven objects (in the order in which they are shown) will spell the name of a famous institution.

CONCEALED CENTRAL ACROSTIC.

THERE 's something that 's honored concealed in this rhyme;
Mayhap you 've one, too, in this late winter-time.

CROSS-WORDS.

1. WHEN Robin-a-bobbin found melons in spots,
He tied up his shoe-strings in true-lovers' knots.

2. And when he caught chestnuts, boiled soft in a trap,
He put on his halo inside of his cap.

3. The man or the woman who lost a red hen
Begged Robin-a-bobbin to find it again.

4. He was famed as a hunter, renowned as a sage,
Till he shook with a palsy and tottered with age.

5. Though brave as a lion, he shuddered with awe
When he heard the weird voice of his brother-in-law.

6. The frequent defeat of the whole treble clef
Left him sadder and wiser and partially deaf.

7. When semitones suffered because of his kin,
He was grieved and ashamed and declared it a sin.

8. So each day, while his musical relative slept,
He went to a laundry adjacent and wept.

ANNA M. PRATT.

WORD-SQUARES.

I. 1. A MOUNTAIN chain. 2. A flower. 3. A continent. 4. Slender.

II. 1. A hard substance. 2. Past. 3. Close. 4. Falls into error.

III. 1. A dwelling. 2. A kitchen necessity. 3. Reward. 4. Finishes.

IV. 1. A horse. 2. An exclamation. 3. Grate. 4. To see.

V. 1. A cupola. 2. Verbal. 3. A common abbreviation. 4. Otherwise.

AGNES K. BAKER AND STARR LLOYD.

RIDDLE.

UP and down I rove,
And oft the sky I seek;
I have a language known to all,
Though none have heard me speak.

'T is true I sometimes swim;
And yet, if you should look,
I might be cast upon the ground,
Or fastened to a hook.

I quickly hide from view
When danger is about;
Don't meddle with me, lest you feel
Quite hurt if I 'm put out.

A. M. P.

PROGRESSIVE NUMERICAL ENIGMAS.

(*Boys' and Girls' Names.*)

1. 1-2-3-4-5-6-7 scolded 1-2-3; "4-5-6-7 is not my name," he said.

2. Miss 1-2-3, 4-5 your brother 1-2-3-4-5 going to the city to-day?

3. "I 2-3-4-5 for me, 1-2-3-4-5," said the distressed husband to his sick wife.

4. Oh, Uncle 1-2, 3-4-5 formed on the creek last night, and 1-2-3-4-5 and I are going to have such fun!

5. 1-2-3-4-5-6, you should not 1-2-3 4-5-6 pans in that way.

6. That color is too glaring, 1-2-3-4-5-6-7; I prefer a 1-2-3-4 5-6-7, so to speak.

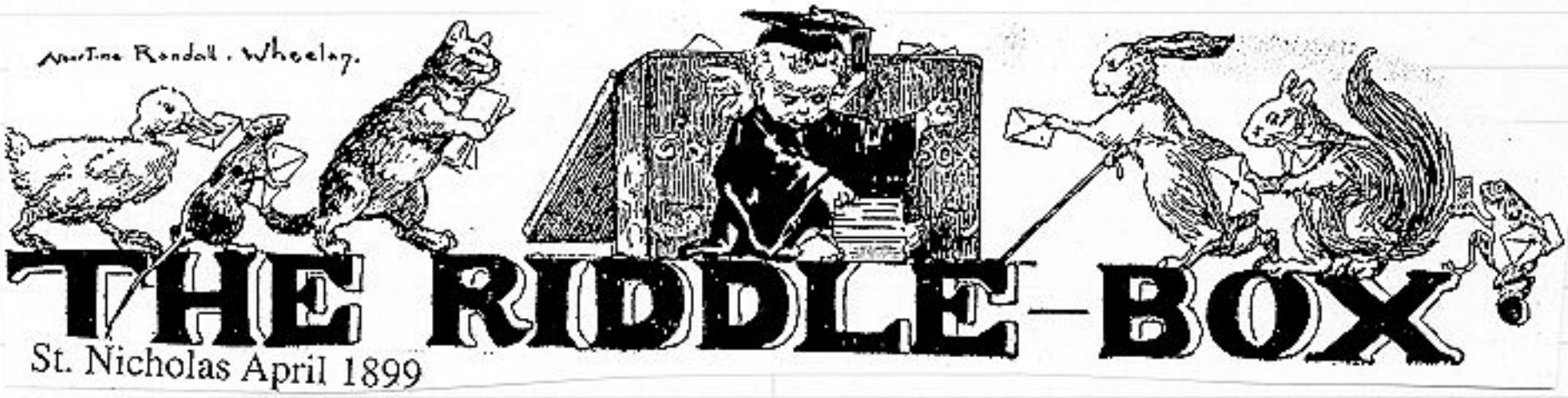
7. "Neither child, woman, 1-2-3 4-5-6 escaped," read 1-2-3-4-5-6 from the dime novel.

8. If you 1-2-3-4 5-6-7-8 very fine, 1-2-3-4-5-6-7-8, it makes good flour.

9. She said "1-2-3 4-5-6" was named 1-2-3-4-5-6."

10. Your daughter 1-2-3-4-5-6-7-8 1-2 3 4-5-6-7-8, I am told.

M. E. FLOYD.



ANAGRAM.

AN American writer:
CRANK IN FAR MAPS.

RIDDLE.

I have ever been a joy, a fear, and a means of livelihood to men; yet putting together my present and my past, I am a pastime of children. I have my share in the cares of life, and yet I am always in luck; without me physics, chemistry, mathematics, and, in fact, all the exact sciences would be a meaningless jumble. While I am an absolute necessity to princes, the poor man never feels the want of me.

Although I have my share of all practical accomplishments, yet in cooking I have made a mere beginning. In sweeping, dusting, and washing I am absolutely nowhere.

Now, if you cannot guess what I am, look carefully through your dictionary, though you could find me first in any good cyclopedia.

JANET C. C.

CHARADE.

THE boy sat by the fireside,
And stroked poor pussy's *second*;
Why should he *first* when asked to *whole*?
My *whole* 's for nothing reckoned.

E. E. SIBLEY.

WORD-SQUARES.

I. 1. PALED. 2. Odor. 3. A certain number. 4. To correct. 5. A fop.

II. 1. A flower. 2. Old. 3. Narratives. 4. To choose. 5. Reposes.

HELEN MURPHY.

RIDDLE.

SOME fill me, some beat me,
Some kill me, some eat me;
I creep and I fly, and my color is green;
And though I 'm a season,
There 's quite a good reason
Why my end or beginning there 's no man hath seen.

A. M. P.

DOUBLE ACROSTIC.

My primals name a well-known writer; my finals, one of his books.

Cross-words: 1. A European rodent. 2. A classic deity. 3. To ransom. 4. One of the United States. 5. A city in that State. 6. A famous city of Europe. 9. An inclosure for birds. 8. A frozen pendant. 9. Closer.

CELIA BLOCK.

DIAMOND.

1. In element. 2. Termination. 3. A feminine name. 4. Agreeable sound. 5. Native. 6. Definition. 7. A plant. 8. A tropical vegetable. 9. In element.

"ALLIL AND ADI."

ILLUSTRATED ADDITIONS.

If you add picture number 1 to number 2, you get number 3; but if you add number 4 to number 2 you get number 5. When you add number 6 to number 7 you get number 8, but if you add number 9 to number 7 you get number 10.



CONCEALED CENTRAL ACROSTIC.

When you seek for a sign of the spring drawing near
You will know by this token that April is here.

CROSS-WORDS.

1. Should the czar borrow toothpicks and say they were rented,
The world would declare he was slightly demented

2. And navies would gather from near and from far
Should folderol lodge in the brain of the czar.

3. Then woe to the seamen who feast on plum-duff
They might scour the Baltic and not get enough.

4. Yet sailors have sense; they will not ask for more
If at breakfast and lunch there are napkins galore

5. And if they have eggs dropped in milk when they rise
Why, albumen is good for the whites of the eyes

6. Should the czar use a knife in the place of a fork
There 'd be rumblings of war in the Bay of New York

7. But if only he 's minding his p's and his q's,
The world is delighted to pay for the news.

8. Though I should add length to this wise dissertation
I really could give you no more information.

ANNA M. PRATT.

CENTRAL SYNCOPATIONS.

I.

1. Take the central letter from a word meaning to enslave, and leave part of the head.

2. Take the central letter from mercenary, and leave a kind of meat.

3. Take the central letter from listened, and leave a number of animals.

4. Take the central letter from heals, and leave hints.

5. Take the central letter from silent, and leave an archbishop of Canterbury.

6. Take the central letter from an under-teacher, and leave one who employs.

7. Take the central letter from a Flemish sloop, and leave a South African farmer.

The seven central letters will spell political confusion.

II.

1. Take the central letter from to chew, and leave large quantity.

2. Take the central letter from a pointed weapon, and leave a mineral.

3. Take the central letter from a botanical term, and leave an animal.

4. Take the central letter from a group of the same kind, and leave a famous German composer.

5. Take the central letter from a reason, and leave a covering.

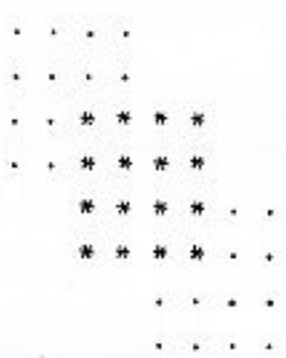
6. Take the central letter from a kind of cloth, and leave a legal claim.

7. Take the central letter from metrical authors, and leave kitchen utensils.

The seven central letters will spell the name of a mythological deity.

G. B. D.

CONNECTED SQUARES.



I. Upper Square: 1. Hide. 2. A great lake. 3. An extended mark. 4. To abound.

II. Middle Square: 1. Tidy. 2. A feminine name. 3. A familiar Latin word. 4. Good-by.

III. Lower Square: 1. At the apex. 2. A weed. 3. Spheres. 4. A nuisance.

J. A. S.

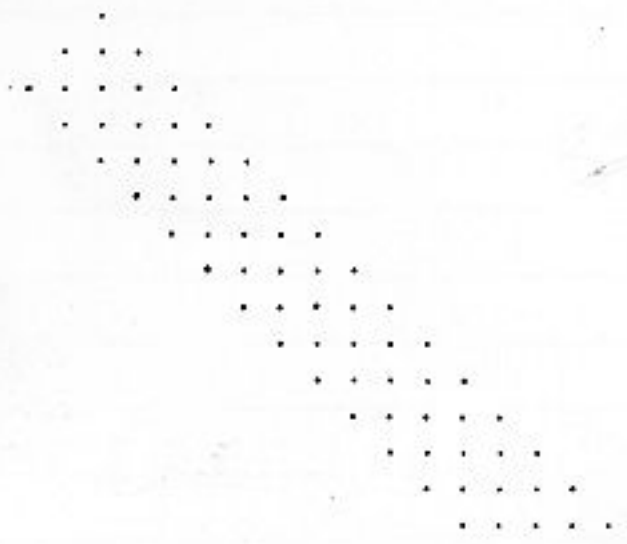
HIDDEN ANIMALS.

1. I TOOK to the picnic a melon and a pie.
2. But one tear fell, I only heaved one sigh.
3. I think that is what I German silver call.
4. Just hear him pant! He ran after the ball.
5. It is very comical from my point of view.
6. What is in that bag? Nuts and raisins too.
7. Are we a selected few for this special thing?
8. It must be a very pretty place in spring.
9. Why should you rebuff a loader so, my dear?
10. There seem to be several new authors every year.
11. Has he epaulets to wear, as well as you?
12. What a very pretty badge! Red, white, and blue.
13. Where is my cap? I gave away my hat.
14. This purse is morocco; what d' ye think of that!
15. You 'll find near the log oats, I think, and hay.
16. That pretty rose will fade ere the close of day.
17. Put a new gourd dip or cup in each pack.
18. Shovel, kettle, pot, and pan, why are you so black?
19. "Can it be a robber?" in alarm she cried.
20. There, behind that bush, ye naughty children hide.

In the above are animals twenty —
One in each line; I think that is plenty.

E. R. BURNS.

OBLIQUE RECTANGLE.



1. IN New York. 2. An insect. 3. To enrich. 4. This day. 5. A country. 6. Jerks. 7. The heavens. 8. Part of a flower. 9. Preserved. 10. To imbibe knowledge. 11. To draw off by degrees. 12. A river of Africa. 13. At no time. 14. Provision for successive relief. 15. A small animal. 16. In New York.

"JERSEY QUARTETTE."



St. Nicholas May 1899

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

DIAMOND. 1. E. 2. End. 3. Lucia. 4. Euphony. 5. Enchorial. 6. Diorism. 7. Anise. 8. Yam. 9. L.

OBLIQUE RECTANGLE. 1. E. 2. Ant. 3. Endow. 4. To-day. 5. Wales. 6. Yerks. 7. Skies. 8. Sepal. 9. Saved. 10. Learn. 11. Drain. 12. Niger. 13. Never. 14. Relay. 15. Rat. 16. Y.

RIDDLE. "C."—— CHARADE. Cipher.

CONNECTED SQUARES. I. 1. Pelt. 2. Eric. 3. Line. 4. Teem. II. 1. Neat. 2. Emma. 3. Amat. 4. Tata. III. 1. Atop. 2. Tare. 3. Orbs. 4. Pest.

DOUBLE ACROSTIC. Primals, Mark Twain; finals, Tom Sawyer. CROSS-WORDS: 1. Marmot. 2. Apollo. 3. Redeem. 4. Kansas. 5. Topeka. 6. Warsaw. 7. Aviary. 8. Icicle. 9. Nearer.

ILLUSTRATED ADDITIONS. 1. Car. 2. Pet. 3. Carpet. 4. Pup. 5. Puppet. 6. Fishing. 7. Rod. 8. Fishing-rod. 9. Ram. 10. Ramrod.

HIDDEN ANIMALS. 1. Camel. 2. Lion. 3. Tiger. 4. Panther. 5. Calf. 6. Gnu. 7. Weasel. 8. Beaver. 9. Buffalo. 10. Horse. 11. Sheep. 12. Badger. 13. Pig. 14. Cow. 15. Goat. 16. Deer. 17. Porcupine. 18. Elk. 19. Bear. 20. Hyena.

WORD-SQUARES. I. 1. Faded. 2. Aroma. 3. Dozen. 4. Emend. 5. Dandy. II. 1. Aster. 2. Stale. 3. Tales. 4. Elect. 5. Rests. —— RIDDLE. Time, thyme.

CENTRAL SYNCOPATIONS. I. Anarchy. 1. Ch-a-in. 2. Ve-n-al. 3. He-a-rd. 4. Cu-r-es. 5. Ta-c-it. 6. Us-h-er. 7. Bo-y-er. II. Neptune. 1. Mu-n-ch. 2. Sp-e-ar. 3. Se-p-al. 4. Ba-t-ch. 5. Ca-u-se. 6. Li-n-en. 7. Po-e-ts.

ANAGRAM. Francis Parkman.

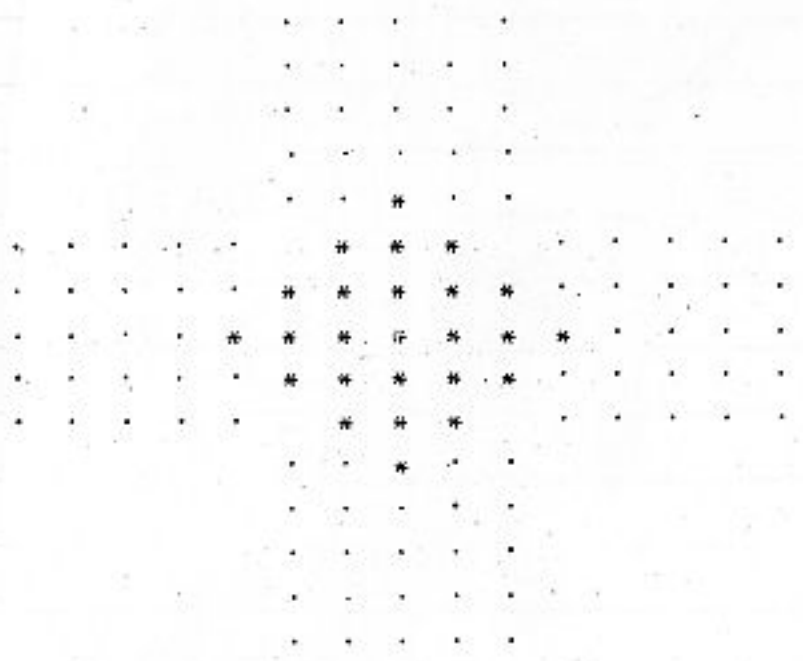
CONCEALED CENTRAL ACROSTIC. Bluebird. CROSS-WORDS: 1. Arbor. 2. Rollo. 3. Court. 4. Arena. 5. Album. 6. Feint. 7. Forth. 8. Addle.

TWENTY TREES.

1. WHAT 's the most level tree that grows?
2. Which one will tell all that it knows?
3. Which one is it that 's made of stone?
4. Which older than most others grown?
5. Which one will always languish and sigh?
6. Which one on land do you never spy?
7. Which only after a fire is found?
8. Which round the ladies' necks is wound?
9. Which has been oft in bottles kept?
10. Which over the grassy fields has leapt?
11. Which tree is never beautiful?
12. Which from the sea with a hook can you pull?
13. Which is the neatest tree in the land?
14. And which can you carry in your hand?
15. Of what trees are there only two?
16. Which will carry your clothes for you?
17. Which one in every one's mouth must be?
18. And which grows nearest to the sea?
19. Which one on your crops a war will wage?
20. And which has been worn on a pilgrimage?

L. E. JOHNSON.

SQUARES CONNECTED BY A CENTRAL DIAMOND.



I. UPPER SQUARE: 1. Sluggish. 2. At no time. 3. To escape. 4. A projection in a wall. 5. A city in which a famous council was held.

II. LEFT-HAND SQUARE: 1. Erroneous. 2. To come back. 3. A fine clay used as a pigment. 4. One who tends the sick. 5. A color.

III. CENTRAL DIAMOND: 1. In fable. 2. An intoxicating liquor. 3. Royal. 4. A feminine name. 5. A malady to which dogs are subject. 6. To rest easily. 7. In fable.

IV. RIGHT-HAND SQUARE: 1. A South African village. 2. A Jewish title. 3. A fish. 4. The white poplar. 5. Cloth made from flax.

V. LOWER SQUARE: 1. Snares. 2. Pertaining to a branch. 3. To divert. 4. A sticky substance. 5. Rain mingled with hail or snow.

F. FULTON.

CONCEALED CENTRAL ACROSTIC.

COME, young and old, while robins sing,
And take the bounty of the spring.

CROSS-WORDS.

1. TAKE endive, radishes, and shallot
   If you would like a salad hot.

2. Add currant jam —although I question
   If jam is sure to aid digestion.

3. Three spoonfuls of Cayenne or two,
   Though cook-books say that one will do.

4. But all your pains will miss the mark
   Unless you stir it in the dark.

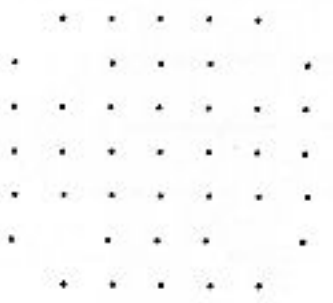
5. With vinegar and pastry flour
   'T will be a trifle sharp and sour.

6. With eggs and sugar and all that
   'T is apt to be a trifle flat.

7. You only need, for home consumption,
   A dish, a stew-pan, and some gumption.

ANNA M. PRATT.

SILVER CROSS PUZZLE.



CROSS-WORDS: 1. A spherical body. 2. An animal (3 letters). 3. Pertaining to the side (7 letters). 4. To work. 5. Scolded. 6. Took food (3 letters). 7. Vehicles not used in summer.

This reads the same up and down as across.

H. W. E.

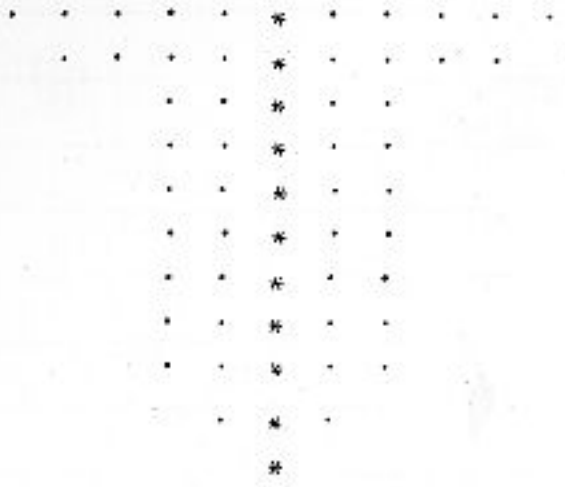
CONCEALED PROVERB.

BY taking one word from each of the eight lines of the following verse a proverb may be formed.



OH! IT'S NICE TO FLOAT IN AN OPEN BOAT
WITH AN ELDERLY OWL FOR CREW,
IF ONE DOES N'T GET ILL WHEN THE WHITE SAILS FILL
AND THE WIND WHIPS THE WAVES TILL THEY BOIL CLEAR THROUGH.
OH! THAT IS THE LIFE FOR THE OWL AND ME.
I BLOWS MY PIPE AND "AYE, AYE!" SAYS HE:
THERE'S NOBODY ROUND BUT JUST WE TWO,
BUT THAT OWL BY HIMSELF IS AS GOOD AS A CREW.

AN ESCUTCHEON.



CROSS-WORDS: 1. Discontinued for a time. 2. Distinguished. 3. A nocturnal animal resembling a monkey. 4. A well-known fish. 5. Ethical. 6. Well worn. 7. A Scandinavian poet. 8. Drags by force. 9. A portable, covered chair. 10. A low-bred, presuming person. 11. A letter from May.

The central letters, reading downward, will spell the name of an annual celebration. CYRIL DEANE.

WORD-SQUARES.

I. 1. A MARK of affection. 2. Something the poets sing about. 3. Killed. 4. Stitches together.

II. 1. A MASCULINE nickname. 2. Presently. 3. The fruit of a certain tree. 4. A joint.

MARGARET RICH AND B. J. BELL.

ZIGZAG.

ALL of the words described contain the same number of letters. When these are rightly guessed, and placed one below another, in the order here given, the zigzag, beginning at the upper left-hand letter, will spell the name of a popular novelist.

CROSS-WORDS: 1. A wading bird. 2. A color. 3. Junction. 4. A river in Scotland. 5. To darken. 6. A dairy necessity. 7. An ethereal fluid which was supposed to take the place of blood in the veins of the gods. 8. The surname of an African explorer. 9. A color. 10. A variety of quartz. 11. Imposing. 12. A masculine name. 13. A statement of belief.

"JACK RYDER."

DOUBLE BEHEADINGS.

WHEN the following words have been rightly guessed, each word may be beheaded twice and a word will remain. (Example, b-r-usher.) The twenty-seven beheaded words will form a four-line stanza.

1. Doubly behead to fit carefully; 2, an entrance; 3, to defeat; 4, a hanging candlestick; 5, majestic; 6, to demand; 7, containing lime; 8, a worker in stone; 9, expressing entrance; 10, conduct; 11, expiate; 12, to correct; 13, to restrain; 14, revision; 15, to withhold assent; 16, to declare innocent; 17, to wash; 18, to invert; 19, to disturb; 20, a single thing; 21, an infant; 22, neglected; 23, a precious stone; 24, stifles; 25, to make suitable; 26, large bodies of water; 27, an inlet from the Gulf of Mexico. ADDIE S. COLLOM.



St. Nicholas June 1899 ANSWERS TO PUZZLES IN THE MAY NUMBER.

WORD-SQUARES. I. 1. Kiss. 2. Isle. 3. Slew. 4. Sews. II. 1. Jack. 2. Anon. 3. Cone. 4. Knee.

TWENTY TREES. 1. Plum. 2. Peach. 3. Lime. 4. Elder. 5. Pine. 6. Bay. 7. Ash. 8. Fir. 9. Cork. 10. Yew. 11. Plane. 12. Bass. 13. Spruce. 14. Palm. 15. Pear. 16. Box. 17. Gum. 18. Beech. 19. Locust. 20. Sandal.

ZIGZAG. H. Rider Haggard. Cross-words: 1. Heron. 2. Brown. 3. Union. 4. Clyde. 5. Shade. 6. Churn. 7. Ichor. 8. Baker. 9. Green. 10. Agate. 11. Grand. 12. Henry. 13. Creed.

AN ESCUTCHEON. Memorial Day. Cross-words: 1. Intermitted. 2. Discerned. 3. Lemur. 4. Trout. 5. Moral. 6. Trite. 7. Skald. 8. Hales. 9. Sedan. 10. Cad. 11. Y.

CONCEALED CENTRAL ACROSTIC. Violets. 1. Diver. 2. Amiss. 3. Atone. 4. Tally. 5. Flesh. 6. Withe. 7. Haste.

SILVER CROSS PUZZLE. 1. Globe. 2. Ape. 3. Lateral. 4. Operate. 5. Berated. 6. Ate. 7. Sleds.

DOUBLE BEHEADINGS. 1. Ad-just. 2. En-try. 3. Be-at. 4. Sc-once. 5. Gr-and. 6. Cl-aim. 7. Li-my. 8. Ma-son. 9. In-to. 10. Be-have. 11. At-one. 12. Am-end. 13. Re-in. 14. Re-view. 15. Ve-to. 16. Ab-solve. 17. Ba-the. 18. Re-verse. 19. Mo-lest. 20. Un-it. 21. Ba-be. 22. Un-done. 23. Ru-by. 24. Sm-others. 25. Ad-apt. 26. Se-as. 27. Ba-you.

SQUARES CONNECTED BY A CENTRAL DIAMOND. I. 1. Inert. 2. Never. 3. Evade. 4. Redan. 5. Trent. II. 1. Wrong. 2. Recur. 3. Ochre. 4. Nurse. 5. Green. III. 1. E. 2. Rum. 3. Regal. 4. Eugenia. 5. Mange. 6. Lie. 7. A. IV. 1. Kraal. 2. Rabbi. 3. Ablen. 4. Abele. 5. Linen. V. 1. Traps. 2. Ramal. 3. Amuse. 4. Paste. 5. Sleet.

CONCEALED PROVERB. It 's an ill wind that blows nobody good.

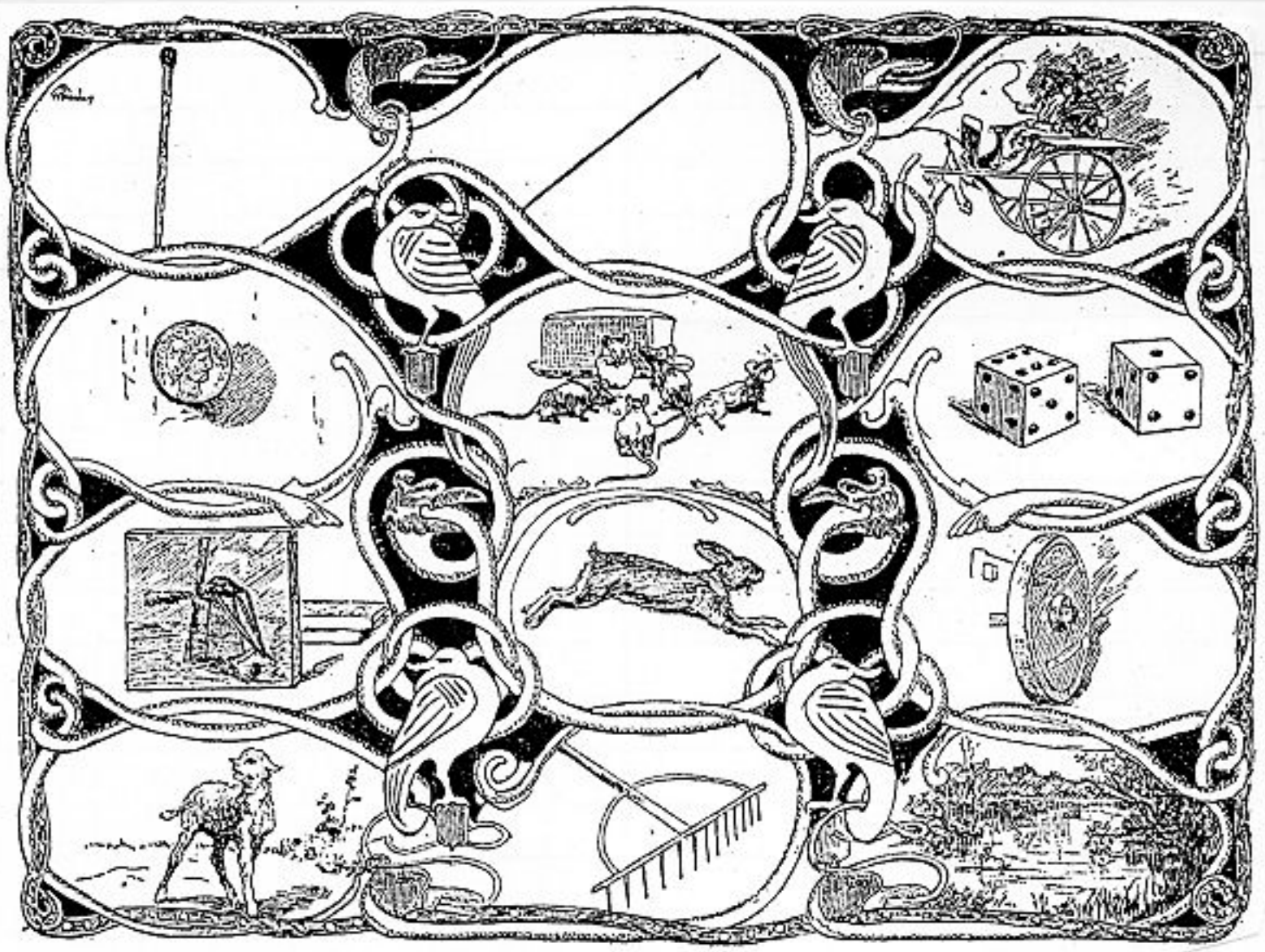
RIDDLE.

I 'M good for nothing with a head,
I 'm anything without it;
My tale is told, my story said,—
That 's all there is about it!

A. M. P.

WORD-SQUARE.

1. INEXPENSIVE. 2. A European city. 3. That which falls out. 4. An old name for the earthnut. 5. Inconsiderable. "JERSEY QUARTETTE."



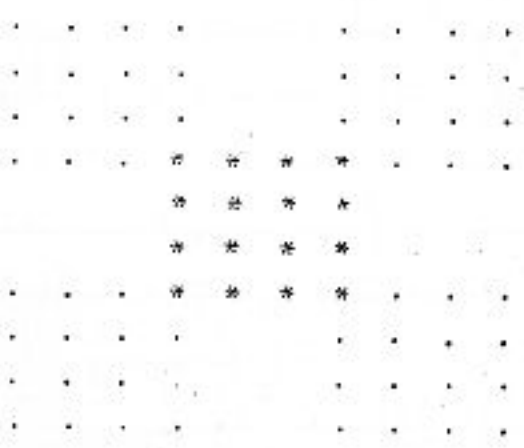
DIVIDED WORDS.

TAKE half of the word that describes the first picture and add it to half of the word describing the second picture; it will make the word that describes the third picture. This is true of each line of pictures. F. H. W.

A SWARM OF BEES.

SUCH havoc as they made! They changed a bit of cloth to a boast (b-rag); they changed (1) a spirituous liquor into a bundle of goods; (2) an awkward fellow into part of a whale; (3) a numeral into a hard substance; (4) a bird into a kitchen utensil; (5) an implement for playing tennis into a little shelf; (6) part of the head into a wild animal; (7) drops of water were turned into an organ of thought; (8) a garden tool became part of a bicycle; (9) a large farm was changed into part of a tree; (10) a quantity of paper into a fish; (11) final into a gust of wind; (12) a pile of hay into burnt clay; (13) a small stream into a fish; (14) a machine for making cloth into blossom; (15) an intricate fastening into a thick piece of wood; (16) a bird into a running stream; (17) an apartment into a useful implement; (18) a dash into another useful implement; (19) a dilapidated building into a wild animal; (20) a knave into a peculiarity of the Irish speech; (21) a beam of light into a harsh noise; and (22) everything was changed to a child's plaything. A. C. BANNING.

CONNECTED SQUARES.



I. UPPER LEFT-HAND SQUARE: 1. A spiked club. 2. To confess. 3. Part of an apple. 4. Sheep.

II. UPPER RIGHT-HAND SQUARE: 1. To mend. 2. To the sheltered side. 3. Quiet. 4. Snares.

III. CENTRAL SQUARE: 1. A measure of length. 2. A step. 3. The highest point. 4. Want.

IV. LOWER LEFT-HAND SQUARE: 1. A sign. 2. Part of a horse. 3. Finishes. 4. A cozy home.

V. LOWER RIGHT-HAND SQUARE: 1. Mud. 2. A thought. 3. To mow. 4. Light touches.

"153."

NUMERICAL ENIGMA.

I AM composed of sixty-one letters, and form a couplet from Cowper.

My 11-18-30-2 is a useful article. My 50-29-19-37-4-59 is a town of France made famous in 1598. My 21-1-43-51 is fine particles. My 42-14-36-58 is the sacred bull of the Egyptians. My 10-35-52-26 is a province of India. My 53-33-17-8-44-27 are feeble-minded persons. My 12-20-6-47-24-56-49-41-60 is a scar. My 9-57-38-61-46 is nourishes. My 34-13-40-31-22-55 is odd. My 39-7-25-48-23-32-16 is one of the United States. My 54-15-45-5-28-3 are holy persons.

M.

DIAMONDS.

I. 1. A LETTER. 2. An animal. 3. A country. 4. A drink. 5. A letter.

II. 1. A letter. 2. An American author. 3. A country. 4. A fish. 5. A letter.

K. JOHNSTON AND V. D

RHYMED WORD-SQUARES.

I.

To stare in a pitiless way;
To abandon the sheep gone astray;
The desert's scant springs;
To turn away things;
To be petulant, fretful alway.

II.

The kingdom an emperor rules;
To invest ('t is defined in the schools);
To make pleasing and fair;
A pale, ghastly glare;
What one does when he tinkers with tools.

A. M. P.

CONCEALED CENTRAL ACROSTIC.

WHEN flowers are sweet and birds in tune,
With perfect days I come in June.

CROSS-WORDS.

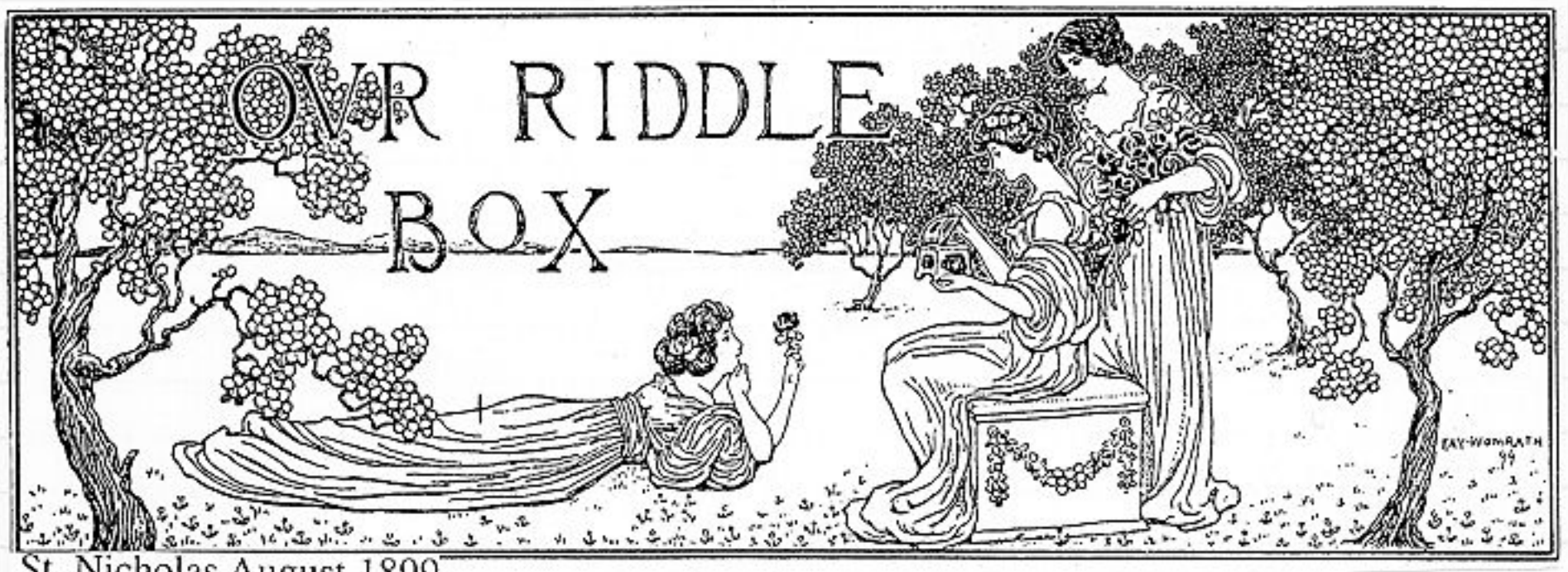
1. IF you 'd contemplate style in birds
Use gentle, softly uttered words;
2. And when the morning sky is red
Rush out of doors with velvet tread.
3. Your Maltese cat a lesson teaches
When stealthily she crawls and reaches.
4. Have salt concealed within your fist
And then hold up a steady wrist.
5. Let not your courage now forsake you
Or sad disasters may o'ertake you.
6. And if you capture insects, try
To shun the wicked Spanish fly.
7. When martins perch on posts and rails
Place salt upon their swallowtails.
8. Your head will ache at once, I fear,
To find them far that were so near.

ANNA M. PRATT.

CHARADE.

MY *last* are celebrated, noted, learned:
Some will not come for years, and some have gone—
Ah, never to return. And only one,
We may with truthfulness assert, exists.
And yet my *first* can buy them, eat them, too,
And set them if he choose; and upon one
Of them he may perhaps send forth my *whole;*
Or on it may perhaps inscribe my *whole;*
Or on my *whole* he may inscribe my *last.*

CAROLYN WELLS.

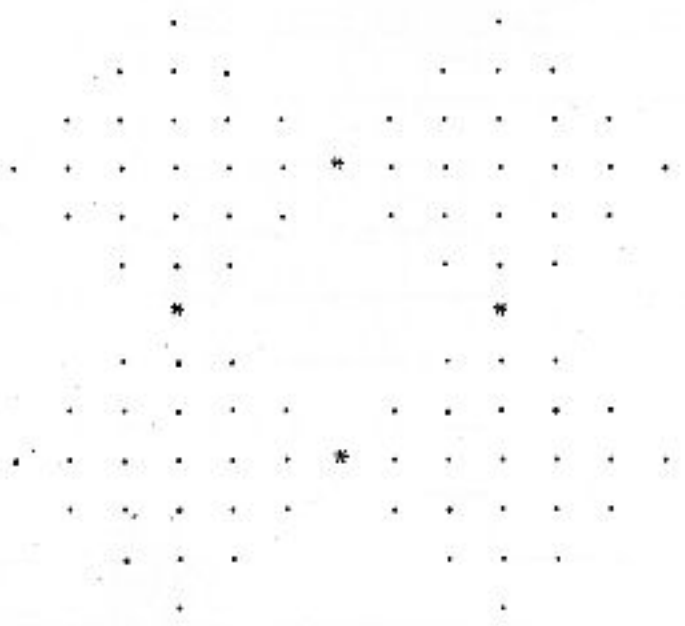


WORD-SQUARES.

I. 1. To repeat. 2. Exultant. 3. Some famous islands. 4. Particles. 5. A substance useful to bakers.

II. 1. Courage. 2. To go in. 3. To stand as an equivalent. 4. Tears. 5. A lock of hair. P. H.

CONNECTED DIAMONDS.



I. UPPER LEFT-HAND DIAMOND: 1. In coaxed. 2. The cry of an animal. 3. A cluster. 4. Tending toward a yellow color. 5. Pains. 6. A pronoun. 7. In coaxed.

II. UPPER RIGHT-HAND DIAMOND: 1. In coaxed. 2. Stout. 3. Happens. 4. The thick shell which covers the tortoise. 5. Lukewarm. 6. Depressed. 7. In coaxed.

III. LOWER LEFT-HAND DIAMOND: 1. In coaxed. 2. A slender pole. 3. Pertaining to a certain city. 4. Intricate. 5. To delay unnecessarily. 6. A famous marshal of France. 7. In coaxed.

IV. LOWER RIGHT-HAND DIAMOND: 1. In coaxed. 2. To hold a session for the consideration of public business. 3. Over. 4. Like a sword. 5. A supernatural being. 6. To be ill. 7. In coaxed.

GEORGE S. S.

CONCEALED NAMES.

How many feminine names are concealed in the following paragraphs?

A party of young people were skating on real ice.

"Mag, race with me; I dare you!" said one. "There is a belt for a prize; it is red, I think."

"I would win if red became me," said she, as she lent herself to the graceful sport.

"I bet he 'll win," said many, as a smart, handsome man in a gay cap shot ahead. "Is that belt worth a franc?" Esther asked naïvely; "or would it be at Rice's store?"

"I can name no price," said her rival. "Do you think I am a belt-maker?"

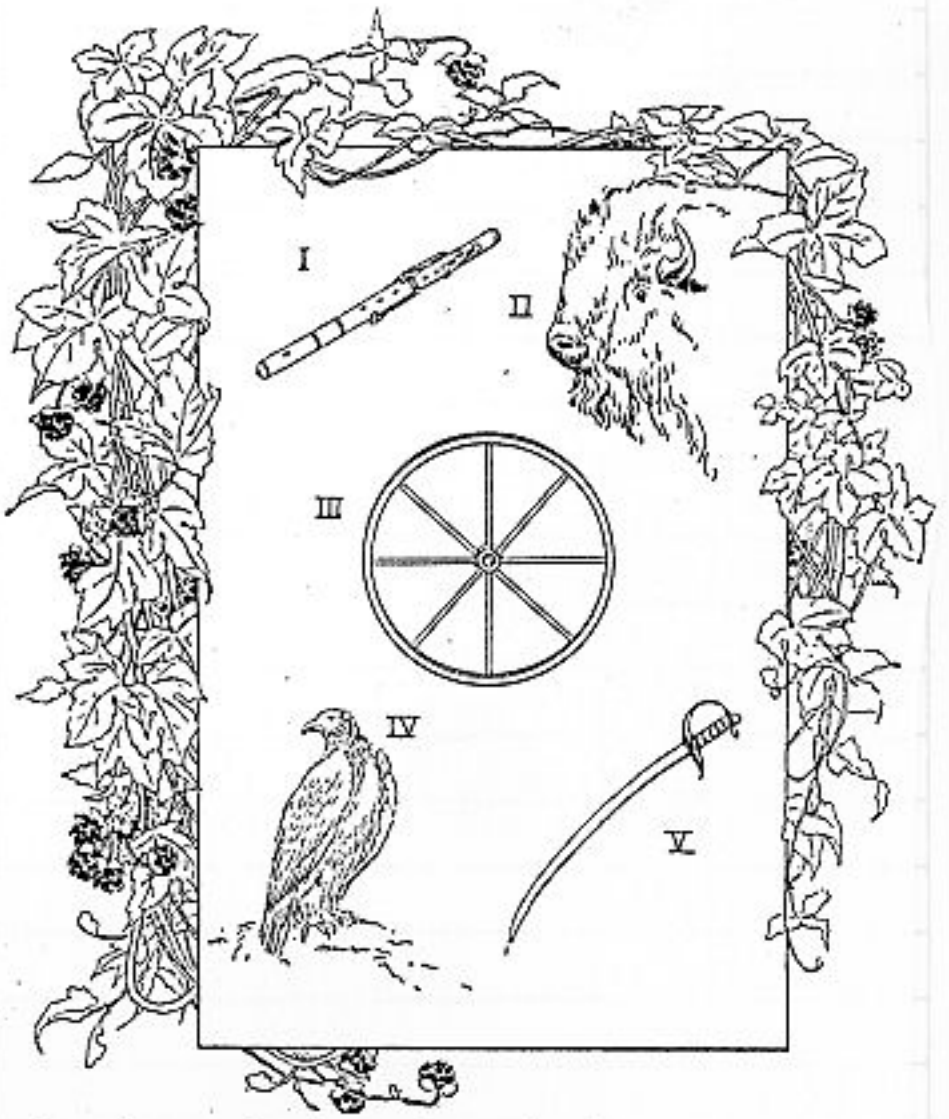
He was already an ell ahead of her, but Mag nestled at her side and sang a carol in E-flat to cheer her, while Esther whispers: "Tell all you know that the label in Danish on the belt says, 'Shame liars.'" So none desire the belt, and the race ends. E. H. H.

OMITTED WORD.

THE same word may be used to fill all the blanks.

He stood in the ——— of the room, and watched the vessels sailing on the ———. Near by, under the shelter of a ——— tree, a fine ——— horse, saddled, awaited the coming of the master. Far in the distance he could discern a stag standing at ———, while there came to him, borne on the breeze, the deep ——— of his favorite hound. P. E. TODD.

ILLUSTRATED DIAGONAL.



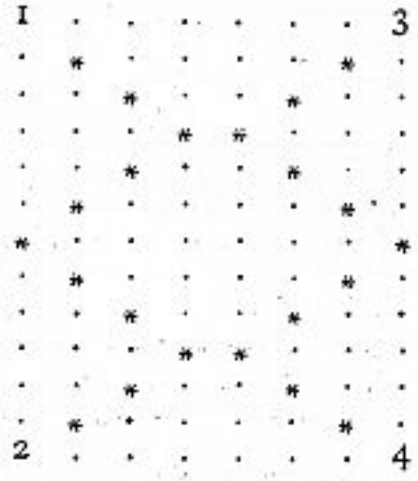
ALL the words pictured contain the same number of letters. When rightly guessed and placed one below the other, in the order numbered, the diagonal (from the upper left-hand letter to the lower right-hand letter) will spell the surname of a poet.

LETTER PUZZLE.

Y M A Z
R U G I
N T H N
E C E E

FROM the above letters trace out the name of a well-known magazine. Start at a certain letter, and move, one square at a time, in any direction, except cornerwise. H. W. E.

DOUBLE ZIGZAG.



CROSS-WORDS: 1. A place where ready-made clothing is sold. 2. A cruel Roman emperor who was murdered by Stephanus. 3. A fault-finder. 4. The name of a great estate near Asheville, N. C. 5. One who follows a leader or party. 6. Sourness of taste, with bitterness. 7. Abounding in goods or riches. 8. A very great number. 9. Conditional stipulations. 10. Triumphant. 11. To estrange. 12. To suggest indirectly. 13. To relinquish a throne.

Zigzag, from 1 to 2, one of the United States; from 3 to 4, a fanciful name of that State.

"MEUM ET TUUM."

CONCEALED CENTRAL ACROSTIC.

THE gift of August here concealed
In country lanes may be revealed.

CROSS-WORDS.

1. There was a chap, Tobias Strong,
Who dug a grave six inches long.

2. And then with shears that tailors use
He cut the buttons from his shoes.

3. With liquid of acetous taste
And graham flour he made a paste;

4. And added, as they do in shops,
A little arnica in drops.

5. Then on his shoes he let it flow
And soak them well at heel and toe.

6. (He 'd brought them to the Jersey shore
From Illinois eight weeks before.)

7. Now if a moral one would crave,
'T is with the buttons in the grave.

8. For man, or bird, or beast, I ween,
Such button-holes has seldom seen.

ANNA M. PRATT.

CENTRAL SYNCOPATIONS.

EXAMPLE: Take the central letter from a country of Europe, and leave to revolve. Answer, Sp-a-in, spin.

1. Take the central letter from a woman's name, and leave a man's name.

2. Take the central letter from a number, and leave a pronoun.

3. Take the central letter from a piece of furniture, and leave a story.

4. Take the central letter from an animal, and leave a part of a ship.

5. Take the central letter from a weapon, and leave part of a ship.

6. Take the central letter from departing, and leave a Chinese instrument.

7. Take the central letter from a grain, and leave an exclamation.

8. Take the central letter from an orifice, and leave an insect.

9. Take the central letter from a means of locomotion, and leave certain coverings.

All of the removed letters may be found in the word "Cherubini."

KATHARINE.



SUBSTITUTIONS.

IN the following lines one letter is taken from each word and a different one substituted.

At throush in all-teatched room
Thy petting ruins descand,
Lo as unthanking mild
She storms pansions bend;
Is sell-shatched hoofs deft tie pain,
No pastions crush aid lash amainst
She thouchtful bind is vail.

H. W. E.



AN ANIMAL ACROSTIC.

WHEN the first seven animals have been correctly named, the initials as they stand will spell the name of the eighth animal; the final letters, rearranged, will spell the name of the ninth animal.

F. H. W.

DEDUCTIONS.

EXAMPLE: Deduct one letter from strikes, transpose the remaining letters, and form the name of a well-known London newspaper. Answer, Smites, Times.

1. Deduct and transpose a kind of poplar, and make inclosures for animals.

2. Deduct and transpose a border, and make foliage.

3. Deduct and transpose cutting with a peculiar instrument, and make to wave to and fro.

4. Deduct and transpose to wander, and make to dim.

5. Deduct and transpose discourses on, and make to begin.

6. Deduct and transpose scents, and make vends.

7. Deduct and transpose to hurry, and make inflames.

8. Deduct and transpose a seaman, and make dens.

9. Deduct and transpose part of a flower, and make comrades.

The deducted letters will spell the name of a tragedy of Æschylus.

SAMUEL SYDNEY.

NUMERICAL PUZZLES.

1. SOME people use 1-2-3-4-5-6-7-8 in youth, and their manners become very 1-2-3 4-5 6-7-8.

2. So 1-2-3 4-5 6-7 the ship bound for Manila. My 1-2-3-4-5-6-7 on the boy!

3. Put down your 1-2-3 4-5-6; I cannot see that picture of the Spanish 1-2-3-4-5-6.

4. Please 1-2-3-4-5-6, mama; the hen 1-2-3 4-5 6 little chicks.

5. My wrath 1-2-3-4-5-6-7-8-9 when I look at that pretty silk all 1-2 3-4-5-6-7-8-9.

6. Who is that old 1-2-3-4-5-6? Does 1-2 3-4-5-6 ale or beer?

7. Pick that 1-2-3-4; 5-6-7 lessens the value of all kinds of 1-2-3-4-5-6-7.

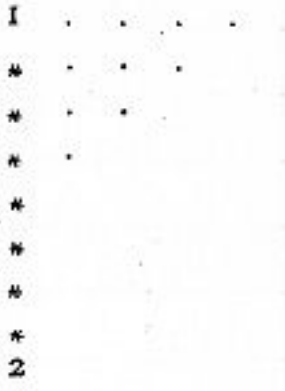
8. I have lost my 1-2-3; 4-5-6 7-8 and find it; I want to dance a Spanish 1-2-3-4-5-6-7-8.

9. When we read King 1-2-3-4, 5-6-7 1-2-3-4-5-6-7 all his speeches.

10. I discovered 1-2-3 4-5-6-7 who were 1-2-3-4-5-6-7 of the big nest.

MRS. M. E. FLOYD.

CONNECTED TRIANGLES.



I. UPPER TRIANGLE: 1. Calls. 2. A musical term. 3. A pronoun. 4. An exclamation. 5. A letter from Russia.

II. LOWER TRIANGLE: 1. A letter from Russia. 2. A pronoun. 3. From. 4. A common metal. 5. Part of a peach.

From 1 to 2, a small mass of ice.

H. W. E.

WORD-SQUARES.

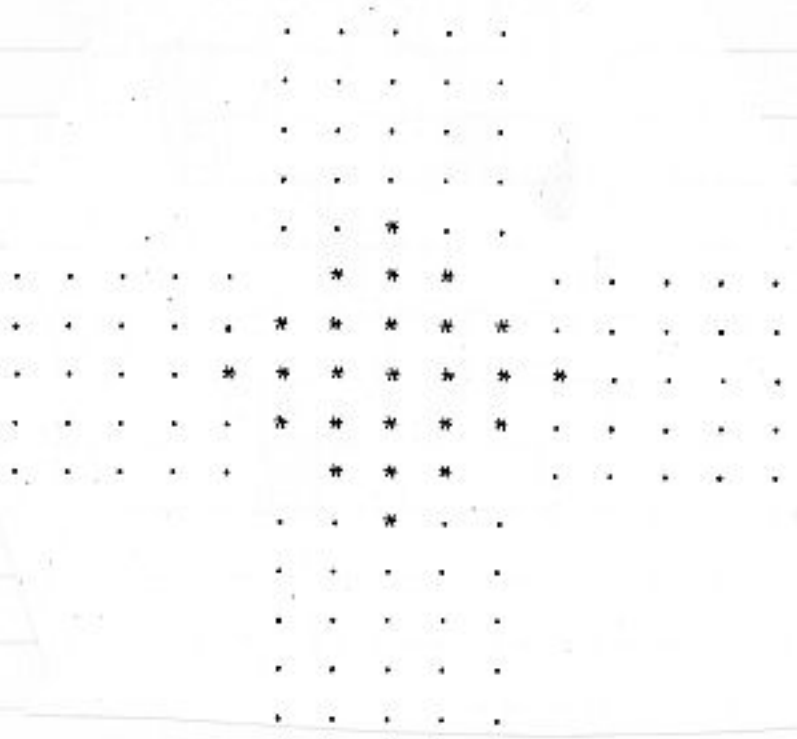
I. 1. To talk. 2. In this place. 3. An open surface. 4. Rent.

II. 1. Fervency. 2. Rest. 3. Small poisonous snakes. 4. Trial.

III. 1. A feminine name. 2. In bed. 3. To watch carefully. 4. A circular motion of water.

FREDERICK H. ADLER.

SQUARES CONNECTED BY A CENTRAL DIAMOND.



I. UPPER SQUARE: 1. Courage. 2. To go in. 3. To make reparation. 4. Fissures. 5. A lock of hair.

II. LEFT-HAND SQUARE: 1. An American general. 2. A Dutch coin. 3. To revere. 4. Courage. 5. Large plants.

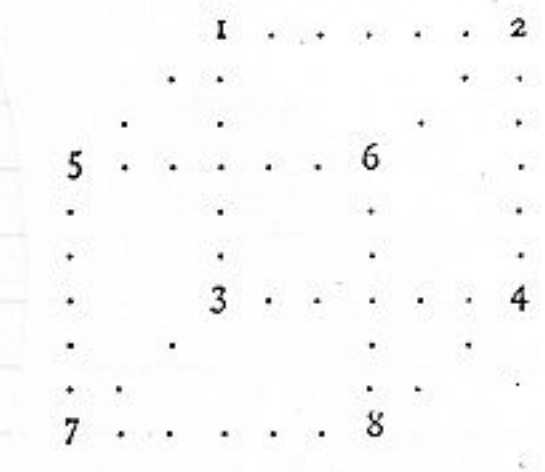
III. CENTRAL DIAMOND: 1. In connection. 2. A vehicle. 3. A song of praise. 4. Made of clay. 5. A kind of tea. 6. A meadow. 7. In connection.

IV. RIGHT-HAND SQUARE: 1. An ultimate atom. 2. A musical composition. 3. Part of a stairway. 4. Pertaining to an area. 5. To waste time in trifling.

V. LOWER SQUARE: 1. Without bones. 2. A musical drama. 3. At no time. 4. To rear. 5. Short lances.

F. W. F.

CUBE.



FROM 1 to 2, wholesome; 1 to 3, atrocious; 2 to 4, part of a ship; 3 to 4, indication; 5 to 6, an aperture: 5 to 7, a breakfast dish; 6 to 8, breathing with difficulty; 7 to 8, going ahead; 1 to 5, a famous French novelist; 6 to 2, a color; 8 to 4, fierce; 3 to 7, part of a ship.

"JACK RYDER."

CONCEALED CENTRAL ACROSTIC.

WHAT are October's golden days,
With frosty morns and noontide haze?

CROSS-WORDS.

1. Along the lane pale asters nod
To graceful plumes of goldenrod.

2. The tides through marshy inlets flow,
And in their ebb lush grasses grow.

3. The woods their banners have unrolled,
And gleam a tint of flame and gold.

4. And through the long, enchanting night,
The harvest moon sheds silvery light.

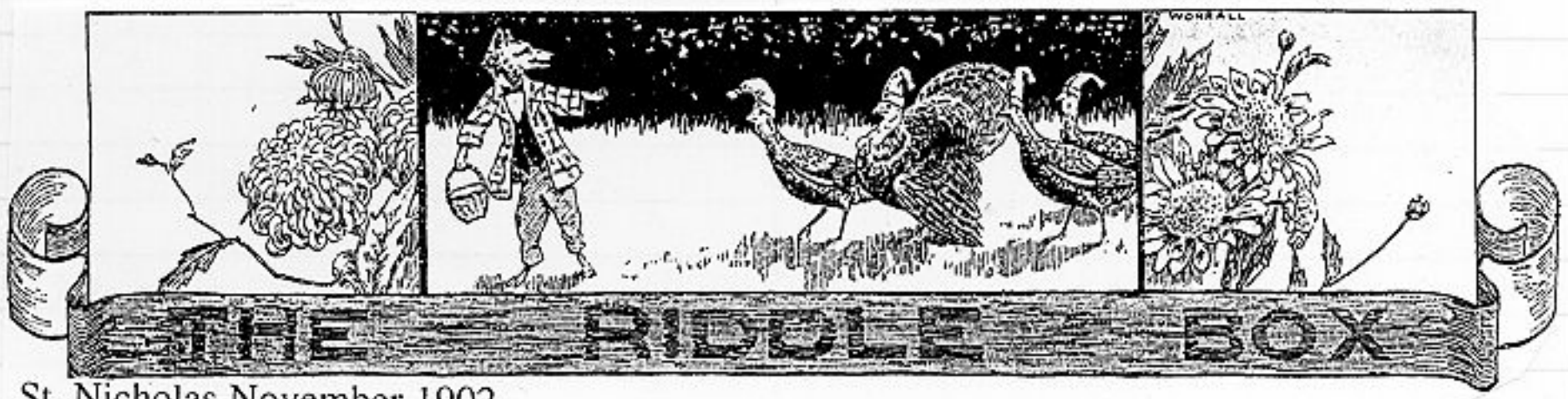
5. We find a message in our dreams
From elves who caper on its beams.

6. (There 's much, the ancient gossips say,
Of human nature in a fay.)

7. The ardent heat of summer-time
Comes when the sun begins to climb,

8. But lacks the joy, too deep for words—
The vocal largess of the birds.

ANNA M. PRATT.



A HOLIDAY PUZZLE.

(*Gold Badge*, St. Nicholas League Competition.)

WHEN the following holidays have been rightly guessed and the names (of unequal length) written one below another, one of the rows of letters, reading downward, will spell the name of a November holiday.

CROSS-WORDS: 1. The sweethearts' day. 2. The celebration of All Saints'. 3. One of the four Greek festivals. 4. A holiday that comes in February. 5. The name of a queen whose birthday the English celebrate. 6. A legal holiday in December. 7. A legal holiday in September. 8. A legal holiday in November. 9. A lovely spring festival, very often celebrated. 10. The Irish holiday. 11. A legal holiday in January.

MABELLE SEITZ.

NOVEL ACROSTIC.

EXAMPLE: Reverse a snare, prefix a letter, and make separated. Answer: trap, a-part

1. Reverse a space of time, prefix a letter, and make a weed. 2. Reverse a pronoun, prefix a letter, and make to chop. 3. Reverse a tax, prefix a letter, and make to distribute. 4. Reverse to perform, prefix a letter, and make a movement of the head. 5. Reverse a metal, prefix a letter, and make to unite closely. 6. Reverse a feminine name, prefix a letter, and make a sword. 7. Reverse a near relative, prefix a letter, and make a vacant space. 8. Reverse a title of respect, prefix a letter, and make the goddess of the rainbow. 9. Reverse to recline, prefix a letter, and make a filmy covering for the face. 10. Reverse encountered, prefix a letter, and make a paragraph. 11. Reverse melted rock, prefix a letter, and make pertaining to the navy. 12. Reverse a snake-like fish, prefix a letter, and make mirth.

The prefixed letters will spell a national holiday.

WILLARD P. CHANDLER, JR. (League Member).

MYTHOLOGICAL PRIMAL ACROSTIC.

WHEN the following names have been rightly guessed, the initial letters will spell the name of something without which no Thanksgiving dinner is complete.

1. The queen of the "under-world." 2. A hero who is famous because of his wanderings. 3. A monster who was confined in a labyrinth. 4. A winged horse. 5. Another name for the queen of the "under-world." 6. A woman who was changed into a beautiful heifer. 7. The oldest councilor of the Greeks before Troy. 8. The seven daughters of Atlas. 9. The goddess of the rainbow. 10. The god of love.

M. BLANCHE PHILLIPS (League Member).

A NOVEMBER DOUBLE ACROSTIC.

WHEN the following words are rightly guessed and written one below another, the primals reading downward, and the finals reading downward, will spell what every one should have on Thanksgiving day.

CROSS-WORDS: 1. To move by leaps. 2. A tropical fruit. 3. The East. 4. The Latin word for lords. 5. To dismount. 6. A confederacy of Indians who used to live in Kansas and Nebraska.

J. LE ROY BESSEY (League Member).

CONCEALED ZIGZAG.

(*Gold Badge*, St. Nicholas League Competition.)

ONE word is concealed in each line of the following verse. When these are rightly guessed, and placed as the diagram shows, the letters indicated by the numbers from 1 to 11 will spell something very popular the latter part of November.

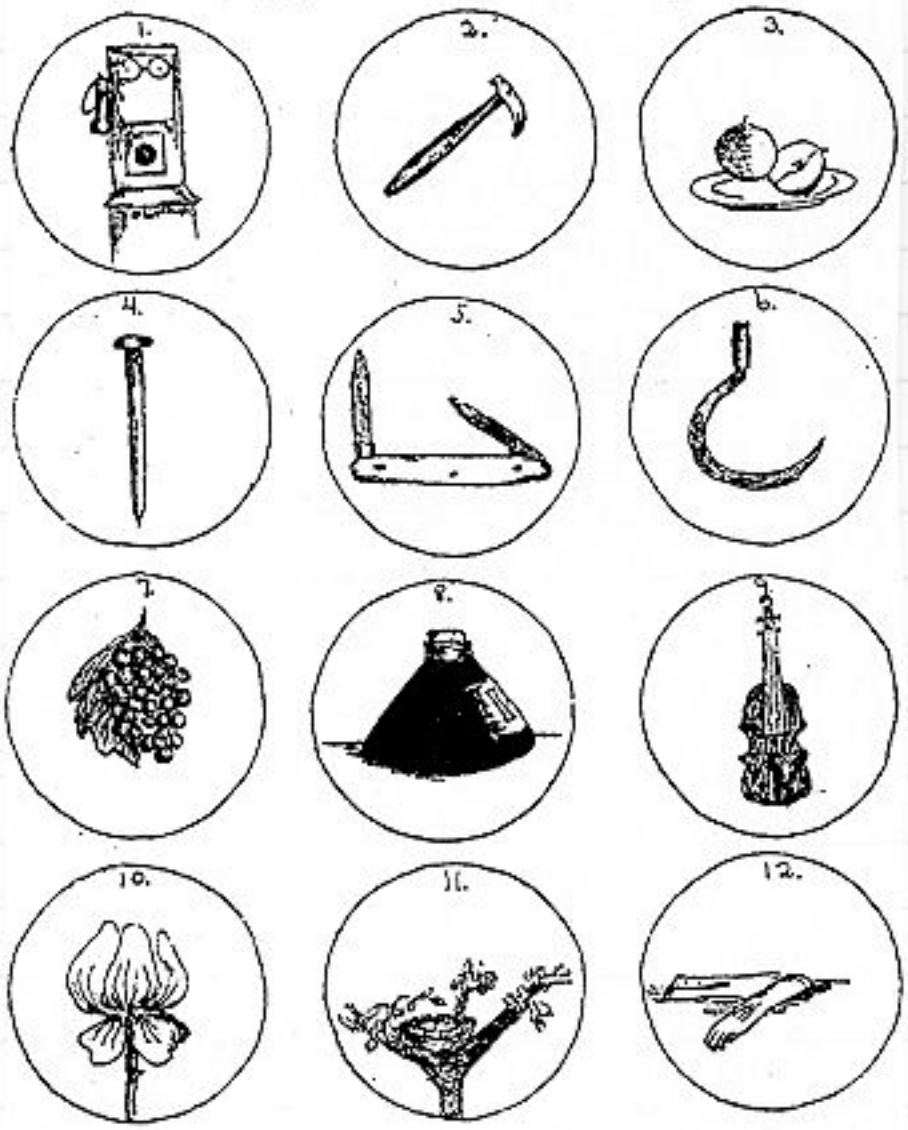
1	.	11	.
.	2	.	10
3	.	9	.
.	4	.	8
5	.	7	.
.	6	.	.

Help aged folks who have the gout;
Help land-lubbers when they 're about;
If you see a cat, don't run it to death;
If you 're amidst enemies, don't waste breath,
But run with your might, avoiding foot-pads.
And you 'll surely get home with other lads.

SCOTT STERLING.

ILLUSTRATED PRIMAL ACROSTIC.

(*Silver Badge*, St. Nicholas League Competition.)



EACH of the twelve small pictures may be described by a single word. When these have been rightly guessed, the initial letters will spell the name of a famous holiday. Designed and drawn by

MARJORIE CONNOR.

WORD-SQUARE.

1. AN English poet. 2. A Roman poet. 3. A picket. 4. A delightful region.

DOROTHY CARR (League Member).

CENTRAL ACROSTIC.

(*Silver Badge*, St. Nicholas League Competition.)

ALL the words described contain the same number of letters. When rightly guessed and written one below another, the central letters will spell something associated with Thanksgiving.

CROSS-WORDS: 1. A fruit. 2. An expression of mirth. 3. Domesticated. 4. Tubes. 5. A joint of the body. 6. To pierce acutely. 7. A flower. 8. Soaked with moisture. 9. Unbending. 10. Set free.

WALKER MALLAM ELLIS (age 9).

A CENTRAL ZIGZAG.



CROSS-WORDS: 1. To move at an easy gallop. 2. To draw into the lungs. 3. To beat soundly. 4. A loose, low shoe. 5. One who deals in money. 6. To drive away. 7. Unmarried. 8. Shining. 9. A coarse cloth used for sails. 10. Imbibes. 11. Obtained. 12. Commences.

The zigzag, from 1 to 2, a holiday.

MARION SENN (League Member).

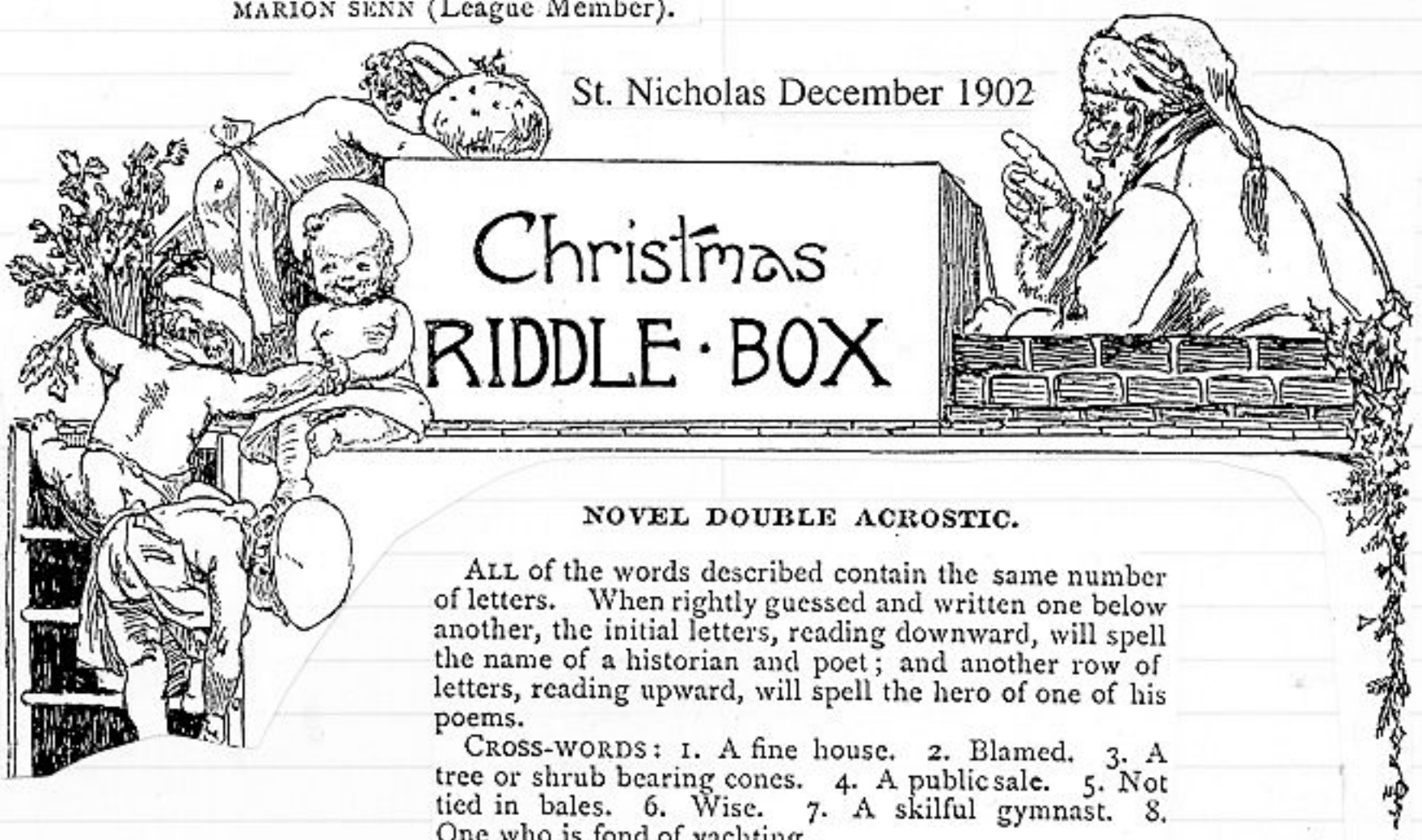
CONCEALED CENTRAL ACROSTIC.

IN woods already sere and dun
I seem to catch the yellow sun.

CROSS-WORDS:

1. "Well done! Well done!" Miss Neppins said;
"This book 's the best of all I 've read.
2. "The moral, I 've no doubt, is good,
Although by most not understood.
3. "'The Tale of Twopence in a Tree'
Is so romantic—just like me;
4. "It also scares me blue and white
If I peruse it in the night.
5. "The author sets my nerves agog
When in the street he leads his dog.
6. "As he 's heroic as a dream,
The dog might bite—he would not scream.
7. "He 'd merely bow and wave his hand,
And leave for some antarctic land.
8. "What fun if we could find together
In San Fernando zero weather!
9. "Then he could write while I 'd peruse
The columns of the 'Wildfire News.'
10. "My sakes! some work my thoughts must curb;
I 'll learn the universal verb."

ANNA M. PRATT.



NOVEL DOUBLE ACROSTIC.

ALL of the words described contain the same number of letters. When rightly guessed and written one below another, the initial letters, reading downward, will spell the name of a historian and poet; and another row of letters, reading upward, will spell the hero of one of his poems.

CROSS-WORDS: 1. A fine house. 2. Blamed. 3. A tree or shrub bearing cones. 4. A public sale. 5. Not tied in bales. 6. Wise. 7. A skilful gymnast. 8. One who is fond of yachting.

AMELIA S. FERGUSON (League Member).

HEXAGONAL ZIGZAG.

```
      1 . 6
    2 . . . 7
  . . 3 . 8 . .
    4 . . . 9
      5 . 10
```

CROSS-WORDS: 1. A pouch. 2. Pertaining to an area. 3. A strip of material used in binding up wounds. 4. A kind of East India herring. 5. A beast of burden.

From 1 to 5 and from 6 to 10 spell a name very familiar to children.

CLARENCE A. SOUTHERLAND
(League Member).

CHARADE.

My *first* is very evil,
My *last* is often just;
My *whole* a part of grammar —
You know its rules, I trust.

A. W. CLARK.

DIAGONAL.

(*Silver Badge*, St. Nicholas League Competition.)

WHEN the following words have been rightly guessed, the diagonal (beginning at the upper left-hand letter and ending with the lower right-hand letter) will spell a plant that is popular at Christmas-time.

CROSS-WORDS: 1. The state of being magnetic. 2. A game. 3. To name. 4. A ship's officer. 5. Owners of rented houses. 6. Fraternal. 7. The forms required by good breeding. 8. The American crocodile. 9. To contend in words.

HOWARD HOSMER.

BEHEADED ZIGZAG.

(*Gold Badge*, St. Nicholas League Competition.)

WHEN the following words have been beheaded and curtailed, and the remaining words written one below another, the zigzag (beginning at the upper left-hand letter and ending with the lower left-hand letter) will spell the most welcome day of the year.

1. Behead and curtail surveys, and leave a metal receptacle. 2. Behead and curtail not identical, and leave a common article. 3. Behead and curtail in that place, and leave a pronoun. 4. Behead and curtail conceit, and leave to free. 5. Behead and curtail pale, and leave a pronoun. 6. Behead and curtail portals, and leave consumed. 7. Behead and curtail minute particles, and leave a masculine nickname. 8. Behead and curtail to chatter, and leave a common rodent. 9. Behead and curtail employing, and leave iniquity.

T. LAWRASON RIGGS.

STAR PUZZLE.

```
        1
    4 . . . 5
      .   .
        .
      2   3
```

FROM 1 to 2, to stain; from 1 to 3, a fish; from 4 to 5, level; from 4 to 3, enemies; from 2 to 5, to try. The five inner letters will spell the name of common Mexican plants.

EDSALL RUST.

ADD the same letter to all of the following words:

1. Add a letter to to wear, and make tired. 2. Add a letter to an oilstone, and make a sweet substance. 3. Add a letter to a metal, and make sarcasm. 4. Add a letter to a fish, and make sheltered from light and heat. 5. Add a letter to lofty, and make a reckoning. 6. Add a letter to chance, and make fortunate. 7. Add a letter to a nobleman, and make in good season. 8. Add a letter to peruse, and make alert.

The initial letters will spell the name of a distinguished painter.

A. W. CLARK.





PROGRESSIVE NUMERICAL ENIGMAS.

1. We made a 1-2-3-4-5-6-7-8 exploration of the city, and paid our 9-10-11-12 when we came to the end of the last 1-2-3-4-5-6-7-8-9-10-11-12.

2. I shall 1-2-3 the note as soon as I am 4-5-6-7, although it is not 1-2-3-4-5-6-7 for some days yet.

3. The guide quoted a 1-2-3-4-5-6-7, which said that no one should go through the 1-2-3-4 whose 5-6-7 was under the limit.

4. The rector said that the 1-2-3-4-5-6-7-8-9 could not be sold at 1-2-3 until his 4-5-6 became of 7-8-9.

5. This young 1-2-3-4-5-6-7-8-9-10 is not a 1-2-3-4, but a woman, and her action was a chief 5-6-7-8-9-10 in the case.

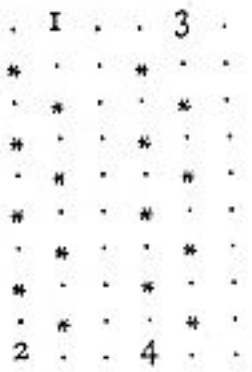
6. This water is only 1-2-3-4-5-6-7-8. Ask 1-2-3-4 to 5-6-7-8 it over, please.

7. The farmer had a 1-2-3-4 of 5-6-7-8-9, but there was not a bit of 1-2-3-4-5-6-7-8-9 among it.

8. I have an 1-2-3-4-5-6-7-8-9 that if I ever go to college I shall have to pay for my 3-4-5-6-7-8-9 1-2 manual labor.

DOUBLE ZIGZAG.

(*Gold Badge*, St. Nicholas League Competition.)



Cross-words: 1. A blossom. 2. A masculine name. 3. Yearly. 4. A jewel. 5. A representation of a person. 6. To make dear. 7. Positively. 8. A feminine name. 9. A preparation of maize. 10. Revolves.

From 1 to 2, a poet; from 3 to 4, one of his poems.

PRISCILLA LEE.

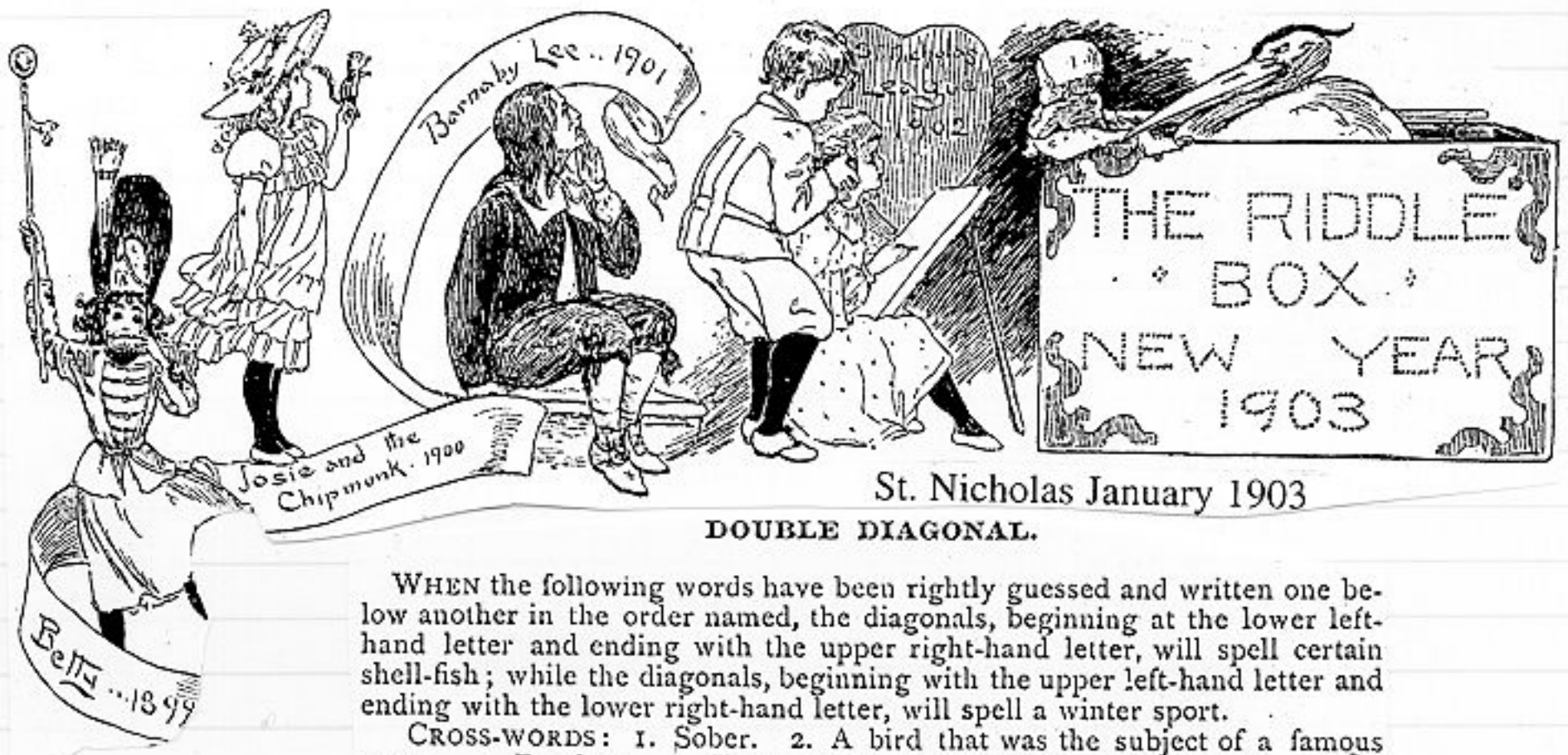
CONCEALED CENTRAL ACROSTIC.

If you search through this nonsense for something concealed,
You will find the good cheer of December revealed.

Cross-words.

1. When once with my niece I crossed the equator,
I got her a sweet little young alligator.
2. And if ever in Florence we happen to linger,
She shall wear some red coral on each little finger.
3. I bought when I tarried at Como large pieces
Of blue and green lava for ten little nieces.
4. When later I met the Mikado in Ghent,
He gave me at parting a Japanese cent;
5. And said, "You will notice, although it looks new,
'T is soldered in places with mincemeat and glue.
6. "But don't give the cent to your niece if she's young
She may get the white arsenic glue on her tongue.
7. "And you 'll find her unconsciously lying by spells,
Till you cannot depend on a thing that she tells."
8. From such terrible danger I felt we must fly,
So I sent him a sonnet and bade him good-by.

ANNA M. PRATT.



St. Nicholas January 1903

DOUBLE DIAGONAL.

When the following words have been rightly guessed and written one below another in the order named, the diagonals, beginning at the lower left-hand letter and ending with the upper right-hand letter, will spell certain shell-fish; while the diagonals, beginning with the upper left-hand letter and ending with the lower right-hand letter, will spell a winter sport.

Cross-words: 1. Sober. 2. A bird that was the subject of a famous poem. 3. Bondage. 4. To disperse. 5. The time during which a court meets daily. 6. A severe storm, often accompanied by violent rotary winds. 7. An aperture.

HOWARD HOSMER (League Member).

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

DIAGONAL. Mistletoe. 1. Magnetism. 2. Billiards. 3. Designate. 4. Boatswain. 5. Landlords. 6. Brotherly. 7. Etiquette. 8. Alligator. 9. Altercate.

BEHEADED ZIGZAG. Christmas. 1. S-can-s. 2. O-the-r. 3. T-her-e. 4. P-rid-e. 5. A-she-n. 6. G-ate-s. 7. A-tom-s. 8. P-rat-e. 9. U-sin-g.

DOUBLE ZIGZAG. From 1 to 2, Longfellow; 3 to 4, Evangeline. 1. Flower. 2. Oliver. 3. Annual. 4. Garnet. 5. Effigy. 6. Endear. 7. Flatly. 8. Lucile. 9. Hominy. 10. Wheels.

CONCEALED CENTRAL ACROSTIC. Holidays. 1. Other. 2. Alone. 3. Molar. 4. Doing. 5. Older. 6. Tears. 7. Slyly. 8. Mason.

HEXAGONAL ZIGZAG. From 1 to 10, Santa Claus. 1. Sac. 2. Areal. 3. Bandage. 4. Trubu. 5. Ass.

STAR PUZZLE. From 1 to 2, blot; 1 to 3, bass; 4 to 5, flat; 4 to 3, foes; 2 to 5, test.—— CHARADE. Syn-tax.

ADDITIONS. Whistler. 1. Weary. 2. Honey. 3. Irony. 4. Shady. 5. Tally. 6. Lucky. 7. Early. 8. Ready.

NOVEL DOUBLE ACROSTIC. Initials, Macaulay; fourth row, Horatius. 1. Mansion. 2. Accused. 3. Conifer. 4. Auction. 5. Unbaled. 6. Learned. 7. Acrobat. 8. Yachter.

PROGRESSIVE NUMERICAL ENIGMAS. 1. Thorough-fare. 2. Pay-able. 3. Pass-age. 4. Par-son-age. 5. Male-factor. 6. Luke-warm. 7. Load-stone. 8. In-tuition.



NOVEL CENTRAL ACROSTIC.

(*Silver Badge*, St. Nicholas League Competition.)

WHEN the following words have been beheaded and doubly curtailed, the central letters of the remaining words will spell the name of a famous American.

1. Behead and doubly curtail a dance, and leave the whole. 2. Behead and doubly curtail rocks, and leave a measure of weight. 3. Behead and doubly curtail a moderate gallop, and leave an insect. 4. Behead and doubly curtail wisely, and leave era. 5. Behead and doubly curtail a roof timber, and leave astern. 6. Behead and doubly curtail an antenna, and leave a snake-like fish. 7. Behead and doubly curtail very ripe, and leave a measure of length. 8. Behead and doubly curtail a tree, and leave sick. 9. Behead and doubly curtail pertaining to Scotland, and leave a small bed. 10. Behead and doubly curtail farming implements, and leave to be indebted.

DONNA J. TODD.

RHYMED NUMERICAL ENIGMA.

"Do you think they will do it?" the poor man asked;
"They 1-2-3 4-5 may not," said I;
"But if you want your taxes reduced,
Just go to the 1-2-3-4-5 near by."

ELIZABETH HILL SHERMAN
(League Member).

MISSING LETTERS.

(*Silver Badge*, St. Nicholas League Competition.)

EXAMPLE: Place a letter in the middle of a tribe and make neat. Answer, cl-e-an.

1. Place a letter in the middle of a wild animal, and make to put off. 2. Place a letter in the middle of visage, and make a low style of comedy. 3. Place a letter in the middle of a broad smile, and make a small measure of weight. 4. Place a letter in the middle of abundant, and make to chew. 5. Place a letter in the middle of expires, and make levees. 6. Place a letter in the middle of to fly aloft, and make pertaining to the sun. 7. Place a letter in a French cook, and make principal. 8. Place a letter in small rodents, and make to chop in small pieces.

The inserted letters will spell the name of a famous American.

WILMOT S. CLOSE.

SYNCOPATIONS.

EXAMPLE: If "I" went away, an assumed name would become an exclamation. Answer, Al-i-as, alas.

If "I" went away, then 1. A child would become a stable. 2. A commander would become a head cook. 3. To worship would become to challenge. 4. To raise would become a multitude. 5. A landed proprietor would become fat. 6. Corn would become a labyrinth. 7. Sound would become part of the face. 8. To color would become to gasp. 9. To give up would become to flutter.

Example: If "you" went away, a reason would become a box. Answer, Ca-u-se, case.

If "you" went away, then 1. To grieve would become part of the day. 2. A weight would become a body of water. 3. A measure would become a kind of plum. 4. To stimulate would become a flower. 5. A vehicle would become to contend. 6. A goal would become innate. 7. A thin stuff would become to stare. 8. An opening would become an insect. 9. A course would become repetition.

A. W. CLARK.

A CONCEALED POET.

(*Gold Badge*, St. Nicholas League Competition.)

ONE word is concealed in each sentence.

1. For frivolous thoughts we must see elsewhere.
2. At times his style will seem marked by great abruptness.
3. We can see love for life in all he has written.
4. In one poem he gives particular pleasure by comparing a mountain with a small animal.
5. Nature, through his eyes, we see as entering fully into the life of man.
6. He was a famous Boston essayist.
7. With all its history, the Arno seemed no greater to him than the Concord.

All the concealed words contain the same number of letters. When rightly guessed and written one below another, the zigzag (beginning at the upper left-hand letter) will spell the name of a famous American.

WILLIAM ELLIS KEYSOR
(Winner of a Silver Badge).

NOVEL TRANSPOSITIONS.

(*Gold Badge*, St. Nicholas League Competition.)

CHANGE the central letter of the first word, rearrange the remaining letters, and form the second word. Example: Change to go in, into a color. Answer, en-t-er, green.

1. Change perspiration to desires. 2. Change shy to one devoid of intellect. 3. Change a Greek philosopher to a guide. 4. Change a proprietor to a turret. 5. Change trials of speed to surfaces. 6. Change balance to metrical compositions. 7. Change examples to a substance which causes fermentation. 8. Change a maxim to a glen. 9. Change to vary to unclouded. 10. Change to cut in thin pieces to stuffy. 11. Change a small rock to severe. 12. Change thick to swiftness.

The central letters taken out, read downward, and those put in, read upward, spell an important public document issued in January, 1863.

MARGARET W. MANDELL.

CHARADE.

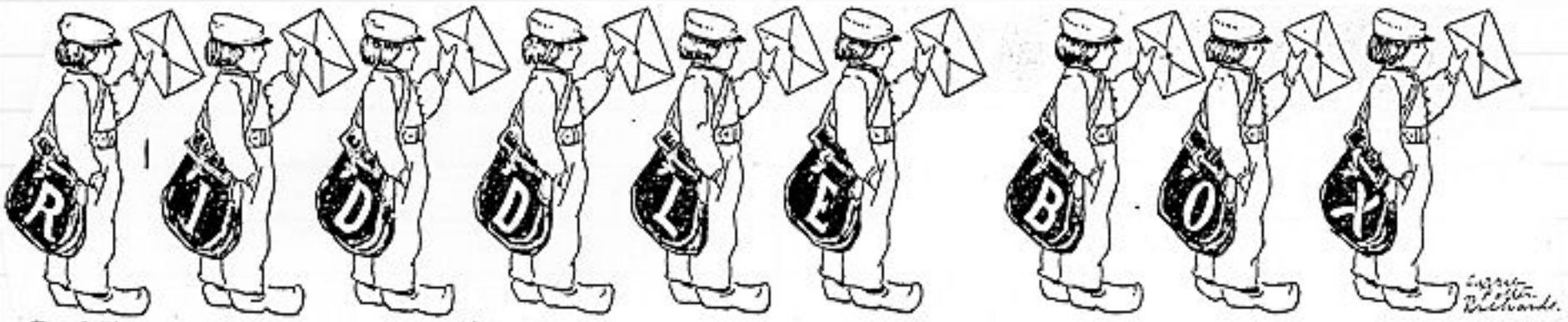
MY *second*, beheaded,
  Gives *first*, without doubt;
For obvious reasons
  Third can't find it out!
My *second* is evil,
  Yet *second* and *third*
Will make, when combined,
  A muscular word.
As a verb or a number
  My *fourth* may appear:
You surely won't *total*
  That this is not clear!

A. W. CLARK.

WORD SQUARE.

1. A luminous body. 2. A large volume. 3. The end of a prayer. 4. A tear.





St. Nicholas February 1903

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

NOVEL CENTRAL ACROSTIC. Longfellow. 1. B-all-et. 2. S-ton-es. 3. C-ant-er. 4. S-age-ly. 5. R-aft-er. 6. F-eel-er. 7. M-ell-ow. 8. W-ill-ow. 9. S-cot-ch. 10. M-owe-rs.

RHYMED NUMERICAL ENIGMA. May-or.

DOUBLE DIAGONAL. Oysters, skating. 1. Serious. 2. Skylark. 3. Slavery. 4. Scatter. 5. Session. 6. Cyclone. 7. Opening.

NOVEL TRANSPOSITIONS. Emancipation Proclamation. 1. Sweat, wants. 2. Timid, idiot. 3. Plato, pilot. 4. Owner, tower. 5. Races, areas. 6. Poise, poems. 7. Types, yeast. 8. Adage, glade. 9. Alter, clear. 10. Slice, close. 11. Stone, stern. 12. Dense, speed.

CHARADE. Insinuate, in-sin-you-ate.

WORD-SQUARE. 1. Star. 2. Tome. 3. Amen. 4. Rent.

MISSING LETTERS. Franklin. 1. De-f-er. 2. Fa-r-ce. 3. Gr-a-in. 4. Mu-n-ch. 5. Di-k-es. 6. So-l-ar. 7. Ch-i-ef. 8. Mi-n-ce.

SYNCOPATIONS. I. 1. Ba-i-rn. 2. Ch-i-ef. 3. De-i-fy. 4. Ho-i-st. 5. La-i-rd. 6. Ma-i-ze. 7. No-i-se. 8. Pa-i-nt. 9. Wa-i-ve. II. 1. Mo-u-rn. 2. Po-u-nd. 3. Ga-u-ge. 4. Ro-u-se. 5. Co-u-pé. 6. Bo-u-rn. 7. Ga-u-ze. 8. Mo-u-th. 9. Ro-u-te.

A CONCEALED POET. Emerson. 1. Eels. 2. Emma. 3. Seel. 4. Spar. 5. Ease. 6. Tone. 7. Nose.

DIAGONAL.

(Silver Badge, St. Nicholas League Competition.)

ALL the words described contain the same number of letters. When rightly guessed and written one below another, the diagonal (beginning with the upper left-hand letter and ending with the lower right-hand letter) will spell a pretty missive.

CROSS-WORDS: 1. The same as the diagonal. 2. A devotee of Bacchus. 3. Belonging to allegory. 4. To relieve. 5. According to canons. 6. Benefit. 7. A song of praise to God. 8. Relating to an appeal. 9. To make thin or slender. SIMON COHEN (age 8).

TRANSPOSITIONS.

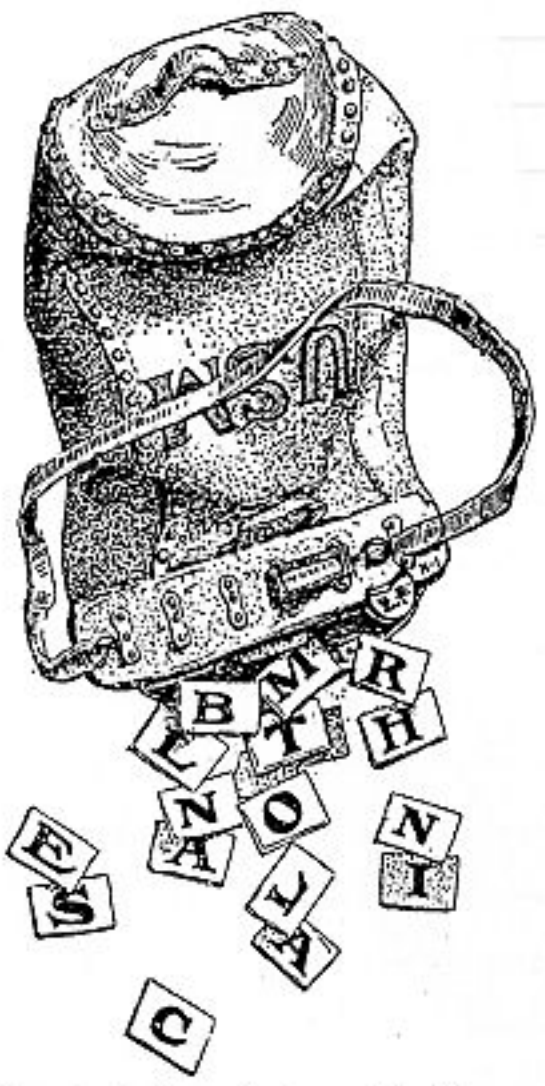
(Gold Badge, St. Nicholas League Competition.)

EXAMPLE: Doubly curtail a piece of cultivated ground, rearrange or transpose the remaining letters, and make to pull. Answer: gard-en, gard, drag.

1. Doubly curtail part of a bureau, transpose the remaining letters, and make a division in a hospital. 2. Doubly curtail commerce, transpose the remaining letters, and make skill. 3. Doubly curtail harmony of sound, transpose the remaining letters, and make an amount. 4. Doubly curtail a title given to foreigners of rank in India, transpose the remaining letters, and make a common little verb. 5. Doubly curtail a cutting implement, transpose the remaining letters, and make a black fluid. 6. Doubly curtail income, transpose the remaining letters, and make at no time. 7. Doubly curtail the hours of darkness, transpose the remaining letters, and make a machine for separating the seeds from cotton. 8. Doubly curtail separated, transpose the remaining letters, and make a snare. 9. Doubly curtail to countermand, transpose the remaining letters, and make above. 10. Doubly curtail a sudden fright, transpose the remaining letters, and make a short sleep.

The initial letters of the new words formed will spell the name of a famous man whose birthday comes in February. WILMOT S. CLOSE.

MAIL-BAG PUZZLE.



ALL of the words described contain the same number of letters. When rightly guessed and written one below another, the zigzag (beginning at the upper left-hand letter) will spell a time when all watch for the postman. All of the words may be formed from the letters tumbling out of the mail-bag.



MUSICAL NUMERICAL ENIGMA.

I AM composed of eighty-eight letters and am a quotation from a poem by Celia Thaxter.

My 64-37-13-32-48-16 was a famous composer of oratorios. My 56-23-51-71-33-5 showed a knowledge of music when only three years old; my 80-3-2-14-59-84-68-88 was his first name. My 66-18-82-73-64-8-45-11-21 was "the master of masters." My 49-67-28-42-69-16-24-65-57-64-47 wrote "Elijah." My 24-77-64-12-66-60-78-39 has been called "the Burns of music." My 2-86-65-51-54 was a very famous pianist. My 80-30-22-41-82-26 composed a series of famous operas; my 16-79-64-69-38-88-19-20-58 is one of his operas.. My 4-53-40-31-51 61-66-17 was a favorite German song-writer. My 76-25-75-15-35-9-7-55-62-36 was the best of violin-makers. My 64-52-6-43-81 was "the father of the symphony." My 29-2-12-72-85 was the singing-master of Marie Antoinette. My 7-50-87-66-12-16-74-80 was a famous pianist who died at Cairo less than ten years ago. My 45-18-78-83-46 was a celebrated Italian composer. My 59-1-12-13-27-35 was the famous French composer who wrote the opera of 70-34-12-76-63. My 68-23-33-32-44-10-71 has sung, with success, the principal woman's part in this opera. ELSIE LOCKE.

REVERSIBLE PUZZLE.

EXAMPLE: Reverse a wanderer and make a noted man. Answer: nomad, Damon.

1. Reverse the stems of certain grains, and make small excrescences. 2. Reverse places beloved by trout, and make a kind of boat. 3. Reverse halts, and make places. 4. Reverse a province of India, and make a son of Ishmael. 5. Reverse glossy, and make parts of vessels. 6. Reverse a carousal, and make a mechanical power. 7. Reverse skins, and make a state of oblivion. 8. Reverse a general who figured at Marengo, and make a place associated with witchcraft. 9. Reverse something formerly used by physicians, and make short, informal letters.

When these are rightly guessed, the central letters, before and after reversing, will spell the name of a famous man. "NAUM-KE-AG QUARTETTE."

CROSS-WORDS: 1. An ecclesiastical rule. 2. A band of singers. 3. The foundation of an atoll. 4. A seat. 5. Summons. 6. A social class. 7. A beast of burden. 8. A small and secret association. 9. An animal valued for its fur. Designed by

HANNAH T. THOMPSON
(Winner of a silver badge).

HIDDEN TREES.

EXAMPLE: Find a tree in a low, hoarse voice. Answer: cr-oak. The tree is not always at the end of a word; it may be at the beginning or in the middle of a word.

1. Find a tree mentioned in the Bible in to mar. 2. Find a graceful tree, common in the Eastern States, in overpowered. 3. Find a tropical tree in the science of reading the hand. 4. Find a tree which furnishes tough, elastic wood in a beating. 5. Find a coniferous tree in to murmur. 6. Find a fruit-tree which has very beautiful blossoms in the spring in accused. 7. Find a tree which bears a small, sour fruit, similar to a lemon, in exalted. 8. Find a common fruit-tree in aspect. 9. Find a beautiful coniferous tree in to declare solemnly.

SAMUEL WOHLGEMUTH (League Member).

DIAGONAL ZIGZAG.

(*Gold Badge*, St. Nicholas League Competition.)

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CROSS-WORDS: 1. A flower mentioned in "Aux Italiens." 2. Largeness of dimensions. 3. A merrymaking. 4. A collection of shrubs. 5. Coarseness. 6. Journeying. 7. Fleets of small vessels. 8. Unnecessary trimmings. 9. The body of persons employed in some public service. 10. Sarcastic.

From 1 to 18, a famous American poet, essayist, scholar, and diplomatist whose birthday comes in February.

DONNA J. TODD.

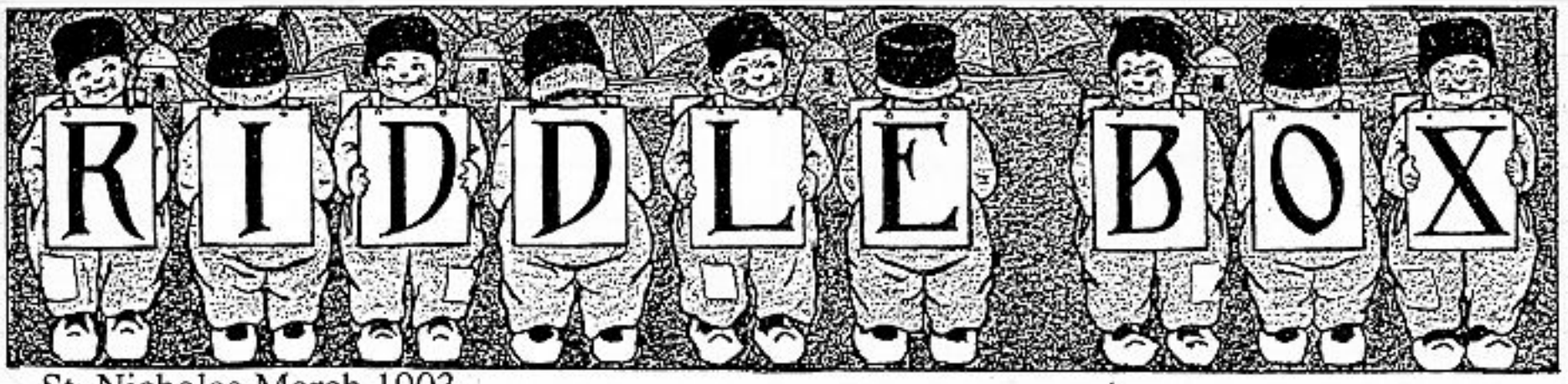
NOVEL DOUBLE ACROSTIC.

(*Silver Badge*, St. Nicholas League Competition.)

ALL the words described contain the same number of letters. When rightly guessed and written one below another, one of the rows of letters, reading downward, will spell a poet's name; another row, reading upward, will spell the name of one of his poems.

CROSS-WORDS: 1. To change. 2. A projection. 3. A great peninsula in the south of Asia. 4. Nimble. 5. Frequently. 6. A shelf of rocks. 7. A celebrated Roman naturalist. 8. The god of the Mohammedans. 9. To explain. 10. A river of Scotland.

W. N. COUPLAND.



St. Nicholas March 1903

ANSWERS TO PUZZLES IN THE FEBRUARY NUMBER.

DIAGONAL. Valentine. 1. Valentine. 2. Bacchanal. 3. Allegoric. 4. Alleviate. 5. Canonical. 6. Advantage. 7. Alleluiah. 8. Appellant. 9. Attenuate.

TRANSPOSITIONS. Washington. 1. Draw-er, ward. 2. Tra-de, art. 3. Mus-ic, sum. 4. Sah-ib, has. 5. Kni-fe, ink. 6. Reven-ue, never. 7. Nig-ht, gin. 8. Part-ed, trap. 9. Revo-ke, over. 10. Pan-ic, nap.

REVERSIBLE PUZZLE. Roosevelt. 1. Straw, warts. 2. Pools, sloop. 3. Stops, spots. 4. Assam, massa. 5. Sleek, keels. 6. Revel, lever. 7. Peels, sleep. 8. Melas, Salem. 9. Seton, notes.

MUSICAL NUMERICAL ENIGMA.

O lofty voice unfaltering!
O strong and radiant and divine Mozart,
Among earth's benefactors crowned a king!

MAIL-BAG PUZZLE. Christmas. 1. Canon. 2. Choir. 3. Coral. 4. Chair. 5. Calls. 6. Caste. 7. Camel. 8. Cabal. 9. Sable.

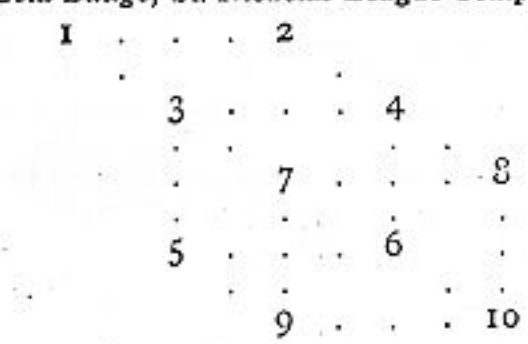
HIDDEN TREES. 1. Dis-fig-ure. 2. Overwh-elm-ed. 3. Palmistry. 4. Thr-ash-ing. 5. Re-pine. 6. Im-peach-ed. 7. Sublime. 8. Ap-pear-ance. 9. Af-fir-m.

DIAGONAL ZIGZAG. James Russell Lowell. 1. Jessamine. 2. Amplitude. 3. Festivity. 4. Shrubbery. 5. Grossness. 6. Traveling. 7. Flotillas. 8. Furbelows. 9. Personnel. 10. Satirical.

NOVEL DOUBLE ACROSTIC. Second row, downward, Longfellow; fourth row, upward, Evangeline. 1. Alter. 2. Point. 3. India. 4. Agile. 5. Often. 6. Ledge. 7. Pliny. 8. Allah. 9. Solve. 10. Tweed.

BOX PUZZLE.

(*Gold Badge*, St. Nicholas League Competition.)

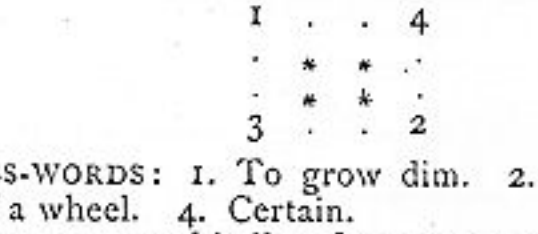


FROM 1 to 2, to delight in; from 3 to 1, a personal pronoun; from 3 to 4, to burn with a hot liquid; from 4 to 2, a measure of time; from 3 to 5, shadow; from 4 to 6, compact; from 5 to 6, the after song; from 7 to 8, stretched; from 7 to 9, a pronoun; from 8 to 10, to raise; from 9 to 10, a decree; from 3 to 7, to repose on a seat; from 4 to 8, a river of Scotland; from 6 to 10, to devour; from 5 to 9, before. MACK HAYS.

DIAMOND.

1. IN honey. 2. Part of a boat. 3. Beneath. 4. A festival day. 5. A Scandinavian god. 6. Pale. 7. In honey. H. F. TURNER (League Member).

DOUBLE DIAGONAL.



CROSS-WORDS: 1. To grow dim. 2. To dwell. 3. Part of a wheel. 4. Certain.

From 1 to 2, to kindle; from 3 to 4, edge; from 1 to 2 and from 3 to 4 (eight letters), home.

ELIZABETH A. GEST (League Member).

DOUBLE ACROSTIC.

MY primals spell the name of an important female character in one of Dickens's novels, and my finals spell the name of an important female character in one of Scott's novels.

CROSS-WORDS: 1. A place of noise and confusion. 2. A name mentioned in 1 Chronicles xii. 20. 3. A spring flower. 4. Meeting with good fortune. 5. A name mentioned in Judges i. 31. 6. In what place. 7. A fluid that supplied the place of blood in the veins of the gods. 8. Having comparatively little weight. 9. The bottom of a room. 10. Beyond what is usual. 11. An inhabitant of Rome.

CLARA MCKENNEY (League Member).

CENTRAL ACROSTIC.

(*Gold Badge*, St. Nicholas League Competition.)

ALL the words described contain the same number of letters. When rightly guessed and written one below another, the central letters will spell the subject of a March tradition.

CROSS-WORDS: 1. Fumed. 2. Freight. 3. Advanced. 4. A small rodent. 5. Pertaining to the moon. 6. Tired. 7. To forerun. 8. Spacious. 9. A United States coin. ERNEST ANGELL.

CENTRAL ACROSTIC.

(*Silver Badge*, St. Nicholas League Competition.)

THE words described vary in length. When they have been rightly guessed and written one below another, the central letters will spell the name of a noted statesman.

CROSS-WORDS: 1. One who scatters seed. 2. Intimate associates. 3. An article of furniture. 4. An edible shell-fish. 5. A door-fastening. 6. Following the exact words. 7. A mistake. EATON EDWARDS.

BEHEADINGS AND CURTAILINGS.

1. BEHEAD and curtail to lament, and leave a pronoun. 2. Behead and curtail cripples, and leave object. 3. Behead and curtail a deep plate, and leave a verb. 4. Behead and curtail parts of the body, and leave elevated. 5. Behead and curtail fairy implements, and leave a conjunction. 6. Behead and curtail is under obligation to, and leave a pronoun. 7. Behead and curtail frightened, and leave anxiety. 8. Behead and curtail tangles, and leave a word expressing refusal. 9. Behead and curtail to obstruct, and leave a common article. 10. Behead and curtail a thorn, and leave to fasten. 11. Behead and curtail a present, and leave a conjunction. 12. Behead and curtail a pitcher, and leave a pronoun. 13. Behead and curtail finished, and leave to forfeit. 14. Behead and curtail to discover, and leave a preposition. 15. Behead and curtail matter finer than air, and leave a common little word. 16. Behead and curtail supports and leave lineage. 17. Behead and curtail a fortified place, and leave a conjunction. 18. Behead and curtail to intimate, and leave within. 19. Behead and curtail annoyed, and leave comfort. 20. Behead and curtail strikes with fear, and leave a pronoun. 21. Behead and curtail to oscillate, and leave to triumph.

The twenty-one little words will form a four-line stanza.

ADDIE S. COLLOM.

FALSE COMPARATIVES.

EXAMPLE:

A meadow; an unhappy king;
A pronoun; fed by mountain spring.
Answer, Lea, Lear; me, mere.

1. A timber sawed; a guest who pays;
A sentence stern; the flag we raise.
2. A medicine; a column grand;
To suffer pain; a piece of land.
3. A mite; the quality of rue;
A rootless plant; an easy shoe.
4. Appointment high; and anger keen;
A door; a shoe but seldom seen.
5. A wager; something more than good;
A rug; a substance, as of wood.
6. A spice; a plant with blossoms sweet;
A nod; a leafy, cool retreat.
7. A rattling noise; a fine repast;
A wrap; a playful frisking fast.
8. An animal; to crouch in fear;
Allow; a message often dear.
9. The mail; an advertising sheet;
A boy; a mount for nimble feet.

MARY ELIZABETH STONE.

ILLUSTRATED PRIMAL ACROSTIC.



WHEN the above objects have been rightly named and written one below another, in the order in which they are numbered, the initial letters will spell the name of a famous son of Poseidon. Designed by

JAMES WHEATON CHAMBERS (League Member).

TRIPLE CURTAILINGS.

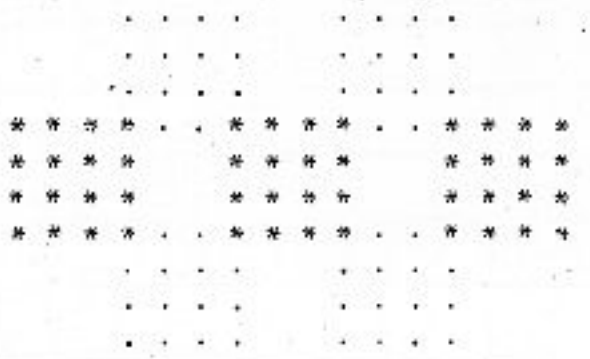
(*Silver Badge*, St. Nicholas League Competition.)

THE initials of the words described will spell an annual holiday.

1. Triply curtail a specimen and leave a masculine nickname. 2. Triply curtail delicate and leave a number. 3. Triply curtail dangerous and leave risk. 4. Triply curtail molests and leave a feminine name. 5. Triply curtail contemplative and leave an idea. 6. Triply curtail a house and leave to live. 7. Triply curtail mental and leave understanding. 8. Triply curtail usual and leave habit. 9. Triply curtail relations and leave gentle. 10. Triply curtail to call and leave amount. 11. Triply curtail dire and leave horror. 12. Triply curtail to empower and leave a writer. 13. Triply curtail submissive and leave to give way.

MARION E. SENN.

CONNECTED WORD-SQUARES.

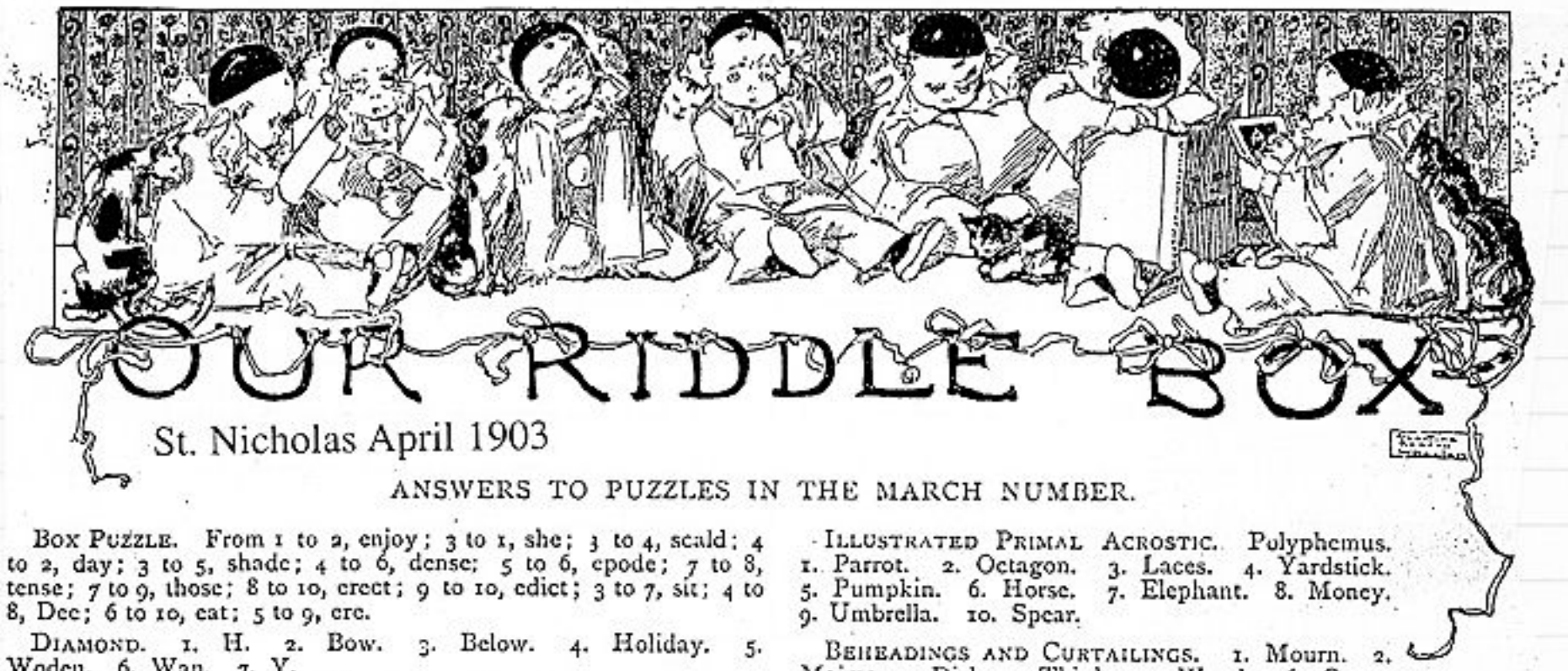


UPPER SQUARES: I. 1. To overthrow. 2. A tropical plant. 3. To fly aloft. 4. Weird. II. 1. To cry aloud. 2. One time. 3. A measure of land. 4. To exhale.

MIDDLE SQUARES: III. 1. A companion. 2. The inhabitant of an Eastern country. 3. A tropical plant. 4. Black. IV. 1. A period of time. 2. Comfort. 3. A continent. 4. To gather. V. 1. To strike with the foot. 2. A metal. 3. To arrive. 4. Comprehended.

LOWER SQUARES. VI. 1. Close. 2. A famous mountain. 3. Certain insects. 4. A coarse file. VII. 1. A place of recreation. 2. In a little while. 3. A famous city. 4. A joint of the body.

WOOD BRIGGS (League Member).



ANSWERS TO PUZZLES IN THE MARCH NUMBER.

BOX PUZZLE. From 1 to 2, enjoy; 3 to 1, she; 3 to 4, scald; 4 to 2, day; 3 to 5, shade; 4 to 6, dense; 5 to 6, epode; 7 to 8, tense; 7 to 9, those; 8 to 10, erect; 9 to 10, edict; 3 to 7, sit; 4 to 8, Dec; 6 to 10, eat; 5 to 9, ere.

DIAMOND. 1. H. 2. Bow. 3. Below. 4. Holiday. 5. Woden. 6. Wan. 7. Y.

TRIPLE CURTAILINGS. Initials, St. Patrick's Day. 1. Sam-ple. 2. Ten-der. 3. Peril-ous. 4. Ann-oys. 5. Thought-ful. 6. Reside-nce. 7. Intellect-ual. 8. Custom-ary. 9. Kind-red. 10. Sum-mon. 11. Dread-ful. 12. Author-ize. 13. Yield-ing.

DOUBLE DIAGONAL. Fireside. 1. Fade. 2. Bide. 3. Tire. 4. Sure.

DOUBLE ACROSTIC. Primals, Bella Wilfer; finals, Lucy Bertram. 1. Babel. 2. Elihu. 3. Lilac. 4. Lucky. 5. Ahlab. 6. Where. 7. Ichor. 8. Light. 9. Floor. 10. Extra. 11. Roman.

CENTRAL ACROSTIC. Ground hog. 1. Raged. 2. Cargo. 3. Grown. 4. Mouse. 5. Lunar. 6. Jaded. 7. Usher. 8. Roomy. 9. Eagle.

CENTRAL ACROSTIC. Webster. 1. Sower. 2. Friends. 3. Table. 4. Lobster. 5. Latch. 6. Literal. 7. Error.

ILLUSTRATED PRIMAL ACROSTIC. Polyphemus. 1. Parrot. 2. Octagon. 3. Laces. 4. Yardstick. 5. Pumpkin. 6. Horse. 7. Elephant. 8. Money. 9. Umbrella. 10. Spear.

BEHEADINGS AND CURTAILINGS. 1. Mourn. 2. Maims. 3. Dish. 4. Thighs. 5. Wands. 6. Owes. 7. Scared. 8. Knots. 9. Bar. 10. Spine. 11. Gift. 12. Ewer. 13. Closed. 14. Find. 15. Ether. 16. Braces. 17. Fort. 18. Hint. 19. Teased. 20. Awes. 21. Swing.

CONNECTED WORD-SQUARES. I. 1. Rase. 2. Aloe. 3. Soar. 4. Eery. II. 1. Roar. 2. Once. 3. Acre. 4. Reek. III. 1. Mate. 2. Arab. 3. Taro. 4. Ebon. IV. 1. Year. 2. Ease. 3. Asia. 4. Reap. V. 1. Kick. 2. Iron. 3. Come. 4. Knew. VI. 1. Near. 2. Etna. 3. Ants. 4. Rasp. VII. 1. Park. 2. Anon. 3. Rome. 4. Knee.

FALSE COMPARATIVES. 1. Board, boarder; ban, banner. 2. Pill, pillar; ache, acre. 3. Bit, bitter; slip, slipper. 4. Rank, rancor; gate, gait, gaiter. 5. Bet, better; mat, matter. 6. Clove, clover; bow, bower. 7. Din, dinner; cape, caper. 8. Cow, cower; let, letter. 9. Post, poster; lad, ladder.

ZIGZAG.

(*Gold Badge*, St. Nicholas League Competition.)

ALL the words described contain the same number of letters. When these have been rightly guessed, and written one below another, the zigzag (beginning with the upper left-hand letter and ending with the lower left-hand letter) will spell a sportive time.

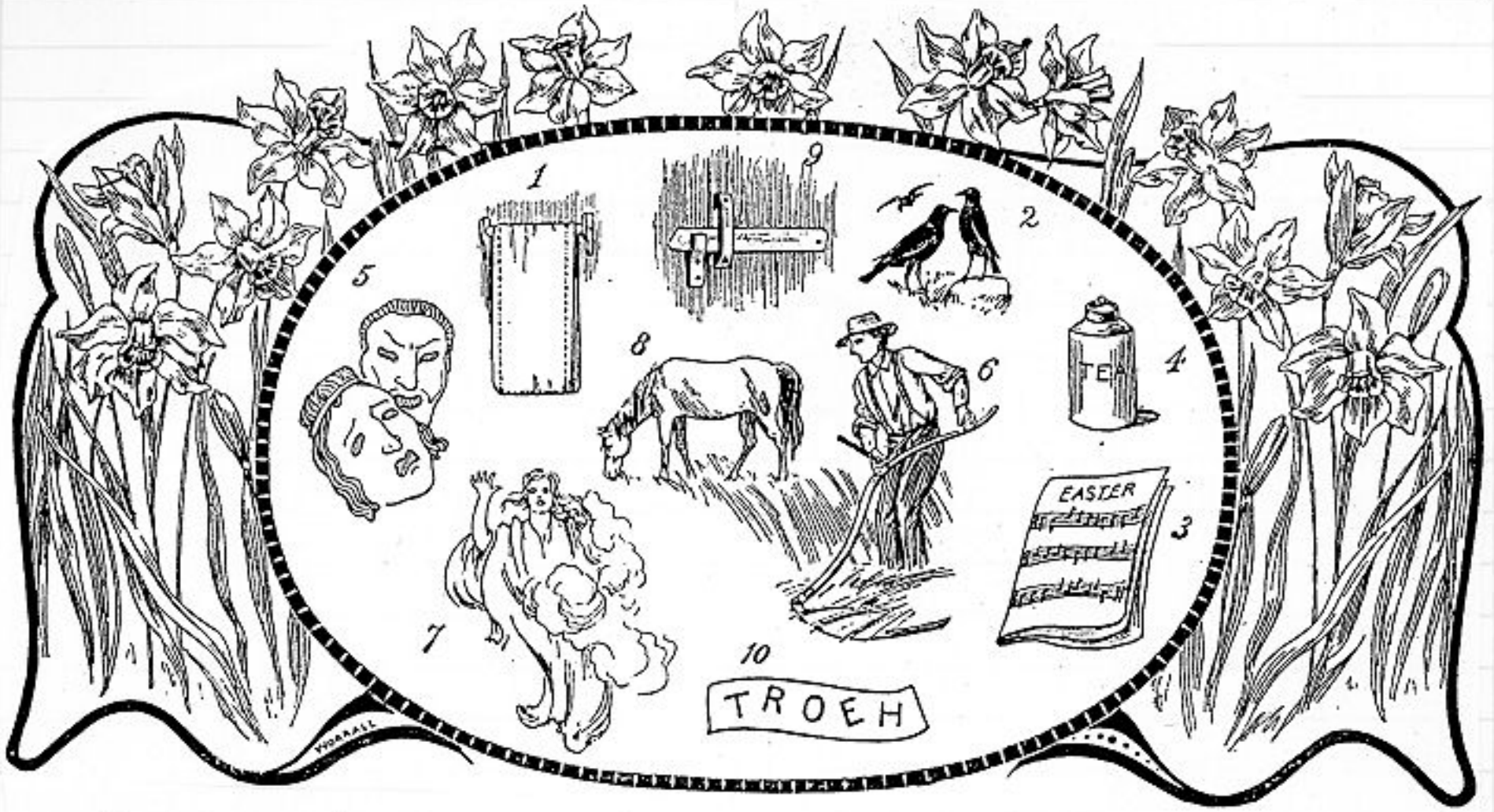
CROSS-WORDS: 1. Pertaining to one of the continents. 2. Dress. 3. Queer. 4. Discourteous. 5. Three of one kind. 6. Convictions. 7. A South American river. 8. A close, dark prison, commonly underground. 9. Pleasing to people in general. 10. Roughly. 11. Persuaded. 12. Peoples. 13. Not so old.

A CAT-AND-DOG PUZZLE.

EXAMPLE: My cat takes a pinch to make an herb. Answer, cat-nip.

1. My cat takes a sum to make an animal. 2. My dog angles to make a small shark. 3. My cat takes part of a Greek chorus and makes a calamity. 4. My dog takes a common abbreviation and makes a tenet. 5. My cat takes relatives and makes an ament. 6. My dog takes a prominent actor and makes Sirius. 7. My cat takes a heavy stick of wood and makes a list. 8. My dog takes a forest and makes a starry blossom.

MARGARET TWITCHELL (League Member).



ILLUSTRATED CENTRAL ACROSTIC.

When the ten objects in the above picture have been rightly guessed, and written one below another, the central letters, reading downward, will spell the name of a poet who wrote some beautiful verses about the daffodils. The letters under number ten are to be rearranged so as to form a word.

A CONCEALED POET.

(*Silver Badge*, St. Nicholas League Competition.)

One word is concealed in each sentence. When these eight words (all contain the same number of letters) have been singly curtailed, eight new words will remain; and when these are written one below another, the initials will spell the title of a famous poem, while the finals will spell the name of its author.

1. Some one said that he yet had seven days more.
2. Although I desist now, I will soon begin again.
3. The egg soon hatched and out came a yellow chick.
4. The wolf, Lobo, ate the poisoned meat.
5. The Arno flows through sunny Italy.
6. I will open the big door for you.
7. The apple on the table is mine.
8. If peace would ensue then the bloody war would cease.

MARION LANE.

WORD-SQUARE.

1. A measure. 2. A kind of soft earth. 3. A gardening implement. 4. Parts of the head.

ABRAHAM WEINBERG (League Member).

DIAGONAL.

All the words described contain the same number of letters. When rightly guessed and written one below another, the diagonal (beginning at the upper left-hand letter and ending with the lower right-hand letter) will spell the name of a philosopher.

Cross-words: 1. A pattern. 2. Cleverer. 3. A thin plate of metal used in marking. 4. Crying aloud. 5. A blessing. 6. To name. 7. A fine house.

MARIAN SMITH (League Member).

PRIMAL ACROSTIC AND ZIGZAG.

(*Silver Badge*, St. Nicholas League Competition.)

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* . . * .
* . . . *
* . . * .
* . . . *
2 . . 4 .
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Cross-words: 1. To permit. 2. Certain insects. 3. Want of interest. 4. Malice. 5. Dull. 6. Before. 7. A cheat. 8. To long.

From 1 to 2, the home of the poet named by the letters from 3 to 4.

NEIL A. CAMERON.

DIAMOND.

1. In Suhday. 2. To ask earnestly. 3. A number 4. A precious stone. 5. In Sunday.

THEODORE W. GIBSON (League Member).

NOVEL DOUBLE DIAGONAL.

(*Gold Badge*, St. Nicholas League Competition.)

1 . . . . .
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. . * . . .
. . . * . .
. . . . * .
. 4

CROSS-WORDS: 1. Consequence. 2. Delicate. 3. Hearken. 4. Pleasing by delicacy or grace. 5. A guide. 6. A column. 7. To pursue. 8. To sever into two or more parts. 9. Sorrow. 10. Moves with a sudden spring.

From 1 to 2 a certain spring festival; from 3 to 4, flowers that are often seen at the festival.

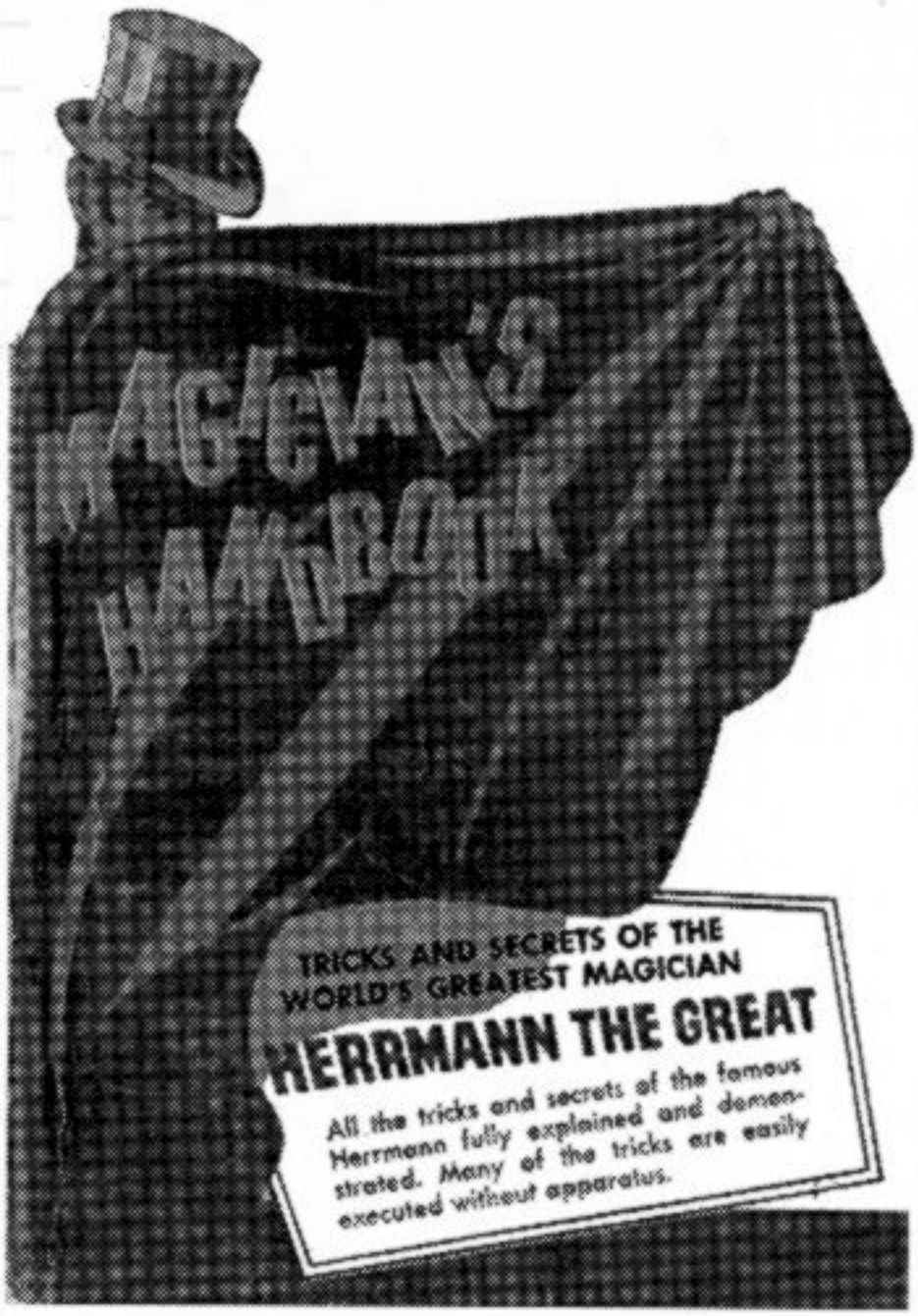
MARION E. SENN.

NUMERICAL ENIGMA.

I AM composed of seventy-three letters, and form a couplet from a poem by Whittier.

My 44-63-28-6-18-55-9-39 was the place of a famous defeat. My 17-60-2-65-50-47-25-55-64-69-23-34 is a large city of the United States. My 73-37-52-48-38-15-20 is a city of Saxony. My 68-51-71-13-36-40-21 is a winter sport. My 12-57-33-30-45-21-10 is alien. My 24-8-4-49-61-58 is a parent. My 62-34-31-67-3 is the European throstle. My 1-42-72-11-35 is to beat. My 59-19-46-26 is very small. My 41-5-70-53 is at that time. My 16-43-66-7 is observed. My 51-27-29 is knowledge. My 22-14-54-56-32 is subject. FRANCIS WOLLE (League Member).





MAGICIAN'S HANDBOOK

Tricks and Secrets of the
World's Greatest Magician

HERRMANN THE GREAT

BY
H. J. BURLINGAME

A thorough understanding of the human mind is the necessary key to all successful conjuring.
—ROBERT HOUDIN.

WILCOX & FOLLETT O.
CHICAGO

PREFACE

Having devoted a number of years to the inventing, manufacturing and sale of many of the most popular magical apparatus made in this country, I now present to the reader, biographies of the two great conjurers known to the world under the names of Carl and Alexander Herrmann, both equally famous in their specialties. The main portion of the book is devoted to clear, compact and illustrated descriptions of the best tricks performed by the two Herrmans, whom I unite under the appellation of Herrmann the Magician, and by other celebrated performers, such as Cazeneuve, Kellar, Vanek, Helles, Samuels, Robert-Houdin, etc.

I call the attention of the reader to the fact that several of the tricks herein described are easily executed in a private parlor, without cumbersome apparatus, thus affording a pleasant pastime for the home circle. The book contains, also, a number of most curious revelations concerning famous stage tricks that have been puzzling the whole world.

THE AUTHOR

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The Last Program of Herrman the Great in Chicago.
January 15, 1896

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CHARACTERS

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Barney, a Servant. . .	Wm. E. Robinson
Artist.	Mme. Herrmann
Mephisto. . .	Herrmann, The Great

PART IV Intermission

Mme. Herrmann in her beautiful, bewildering, spectacular dance creation:
a—La Nuit; *b*—Fleur de Lys.

PART V—Final. Intermission.

HERRMANN WTH A BOUQUET OF MYSTIC NOVELTIES.

"The closer you watch the less you see."

HERRMANN THE MAGICIAN

INTRODUCTION

Psychology of the Art of Conjuring

(By Dr. Max Dessoir, with special reference to the feats of mediums, by H. J. Burlingame.)

I still remember how I felt when I saw the first magical performance. As soon as the doors were opened I took my seat and waited a full hour for the moment when the curtain would rise in front of this world of wonders. And when the performance began, when eggs changed to dollars, dollars to pocket handkerchiefs, when bird cages disapeared in the air, and empty boxes held numerous presents, I felt as if I was living in a land of dreams, far away from the earth.

Now books without number, from the cheap "sell" of a ten cent pamphlet to a finely bound and full illustrated edition, offer to initiate you into the mysteries

of the black art. But all these books and directions, with but few exceptions, say only in what the trick consists, not how it is done, without regard to the fact

that the most interesting tricks are kept secret by the adepts or only revealed in consideration of an extra high price. Apparatus and explanations do not reveal the "kernel" of modern magic. If you know how a conjurer causes a dollar to disappear, you know nothing, and you will be deceived hundreds of times by this same trick; and if you practice it exactly according to directions, the chances are that you will have only mediocre success in performing it. What makes prestidigitation the art of deception, is not the technical outward appearance, but the psychological kernel. The ingenious use of certain soul faculties weighs incomparably heavier than all dexterity and machinery. To prove this fact and to analyze it theoretically is the pride of this article. We must first however introduce the reader to the society with whose doings we wish to make him acquainted.

The history of jugglery forms an important part in the long history of human deception. The first period in which the production of seemingly impossible occurrences makes a claim to higher powers, reaches from the beginning of the Egyptian priesthood to the beginning of

the middle ages. Followers of this seriously deceiving tendency are to be found in our days in the spiritualistic mediums. To a second period belong the jugglers of the middle ages and modern times, for they admit that everything is done in a natural way. The third period dates from the beginning of our century. For the first time, the conjurers appear on the stage, they are received in society, they exclude all jugglerism from their programmes, and work with cards, coins, handkerchiefs and other ordinary objects. Of course the jugglers did not disappear altogether, but they retired to the villages, and had nothing to do with the better class of their professional brothers. Only occasionally was such a nomad heard from. One of them was Signor Castelli, who travelled through Europe in the '20s, going by wagon and using a portable stage. He attracted great attention by announcing his intention of devouring a living person at each performance. The solution of the riddle was that the rough fellow would invite a volunteer from the audience and having secured one, would begin by biting his neck which caused the subject to retire precipitately, making the execution of the trick impossible.

The conjurers of the better class were mostly French or Italian, and called themselves *physiciens* or *escamo-*

teurs. The name of prestidigitateur comes from Jules de Rovere. He belonged to the masters of that old school, to which belonged also Olivier, Prejean, Brazy, Comus, Chalons, Adrien pere, Courtois and Comte, not to mention Lichtenberg's famous Pinetti. The most important was undoubtedly Comte. A Frenchman from head to foot, he did most extraordinary things with rare taste and great amiability. All of his illusions, meant for small audiences, carried the impress of finest humor. For instance, he would assure his audience he was going to steal all the ladies present, the gentlemen were a little frightened and somewhat amused; Comte reassures them that he will do it to their satisfaction; he waves his hands in the air and produces a quantity of the most beautiful roses out of nothing. He continues: "I had promised to take away and metamorphose all these adies, could I select a more graceful and pleasant form? In metamorphosing you all to roses, do I not offer the copy to the model? Don't I take you away to give you back yourselves? Tell me, gentlemen, did I not succeed?" Then he begins to divide the flowers among them; "Here, mademoiselle, is a rose you make blush with jealousy." In front of another pretty girl he changes the rose into an ace of hearts, and the gallant

wizard says: "Will you please, madam, place your hand on your heart? you have only one heart, am I not right? I beg your pardon for this indiscreet question, it was necessary, for though you have only one heart, you might have them all." Such gallantries are told about Comte by the hundred. An important progress

in the development of the art was made by Philippe and Torrini. The latter especially possesed such extraordinary dexterity in handling cards and such an incredible boldness of execution that the audience was involuntarily carried away to admiration without suspicion. His piquet trick stands alone of its kind. In other respects also he showed admirable boldness. He was an Italian nobleman, who had, by adverse circumstances, been driven to take the career of a conjurer, and once while staying in Rome, he was invited to give a performance before the pope. The day before, he happened to see in a jeweler's window a very valuable watch, which was said to be the only one in existence like the celebrated watch of the Cardinal X. This one had but just arrived the day before from Paris. After Torrini had ascertained that the cardinal would be present at the performance he bought the chronometer for the respectable sum of

twelve hundred francs, and made the watchmaker promise to keep silent about the matter.

At the close of his performance he asked for any very costly object, which if possible was the only one of its kind in the world. At the pope's order and with evident reluctance, the cardinal handed his watch to the artist. Torrini took a mortar and pestle and pounded the beautiful piece of mechanism into a thousand atoms, to the horror of the audience. The cardinal announced with a trembling voice that his watch had not been exchanged, as he could recognize it in the pieces. In reality the watch had been destroyed. Torrini used this moment of general excitement to slip the genuine watch unobserved into the pocket of the pope's robe. As soon as quietness was restored, he asked the audience to name a person who was sure not to be in secret understanding with him. As he expected, everybody pointed to Pius VII. "Very well," continued Torrini, making some mysterious motions, "I want to reproduce the watch and it shall be found in the pocket of His Holiness." The pope immediately felt in his pocket with signs of incredulity and blushing with excitement took the watch from his pocket, which he handed to the cardinal in a great hurry as if he was afraid of it, or might burn his

fingers with the mysterious thing. One can imagine what a sensation this caused in Rome. Torrini never repented this expensive but original advertisement.

A conjurer must be able to show a varied pedigree. On his mother's side he must be a direct descendant of the witch of Endor, on his father's side he must descend from the magician Merlin, he must have had Zornebogh and Sykorax for god-fathers and count Faust's witch among his cousins. In other words he must be born to his profession. The modern wizard must possess in a high degree the same quality as a physician. He must inspire confidence. The audience must believe him when he says he holds an orange in his left hand, even if it has passed long before into his right hand. The capability to win at the start the sympathy of the public, in order that the audience without exception be willing to follow the intentions of the artist, cannot be acquired, and yet the chief help of the prestidigitateur lies in just this mood of the public. It is not by dexterity alone that he accomplishes his wonders. The word prestidigitation is not well chosen. A good conjurer makes the uninitiated believe that he does everything so skillfully and rapidly that you cannot be deceived. In reality however he makes the necessary

motions with great calmness and slowness. The perfection lies in the art to influence the spectator to such an extent that you can do anything before his eyes without its being noticed. An expert must of course have a natural talent for this second requirement of his profession. We see many amateurs who could have achieved good results if only they had not had the foolish vanity to boast of their "dexterity." The charm of this art does not lie in the power to surprise the spec-

tator with ape-like rapidity, but the capability of making him go home with the feeling that he has spent an hour in a real world of wonders. The last effect is, from an aesthetic point of view, much higher than the first, and raises prestidigitation above the level of jugglery. The reason for this is that persons from the best circles of society, take to conjuring without hesitation, but would never think of producing juggling tricks.

The caution for less haste has another reason. The audience needs time to see the movements and understand their meaning. If for instance in some transformation, the second phase takes place without the first being properly announced, say, if in the changing of an orange into an apple nobody noticed that the first object w really an orange the whole trick is of course a failure.

Therefore the real conjurer must have that perfect repose which is not given to everybody. Besides a presence which inspires confidence and an imposing address, he must have the faculty to surround himself with a magical atmosphere in which the spectators believe the most incredible things possible and take the most simple as wonderful. In this direction lies the psychological importance of many little devices which the practical man generally uses. For instance he does not ask for the needed dollar, but charms it out of the nose of some stranger. He does not put his gloves in his pockets like ordinary beings, but rubs them away between his hands. At last the spectator does not know how to get out of such a labyrinth of witchcraft, and is in a frame of mind which makes the conjurer's task an easy one.

The main secret of all prestidigitateurs, however, lies in the power to direct the thoughts of the audience into such a groove that a solution of the trick seems for the moment the natural result of the artificially underlying causes. The public must think the card has been transformed by a breath; in this way following the train of thoughts which has been suggested by the conjurer in all possible ways. Then reason turns up and says: It is impossible that a breath can transform an ace of hearts

into a jack of spades, and from this logical contradiction of two simultaneous ideas, results the unpleasant consciousness of illusion. Self consciousness is the subjective condition of this psychological foundation of the conjurer's art. From the moment he takes the cards in his hands, the artist must believe firmly that he can do as he pleases. Every expression must fall from his mouth as though it were a real magic sentence, and his own false assertions must seem truth to himself. Only he who is convinced convinces. Much depends on the skillful grouping of the trick. In this way a comparatively simple trick may be used profitably as a pedagogic preparation for a greater wonder, and thought connections can be produced which are very favorable to the success of the experiments.

The most important in the art of performing however is the language and the gestures. No rules can be given, but perhaps an example can explain what is required. Let us take for instance the vanishing of a dollar. Directions say: Take the dollar between the thumb and middle finger of the left hand, take hold of it seemingly with the right hand which is then immediately closed, then you open it and show it empty to the audience against their expectations. The whole

trick consists in dropping the dollar into the palm of the left hand where it remains concealed. This is done at the moment you pretend to take hold of it with the right hand. One should see this simple trick performed by some first-class artist like Prof. Rouclere. He takes the dollar and throws it repeatedly on the wooden table top, to prove as he says, that it is a genuine dollar. In reality he gives every one the impression that a thing which makes so much noise cannot disappear noiselessly, an impression which increases the effect

of the trick. Then the clear vibrating sound confuses the spectators to such a degree that they follow further developments in a sleepy condition. He then takes the coin in his left hand, looks closely at the right hand, as if it were the most important, and takes hold of the dollar. This trick is so convincing that you would be willing to swear the right hand held the coin, the position of the fingers adapts them naturally to this supposition. As soon as he has taken hold he moves his right hand sideways, away from the left hand, the whole body follows the movement; the head bent forward, the look in his eyes, everything forces the spectator to follow this hand. In the meantime the two first fingers of the left hand point to the right hand, while the two other fingers

hold the coin which is covered by the thumb. By such shading and particularly by the constant talking of the artist the whole attention is concentrated on the right hand, and everybody makes up his mind to pay close attention, to see how the dollar will disappear from this hand. He makes little backward movements with the fingers, by which they move gradually away from the palm of the hand, and apparently deeply interested in the phenomenon, he says, "see how the dollar grows smaller and smaller, there, it has disappeared entirely, melted away." He opens the fingers wide, straightens himself up, and the sparkling eyes seem to say, "how queerly that disappeared, it is strange!"

How can one be educated to become such a wizard? the reader will ask. First of all practice, practice constantly. You go from the simple tricks to the more difficult ones by practicing first the single part, then the whole. This first stage, which can be learned from teachers and books, contains but few psychologically important elements. As soon as the technical side of a trick is mastered to perfection, the student must turn to the dramatic, which is the most important as far as the effect is concerned. Hence in order to acquire the greatest possible naturalness it is better to practice in

front of a mirror. In doing so the conjurer must do really what he later on only pretends to do. He must observe closely the positions and motions of his hands, and imitate them with great accuracy, that there may be no difference between reality and illusion.

First of all he must become accustomed to following with his eyes the hand which seems to hold the object, as it is the surest means to draw the attention of the audience in the same direction. From the preceding we can see that touch and sight are the most important senses in the execution of our art. Methodical cultivation is the chief object of the studious prestidigitateur. It is a good plan to practice the juggler's art in order to learn the accommodation of motion. In researches in so-called Myology we have had much to do with jugglers, and must admit that the fine sensibility of these people for the slightest vacillation of balance and the adaptation of their movements are almost incredible. A Japanese performer juggled once four differently weighted balls in the air, and at the same time read aloud from an English paper; he must therefore calculate exactly what motions to make with his hands, though his eyes and attention were occupied in another direction. The French conjurer Cazeneuve possesses an equally

wonderful sensibility of touch. He is able to take from the top of a pack of cards, by placing his fingers at the ends of the cards, any number he wishes at one grasp. You ask for six cards, he takes the cards off and gives you exactly six, without stopping to look at or count them himself. You ask for twenty, he does the same, thirteen, thirty, twenty-four, always the same success. What fabulous sensibility is necessary for these slight differences in height can best be learned by trying the same experiment.

Robert Houdin gives important hints for the development of sight. He had always admired in pianists the capability of looking over a large number of

black dots; he saw that this appreciative observation could be carried further if based on intelligence and memory. He began a series of exercises which can be explained in a few words. Nearly all normal persons can give the number of a few objects at a glance, mostly five. Whether there are three, four or five coins lying together, one can see without thinking but as the number increases a little reflection is necessary. Houdin, with his son Emile, undertook to cultivate their perceptions to such a degree that they could calculate the number of domino stones which were taken at random from a set.

After some weeks' practice the maximum had reached 12. Now he changed the experiments to include objects of different kinds. For this purpose they took daily walks through the streets together, when they came to a show window filled with different articles, they looked in attentively, then walking away stopped after going a few steps, and made notes of the objects they had seen in that short time. At first they only saw four or five distinctly, in a few months they had carried it to thirty, the little one even sometimes to forty. With the help of this abnormal power of perception, Houdin was enabled to do most of his brilliant tricks, among others the experiment called "Second Sight"

Now-a-days we can easily explain this so-called Second Sight, which in the '40's and '50's attracted the attention of the whole civilized world. The father collected on a table a number of objects, say twenty, and turned around for half a minute in such a way that the boy could see them, then he was able to tell the number of objects and describe them; what was missing could be helped out by an ingenious code of signals. This was specially used when the articles were wrapped up. In this case Houdin would draw the giver into a short conversation, using the time to bore a little

hole in the wrapping paper with his thumb nail which he kept sharp for that purpose, and to examine the contents with the eagle eye of the former mechanic. It is astonishing to hear that experiments were made in this way which were almost wonders. We are also told that he profited by his studies in another direction. This practicing had given him the faculty of following simultaneously two different ideas or things; he would think of what he was doing and what he was saying, two very different operations with the conjurer. It is a very important thing for the artist to make the play of his hands quite independent of the motions of his body, and to perform the trick without moving the parts of the body not in use. The fingers must form a mechanism by themselves, which works quite independently. Only then is the conjurer able to observe the faces of the spectators with sufficient care to avoid threatening dangers. So armed he will be invincible. The practiced artist never fails in his tricks. The facility of execution is the only thing that depends in a certain way on the public. The ignorant are more difficult to deceive than the educated. The former sees in every "tour" a mistrust in his intelligence, an attempt to dupe him, against which he fights with all his might, while the latter gives himself

up willingly to the illusion, as he came for the purpose of being deceived. But it is almost incredible what "naivete" the best educated often display. We have seen a professor who when speaking of the well known linking ring trick, swore high and low that he had examined all eight rings, though in realty he had held but two in his hands. The explanation of this lies in the two elementary functions of our psychological organism; association and imitation.

The laws of representative reproduction are the leading points for the mechanic of consciousness (thoughtful mechanic). Modern psychology teaches that when representation A, has been simultaneous with representation B, or immediately preceded it, B has a tendency to return to consciousness as soon as A returns. It is then said that B is associated with A. The sight of a knife

handle awakens in you immediately the idea of the blade always seen with it, and the flash of lightning always produces the expectation of a thunderbolt. The simplest type of deception consists in that certain expectations are not fulfilled by unusual outward circumstances. When I can feel with crossed fingers more than one round object, where there is only one, I can be convinced only by seeing that I have but one sphere. The experience

was made a thousand times that what is felt double is also double produces in this case an illusion. It happens sometimes when you are travelling that early in the morning you lift your water pitcher in such a manner that it almost flies up to the ceiling; the reason is the carelessness of the chambermaid, who has forgotten to fill the pitcher. The weight of the pitcher and the required exertion are associated together in a peculiar way. The reader has surely already seen the puzzling trick of breaking several borrowed rings and loading them in a pistol, which is then fired at a box, from which are taken half a dozen others in the innermost of which are found the rings. Without stopping to explain the first part of this trick we shall examine the second part. The artist places a large box on the table, he unlocks and opens it, in it is found a smaller box which is taken out, opened and found to contain a third box. When the conjurer has shown to the public that 2 came out of 1, and 3 out of 2, he can easily take the last and smallest box from the ledge of the table in such a manner as if it came out of the next largest box. The observer is fully convinced of the truth by the reality of the first circumstances and never doubts that 4 came out of 3. The psychological foundation of deception lies in the ingenious use

of the usual association. The taking of a box, and the taking of this box out of another box are two representations, between which the cleverness of the conjurer has artificially drawn a close connection. The spectator is led to draw a logically correct conclusion from two first causes, also in the third case, where the suppositions do not take place as in the first and second cases. We have herein a new principle in conjuring. It is first, to really do that which you want the observer to believe you have done. In fact this rule is often followed in reality: First, the artist really throws a few dollars into the hat before he prevents the others by palming, from following their predecessors; he actually places one card on the second pack, before he slides the other four into his sleeve.

The disappearing of an orange in the air is a classical illustration of this fact. You sit at the head of a table, throw an orange about two feet high, catch it with one hand and drop this hand below the table top as you do so, the orange is again thrown up, and this time about 4 feet, it is again caught and again the hand goes down below the table for a third throw, but the orange this time is dropped on your lap and without a moment's hesitation the third throwing motion is made. Nine-tenths of

the public see the orange disappear in the air. In this simple and instructive experiment there is no covering as in the trick of passing the coins into a hat mentioned above, and there is no apparatus as in the trick with the boxes. Everything depends on the subjective conditions of deception not on any outward means. Some small tricks are to be understood in the sense of psychological measures. Suppose that a coin left in the right hand passed seemingly into the left hand. If the conjurer would open the left hand immediately and show that the coin was not in it, the spectator would easily find the proper explanation, namely that the dollar never passed into the left hand. But if he waits one or two moments before he shows the hand open in order that the spectators get used to the thought that it holds the coin, and if he rubs the palm of the left hand gently with the right hand, he not only gives the latter a proper occupation but also gives the spectators an impression that the mysterious movement of the right hand is in some way the

cause of the disappearance of the coin. One must experience how such trifles can deceive sharp and competent observers. The spectator knows in the abstract very well that the rubbing of the palm with the fingers of the other hand is no adequate reason for the disappear-

ance of the coin, but as the disappearance is beyond a doubt, the mind involuntarily accepts the explanations offered indirectly.

The really senseless "ruffling" of cards works in the same way. Suppose the case when the conjurer puts a certain card in a certain place in the pack necessary for the trick without the spectator being aware of it. First he shows that everything is in its proper place, he ruffles the cards and most spectators believe that the transposition took place at that moment and will understand less about the trick than they would otherwise. This last trick can be counted among those belonging to the category of diversion of attention. By awakening interest for some unimportant detail, the conjurer concentrates the attention on some false point, or negatively, diverts it from the main object, and we all know the senses of an inattentive person are pretty dull. The pickpocket is psychologist enough to select theatres and exhibitions for the field of his explcits, because he is sure that in such places people pay little attention to watch and pocketbook. Just so the conjurer never reveals in advance the full nature of a trick, that the spectator may not know where to center his attention. The French conjurer Decremps gave a similar rule. When causing the disap-

pearance of some object the conjurer counts one, two, three; the object must really disappear before three, not at three, because the attention of the public being directed to three, they do not notice what happens at one or two. Personally we have often wondered at our own unpretentious performances before friends how men of deep research can be so blind to what takes place before their eyes. The course of thought of the uninitiated never goes the natural way. He cannot imagine that the conjurer works with such simple means and such boldness. He looks for the most complicated hypothesis, or leads everything back to a favorite performance, as for instance, the disappearing of the object up the coat sleeve, which is very seldom used in practice. But no matter what he does it will always be possible to divert him for the moment so that the coup can be made unnoticed.

A specially successful method of diversion is founded on the human craze for imitation. We are inclined to imitate all actions we have witnessed. If we see somebody yawn, we yawn also, if we see him laugh, we feel a tickling in the corners of our mouth, if we see him turn around we have the same wish, if he look upwards we do the same. The conjurer counts on this in many cases. He always looks in the direction where he wants the

attention of the public, and does everything himself which he wants the public to do. If he looks pensively at the ceiling, the heads of all present turn with an audible movement upwards, and it is a funny sight during this to see how the fingers exchange cards quietly or perform some other manipulations. If the trick is in the left hand the conjurer turns sharply to the person to his right presuming correctly that the spectators will make the same movement and will not notice what is going on in the left hand. In a great number of tricks he must bring a card to the top of the pack that has been placed in the middle of the pack. Naturally it would be wrong to make the necessary movement as soon as he has the card, because even the quickest and most skillful execution would be noticed by the spectators. On the contrary the conjurer holds the pack quietly and after a short pause asks the one who drew the card: "You are sure you will recognize the card again?" As soon as he begins to speak everybody will involuntarily look at his face and he can then "make the pass" in an easy manner. Every sharp short remark will for a moment at least divert the eyes

from the hands and direct them to the mouth, according to the above mentioned law of imitation.

Enough of the results of theoretical research for the

practice of magic. The relations to scientific psychology are numerous and varied. Let us look at the series of experiments by Houdin which were based on momentary perception and counting of different objects. These objects deserve attention because they show a new way to class the higher actions of the soul-life numeratively. Psycho-Physics has confined itself till now to the lower psychical functions of the senses with the reaction in motions or judgments. Mr. Ebbinghaus some years ago began to put down complicated processes in numbers. This searcher examines how many words or syllables a person can remember, after hearing them once; further how often he must repeat a certain number of words to know them, how often he must repeat the same process after a few hours or a few days and what practice has to do with it. The same thought underlies Houdin's series. It treats of the slowly acquired faculty of giving the number of objects after looking at them once without any conscious addition, in other words it treats of that peculiar faculty of developed beings which can be called unconscious counting. According to the French conjurer and to the occasional communications of Mr. Preyer and others, the limit of momentary calculation lies between 5 and 6, and that would correspond with the limit

beyond which we cannnot remember one syllable words by hearing them only once. This shows a new possibility which deserves consideration, to put the mystery of our inner life in numbers and dates. When besides the number a description of the object is asked for, the task is complicated in a way which makes the solution much more difficult. Then the "interest" comes into play. A lady who can scarcely remember four equal objects at once can describe accurately the toilet of a lady who passed her in a carriage. Therefore the psychologist will be able to do but little with Houdin's second series. The trick to make an orange disappear in the air, looks at first to be a positive hallucination. We mention the peculiar fact that even in quite normal persons artificial representations can be produced which have the character of outwardly induced perceptions, without there being anything in reality to bring them forth. The apparition however requires first a preceding attraction of the senses which removes it from hallucinations and brings it near to the so-called perception of repetition, and secondly there is no outward attraction. There is no object flying up as substitute for the false conception of the orange, but only a motion. But the impression on the senses made by the motion is sufficient to pro-

duce the repeated picture of the associated object. We have to deal with an illusion, the subjective interpolating of a given object of perception. Mentally and physically healthy persons have illusions, especially when fear or other feelings excite the imagination. Those who understand hypnotism know that the concentration of all soul faculties on one certain effect will produce this effect subjectively. Whilst there are no positive hallucinations to be found in the realm of deception, there are enough negative hallucinations. A positive hallucination makes you see something which does not exist, a negative causes you to see where there is something. Who has not happened to look for an object which was right before his eyes? The impression on the senses exists, is received, but not taken into consciousness, and in this way a momentary condition of soul-blindness is produced in which negative hallucinations are possible. The conjurer produces artificially such abstractions and uses them systematically for his purposes. Mr. Moll says very correctly that " the perception of objects can be prevented in hypnotized people by suggestion." Look at the conjurer's hands and pay close attention, and you will see how he conceals objects, makes the pass, and how he exchanges cards right before the eyes of the spectators.

The conjurer however knows how to attract the attention by adroit speeches, so that even those who see the hands are not able to explain the transactions. The exchange of cards for instance is seen by the spectator, the sense is excited, but it does not touch consciousness. We could go further yet than Moll has done in citing analogies between the psychology of hypnotism and of pretidigitation.

In conclusion we will mention a contribution which magic gives us for the compression of free will. The well known trick of having a card drawn from a pack and to correctly name the card immediately, consists in that the spectator believes he is choosing one himself, while the conjurer confines the will and forces it into a certain direction, mostly by putting the card to be selected in an easy place, or by moving it forward at the moment when the fingers of the person reach for it. There is probably no better illustration for the determination of all our actions; and in playing the cards of the game of life, we do not seize haphazard any card but select those which some unknown law prescribes for us.

"Spiritualism is magic." You often hear this explanation made by those who do not know, and a number of harmless fellows try to prove it by "anti-spiritualistic

demonstrations." The kernel of the thing is not reached thereby, as is proved by the ever increasing number of the followers of the new doctrine, and by the number of scholars who persist in the defense of mediumistic facts notwithstanding all exposures.

The principal reason seems to be the following: In our age of natural science, religion and philosophy do not offer the masses support enough to gain clearness about the problem of life. Still the metaphysical need of all deeper minds drives them over the materialistic desert; spiritualism in the armor of exact science steps in and says: "I will prove to you, that there is life after death." Can it be wondered at that such experimental ethics find a loud echo in thoughful people, and that a social stir takes the place of the seeds of those beliefs which have existed at all times and with all nations?

The circumspect science is powerless against such streams. He who believes with all his heart in spiritualism cannot be convinced by reasoning; logic always succumbs before feeling and humors. It will therefore be useless to throw a few drops of water upon the fire of the psychological epidemic.

Side by side with the fanatics of the spirit belief are many who consider it their duty to examine with an un-

prejudiced mind all remarkable reports and all phenomena. For those only are meant the following remarks as a sort of application of the foregoing explanations.

We owe our knowledge of mediumistic apparitions almost without exception to written reports. In other words, we never know what has happened somewhere, but only what certain persons believe to have experienced.

There is a great difference between the two, as we have seen. A person sees an orange disappear in the air, without being able to explain the wonder; he believes to have examined eight rings, while he only had two in his hands; he believes to have drawn a card according to his own free will, while it was put in his fingers; he believes to have held an object continually while it was in quite a different place for some minutes. When later on he describes these tricks to a third person the latter considers them incomprehensible. It is extremely naive when the reporters attempt to render exactly the objective transactions in describing their subjective observations.

Davey's experiments are a proof of the reverse. This gentleman who is a member of the London Society for Psychical Research and was a prestidigstateur from in-

clination, acquired by constant practice such a perfection in the well known slate writing, that he gave successful

performances before numerous people. He never told the guests that he had communications from the spirits, nor that it was magic; he let everyone think whatever he pleased. After the seance, which was given free of charge, Mr. Davey requested those present to send him on the following day their impressions in writing. He published the letters received which sound so extraordinary that one could believe in secret forces.

Writing on slates which were closed and kept carefully secluded; writing on slates which were pressed by the witnesses against the lower surface of the table or held by them near the table; answers to questions which were written secretly on double slates; correct quotations from books which had been chosen at random by other witnesses, sometimes only in thought, when the books were not even touched by the medium and the slates carefully watched; messages in different languages unknown to the medium.

Although self-writing pieces of slate pencil were heard and moving pieces of chalk were seen, none of the spectators saw the most interesting phenomenon, namely, the writing of, and by, Mr. Davey.

The sources from which come such exaggerated reports can be classed in four groups. First: the observer interpolates a fact which did not occur, but which he has been forced to believe has occurred; he imagines he has examined the slate, when in fact he has not. Second: he confuses two like ideas; he says he has examined the slates thoroughly when in reality he only did it superficially or without a knowledge of the main points. Third: the witness changes the order of events according to a very easy deception of memory. In his opinion he examined the slates much later than he really did. Fourth and last: he overlooks certain details which he has been purposely told were of no consequence, he does not mention that the medium asked him once to close the window, by which the trick was made possible. You cannot remember everything, much less write it down. How difficult it is to write in unobjectionable completeness an every day occurrence, how much more difficult to describe an event which bears the character of the inexplicable and which, by its skipping appearance, makes a constant observation almost impossible.

Added to this, most people go to the seances expecting wonders. Mr. Davey has proved by experiments that of equally able spectators, those are better capable of

seeing through the modus operandi who know that magic is at work. It is easy to understand how expectancy, the charm of mystery and the crude illusions to the most sacred affairs of the heart (by citing dead relations) must excite the nerves and impair the sharp eye. Besides the medium is specially careful to leave the audience in doubt as to the interpretation of what has been seen and heard and this psychical condition of the spectators holds the key for many otherwise inexplicable events. Every rustling passes for a rap, every light reflection for a spirit form, every accidental touch for the manifestation from higher spheres. The spectator overlooks the natural, physical explanation on one side and, on the other, creates wonders out of nothing. He infects others with his excitement and is in his turn influenced by them.

The same form which is recognized by a spectator in cold blood as the skillfully draped figure of the medium, is taken by the audience as the faithful image of different persons who in their lifetime had no resemblance whatever.

An American naturalist tells us he had to put his hands to his head when he heard the same puppet addressed as "grandmother," "my sweet Betty," "papa," "little Rob." Everybody sees what he expects to see, and

what touches his interests most closely. Create a belief and the facts will come of themselves.

When an object disappears or changes its place, the spiritualist sees in the fact a sign of supernatural influence, like the Papuan who suspects a spirit behind every

cannon-ball. Because he does not know powder, he lacks certain knowledge without which it is impossible to judge rightly.

Common sense alone does not entitle a person to judge competently of the safety of fetters; only the man who is familiar with the technic of knots and the different ways of tying can express an opinion. To decide whether a closure is right or not, requires technical knowledge. Most people imagine that they can go unprepared to a spiritualistic seance and pass a correct opinion on the existence or non-existence of prestidigitation. This standpoint is as childish as when a layman expresses himself on the genuineness of the seal of the middle-ages or on the nature of a nervous affection.

Let us explain this with an example.

The conjurer often uses the trick to make an occurrence of greater importance by referring it to a heterogeneal hearer. The trick to make "any watch a repeater," consists in that a little watch carried in the pocket

makes the sound, and the manipulations with the watch are only apparently made. Those who do not know this, will hardly think that the harmonica of Monk and Home, played by invisible hands can be explained in the same way. A constant number in Dr. Monk's program was to put a musical box on the table, to cover it with a cigar box and to make it play and stop as desired. General explanation: "Spirits." In reality the sounds proceeded from a musical box, which concealed by the wide trousers was carried above the knee and set in motion by being pressed against the table. Here also the old psychological rule proves true: "the simpler a trick, the harder it is to find it out."

A great advantage for the deceiving medium lies in the fact that he makes "conditions for his success," and at the worst puts the blame of a failure on the audience or on the spirits. We hear that half-darkness is very advantageous, because it is 'positive,' that we must never look where something is in its development, and other nice things. Mrs. Sidgwick, the wife of the well known Cambridge professor of philosophy and president of the Society for Psychical Research counts five reasons for doubt in Shade's performances; his efforts to divert attention, his position which always allows him to manip-

ulate the slate with his right hand, the vague character of his communications, the limitation of the spectators to two or three and the way he places them, which excludes all possibility of their looking under the table.

She might have added, that according to the observation of Seybert's commission, Slade and other mediums with the genuine conjurer's craftiness, perform the tricks before they announce what is going to happen.

To the accomplished magician and conjurer it is comparatively easy to explain the smallest fractions of spiritualistic experiences through the psychology of magic. I mean to say that they can be traced to deceitful manipulations, and to the use of known means. In reaching this conclusion, diametrically opposite to that of Dr. Dessoir, I am not only expressing my own opinion but also that of many persons of many years experience in spiritualistic circles.

THE CONJURING HUSBAND.



The nicest husband in the land
Is one who lives by sleight-of-hand.
At morn, for instance—one, two, three
Coffee and cream are flowing free;
And with a few more magic thumps,
He fills the sugar-bowl with lumps,
While sausage, rolls and all of that,
He takes, of course, from his old hat.
Though there may be of wood a dearth,
He builds a fire upon the hearth;
And turns a pair of worn-out shoes
To beef as good as one could choose.
All else that at a feast would please,
He from a nightcap takes with ease;
And without trouble or ado,

Himself can roast, or boil or stew.
At noon and evening 'tis the same,
She cares for naught, the lucky dame.
Whate'er is needed for her use,
His magic wand will quick produce;
Fresh toilets in the newest style
Are ready in a little while,



THE CONJURING HUSBAND. 43

Wraps, gold and jewels; in short, all
That she may long for, great or small.
Scarcely has she the wish complete,
Before he lays it at her feet.
And yet—you'll wonder it should be—
The two will sometimes disagree,



And whatsoe'er he may provide,
She will remain unsatisfied.
In such case, as in others, too,
His sleight-of-hand will help him through;
If unendurable grows she,
A cloth thrown o'er her—one, two, three—
And silently she disappears;
The household war no more one hears.

CHAPTER I.

Birthplace of Alexander Herrmann; his Family. The Career of his Famous Brother, Carl Herrmann.

"There he goes!" "That's him!" "Who?" "Why Herrmann, the Great Magician." "He looks it. Doesn't he?"

Thousands upon thousands of times in every land and tongue where civilization has so much as made a track, have such remarks as that, and much more of the same kind, followed the wonderful conjurer, Alexander Herrmann, and the other great ones of his guild who preceded him. There is ever an atmosphere of mystery about the magician, and for the most part it is not himself that makes it. It is the product of the fame of his art, and fame is the babble of tongues, and that which is the echo of thought and talk, print and pictures.

It is human nature to exaggerate and the love of mystery is instinctive. In ordinary conversations if we desire to picture how small anything is we describe it with the closest possible approach to the thing we can think

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The following tribute to the memory of Alexander Herrmann appeared in the *New York Journal*, December 19th, 1896:

The Magician's Art.

Saint Peter sat at the gates of gold,
And the Winter's night had gone,
He was thin and old, and the earth lay cold
And black with December dawn.

But presently over the hills of snow
A heaven-bound spirit came,
It paused by the Saint, and bending low
It whispered a mystic name.

Saint Peter started. "What! Herrmann, the Great?
Then, why do you pause?" said he.
"Your magic might open the firmest gate
With never a word from me."

"Not so, Saint Peter," the shade replied,
"My magic was but of earth;
It was well enough on the other side
But here it has lost its worth."

But the good saint answered, with earnest air,
"I pray you will have no fear,
For you practiced another magic there
That counts as well up here."

"You offered hope to the weary heart
In Charity's sacred name;
You brightened the world with a blessed art
That counts up here the same."

Saint Peter mused by the gates alone,
And his face looked old and thin,
As he thought of the dearth of the art on earth
That had let the magician in.

ALBERT BIGELOW PAINE.

Born, February 11, 1843.
Died, December 17, 1896.

of that is littlest, in reason, and the same course is followed in the matter of great things. Thus it is that he who kills a snake makes it a monstrously large one or an infinitesimally small one, as best suits his purposes for the occasion, and yet he never thinks that he is doing his character for veracity any violence whatever.

The love of mystery is very similar in its expression and it has enabled persons to see ghosts and swear to the fact, when every reasonable man knows there is no such thing as a ghost.

What man brought up in the country, and especially in a country town, does not remember his boyish speculations as to what mysterious place the circus came from and to what mysterious place it went? What strange and wonderful people those performers were, in their flesh-colored tights and the tinsel of their dress. What a curious world there was under the great white canopy where the vast arena of seats, and the magic circle of the sawdust ring had sprung up in a forenoon, actually changing the air and aspect of the locality! So strange was it all that for days after the show was gone, boys, and sometimes their girl companions haunted the deserted ring, and the places where the sideshows and the dressing rooms, and even the stables, had been, to muse

upon the vanished wonders and mysteries, and to hunt for little bits of tinsel, or a nail, or anything that might have belonged to the "old clown," or the "active man," or the beautiful lady who rode the arch-necked horse so daringly. Finding them, how long they were kept as highly prized souvenirs of the great mystery, that came out of the horizon in a long and grand procession one beautiful morning and disappeared into the unknown during the night.

And from that enchanted hour, the fortunate boys who had actually seen the circus, would rival each other telling other boys who had not seen it, what was done there, and stretching to the extreme limit the distance that a vaulter had jumped, and increasing the number of horses that he had thrown a "summerset" over; lying in each other's faces about it all, and yet without a qualm of conscience, for did they not actually believe, themselves, that it was so near truth that the little variation made no difference? And it did not, for it was human nature—boy human nature.

And in this, as in everything else, the boy is father to the man. Not only boys, but men, and not only men, but great kings, emperors, philosophers, doctors and savants, have been mystified by the magician, and have

showered upon him fame, fortune and favor, and all for the love of mystery—mystery made so much more mysterious by the exaggerations of the narrator. Now-a-days, however, notwithstanding the fact that there still exists as much as before a love of mystery and a tendency to exaggerate, and that the magician wins money and applause just the same by his art, magic is no longer a secret nor is the conjurer's calling a mysterious profession. The magician is applauded for his deftness, for his ingenuity, for his scientific attainments and his general cleverness, and he becomes famous just as the successful physician, the able lawyer, the brilliant writer, the clear statesman, the bright inventor, and all others who attain high places in any respectable and helpful calling. The magician is no longer an ignorant charlatan who performs his tricks in star spangled gown or imposing turban, and with the aid of strange and far-fetched words, the gyrations of dervishes and the "hocus-pocus" of the ancient fakir.

The magician of to-day appears before his audience in the conventional attire of a well-dressed gentleman at an evening party and his performances are the results of intelligent invention, long study, profound devotion to his profession and patient, never-wearying practice.

Such a magician was the late Alexander Herrmann,

whose life, career and leading professional secrets are related in this work, for the first time; a man of whom volume after volume might be written, relating his thousand-and-one adventures, his good-natured pranks, the amusing incidents originated by him, the good deeds he performed, urged by his generous nature, and which often were without further magical association than the happiness he frequently brought to the needy or distressed.

Alexander Herrmann came of a race of high class conjurers. The information concerning the family is meagre, however, for its fame really dates from the time of Carl Herrmann, the (much) older brother and instructor of Alexander, and the greatest magician of his time. They had an uncle who had made some reputation in the art, but their father, while accomplished in it, did not practice conjuring as a profession, and was strongly opposed to having his sons do so. Carl's persistence in his chosen career caused him to be discarded by his parent who had mapped out for him a different life's occupation. The father was a German Jew and a doctor of medicine and the mother a pure Breton Frenchwoman; they had sixteen children in all, of whom Carl was the oldest of the

boys—of whom there were eight,—and Alexander the youngest. As stated above, the father, while not giving himself up to the profession, often performed before very distinguished audiences and was a prime favorite of the Sultan of Turkey, who often sent for him and paid him princely sums for his entertainments. He was also the intimate of Emperor Napoleon, who frequently befriended him and at one time presented him with a beautiful and costly watch, affectionately and wittily inscribed by direction of the great Corsican. This watch descended to Alexander who carried it until the day of his death and it is now in the possession of his widow.

Carl Herrmann, whose real given name was Compars, was born in Hanover, January 23d, 1816, though it is often said he was born in Poland. He died at Carlsbad, July 8th, 1887, being then in his 72d year. His career as a prestidigitateur began in 1848, and he soon earned the title of "Prince of Conjurers."

While yet a boy Carl accompanied his family to Paris and was already intent upon the practice of magic, but his father succeeded for a time in keeping the youth's penchant in abeyance. He was sent to school at the Paris University and studied medicine and then for a time lived in great poverty in the Quartier Latin. Event-

tually, however, he shook off all trammels and definitely assumed the profession of a magician, which ultimately brought him fame and a vast fortune, besides a large and wonderful collection of curios and rare antiques from all parts of the world. Carl Herrmann's tours extended



CARL HERRMANN.

over the whole world, and there was probably not a single royal court in Europe before which he did not perform. The unfortunate Sultan, Abdul Aziz, was among his warmest admirers, and used to pay him a thousand pounds Turkish for every representation. Dur-

ing one of these performances, he exhibited two pigeons, one white and one black, and managed to place the white head on the black pigeon and vice versa. This pleased

the Sultan greatly, and he asked Herrmann to try the same trick with a black and white slave, but the conjurer declared that that was beyond his powers. On another occasion he took a rare and valuable watch from the Sultan and pretended to throw it into the sea, his Majesty, of course, finding it again in his own pocket. The Czar Nicholas also bestowed great favors on Carl Herrmann, who, it is said, received a million rubles for one Russian tour. He was very charitable—this is indeed a family trait—and only a few days before his death sent 1,500 francs for the relief of the victims of the Opera-Comique conflagration which horrified Paris in 1887. In Vienna, where he resided, he was very popular, and when he celebrated his seventieth birthday, a distinguished company assembled in his residence to congratulate him. His second wife, who survived him, was a Frenchwoman, named Mlle. Ernest, whom he met in Gibraltar. His first wife, from whom he was divorced, was a Vienna prima donna, Madame Czillag, who is still living and is a teacher of vocal music. She is the mother of Herrmann's daughter, the well known

opera singer, Blanche Corelli. Shortly after the death of Carl Herrmann, a close friend of his wrote to a newspaper the following letter concerning him:

"If the announcement that Herrmann has written his memoirs is to be taken literally, the prince of Conjurers must have abjured a very singular whim prior to his death. He took a curious pride in the current report that, although conversant even to colloquialism with most of the spoken languages of the world, he was unable to sign his name, and he certainly did his best to substantiate it; few, if any, of those who, like myself, have been intimate with him for many years ever knew him to put pen to paper. Should those memoirs appear I venture to say that no more remarkable record of experiences in every phase of mundane affairs will exist.

"If Robert Houdin was the father of modern magic, elevating it from vulgar juggiery to an art which calls to its aid the resources of all the sciences, substituting the apparent impossibilities that go with ordinary evening dress for the clumsy devices of a mock magician's robes and wallet, my dear old friend Herrmann was, indeed, no unworthy successor of the famous Frenchman. Not only were his inventions numerous, but his variations and elaborations of many of Houdin's feats

betrayed an originality little less than startling. Tall and singularly spare of figure, nature seemed to have cut him out for a conjurer. At a children's performance, given with his never-failing generosity, at the Colon Theatre in Buenos Ayres for the benefit of the Italian Hospital, I saw him go down amongst the audience with a huge bowl of sweetmeats. After he had distributed these, he reeled out from a seemingly empty basin several hundred yards of paper ribbons, and then, rolling these up and tearing them asunder, 'produced' four live geese! No new principle was involved in this, but I mention it as an instance of his immense power of concealment about his spare frame. The environment of all his tricks was pre-eminently artistic. His canary bird vanished, not like a 'copper up the sleeve,' but with a weird shriek, and a cloud of yellow feathers left uttering to the ground. His tact and audacity were as magnificent as his manipulation. After bringing out four globes of gold fish (larger than any other conjurer has been able to work with) from a cloth, he would go down into the stalls and request spectators to prod his sides and examine his coat-tail pockets, then producing the fifth bowl, which had been lying in the hollow of his back. If he had a specialty, it was the management

of living animals, but he could never overcome his horror of serpents sufficiently to allow him to introduce two young boa-constrictors which I tamed for him. Herrmann was a capital palmist, and the most dexterous and accomplished pickpocket. He would remove a gentleman's watch, slip a ring on the chain and replace the

watch, while engaged in conversation, or would undertake a hat trick before he had been five minutes in a room full of people, and would turn out of it, with the most laughable address, something belonging to each person present. He made and lost a hundred fortunes, for he was an inveterate and unfortunate speculator. On one occasion, I know, he received ten thousand pounds for forty performances under certain conditions from a company of entrepreneurs. His name has been borrowed by many lesser lights of the stage; but he had a brother, thirty-one years junior to himself, in the same profession. (It was Alexander Herrmann, the subject of this book.)

"The prettiest trick I ever saw was done by Carl Herrmann while at lunch with a brother conjurer in the hotel at Montevideo. Five people were seated at the table (not his own, be it observed), and there was apparently an entire absence of any possible preparation.

Taking a pear from the dish he told us to mark it. One of the guests left four punctures from his fork in it, another dropped a spot of ink on the rind, I pushed an American three-cent piece into the soft substance of the fruit until it disappeared, next a large slice was cut out and eaten. Herrmann then took it and tossed it towards the lofty ceiling. "Catch it yourselves," he cried, as the pear was whirling in mid-air. It fell into my outstretched hand, prong-marked, ink-spotted, and with the three cent bit still imbedded in its tissue—but whole!"

Alexander Herrmann writing to the London "Era" concerning his brother Carl shortly after the death of the latter, said:

"In your issue of June 11th, which has just reached me, I notice a paragraph alluding to the recent death at Carlsbad of my brother Carl Herrmann, and giving some few particulars of his life and career. The news of his death reached me while filling, in this city, (New York) the closing engagement of my past season, and was in truth a very great shock to me. Between Carl and myself there always existed a warm and brotherly feeling, and I am only too well aware of how much I owe to him for any success which may have attended my own career. Unfortunately the cablegram announc-

ing his death, which appeared in the columns of nearly every American paper of importance, merely spoke of Professor Herrmann, and I have subsequently found that in many parts of this country the idea has gained ground that it is I myself who have "joined the great majority." With a view of, in some way, dissipating this erroneous impression and also of supplying you with a few perhaps not uninteresting details of my brother's and my own career, I may, perhaps, be excused from trespassing on your space.

"My brother Carl was born in Hanover, our father being a native of Berlin and our mother of Hamburg. I myself and the sisters who belonged to our family were born in Paris. In 1854, when I had reached the age of eight years, my brother had established his fame as a conjurer, and was performing at St. Petersburg, where I joined him, remaining with him as his assistant until 1862, in which year, thanks to my brother's teaching and my own constant practice, I was able to start out on my own account and responsibility. I did not again see my brother until 1867, when we met in Vienna. While there, we formed a partnership, and determined to appear together in America, which we did, in that same year, at the Academy of Music, New York. After a

long engagement we again separated, my brother having determined to make a tour through the Western and Southern states, and I myself returning to Europe and visiting all the principal European cities. It was during this tour that I appeared for over a thousand nights—from 1871 until 1874—at the Egyptian Hall, London. We did not again see each other until after a lapse of eighteen years when, in 1885, we met in Paris, in which

city I was filling an engagement at the Eden Theatre. While together in Paris, an arrangement was entered into between us by which my brother was to confine his performances to Europe, myself to America. In pursuance of this agreement, I returned to America and in due course became naturalized, a step rendered necessary by my wish to purchase a home in this city, which plan I have duly carried out. I am about to sail for Europe with my wife for a few weeks' visit, and shall return to this country in the early autumn to commence my next season, during which I shall visit all the principal cities in the States. I must again apologize for trespassing on your valuable space, but trust that some of the facts I have related may be of interest to your readers.

Yours obediently,

A HERRMANN.

334, West 45th Street, New York, June 30th, 1887.

CARL HERRMANN'S CAREER. 61

A more perfect cosmopolitan never lived than Carl Herrmann. He was literally at home anywhere as he spoke nearly all the leading languages and was familiar with the manner and customs of all civilized people. Thus it has been said of him that he knew Mexico as well as he did his own city of Vienna and was as much at home in any village in Spain as in his native country. For many years, in the domain of magic, Carl Herrmann reigned supreme, in Germany and Austria especially, and there was scarcely a European court where he was not a welcome guest. He took much pride in exhibiting to his friends the invitations of potentates, written by their own hands, bidding him, in the most flattering terms, to come to them.

Carl was the constant recipient of costly and superb gifts from the wealthy and powerful everywhere, and from notable people in the city of New York he received many handsome souvenirs, among which, in acknowledgement of a charity performance, was a gold medal as large as an ordinary tea saucer. He had a passion for making collections of rare and curious relics, and these collections he frequently lost, sometimes by accident and sometimes by financial stress. But no sooner was he deprived of one collection than he began to make an-

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other. Several times he lost his fortune—once in the financial panic of 1873—but he would quickly regain his wealth and, finally, died a millionaire.

His charities were proverbial and his life was open, free and honest. He was well informed, was a voluble and interesting talker, and although he carried the look of one who was not to be cozened, he had a good-natured and mild manner that was exceedingly attractive. A French gentleman and journalist once exclaimed upon first seeing Herrmann; "Mephisto bon Enfant!" ("A good sort of a Mephisto.") I think it interesting to give herein the programme of one of Carl Herrmann's last entertainments, as all the tricks on his programme were his own inventions and were done without mechanical apparatus or paraphernalia whatever.

CARL HERRMANN'S CAREER.

CASINO AT WIESBADEN.

Monday evening, July 19, at 8 o'clock.

Extraordinary Performance of the Celebrated Prestidigitateur, Prof. C. Herrmann, of Vienna.

1st Part.

1. Everybody's Card.
2. The Canary Islands.
3. The Chinese Egg.
4. The Miser.
5. A Mistake.
6. The New Creation.

2nd Part.

1. **The Obedient Cards.**
2. **The Flying Watch.**
3. **The Omelette.**
4. **Quicker than Lightning.**
5. **The Ring in Danger.**
6. **Catching Fish and no Fish.**

In this connection the author deems it proper to introduce here an extract from the "Reminiscences of Professor C. Naethke," a well known writer who speaks at some length concerning one of Carl Herrmann's most remarkable achievements in magic. He says:

"Perhaps no illusion in modern times created such interest or sensation in the professional world, among physicians, chemists, scientists and others as did the "Aerial Suspension," while all amateurs stood and looked on with a bewilderment, which clearly betrayed that they could not grasp the secret. Of course all efforts were made to keep the inside-workings of this production from being made public and to keep it out of the hands of people who would be likely to betray it. Professor Carl Herrmann, of Hanover, who died July 8th, 1887, in Carlsbad, and who was one of the most celebrated conjurers of all times, was the first performer who introduced the Aerial Suspension or "Horizontal Floating by the means of Chloroform" in the Royal Theatre in Berlin. His stage, which was his own idea and property, formed a perfectly closed and elegantly decorated room without wings or flies and with a closed top or roof. There was a door at each side through which Herrmann entered or passed out. Instead of having a large table covered with a

drapery reaching to the floor, he used, in the middle of the stage, a very elegant, gold-finished, rococo table, and on either side were placed two very small light stands on each one of which was a candelabra with five candles. Across the background was a small shelf on which were placed some apparatus and some more candles. The stage was covered with a very expensive carpet, which played a most important part in many of his mysterious productions. Such strikingly simple arrangements made an extraordinary contrast with those of Professors such as Becker, Bills and others, who always made an imposing show of apparatus. Herrmann was the first one in Berlin to appear in an evening costume made of black velvet, which attracted a great deal of attention and gave him the opportunity of making the following remarks on his presenting himself upon the stage:

"'Being a born Hanoverian, he was, of course, a German, but in consequence of his long travels and residence in foreign countries, principally in the Orient, he had forgotten a great deal of the German language and was not fluent in it; he would therefore request the spectators to pay attention to his hands and not to his language or words.'

"His productions were all entirely new, brilliant and

unusual. He did not introduce a single experiment that was performed by any other conjurer, and his appearance and outfit were so unique that he always created a great sensation and the house was sold out in advance, night after night. Although all his experiments showed an extraordinary genius and skill, they came to a climax in his "Horizontal Suspension" and its execution. He placed the rod apparently free on the stage, and after the illusion was over, he took the rod and the very young child who was his assistant in this number, and without separating them, walked into the parquet with them and there placed the rod on what is called the 'rundown,' which was only about 3 feet wide, and bridged the space leading from the footlights across the orchestra to the seats in the parquet and formed a direct connection from the audience to the stage. The result was an extraordinary one, and no one has yet penetrated his secret of how he placed the rod, supporting the child, in any apparently desirable spot. That remained his own secret.

"Chloroform, which was supposed to cause this wonderful effect, had then just been discovered and only a

very few knew anything about it or its properties further than having heard its name. Knowing thus so little about the drug, it was generally accepted that such

otherwise inexplicable aerial susupension could be ascribed to the use of chloroform, and this generally accredited opinion served to make the matter all the more interesting and mysterious.

"Carl Herrmann had already given quite a number of performances of this graceful trick, and the public was showing an increasing interest in it, when one day the following advertisement appeared in the leading newspapers:

"'Prof. Herrmann is forbidden to execute the Horizontal Suspension in the Royal Theatre until he has furnished sufficient proof that the experiment is not harmful to the health of the child. (Signed)

President Royal Police.'

"The following day, Prof. Herrmann announced that, according to the command of the President of the Royal Police, the Horizontal Suspension would not be carried out in the next few performances. After some days had passed, the following advertisement appeared in the papers:

"As Prof. Herrmann has furnished undoubted proofs that the experiment of the Horizontal Suspension is in no way injurious to the health of the child, the further presentation of same is hereby allowed. (Signed)

President Royal Police.'

"Herrmann could not possibly have conceived a better advertisement in favor of the performance. As a result the theatre was full every night and Mr. Herrmann gave fifty representations there without a break."

Mr. Naethke further relates the following interesting occurrence about the representation of this same illusion:

"I was performing with a small theatrical company in an interior town in Germany, when there appeared before my manager a certain Julius Markus, who was quite well known as a show-man. Markus said: 'Will you buy my Horizontal Suspension? It is the only apparatus of the kind in Germany. I got it from the same factory in London where Herrmann got his. Herrmann has gone out of the country, consequently, there is no opposition to you. You can make a barrel of money with it, and the apparatus is so strong that you can hang up an ox on it. The woman whom I have used with it, has skipped out and I will have nothing more to do with women in that line. I want to go to Hamburg. I can not use this apparatus any more, and if you will take it off my hands, I will let you have it for $40.00, which is dirt cheap. I will go and bring it inside of an hour

and you get that $40.00 ready; it is a tremendous bargain; you can support an ox with it.'

"The manager knew that I had seen this experiment introduced by Herrmann and asked my opinion of it; as I thought it was suitable for our performance, I replied that it was just the thing for it. He then ordered Markus to bring the apparatus, but without promising to purchase it. 'That is not necessary, my dear fellow,' said Markus, 'you need not promise that. I will go and get it anyway.' And off he galloped on his hectic Rosinante to his travelling wagon, and in about an hour he returned with the apparatus under his arm, wrapped up in an old apron, carrying both rods, tied to a string, over his back like a weapon. 'Here I am again,' said he. 'That was quickly done. I need the money.' With these words he entered the room and went to work demonstrating how to use the apparatus, doing so with such ridiculous remarks that he set us all laughing. The business was finally closed, and with forty hard dollars in his pocket, Markus took his departure. Of course in our next performance it was announced as:

THE HORIZONTAL SUSPENSION by means of Chloroform.

"The experiment was carried out successfully, particularly the chloroform part, but as the ratchet in the arm pit of the suspension apparatus made such a racket that the noise could be heard all over the hall, a prominent spectator called out loudly, 'What's this cracking? That is not what it is represented to be.' As instructed to do in just such a case we began examining the lower part of the rod to attract the attention of the spectators to the lower part of it, and, in so far, we succeeded; but the public received the production rather coolly and it did not meet with the applause we expected. When we were alone, the manager said to me: 'We have thrown away that $40.00.' It appeared the same to me, and it appeared further to me that Julius Markus had come to this conclusion earlier in the day. The next question was how were we going to stop the racket of this ratchet. That was soon fixed by my lining the slots in the ratchet with chamois, with the fortunate result that it did not 'crack' any more.

"As the peculiar qualities of chloroform became more generally known, we soon saw we would have to intro-

duce the 'Mise en scene' in a different manner, particularly from the fact that our manager had allowed spectators to stand on the stage during the performance of this illusion. Those who generally appeared were chemists, physicians and apothecaries. One night, during this experiment, one physician said to another, behind the wings on the stage: 'My dear colleague, I do not believe in that chloroform business because the drug would betray itself by the smell, and I miss that in spite of our standing right close to it. It is certainly a secret that must depend upon electro magnetism.' I heard this, although the words were spoken very low, and it set me up thinking at once about the electro magnetic force. 'May we be allowed to examine the arm on which Miss Augusta rests?' was the next question asked. The manager said they could and he threw up the wide sleeve of the Grecian costume in which the lady was dressed; he held concealed in this sleeve the iron arm which formed her support and allowed the gentlemen to examine the arm of the lady. As nothing was discovered there, and her pulse was found to be in a perfectly normal condition, the gentlemen withdrew, shaking their heads and remarking that the affair was certainly very puzzling. Of course after this I protested energetically

about having any more visitors on the stage and the proceeding was stopped.

"At the next place where we exhibited the illusion I made the most I could of my pretense of using the electro magnet by winding the connecting wires around the rod and carrying the ends back behind the wings; after that our bills read:

SUSPENSION by means of the Electro Magnet and Chloroform.

"Then we used to hear the following expressions in the audience: We can see the connections all right but we do not hear the rolling of the induction apparatus, although this room is small.' A few days later the spectators heard, with great satisfaction, the rolling or drumming of the induction apparatus, which was caused by the whirling of a ratchet in the hands of our assistant behind the scenes. Thus we succeeded in deceiving the sharpest of professionals.

"Of all the people who witnessed it in those early years in Germany, only one well known individual, namely, Fritz Reuter, the celebrated novelist, was the one who, at the first glance, succeeded in lighting on the

correct explanation, which we gathered from the follow-

ing remark made by him after seeing one of our performances: 'The Horizontal Suspension has left in me a most wonderful aesthetical impression and I admire the ingenious mechanism which is the basis of this experiment.' I could make no reply to this remark."

But few persons are aware of the fact that Queen Marie Henrietta of Belgium is one of the cleverest conjurers in Europe. When, in 1882, Carl Herrmann arrived at Brussels on his way to the sea baths at Ostend, one of the queen's chamberlain's called at his hotel and inquired if he was the same Herrmann who had formerly given sleight-of-hand performances at the palace of the queen's father, the Archduke Palatine of Austria. On ascertaining this to be a fact he informed him that her majesty would be glad to receive him in private audience the next day. The queen received him most kindly, and after talking of old times expressed a wish to learn sleight-of-hand. Herrmann gladly consented to teach her his tricks, and during the following four weeks he spent several hours daily in initiating her into the mysteries of conjuring. Of course, these lessons took place with locked doors, the professor having made a point that nobody else should be present beside his royal pupil

and himself. The queen displayed a remarkable talent in acquiring the art, and many were the tricks she subsequently practiced for the recreation of her family and attendants.

It has often been said that it had been Carl Herrmann's early ambition to become a physician, a fact already alluded to in these pages, but the preponderance of evidence is that in studying medicine he was simply making a slight effort to escape his own predilections and to conform to the wishes of his father. Soon wearying of the struggle and its attendant privations, Carl finally resumed the work of a magician and speedily attained the highest rank. Making but little use of complicated apparatus, he depended chiefly upon sleight of hand and address, and the extraordinary skill thus developed won for him the title of "first professor of magic in the world," the justice of which no one seemed able to deny. In 1848 Carl made his first appearance before an English speaking audience at the London Adephi, where he produced his "second sight" demonstrations, copied in part from Houdin of Paris. Early in the '60's he made a tour of America, meeting with great success, and it was at his farewell performance in this country that he intro-

duced his brother Alexander as his legitimate successor in America.

Subsequently his tours extended over the entire civilized world, and he was so great a favorite at the various courts that the decorations he received as a mark of esteem were sufficiently numerous to fill a trunk. The Czar Nicholas was specially kindly to him, and it is said that on one Russian trip he cleared a million rubles. Having amassed a large fortune, Carl went into retirement in Vienna. At his death he left a large fortune and a collection of antiques to his second wife, a French lady. Thus passed from the stage of life the original Herrmann, and now Herrmann the Great, as Alexander was wont to be called, is to form the sole subject of this narrative.

CHAPTER II.

The Life and Career of Alexander Herrmann.

Immediately following the death of Alexander Herrmann which occurred suddenly December 17, 1896, in his private car at Great Valley, N. Y., and was due to a heart trouble of long standing, the press of the world became crowded with matter concerning him. Innumerable biographical sketches and thousands of anecdotes and incidents of his remarkable career were printed within a week. His family and his personality was discussed. Much that was true and much that was false, was given to the public, but it was all done in a kindly spirit and largely eulogistic.

From this mass of documents and from his own per-

sonal knowledge, the author has compiled the facts with regard to Alexander Herrmann, in a painstaking and conscientious way, and from the best possible sources, as to reliable details this life-sketch was made.

There have been a diversity of statements concerning the birthplace, parentage and real name of Alexander Herrmann, but probably of all these the man's own state-

ment is most to be trusted and reasonable people would prefer to accept it, especially as there never existed any cause for his adopting an alias. He lived an honorable and innocent life and his career has been public property as to the facts, ever since he was a small boy. It has been stated that in a law-suit which he once had, it came out that his real name was Nieman, and that he had been adopted by Carl Herrmann because he was a remarkable lad in Herrmann's business, and having become even more proficient than his tutor, adopted the family name of Herrmann. Nearly all of the evidence is to the contrary, however, and a name in a lawsuit, under many circumstances, is no more significant than "John Doe" or "Richard Roe," fictitious names that are as old in court as the English Common Law itself. Concerning his life Alexander Herrmann is said to have made the following statement about a year before he died, which was printed at that time in a San Francisco newspaper. It is a reiteration of what he had said on the subject many times before, and is substantially the statement that was made by newspapers and other publications all over the world, at the time of his death. He said:

"I was born in France on February 11, 1843, but am of German parentage. My father who had practiced

medicine in Germany, moved to Paris several years before I was born, and became one of the most noted prestidigitateurs of his time. He had sixteen children, eight of whom were boys. I lived in Paris until I was 10 years of age, when my eldest brother, Carl Herrmann, who had become well known as a magician, kidnapped me, taking me to St. Petersburg to teach me his art. My father was strongly opposed to this procedure. However, I remained with my brother until he took me to Vienna. Then my mother came there and insisted on my return with her to Paris, where I remained until I was 12 years of age, when my brother again took me back to Vienna.

"I showed an inclination for magic from early childhood. The talent was born in me, and developed into a passionate fondness and an intense desire to master all the intricate mysteries of necromancy and prestidigitation. While at Vienna I attended college, where I became possessed of books containing accounts of Balsamo and others, the perusal of which were of great benefit to me in my subsequent career. I would often closet myself for hours to master some sleight-of-hand trick I had read about or witnessed at a public performance.

"I remained with my brother until 15 years old. Then

I went to Spain, where I made my first appearance before Queen Isabella II. Since then I have appeared as a magician in nearly every country of the civilized world. I came to America in 1861 and have since made it my home. In fact, I am an American citizen, as I was naturalized in Boston in 1876. I made my American debut in conjunction with my brother Carl at the Academy of Music, New York, during the season of 1860-61. We played there for seventy-five nights to large profits. My brother and I then made a tour of the world. In 1867 we formed a second co-partnership, and made a most successful tour of this country, after which my brother returned to Europe. He died in Carlsbad in June, 1887, at the age of 72. He had a great gathering of friends of his life time on his seventieth birthday, which he made the occasion of his professional retirement. He made and lost several fortunes, but died a millionaire.

"After my brother's retirement I visited the principal

cities of Europe and South America, returning to the United States in 1874. It was during that tour that I began in 1870 an engagement of one thousand consecutive nights at the Egyptian Hall in London. I had learned in America the value of making the press and

public talk about a public performer. So, shortly after my arrival, I set about to devise a genuine sensation. Asking two friends to accompany me, I walked one morning down Regent street. Getting into a crowd with two policemen close behind me I stepped up to a gentleman in front of me and picked a handkerchief out of his pocket in a most clumsy fashion, and at the same time purloined the watch of his companion as adroitly as possible. The two policemen saw the handkerchief lifted and grabbed me as the thief. My two friends offered to vouch for me, but just then my second victim discovered the loss of his watch and insisted that I must have stolen it also. I insisted on the other hand that I had not stolen the watch and a search of my person failed to reveal it. Then I suggested that the two policemen should search themselves. The handkerchief was found in the pocket of one of them and the watch in the pocket of the other. My friends tried in vain to make the constables look upon the whole affair as a magician's joke. They declared that they were not to be fooled in that way and marched me off to the police station. There I was recognized and set at liberty. I had accomplished my object. The London papers made a sensation of the inci-

dent, and the whole town was laughing at the practical joke I played on the bobbies.

"I made several tours in the United States and Canada until 1883. Then I went to Brazil and other countries of South America. Don Pedro was greatly interested in my entertainment, and, on my departure, he presented me with the cross of Brazil. From South America I made a tour of Russia, which extended through Siberia. My reception in St. Petersburg was most flattering. While there I was invited to a banquet tendered to the Spanish minister. The banquet was attended by the most distinguished members of Russian society. In the course of the evening they drank my health, and in giving the toast it was suggested that I should henceforth be known as 'Herrmann the Great.' And that is how I came to adopt the title. From Russia I went to London, where I repeated my former success. In 1885, I returned to America and have continued to give my entertainments here since then, although I made $157,000.00 on my foreign tour. My annual tours become more profitable from year to year. I get the best terms conceded to any star on the road, and make from $85,000 to $95,000 profit on each annual tour. But I am not a rich man for all that, as I lost nearly everything on outside investments

that did not materialize as satisfactorily as magic does."

In person Herrmann looked the magician and notwithstanding that he was one of the kindest and gentlest of men he had much of the facial appearance that fancy gives to "the gentleman in black," his Satanic Majesty, the Devil. A newspaper writer in Chicago, in 1887, in a pen picture of the great magician described him in this way:

"Even off the stage, Commandeur A. Herrmann, the famous doctor of diablerie, has a mephistophelian aspect. His long, straight nose, his sweeping mustachios, his keen black eyes, his pointed imperial, all suggest that fascinating and eccentric gentleman with whom our fears for the future, Gounod's music, and Bailey's hyperbolical verses have made us familiar. But Herrmann lacks one of the most notable characteristics of his Satanic Nibs—he has no sneer. Instead, he possesses a very pleasant smile indeed, which he flashes on one suddenly, as a boy flashes a mirror in the sun, though with less disturbing effect. But again, in the slender, nonchalant figure, in the flexible, gesticulating fingers, in the frown, in the facetiousness there is a hint of Faust's argumentative

friend. Like Mephistopheles, also, Herrmann is an extensive traveller. It is true that he does not fly from the

snowy peaks of inaccessible mountains to the most discomforting portion of Sheol in the twinkling of an eye; he does not hold revels on hag-haunted plains one hour and the next perch on the point of some glittering star to spread discord among the music of the spheres; but still for a man of his age he has gone up and down the face of the earth quite a bit, not seeking whom he might devour, but merely looking out for good paying houses. In short, he has been around the world three times. He is a thorough cosmopolitan and makes all countries his own. 'I speak seven languages,' he says, with that strong French accent which the reader can imagine more easily than it can be written, and I have the passport to all countries by so doing. I played in Russia not long since. Ah, that is the difficult language, yet I learned it pretty well. See, the late Emperor, he gave me this.' He took a large, elegantly-wrought watch from the dresser. The chain was of heavy twisted strands of gold and of astonishing weight.

"'I have jewels from almost every sovereign in Europe,' he went on. I have two crosses from the late King of Spain, one from the King of Belgium, a ring from the King of Portugal, and another from the Prince of Wales; and other jewels given me in Austria, Italy,

and Brazil. Mexico? O, yes, I've been all over Mexico. I liked the people there. They are very enthusiastic. President Diaz is a good friend of mine. He entertained me most generously, and gave me an escort of twenty-five men to travel all over the country with me. It was not very safe travelling there then. All through Mexico and the South American countries they greatly admired my art. I have just received a letter from South America this morning asking me to go to Buenos-Ayres and Montevideo, and offering a very generous sum. They never do anything by halves down there. But I shall refuse. Mme. Herrmann is not willing to go far away from home so soon again. We have just got us a home in New York, and madame would like to be somewhere near it. Our home is very interesting. We have filled it with curiosities gathered from all parts of the world. Wherever I go I collect. Collect what? O, everything! Antiquities, jewels, rugs, swords, saddles, books—whatever there is. I have shawls from India, rugs from Persia, bric-a-brac from Japan. Did I ever get any of my tricks from Japan? Well, no. The Japanese are clever jugglers, but they are not good at legerdemain. All of their tricks are old, and the reports of what they do are greatly exaggerated. I would never

think of offering such tricks as theirs to an audience.' Mr. Herrmann spoke of his many friends among the actors, and grew enthusiastic over the drama. 'Salvini's Othello and Booth's Hamlet are the most wonderful pieces of acting that the world can see at present,' he said. 'I know Salvini well—a very simple man! He has no vanities that show themselves in private life, and he is as gentle as a woman with his friends. His home is a wonderful place—so beautiful! A palace, in fact, and yet, for all that, his way of living is simplicity itself. Another of my friends is Patti. Ah, how she likes my witchcraft! She is never over laughing at my tricks! A pleasant woman she is, too, and so wonderfully well preserved. Yes, I know a great many actors in all countries, though I do not see much of them, for we are always hurrying here and there. And wherever I go Mme. Herrmann goes. We have been married twelve years now and we are never apart. I do not believe I could work without her now, I am so used to her help. She is quite a woman of business too. She ran over to Paris on some important business for me the other day and did it better than anyone else could have done. And on the stage she is almost as necessary to the success of the work as I. Do I ever fail in my tricks? Why, yes, sometimes, but then

I always get out of it some way, and the chances are that the audience never knows that I have made a mistake. This new act of mine called the 'Black Art' has taken a good deal of practicing, and I am working up 'The Cocoon' now. Don't know what that is? Well, I have the stage cleared. Then a square of tissue paper mounted on a wooden frame is brought in. On this I draw the picture of a cocoon. Suddenly, through this, there bursts a magnificent butterfly (my wife), glittering in a dazzling butterfly dress made with wings.'

"M. Herrmann relates that he began the study of the art very young. Indeed, he was in a manner born into the mystic world of illusions. 'Come and see me in my 'Black Art,' urged the magician. 'I have everything mysterious and dreadful. We have a devil on the stage. I cut off my wife's head. I—in short, I raise the devil. Come and see me. I am sure you will enjoy yourself.' And as the reporter left Herrmann was seen in his great feat of converting a cigarette into smoke."

Herrmann used to say that he lost $100,000 in his Broadway house. Herrmann had a theatre half completed in Brooklyn when a part of it collapsed. The place was never finished and the small fortune the magician put into it was wiped away. The variety company

known as Herrmann's Transatlantic Vaudeville Company was his one paying venture during his managerial career, and even that afterwards went to pieces

Herrmann was married in 1875 to Adelaide Sersey, an accomplished ballet dancer, who has added much beauty and grace to his entertainments. The Mayor of New York performed the marriage ceremony, and it is often related how the groom produced a roll of greenbacks from his Honor's sleeve to pay the wedding fee. He met Miss Sersey, for the first time, on an ocean steamer while coming to this country from England. There were no children born of the union. The home of the couple was a fine old manor house on the tip of Long Island Sound. On the spacious verandas of this residence the magician would sit during the summer and lazily whiff his cigarette, of which he was very fond. He certainly was the most prominent figure in his line in this country, and he looked the great necromancer that he was. The stories of his wonderful tricks performed at odd times and in an impromptu manner would fill volumes. Once, about three years ago, the wizard was a guest at the Whitechapel Club, that rendezvous for Chicago Bohemians so well remembered for its strange doings. On the night in question a venerable Japanese

archbishop was also present. In the course of the evening Herrmann picked up a deck of cards and asked some one to select one of the pasteboards. This was done and proved to be the seven spot of clubs. This was shown to the spectators, but not to the magician. The card was replaced in the deck, which was shuffled, and then scattered about the room.

"Now, gentlemen," said Herrmann, "if one of you will kindly unlace the archbishop's shoe you will find there the card which was drawn from the pack."

After a brief protest by the kind-faced and gentle old man he unlaced the shoe and there, to the amazement of all, was found the seven spot of clubs. The look of wonder on the face of the old Japanese prelate afforded the wizard much pleasure.

During the dinner he would insist upon being allowed to pour out his own wine and would throw the bottles in the air and chuckle at the amazed expression on the waiters' faces as the bottles disappeared in air. At the height of the fun he stooped forward and addressing Charles Perkins, president of the club, now dead, "My feet are getting cold," he declared. "You've had my shoes long enough," and he reached out his hand and removed his shoes from Perkins' shirt front. It was

a surprising thing. No one could conceive how he had

removed the shoes undetected, or how he palmed them in taking them from Perkins. On another occasion, during a visit to this same club, Herrmann took two packs of cards, and putting them together, announced that he intended throwing one of the cards in such an accurate manner that it would stick under the woodwork lining the upper ceiling. The space into which the thin card must be thrown was almost invisible, and the distance from where Herrmann stood was perhaps twenty feet. After exhausting every card in the two packs but one he glanced slyly about him, and then, by a quick, deft movement, lodged the card in the little crack, where it remaned until the club went out of existence. So startling were the performances to "Tom," the chief colored waiter, that his dread of the magician became almost pitiful, and to the president he said at last: "Please, Mr. Perkins, do git somebody else to wait on dat man. I'se afeard of him. Dat man's kin to de devil." Herrmann saw Tom's distress and gave him two silver dollars which the boy tremblingly took and gripped them very closely. "Now," said Herrmann, "wouldn't you rather have four dollars than to have just two?"

"No, sah! no, sah! Dis is enough," said Tom in much alarm.

"Well I'll make them four anyhow," said Herrmann, and when Tom opened his hand, sure enough he had four dollars instead of two. But Tom went straight to the cashier and got the dollars exchanged for four others that Herrmann had not manipulated.

"I was afeard," said Tom, "dat he might take er notion to change 'em into nickels er leather wads, er somethin' er ruther dat warn't no 'count. An' dem dollars didn't do me no good. I spent 'em jis as quick es I could, lessen I mightn't git a chance to spend 'em at all."

At the Chicago Press Club when visiting his newspaper friends there, Herrmann frequently changed water into wine to the great satisfaction of those about him. But he would sometimes change the wine into water and that was not considered so good a trick. Such feats as pulling live chickens, rabbits and guinea pigs out of the pockets of his friends were of common occurrence with him. So, too, was the one of picking $20 gold pieces from the hat bands and shoe tops of his acquaintances, even while chatting socially on the streets.

Remenyi, the great Hungarian violinist, was an intimate friend of Herrmann, and the latter often had

much good natured fun at the expense of the celebrated fiddler. At St. Paul, Herrmann dropped in on Remenyi just as the latter was about to partake of his midnight lunch of limburger cheese, pumpernickel and apollinaris water.

"Had your luncheon yet?" asked the magician of his friend.

"No, just going to order it."

"Well, never mind doing so, I've got everything all ready for you," and without more ado the magician pulled a large and odorous cheese from the coat tail pocket of the violinist, a chunk of pumpernickel bread from Remenyi's breast pocket and a bottle of appollinaris from beneath his chair.

Remenyi fell to and was heartily enjoying the joke, as well as the repast, when he was visited by the proprietor of the restaurant, who stated that the other guests objected to the herculean odor emitted by the cheese.

"Oh, well, we can fix that all right," said Herrmann, and by a quick movement he abstracted from the tail pocket of the proprietor's coat a large bottle of cologne, which he uncorked and placed upon the table. The

room was as fragrant as a flower garden within a few moments.

Once, in the City of Mexico, he came upon a friend drinking a decoction of sherry and egg.

"Here, take the mother of that egg along with the drink," said the magician, who procured from some un-

known region a live chicken, which perched on the drinker's shoulder.

"How do you do those things?" was asked by a witness of the trick. "Do you carry those chickens around with you?"

"I do not carry them about with me, as you can see," answered Herrmann, unbuttoning his coat and rolling up his sleeves.

"You are the ones who do the carrying. See here," and picking up his friend's hat from an adjacent chair, he shook out a rabbit, which scampered away. Such impromptu tricks as this were Herrmann's chief delight, and he was endowed with the grace that made him a friend to all men. His acquaintance extended to every class, and he never forgot a person once met, nor failed to recognize in the street or elsewhere the humblest of acquaintances. He was a remarkable raconteur, a continual cigarette smoker, a brilliant conversationalist, and

wherever he might go, a marked personage because of the conspicuous Mephistophelian appearance that, coupled with undoubted abilities as an actor, was of inestimable value in his professional work.

A huge volume of entertaining stories might easily be written concerning his impromptu and private feats of conjuring and a few of them will be recounted here before proceeding to some illustrations of his wonderful performances on the stage. Herrmann being a man of great keenness with a full appreciation of the value of advertising, took care that the places he visited had reason to remember him. His tricks on citizens, hotel clerks, policemen, and others were always exploited in the newspapers, and as a boomer for himself he had few equals. His stories, however, had one merit which the yarns of the press agent of today seldom have. They were invariable accounts of something that had actually happened. It wasn't necessary for Herrmann to exploit fakes. He could make stories too easily himself. All he had to do was to walk into a barroom or into a group of people on the street, play a trick on some body, and the story was made. But outside of business considerations Herrmann loved a joke for its own sake. He would frequently go out alone and spend hours in

localities where even his mephistophelian features were not known, amusing the natives with the most astonishing performances.

Bill Nye, the humorist, once had a lot of fun with Herrmann. Nye was traveling with James Whitcomb Riley at the time, and Herrmann was showing in the same town. They stopped at the same hotel and sat next to one another at the table. Herrmann didn't know Nye at all, and the humorist only knew the magician by sight. In the middle of a meal, one night, Herrmann leaned over and separating the lettuce leaves on Nye's plate, disclosed a large diamond ring there. "Dear me, how careless," exclaimed Herrmann, expecting to see Nye start back in surprise. But Nye didn't do any such thing. Coolly picking up the gem, he remarked:

"I'm always leaving things like that around. Here, waitress, here's a little present for you," and he handed it to the girl who was waiting on the table. Herrmann had to get the proprietor of the hotel out in the kitchen before he could get the stone back again, the girl absolutely refusing to give it up. Herrmann always enjoyed telling the story on himself, and he and Nye were great friends up to the time of the latter's death.

In March, 1894, Herrmann gave a performance one Sunday evening at the Tabor Opera House, Denver, for the special entertainment of Louis Morrisson, the actor. While the two had been friends for 20 years they had never seen each other on the stage. Herrmann agreed to play Sunday night for Morrisson if Morrisson would give a special Wednesday matinee for him in return. The bargain was made. During Herrmann's

performance he was astounded on turning around to see Mr. Morrisson made up as Mephistopheles standing in the centre of the stage. The applause was tremendous, Herrmann joining in the mirth occasioned by the bringing of the two famous Mephistos together. The curtain had to be rung down on account of the uproar.

A favorite illusion of Herrmann's was practiced while enjoying a social wine-glass with a friend. A health would be proposed, and just as the magician would lift his glass to his lips, both glass and wine would absolutely vanish, only to reappear again a moment later intact, to the great confusion of every observer. At street stands, he would buy apples or oranges and feign the most genuine surprise upon finding money inside the fruit. The story of Herrmann's introduction to President Ulysses S. Grant is a familiar one, the magi-

cian promptly taking a bunch of cigars from the whiskers of the amazed President. Once Herrmann was the guest of the Marquis of Acapules. The Marquis had a taste for partridges, a weakness of which Herrmann was aware, so when the conversation drifted around to edibles, the old nobleman began to rave about partridges and express a wish that he had provided some.

"Oh, we'll have some anyway," said Herrmann.

"I'd like to know where we'll get them," said the nobleman with a laugh; "there's not such a thing in the house."

"Nothing easier," said Herrmann, rising and picking up a hat. "Just this way," and he dug his hand in the hat and brought up a brace of fine birds.

Adelina Patti, the famous prima donna, was a cordial friend and ardent admirer of Herrmann, and besides being sometimes her guest at Craig-y-Nos they often met in the world on their professional tours. Once in San Francisco, when Patti was taking her departure from that city, Herrmann was invited to a seat in her carriage while going over on the Oakland boat to take the East bound train. On board the boat, an incident

occurred that seemed to have been ready made for the magician's advantage. Arditi, the composer, who was

Patti's musical director, poked his head inside the carriage and said:

"Surely, madame, you ought to be afraid to have that man (pointing to Herrmann) so close to you. Why, he will purloin every valuable you have about you."

A triumphant light gleamed in the eye of the saturnine conjurer as he smilingly retorted:

"Madame, I am no thief; but Signor Arditi here is the pickpocket, and carries his plunder about with him." Herrmann here quickly placed his hand in the lapels of Arditi's coat and withdrew three gold watches, one after the other. The trick was done so suddenly and adroitly that the composer of "Il Bacio" was fairly dumbfounded and seemed extremely crestfallen. The conjurer looked around with a triumphant smile, Mme. Patti screamed with laughter, and Nicolini almost choked the precious Chihuahua dog in his merriment. Then the assembled crowd gave a roar of applause, and Herrmann was the hero of the hour.

It was a favorite game with Herrmann to surprise policemen, and, time and again, did he play tricks on bluecoats in many cities. One night, several winters ago, he got mixed up in a crowd which was watching a street fakir in Union Square, New York. He

picked out as victims two young men who seemed to be together and were all eyes for the fakir and his wares. Then he waited until a policeman came along and when the officer was close by he gently extracted a watch from the pocket of one of the young men, leaving the chain dangling from his vest. Having disposed of the watch as he saw fit, he reached over and gave the chain a yank. Then as the young man discovered his loss and looked up, Herrmann pretended to be very much confused and started to edge away. Of course the young

man grabbed him, and also, of course, the policeman placed the magician under arrest. That was part of Herrmann's program, and he enjoyed the march to the station house immensely. Subsequent events showed that he was not idle during that time either. At the station house a formal charge was preferred against Herrmann by the man whose watch was missing. Herrmann was searched from head to foot, but not a trace of the watch was found. The owner of the watch declared most emphatically that he had seen Herrmann take his property, and he was equally sure that the thief had not had time to dispose of it. Herrmann smiled at this last statement, and, addressing the Sergeant at the desk, said:

"These men who accuse me seem to be very friendly with the policeman. Why, they have actually purloined his belongings! I will show the officer that these men are not what they pretend to be. Where is your badge, officer?" The policeman looked down at his coat, and sure enough his badge was gone. He turned pale, for it is a serious thing for a policeman to lose his badge.

"I will tell you where it is, officer," went on Herrmann. "This man who accuses me stole your badge. I saw him take it."

"You're a liar!" promptly exclaimed the complainant, but Herrmann only smiled and said: "Search him and see." The policeman didn't have to search the youth. He began rummaging his own pockets and pretty soon, with a look of absolute amazement on his face, he hauled out the badge.

"You see," said Herrmann; "I told you so. And now, officer, see what else is gone. A man who'd steal a badge would take anything." Holding on to the young man with one hand, the policeman began searching his pockets with the other. Suddenly he hit himself over the hip and exclaimed:

"My pistol's gone!"

"I suspected it," said Herrmann; "the other fellow's got that, I'll bet."

They didn't have to search the other fellow, either. He suddenly hauled the policeman's pistol out of his pocket, looking as surprised as his friend had over the discovery of the badge.

"And now," said Herrmann, "this watch business. This man says the thief had no time to dispose of it. You have searched me, now search the others." The policeman searched both young men, but found no trace of the watch.

"Now search yourself," said Herrmann, and when he insisted the officer did so and found the watch in his inside coat pocket.

"You see, sir," exclaimed Herrmann, "I am the only honest man among them all."

"I see," said the Sergeant, who had witnessed the searchings without comment, "and I'd like your name."

"Herrmann, Alexander Herrmann," said the magician. "I'm an honest performer, and—"

"Yes, I know," interrupted the Sergeant. "You did this pretty well, Mr. Herrmann, but, in future, you'd better not joke with policemen. You may go." And the magician walked out, leaving the Sergeant to ex-

plain matters to the astonished group he left behind. Herrmann has worked this trick with variations in a dozen different cities. Sometimes he did it for amusement and sometimes for the advertisement he got out of it, but always with remarkable effect.

Once in San Francisco, Herrmann's attention was called to an habitue of the Palace Hotel who constantly carried about, concealed on his person, a savage bowie knife. The man had acquired the habit of feeling at short and regular intervals to ascertain if the knife was in its place. Herrmann abstracted it deftly from its sheath and almost immediately its owner noticed its loss.

He looked for it in vain, but casually glancing at a mirror saw the reflection of the keen blade sticking through his hat where Herrmann had placed it without being observed.

Sometimes, as in the incident mentioned in which Bill Nye figured, the magician would get caught in his own trap. During an engagement at McVicker's theatre in Chicago, some years ago, he entered the veteran manager's office one day, in a jovial mood, and the two fell into a bantering conversation. Mr. McVicker had a silver Mexican piece of money lying on his desk. Taking it up, he handed it to Herrmann and said: "Here, let's see

what you can do with this." Herrmann looked at it for a moment, took it in his fingers, closed his hands, snapped his fingers, and opening it showed a $20.00 gold piece. "What's the matter with that?" he asked. "Nothing, that's capital," said Mr. McVicker, and grabbing the $20.00 gold piece he put it in his pocket and Herrmann didn't get it back either.

As a manipulator of cards in every way, except in gambling, Herrmann excelled, and even in that way, as has been shown, he could beat anybody playing if he resorted to his magic, but that he never did except for amusement, and then he would always return his winnings.

Speaking to a friend about his street tricks he said. "Few people have any idea how much fun a magician can have by the exercise of his art for his own amusement, so let me tell you a true story of a harmless practical joke it enabled me to play the other day. I was passing an itinerant vender of provisions,—an aged colored woman,—when I stopped and inquired the price of her eggs.

" 'Two fo' five,' she replied, 'an' dey's good an' fresh, I tell yo', honey, case I done biled 'em myself.'

"Give me two," I said, laying down a nickel. Dividing one of the hard boiled eggs with my penknife, I dis-

closed a new 25-cent piece. The eyes of the old negress and those of the two or three bystanders seemed starting from their sockets as I transferred the coin from the egg to my vest pocket Breaking open the second egg in the same way, I revealed a gold dollar nestling in each half of the hard boiled yelk.

"I'll take two more of those eggs," I said, and again I found quarters and half dollars and transferred them to my pocket as before.

"Why, Auntie," said I. "I like those eggs so much that I think I'll take two or three dozen of them. What will you sell them to me for by the dozen?"

" 'By de dozen! Fo' de good Lohd's sake, honey! Why, you couldn't buy anodah ob dem eggs fo' all de money yo's got. I'se gwine right home to smash all dem eggs, and ebery cent deah is in dem done belongs to me!' And the last I saw of the good old soul she was hastening to her home with an egg-basket on each arm, eagerly intent upon smashing 'dem eggs,' and carrying in the bottom of one of those baskets, unawares, a bill which I had slipped into it, both as a reward for the amusement she had unconsciously afforded me, and to

insure her against loss from the destruction of her 'hen fruit.' "

Now and then it pleased Herrmann to show up the falsity of alleged spiritualism, and the trickery resorted to by professional show "Mediums." Illustrative of this, he once appeared before a great audience of intelligent and critical people at the Academy of Music in New York, and at the opening of the expose, said:

"I recognize the fact that there are more things, in heaven and earth, than are dreamt of in our philosophy, and on this occasion I do not propose to be so impertinent as to denounce spiritualism as a creed But I hope to show how the tricksters of spiritualism impose upon the credulity of the public by their pretended performance of miraculous things through spiritual aid."

He then began his work and his first move was to

expose spirit and slate writing. He got three men in the audience to write three different sentences on a sheet of paper and then had the writing read out. They were: "Life is short and sweet," "So is my love," and "When will the stock market go up?" The reading created much merriment. Obeying Herrmann's instructions, one of the men tore the sheet in half and put one part in his pocket. Another gentleman folded up the other portion,

and, sticking it in Herrmann's wand, set it on fire. While it was burning a district messenger boy came down the aisle with a mammoth envelope and handed it to Herrmann. It was addressed to Joseph J. O'Donohue. Herrmann sent it into Mr. O'Donohue's box. Mr. O'Donohue tore it open and found another envelope addressed to Commodore Dickson.

This was thrown back to the Commodore, and he in turn found a smaller envelope addressed to Judge Kilbreth. Judge Kilbreth tore open his envelope and got a tiny note addressed to Herrmann. Herrmann opened his epistle and brought out the identical piece of paper that had apparently been burned up by one of the men in the audience. The two parts were put together by Judge Kilbreth and read aloud to the audience. The people present had followed the action of the conjurer closely and were amazed. Herrmann, when the applause subsided, explained that he had substituted another piece of paper for the torn portion and had passed it, without being observed, to D'Alvini, who was his associate at the time. D'Alvini put it into the smallest envelope and that was in turn put into the others and sent around to the messenger boy.

Next Herrmann produced two common slates, and,

after washing them with a sponge, tied them together with a rope, and had a man sitting beside Dr. Lawrence hold them over his head. Nine people in the audience were given slips of paper to write questions on, and Herrmann promised to have a reply appear on the slates. The slips of paper were folded up by the writers and dropped into a hat. A lady was invited to take one of the slips out, and Judge Kilbreth read the question aloud. It was: "Who will be the next Democratic candidate for Governor of New York?" A jolly fellow yelled out "Berry Wall," and everybody laughed. Then the Judge was handed the slates, and, untying them, read out the message written upon one. It was: "Let us say Grace for David B. Hill." Herrmann explained that, instead of allowing the nine questions written by the people in the audience to go in the hat, he had dropped in nine of his own. They all had the same question, and the lady could not help taking out the one he wanted her to take. There had been a false flap on the lower slate, which he had dropped out when they were being tied, and the answer was there before the questions were written. Herrmann next had five men come on the stage and endeavor to hold down a fifty pound table upon which he put his hand. One of the

men was a reporter. They struggled with the table, but it rose up nevertheless and whirled around till one of the five, a stout, gray-haired man, was sent sprawling on the floor. Then the professor explained that the man opposite him at the table was a confederate of his, and both of them had hooks up their sleeves. He showed the hook and lifted the table with it so easily that it looked as if there must be some hidden power.

The second part of the entertainment opened with a cabinet manifestation. A big black post was brought out, which had handcuffs on two sides and ropes attached to them. The post was screwed to the bottom of the cabinet, and Mme. Herrmann was handcuffed to it and her arms tied and the knot sealed by another committee of five. The committee were instructed to watch around the cabinet to see that there was no outside assistance, and then Herrmann drew the curtain over the

front of the cabinet. In an instant tambourines were played inside the cabinet and bells were heard ringing. Within five seconds, Herrmann drew back the curtain and the audience saw his wife still manacled and tied to the post. The same thing was tried half a dozen times with similar results, sometimes the bells and tambourines flying out of the top of the cabinet. One of the commit-

tee asked to be allowed to go into the cabinet. Herrmann acquiesced, but insisted upon blindfolding him. A moment later he came out of the cabinet head first. minus his coat. The coat was around Mme. Herrmann, her arms being in the sleeves, although her wrists were still handcuffed and tied to the post. The man looked red in the face and wanted his coat. The curtain was drawn again and the coat came flying through the top of the cabinet. Herrmann explained the trick a few minutes later, after having the committee examine the handcuffs and the seals, and having them vouch that the seals were exactly as they were at first. Mme. Herrmann pressed a spring at the bottom of the post and the handcuffs came out of the post as nice as could be. The spring was not noticeable to the naked eye. The man who went into the cabinet, Herrmann said, stepped on or touched an electric battery, and got such a shock that he hardly knew what he was doing. When he took his coat off Mme. Herrmann put it on and replaced the handcuffs in the post.

The third part was "The Black Art", so well known as part of Herrmann's regular stage business. The necromancer had hands, people, chairs and tables come out of the air and capped the climax by cutting his

wife's head off. Then the devil came on and Herrmann fell afoul of him; three angels appeared from above in robes of snowy white, with beautiful wings. They came down and trod the stage, to the wonderment of the audience. Part four, the denouement, was rather sensational. Dr. Lawrence, who was in a front seat in the orchestra, rose up and protested against the sacrilege several times, but was squelched by Herrmann with great regularity. It was in this scene that Herrmann promised to produce oil paintings, just as the notorious Mme. Diss Debar pretended to obtain them from the spirit-world. A gentleman in the audience came on the stage after a dozen or more had been invited, and was given by Herrmann an apparently virgin canvas to hold over his head. The magician asked him if he was a Spiritualist. The gentleman replied: "I'm a certain kind of a Spiritualist." His florid complexion and carmine-hued proboscis bore testimony to the fact.

The orchestra played spirit music and Herrmann passed his hand over the canvas while the man had his back turned to the audience. He turned around and there was an oil painting on the canvas. Herrmann said he purchased the picture at Mme. Diss Debar's studio himself and covered it over. The gentleman was next

given a 3x3 canvas to hold above his head, and Herrmann turned him around. It was not ten seconds after the man put the canvas above his head when the audience saw a fine oil painting of Dr. Wolf, the oil being still wet. This was accomplished by the dropping of a panel, which consisted of a false canvas. Another picture was produced by Herrmann in full view of the audience by removing the preparation of China white by rubbing his hands over and rolling it up into a ball and slipping it up his sleeve. Dr. Lawrence got up and howled. Herrmann came down to him and said: "Doctor, you know how it's done better than I do. Here are the pictures just as Mme. Diss Debar produced them. I am doing this to show the public how a man can be swindled through this trick. If I can't do by trickery what you claim to do by spirit power I'll retire from the business."

Herrmann then said that to show the people that oil paintings could be produced legitimately within fifteen minutes, Matt Morgan had volunteered to paint the por-

trait of any one in the audience within that time. After introducing Mr. Morgan, he asked who wanted to sit for his portrait. The gay boys in the audience howled for Berry Wall, while voices from the gallery demanded

Mrs. McGuinness's pig and other pleasant pictures. The bulk of the audience shouted "Grover Cleveland" and "Our Next President." Finally Richard H. Newcombe, who was in the box nearest Mr. Morgan, consented to sit for his picture, and the artist went to work. In a little more than thirteen minutes the canvas bore a fine picture of the lawyer in oil. In many respects it was superior to the spook pictures in the Marsh collection.

While Mr. Morgan was at work Herrmann was explaining how the spirit pictures are produced. To wind up the show, Herrmann said he would bring out a few spirits of his own. The house was darkened and the spirits appeared. Some played musical instruments, while others talked to friends they had left on earth. The orchestra played "Johnny Get Your Gun," and one of the male spirits danced to the tune. The sight of the alleged spook dancing around, wobbling its head and going through all sorts of contortions in company with the music set the audience wild. The lights being again turned on, Herrmann said he hoped he had offended no one by what he had done, and, on the contrary, he believed he was doing his duty as an American citizen in exposing these frauds. He was cheered to the echo.

Notwithstanding that Herrmann was of foreign birth

and education and was much in other lands at intervals during his entire life, he was very enthusiastic in his Americanism. He had an education of excellent breadth and was a most proficient linguist. He was highly versed in physics and in chemistry. He was also a Free Mason of high rank and a member of the Benevolent Protective Order of Elks as well as of several other fraternal associations. Making fortunes easily, he spent money lavishly and much more for the pleasure of others than himself. While on its tour, the itinerant Herrmann family consisted of Madame, Monsieur the Occult, and Fidget the impossible, the latter member being a shrivery Dandie Dinmont dog of impressionistic proportions and scattered nervous forces. At home, there was more of the curious family, including bow-legged ducks, blue monkeys, strutting pigeons, ambling geese and birds of strange feather on speaking terms with cats of haughty mien. Mme. Herrmann always traveled with her husband and she was with him at the time of his death. The two appeared on the stage together,—Herrmann, as the master of magic, the inscrutable Mephisto, weird and uncanny, while his wife, with her fresh beauty, served as a foil to her husband's supernatural appearance. At a wave from her husband's hand, or a

shot from his pistol, she disappeared and reappeared in the most unexpected places and the two were the wonder and delight of the rising generation as well as of the older theatre patrons. There are probably but few men who have been on the stage during this generation who have been more talked about than has Herrmann. Stories of every improbable sort were circulated about his prowess and the practical jokes he had played on every one, from the late Czar of Russia to the gambling shark that infests the railroad trains. And no one who has ever attended one of Herrmann's entertainments and watched things vanish and spring from nothing ever thought of doubting the most improbable of these anecdotes. Herrmann was particularly fond of children and his entertainments were never complete without some trick or illusion intended particularly to mystify and amuse the youngsters in the audience. He loved to go to public institutions where children were cared for and to give impromptu entertainments for their pleasure, showering among them sweetmeats in the tricks with which he astonished and delighted them.

Herrmann made his last public appearance in Roch-

ester and spent there the last day of his life, Wednesday, December 16, 1896. This last engagement of the wizard

was marked by deeds of kindness and charity on his part that his sudden death made conspicuous. Arriving there Thursday afternoon, his first act was to pay a visit to the State Industrial School and to give an entertainment to the young inmates. He was not content to do "a few sleight-of-hand tricks," as the superintendent suggested, but insisted upon sending to the theatre for his apparatus and giving a really first-rate entertainment. He closed it by inviting the boys and girls to attend his Wednesday matinee. Considering the number of the guests and the size of Herrmann's Rochester audience, this was no inexpensive kindness. Naturally this visit and invitation were great events in the school, and made the magician the hero of the inmates. When the news of his sudden death reached Rochester Thursday afternoon there were no more sincere mourners than the youngsters of the State Industrial School. The morning exercises Friday were turned into a sort of impromptu memorial service for one whom all the children thought of as a good friend of theirs.

Wednesday afternoon Herrmann supplemented this act of kindness by another. An unsuccessful attempt to revive "Our American Cousin" had been made by a traveling company at one of the local theatres. The en-

gagement was a "frost," and several members of the company were stranded without a cent to pay their hotel bills or their fares home. Herrmann happened to hear of their straits, and, without solicitation, paid the bills of the whole party, provided them with railway tickets and pocket money, and sent them on their way rejoicing. This was done without any ostentation, and it became known to the public by sheer accident. The two incidents made a strong impression on the public mind and a local newspaper voiced the sentiment in an editorial remark that no man could make a much better record for his last day on earth than that made by the good-hearted wizard who had given his final hours of life to visiting those who were in prison, comforting those who were in affliction and helping the helpless. On the evening of his last day Herrmann attended, after his performance at the Lyceum theatre, Rochester, a banquet tendered him by the Genesee Valley Club. He was in high spirits and entertained his friends until a late hour with his anecdotes and tricks. A party accompanied him to his car and saw him start on his journey to Bradford, Pa., where he was to have appeared the following night. In the morning, however, an attendant found him ill in his stateroom of the private car. Assistance was summoned

and physicians were telegraphed to meet the train at Salamanca, but Alexander Herrmann was dead when that city was reached. His last words were addressed to Mme. Herrmann.

"I guess that I'm not to get over this," he said. Take the company back to New York. Be sure about that."

The body was taken to New York city and on Sunday day, December 20, the funeral services were held at the Masonic Temple in the presence of an immense gathering of friends and admirers. Rabbi Silverman, of the Temple Emanu El, made an address, and masonic exercises were performed by Munn Lodge, of which the dead magician was a member. Sittings were reserved for the Lambs, the Elks, the Phoenix Club, and other organizations with which Herrmann was affiliated. The pall bearers were Jacob Hess, Henry Dazian, Charles Henry Butler, Maurice Grau, Samuel Carpenter, Henry Rosener, Michael Coleman, Charles C. Delmonico, Frank W. Sanger, Al Hayman, William H. Crane, Julius Cahn and James H. Meade. The ushers were D. H. Schuhmann, H. A. Rockwood, Jacob Nunnemacher, Harry Mann, Thomas Shea, J. Charles Davis, Fred C. Whitney, Andrew A. McCormick, Max Hirsch, Henry E. Dixey, Joseph E. Brooks, Will H. McConnell, Louis

Aldrich and Fred Rullmann. The interment was at Woodlawn Cemetery.

There was a strange fascination in the personality of Herrmann, a certain magnetism that impressed not only his audiences but those with whom he came into contact socially. Much of his success was due to this unusual endowment, in addition to which he was gifted with an absolute genius for the magic art.

In nearly every great city of the civilized world Herrmann had a host of personal friends who deeply mourned him and who will sorrowfully miss his annual visits, and the breeze of good humor that came with him, one of the greatest of mortal magicians, who has gone to solve the mysteries of the Life Beyond.

CHAPTER III.

HERRMANN'S SECRETS.

Alexander Herrmann, in his tricks, looked the typical Mephistopheles. Instead of the usual evening dress adopted by the majority of modern conjurers, he always appeared in court dress, with knee breeches, low waistcoat and court slippers. The conjurer's coat is provided with two special pockets placed in the skirts of the coat and known as "profondes." He also has two small pockets ("pochettes") in his trousers near the hips. In the upper part of the coat, in each side, is a pocket cut down perpendicularly. These are called "loading" pockets. This constitutes the details of the performer's dress. As an invaluable assistant, he carries a little wand in his hand.

Let us look for a moment at his stage, the setting of which consists of a handsomely ornamented center table, with two neat side tables and usually a couple of chairs. Each of these little tables has a small shelf behind it and contains traps in the table top through which any small object can be caused to vanish.

If the reader desires to emulate Herrmann in some of his best tricks he must be able to palm a coin or small object or force a person to draw any card he desires to have drawn from the pack. If unable to do the latter, he must resort to prepared packs of cards, generally called "forcers", which contain either all one kind of cards or are divided into three, four or five sets of five, eight or ten cards each. In using cards such as these, of course the performer will make sure that the persons drawing the cards will select the card intended for them. If it is necessary to give these cards for examination, they can be easily exchanged for another pack of the same kind.

I will now proceed to give, in detail, a description of the most famous tricks performed by Alexander Herrmann, with all such indications that will allow anyone to successfully perform them—after sufficient practice and with the necessary paraphernalia.

No. 1. Herrmann's Best Handkerchief Trick.

One of Herrmann's favorite tricks he often called "The Transformed Handkerchief" and sometimes "Le Mouchoir Serpent" from a fancied resemblance to a

snake which the handkerchief is made to take at one stage of the trick. The performer comes forward and requests the loan of a lady's handkerchief. While one is being produced, he brings out a lemon from some spectator's beard or hair, which he tosses across the stage to his assistant. He held this lemon palmed in his hand as he came forward. The inside of the lemon had been scooped out and then a duplicate or rather a dummy handkerchief had been placed inside of it. Of course this lemon is never given for examination. As he turns to toss it to his assistant he takes a little bundle of small pieces of cambric, each piece about four inches square from one of his numerous pockets. He conceals these

pieces in his hand, and taking the borrowed handkerchief, he rolls it up into a ball between his hands and apparently hands it to someone to hold (in reality he substitutes the pieces of cambric). He turns and takes a step or two towards his table, meanwhile slipping the borrowed handkerchief into another pocket. Then suddenly turning to the person, exclaims: "My dear sir, what are you doing? I never told you to do that. You are ruining the handkerchief." The innocent assistant looks up in amazement and is told to open his hand and the handkerchief, and, to his astonishment, he finds the

handkerchief in pieces. After tantalizing him for a few moments, the performer takes the pieces back, rolls them together in his hands, drops one on the floor, and in the act of stooping down to pick it up, exchanges the little pieces in his pocket or under his vest for a long piece of cambric about four or five feet long, rolled into a small roll, which he now hands to the gentleman to hold, telling him to rub his hands together gently and "thus sew the pieces together." But the person no sooner starts to do this than the performer says: "Stop, stop; not that way. You will spoil it all. You are making matters worse. Now open it again." He does so and finds it in a long strip. The performer takes this and offers it to the owner of the handkerchief, who naturally refuses to accept it in this condition. He then loads the long strip into his pistol, or rather blunderbuss, and looking around for a target, spies the lemon and shoots at that. Taking a knife, he picks up the lemon and cuts all around it, throwing the rind carelessly on the floor, and takes the handkerchief from the lemon which is supposed to be the original one. He offers this to the lady, but stops and says: "Ah! excuse me, madam, you prefer a little scent on it; I have some here." Stepping to his table he picks up a plate and a small scent bottle.

He puts the plate on a little stand near the footlights and drops the dummy handkerchief on it. Then, while facing the audience, he pours some scent on it, and as soon as he does so, his assistant, who has a lighted candle in his hand, sets fire to the handkerchief which blazes up brightly at once, the blue flame showing the scent was alcohol. Now arises a make-believe quarrel between the conjurer and his assistant for such stupidity. Finally he offers the handkerchief in this condition to the owner who, of course, refuses to accept it. He then usually says: "Well, I will wrap it up in paper for you." He steps one side or to the table and gets two pieces of paper. Taking the ashes from the plate he rolls them up in the papers, which he bursts open at almost the same instant, and inside finds the original 'kerchief uninjured, which is at once returned to the owner, the ashes having vanished. These papers are prepared like a bag, one of them consisting of a double paper pasted together like a bag around three of its sides only. In this bag or sack thus formed the professor places the original handkerchief which he took from his pocket as he stepped to the table or behind the scenes for the paper. The handkerchief thus lies between two thicknesses of paper and when this is rolled up and torn open from the

outside the 'kerchief may be removed without disturbing the ashes of the duplicate one which remain inside the paper. This was one of Herrmann's best tricks, as it displayed his skill in palming to the greatest advantage. There are very few amateurs who care to attempt this trick, as it requires more sleight-of-hand ability than the majority of them possess.

No. 2. Handkerchief Produced from Bare Hands and then Caused to Vanish.

This is the latest trick in the manipulation of handkerchiefs and is now used by nearly all conjurers. It consists principally of an imitation finger which is hollow, made of brass in the shape of a finger and painted flesh color. The brass on the upper and lower side at

the lower end, extends out a little to enable the finger to be placed in between two of the other fingers of either hand and remain in that position. In performing this trick three silk handkerchiefs of different colors are used, usually red, white and blue; also a large white linen handkerchief, and what is known as a "handkerchief vanisher." This handkerchief vanisher is a small tin or brass tube, about 1 inch in diameter and about 2

inches long. One end is closed in conical shape with a small hole through this end. An elastic cord is passed through this hole and the end remaining on the inside of the tube is tied in a big knot to prevent the elastic from slipping through the tube. This elastic is from 10 to 12 inches long. The other end is attached to the back of the conjurer's vest near the collar, and the tube is then brought around and placed upright in the right vest pocket. Some performers prefer to have the elastic cord come down the right sleeve and of such length that the little tube is about two or three inches inside the mouth of the coat sleeve. When concealed there the performer can reach it with his fingers by resting his hand upon his hip, which will bring the vanisher down to his finger tips where he can take hold of it without its being noticed.

A further preparation consists in having an opening in the outside seam of the trousers on the right leg about half way between the hip and knee. In this opening is fastened a small pocket. A small black button is attached to two of the handkerchiefs by a short piece of black thread. These two handkerchiefs are then rolled up and inserted in this small pocket in such a way that the small button hangs down outside the pocket. There

is another pocket, exactly the same, in the left trouser leg. In this pocket three duplicate silk handkerchiefs of the same color are placed. These are all tied together with a piece of thread, in a little ball, and a small button is attached to this. When ready to commence the trick, turn up the sleeves and then place the false or imitation finger between the middle fingers of the right hand. In this finger you must have previously inserted one of the silk handkerchiefs. Now begin gesticulating, moving the hands about easily and carelessly and the additional finger will not be noticed. Show there is nothing in the hands, displaying back and front of each hand, and then place them together with the back of the left hand towards the audience. This hides the imitation finger which you now reverse and slowly produce from it the handkerchief. Lay this handkerchief on the back of a chair, and as you do so, drop the finger on a little shelf attached to the back of the chair. Now take up the white handkerchief, wave it in front of you, and as your hands pass by the little button attached to the handkerchief in the trousers, take hold of it and pull it out, at the same time twisting this bundle of handkerchiefs up inside the white handkerchief which you slowly unroll, producing the silk handkerchiefs from it. Now to cause these to

vanish, roll them up, one at a time, and either drop them on the shelf of the table as you pick up your wand, or get down the vanisher into your hand, that is concealed in your sleeve, and holding it between the hands, standing sideways to the audience, work the handkerchiefs up into it slowly, and, at the proper time, let go of it and it will fly up the sleeve or in under your coat without the spectators being able to see it. Call attention to the disappearance of the handkerchiefs and state you will reproduce them. Shaking the large handkerchief out, you catch hold of the button hanging outside the little pocket in the left trouser leg. Pull this out under cover of the white handkerchief and wrap the bundle thus produced in the white handkerchief the same as you did before, which you soon unroll, showing that you have reproduced them all after they had vani hed.

No. 3. The Vanishing Handkerchief.

To cause any handkerchief to disappear while it is held in the hand is a very interesting trick and is used by many modern professionals. Among those who probably used tricks of this kind the most are Prof. Buatier, the Hungarian conjurer, who appeared in New York

City some time ago, and the American conjurer, Prof. Harry Kellar. Herrmann was also an expert at it. The apparatus used in this performance is either a small metal cup somewhat like an egg in shape and about one inch long and ¾ inch in diameter, with one end of it cut off; or a little cloth sack or bag can be used instead of the metal cup. If the latter is used it must be painted flesh color which should also be the color of the sack or bag. Through the sides near the opening are two small holes through which is passed a very thin piece of copper wire or a very fine silk thread, or what is still better, a piece of very thin fine catgut, the ends of which are fastened together on the inside of the cup or sack, leaving a loop about two inches long on the outside (Fig. 7). Slipping the thumb of the left hand through the loop thus made you can hold the cup or sack in the palm of the hand. Use a handkerchief about 12 or 15 inches square, and holding one corner between the palms of the hands, allow the balance of the handkerchief to hang over the hand. Moving the hands upward and downward you, in the meantime, push the handkerchief into this little cup. When it is all pushed

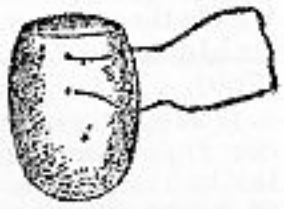


FIG. 7. THE VANISHER.

in, turn your right side to the audience and with the right hand work the cup over onto the back of the left hand where it will hang down suspended by the loop over the thumb and be invisible to the audience, the right hand concealing the appearance of it behind the back of the left hand. When it is hanging on the back of it, however, exhibit both palms outward, without lowering them to the audience, and they will appear to be empty (Fig. 8)

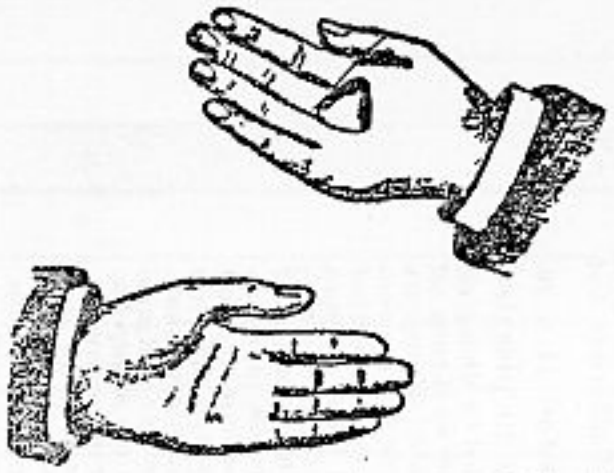


FIG. 8. THE VANISHING HANDKERCHIEF.

No person would imagine for a moment that the handkerchief is hanging from the left thumb on the back of the hand. At the proper time this is allowed to drop off into any suitable receptacle, unseen by the audience, and a duplicate handkerchief can be made to appear in some other place, thus making it seem as though you

had with bare hands caused the handkerchief to vanish, only to make it re-appear somewhere else.

No. 4. The Color Changing Handkerchief.

To make a handkerchief change color while passing through the hand is another pretty handkerchief trick and one that is not known to many professionals although it is by no means new.

The apparatus used is somewhat similar to that described in the last trick. A small pink silk sack is used and the edges of it gummed around the sides of a small hollow cylinder, something like a tiny barrel, in such a manner that the outer or full end of the sack can be pushed into the barrel or out again. Two small silk handkerchiefs are necessary, one blue and one red. Before introducing the trick one of the handkerchiefs is rolled up and put into the little sack inside the cup, but a loose corner of the handkerchief is left out. As you are about ready to introduce the trick the little barrel is palmed, with the handkerchief concealed in it, and taking the other colored handkerchief in your hand, and

shaking it out to show the audience there is nothing peculiar about it, you state it will change into any color

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they may mention. Of course several prominent colors will be named and you must make the selection yourself. Placing the two hands together with the visible handkerchief hanging over them as in the preceding trick, you work the arms up and down, gradually pushing the handkerchief in at the top of the little barrel with the left thumb, and with the right thumb bent under you gradually work out the corresponding portion of the other handkerchief. Hence it appears to the audience that as the one handkerchief disappears in at the top of the hands it comes out below of a different color. Continue this motion until the first handkerchief is safely pushed into the bag of the little barrel, which, when fully in assists the withdrawal of the other handkerchief, and seizing it with the left hand you pull it out entirely away from the right, at the same time palming the little barrel with the other handkerchief in the right hand, and as the opportunity offers, dropping it into your pocket. The audience will marvel how in simply pushing the handkerchief down through the hands it changes color. The main point of this trick is to draw the one out from below just as fast as you cause the one at the top to disappear; practicing two or three times will regulate this exactly.

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No. 5. Another Method of Making a Silk Handkerchief Change Color.

This is also a very neat trick and necessitates two pieces of apparatus.

Taking up one of the red silk handkerchiefs previously produced, the performer remarks that for his part he prefers green and that he will try to change it to that color. Taking it by one corner between his hands, the remainder hanging down over his fingers, he waves the handkerchief about, gradually drawing up the slack into his hands from above. Simultaneously, however, the fabric re-appears hanging down beneath the hands, but it has changed color, being now a lively green. The hands are opened and found otherwise empty.

The trick is effected by the aid of a special piece of apparatus, consisting of a thin tube of thin brass, japanned black, two inches in length and one quarter in diameter (Fig. 9). It is open at each end and is pivoted at the center between the arms of a wire fork, so that either end can be turned outward at pleasure. Inside this is adapted a little black silk bag, of the same diameter as the tube, but only half its depth. The edges of this bag are attached to the center of the tube so that

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its closed end can be pushed to either end of the tube at pleasure.

The fork is attached to a piece of elastic cord of such a length that when the opposite end is looped over the performer's rear trouser button on the right side, the tube can just be brought out (but no more) through the left armhole of the vest. In order that it may be readily and secretly get-at-able when required, an ordinary dress hook should be sewed point downwards to the lower edge of the vest, on the left side, just where a cloth front joins the cotton back. The tube being drawn down, and the cord slipped under the hook; the "fake" is instantly get-at-able, while the downward pressure at once releases it and leaves it free (but for the pull of the elastic) in the hand that grasps it. It is prepared for the trick by pushing a green silk handkerchief into one end, which we will call "b", of the tube, thereby forcing the little bag to the opposite end, which we will call "c."

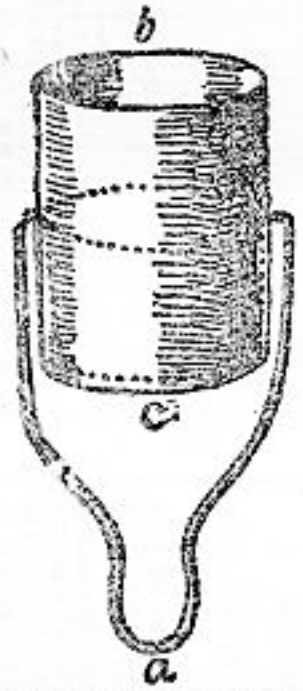


FIG. 9. A HANDKERCHIEF CHANGING COLOR.

The tube is then reversed so that the end "c" is outermost, and lastly, the cord is hitched under the little hook.

When he desires to show the trick, the performer, as he picks up the visible handkerchief from the table with his right hand, gets the tube into the opposite hand. Then standing with his left side to the spectators, in which position the elastic is hidden from view by the arm, he begins to work the visible handkerchief into the end of the tube. This forces out the green one from the opposite end, changing, apparently, the one into the other. When the red handkerchief is fairly housed and the green one fully produced, he makes a slight forward movement of the hands, and at the same time releases the tube which instantly flies, drawn by the elastic, under the coat and up to the armpit.

No. 6. Changing a Handkerchief into a Billiard Ball.

There are several ways of changing a handkerchief into a billiard ball, but the following is probably one of the best, and Herrmann used it most cleverly.

Remarking confidentially to his audience that the worst of the magical handkerchiefs is that under the

slightest friction they turn into something else, he took one of them, (a red one preferred) spread it over the palm of the left hand, and rubbed its center with a circular movement with the palm of the right hand. After a few moments the handkerchief disappeared and in its place was seen a fair-sized billiard ball, red, of course, to correspond with the color of the handkerchief.

The secret here lies mainly in the billiard ball, which is hollow, with an opening about an inch in diameter, or a little more, in one of its sides. This ball, placed beforehand in a convenient pocket, or elsewhere handy, is secretly gotten into the left hand, and the handkerchief

laid over it, with its center just over the opening of the ball. A circular rubbing movement of the opposite hand upon this part of the handkerchief causes it to work itself gradually into the ball, the center going in first, and the corners being the last to disappear. When the last corner has found its way inside, the hands are opened, and the ball is exhibited in the right hand, the opening being next the palm, and therefore invisible.

To give a proper finish to the trick the operator should be provided with a duplicate ball, similar in appearance, but solid. This should be hidden under the

vest, or in a convenient pocket. While the eyes of the company are all drawn to the ball just produced in the right hand, it is an easy matter to get this ball secretly into the left hand. The performer now makes the movement of transferring the ball shown to the left hand, but in reality palms it in the right, and shows the one already in the left hand, which is then handed for examination.

If the performer considers this last achievement beyond his powers, his best plan is to place the ball just shown at once on the table (hole downwards or to the rear) and proceed briskly to some other feat.

No. 7. Making a Solid Billiard Ball Vanish from a Glass of Water.

This is a very neat addition to all Billiard Ball tricks and has been known for some time to but few professionals

The solid ball last shown may be used for the purpose of another very effective trick. The additional apparatus consists (Fig. 10) of a clear glass-shell exactly covering one-half of the ball, and a tumbler with or without a foot, but of such size and shape as to accommodate the

ball comfortably in its lower portion. The performer ex-

plains to the company that this ball, though apparently solid, is not so in reality, being in fact merely a silk handkerchief materialized into that form. To show how unsubstantial it really is, he proposes to place it in a glass of water, when it will be found to disappear. He fills the glass two-thirds full accordingly, and leaves it standing on the table. As it will be necessary to cover it for a moment, he asks the loan of a lady's handkerchief. While this is being procured he takes the opportunity to slip the glass shell (which may be "vested," as already described) over the ball. The shell, being transparent, shows the color of the ball through it and is not noticeable at a very short distance. When the handkerchief is handed to him he throws it over the ball, which must have the shell uppermost, and then, with the opposite hand, takes hold of (apparently) the ball through the handkerchief. As a matter of fact, however, he lifts the glass shell only within the handkerchief, the ball itself remaining, unknown to the spectators, in the hand which first held it, and being dropped into a pocket at the first opportunity. Meanwhile, the handkerchief drapes itself around the glass shell, looking exactly to the eye as if the ball was still beneath it. Holding it in

this fashion, the performer brings the handkerchief over the glass, and drops the supposed ball into the water. All, as they believe, hear it fall in, but what really falls in is of course merely the glass shell, which, as soon as it reaches the bottom, turns over, and adapts its own

convexity to the concavity of the tumbler. In this condition it is quite invisible, being disguised by the pattern on the tumbler. The handkerchief being now removed the ball is found to have vanished.

If the performer has any knowledge of sleight of hand, he may proceed to produce the lost ball (which in that case he retains palmed in the hand) from a lady's muff or a gentleman's beard. This is, however, by no means necessary, its mere disappearance being a sufficiently effective termination to the trick.

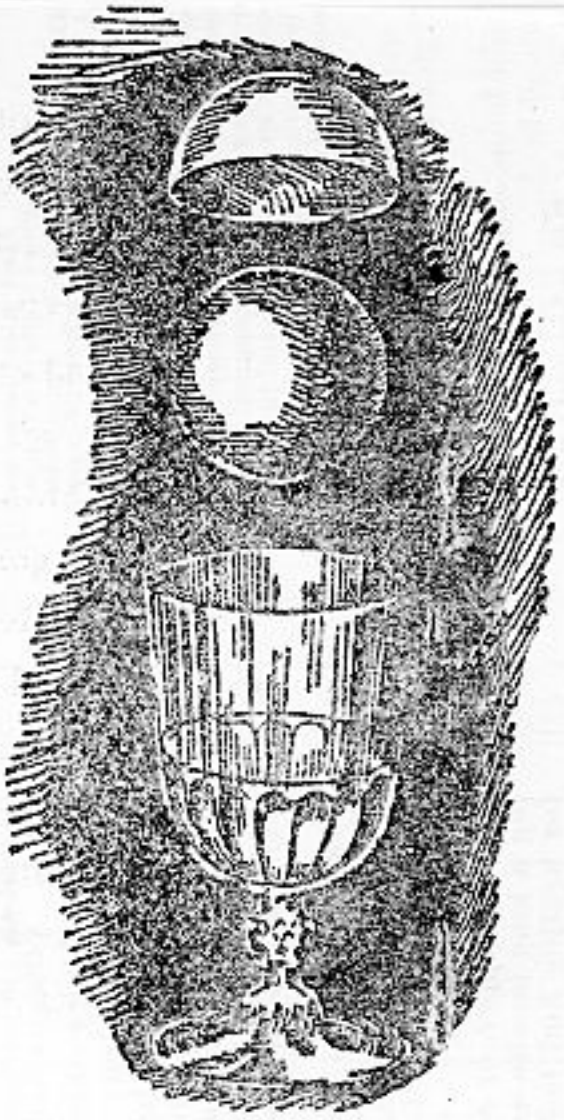


FIG. 10. THE VANISHING OF A BILLIARD BALL.

No. 8. The Multiplying Billiard Balls.

During the last few years tricks with billiard balls have become quite popular with the majority of conjurers and especially so with amateurs.

The balls made for the purpose usually go in sets consisting of one solid ball and two half shells of zinc or brass, enameled like ivory, which are hinged together on one side. These hollow hemispheres fold over and inclose the solid ball; hence, according to the position in which it is held in the hand the operator can show one, two or three balls, i. e., the two shells are shown to the audience with the rounded side towards them. With only

ordinary skill it is easy to show first one ball, then two, —the two half shells,—then three,—the two half shells and the solid ball. Letting the top solid ball fall behind

the shells, a change is made from three to two, and closing the shell, which is from two to one, or an instant change can be made of from three to one by letting the solid ball fall behind the half shells which are immediately closed over it.

A marked improvement in billiard ball tricks is that of making them apparently change color at will. This is known as

No. 9. The Chameleon Billiard Ball.

Have three balls, one red and one parti-colored. These parti-colored balls are made with a groove around the center of each, for the thumb and forefinger to fit in, and each side of different color. Have one of the parti-colored balls in one of the "profondes" pockets. Have the other one palmed in the right hand, one half of this ball being red. Pass the solid red ball for examination, and as you take it back in the left hand from the audience you bring up the right hand which contains the parti-colored ball. Place this ball in the left hand, which you

close very quickly, and at the same time pass the hand containing the red ball into your pocket, of course leaving the ball there. Now bring the hand out of the pocket quickly as if desirous of having them see you make this motion, saying at the same time: "Ladies and gentlemen, I shall now command the ball to———" Stop and look around and say: "I beg pardon, I thought some gentleman said I put the ball in my pocket. Now I assure you such is not the case as you all observe the ball is still here." Then you hold the ball in your hand, inclosed by the thumb and forefinger in such a manner that the audience sees only the red side. Continuing so——"I can assure you, ladies and gentlemen, I have no intention of making it vanish. I was merely about to command the ball to change its color, and, like the chameleon, take a fresh one." As you are talking thus you turn the ball around in your hand as you rub it with your fingers. Then show the other side which they see is of a different color, and while their attention is attracted by this change in color, you have an opportunity to get the second parti-colored ball from your profonde, with which you now make a skillful substitution of the balls while pretending to rub them very hard, placing the ball just used in your profonde

pocket, then showing one-half of the third ball which you again cause to change color by turning it around in your hands as above mentioned.

No. 10. Samuels' Improved Chameleon Billiard Ball.

A valuable improvement in Chameleon Billiard Balls was brought out some time ago by Prof. Samuels, a very skillful sleight of hand performer. Anyone with a fancy for tricks of this kind can easily prepare this and become expert with only a small amount of practice. Procure a hollow rubber ball, cut it into exact hemispheres, paint the outside of both portions red, to correspond with the ordinary red billiard ball, which is given for examination. Then paint the inside of one of these rubber shells white and the inside of the other light blue. These shells, when desired, are turned inside out by pressing on the convex side. Do not turn these, however, but fit in these shells a solid parti-colored ball and then you have an apparently solid red ball in your hand. Place your hand over this and slip off one of the rubber shells which turn quickly to the other side and replace it over the parti-colored ball; then show it has changed

color. After this has been done slip off the other shell in like manner. Replace it and again show the different color. While doing this you can tell the audience, while generally rubbing the ball, that it might fly away and you have to keep applying magnetic pressure to it. While rubbing it, get both covers off of the solid ball,

place one inside of the other and keep them palmed in the left hand. Fix the parti-colored ball in position for the next change and keep rubbing it with the fingers of the left hand. While all eyes are upon the newly covered ball, pocket the shells in the left profonde pocket, and by quick movement you can again change the color of the ball by simply turning it around in the hand. You either conclude the trick here or else, while every eye is watching the last color, take another shell covered ball from your pocket, made similar to the one just described with the difference, however, that the outside shell shall correspond in color to the last color seen by the audience and the inside of the shells and the last solid parti-colored ball shall have each a proportion of an entirely different tint to that previously seen. By this means and with this simple and good improvement not less than ten different colors can be shown with apparently one —although in reality two—mechanical balls.

No. 11. Rising Cards.

Among the best effects in card tricks are those tricks where cards having been previously selected by any members of the audience, are placed in either a glass of some kind or a card holder, and then rise up out of the holder on command.

Prof. Herrmann was particularly expert in introducing this trick. He had several combinations in connection with it. Sometimes he used a bouquet (which will be explained further on), sometimes he used a glass, and, at other times a small card holder, suspended in the air by means of ribbons,—the principle of the trick being the same in each case. The following is probably the best method for a small stage or parlor:

Any ordinary glass that will hold a pack of cards will do. The cards, of course, are examined by the audience and then three cards are selected and returned to the pack, which is then shuffled, after which it is placed in the glass and the selected cards rise, one after the other as called for. In doing this trick two packs of cards are necessary. One of these packs of cards is prepared as follows: Use a piece of fine black thread. Attach one end of it to the top of any card and place one of the cards to

be drawn next to it with the silk thread under the bottom of the card. Next to the latter card place any card, leading the thread up over the top of it and down its back. Then on the thread place another one of the three cards that is to rise. Lead the thread under the bottom of it and up over the back. Then another indifferent card on top of the thread and so on until the last of the three cards are arranged with the bottom of each one lying on, or resting against, the thread as per illustration (Fig. 11)

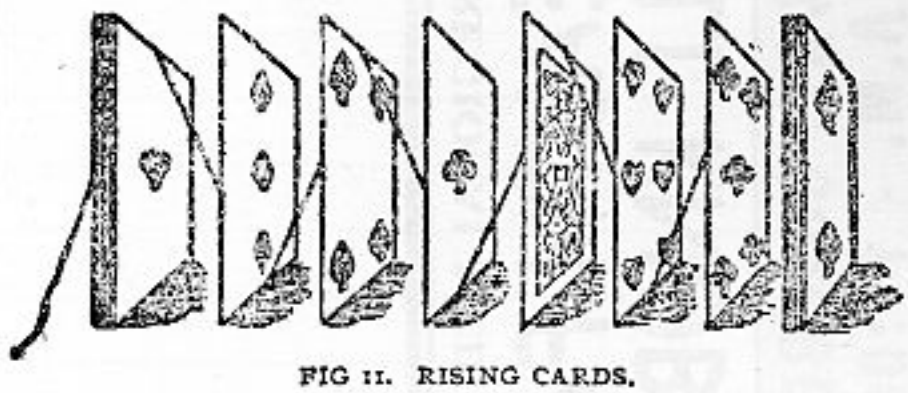


FIG 11. RISING CARDS.

Now place these six cards in the center of one of the packs, which we will call pack No. 1, with the thread projecting from the top. To the end of this thread you have previously fastened a bent black pin. Place this prepared pack of cards on your table behind a handkerchief or book. Now allow the audience to draw three similar cards from pack No. 2, either forcing them onto

the persons or using a forcing pack of cards. Have the drawn cards returned to the pack and the pack shuffled. Return to the table with this pack, to pick up the empty glass from your table. As you do so you drop pack No. 2 on the table, behind the handkerchief or book, and pick up pack No. 1, which you place in the glass after calling attention to its being empty. Now, standing behind the table, it is an easy matter for you to attach the bent pin, to which the thread is tied, to your

vest or your coat. Then taking up your wand in your right hand, you ask the ladies or gentlemen to name their cards and they will rise at your command. Ask for the first card drawn, which was the last card arranged on the thread, and when the name of it is given to you,

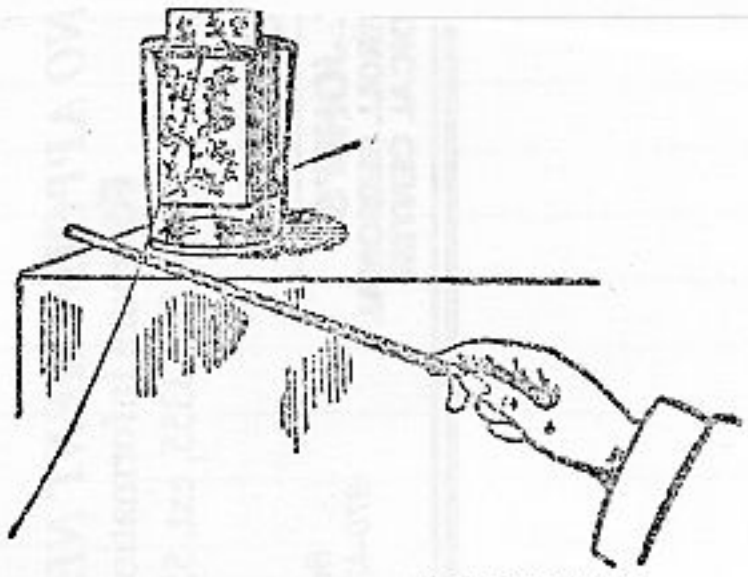


FIG. 12. CARD RISING FROM A GLASS.

you call for it to rise from the glass, and as you do so you press slightly with the wand on the silk thread in front of you, which causes the first card from the back of the pack to rise (Fig. 12.) When the card has risen to its full length, take it out and show it to the audience, calling their attention to it, and then proceed to the other two in the same manner.

It makes a very good effect to have the last card to arise be a Queen, and when you call for it, it does not rise. This gives you an opportunity to say: "Oh, yes, we should exercise a little more courtesy when addressing a lady! I forgot that this was the Queen of Hearts, to whom we should always say 'please.' 'Now, madam the Queen of Hearts, will you please rise?' and you see, ladies and gentlemen, she comes up quickly."

When the three cards have made their appearance, you step to the front of the table and take out all the cards, pulling the thread off from the card to which it was fastened and let it drop. You can then hand the glass and pack for examination.

No. 12. The Bouquet and the Rising Cards.

One of Herrmann's many masterpieces was that known as "The Obliging Bouquet." A bouquet of real

flowers is handed to a lady in the audience and three or four cards are chosen from a pack. These cards are made to disappear, when, one by one, they are seen to rise from the bouquet which is still held by the lady. This trick requires such an amount of skill and daring that few persons care to attempt it. A little tin case is used of a size to hold eight cards. It is painted green and is open at one end. This case fits inside the bouquet. The cards to appear from the bouquet are arranged as described in the preceding trick and then placed in the case. When the case with the cards thus prepared is placed inside the bouquet, the first card to rise lies against the thread, the end of which hangs down outside the bouquet. When the trick is to be performed the performer has duplicates of the cards in the case and by skillfully manipulating them causes some of the spectators to draw them from the pack. He then hands the bouquet to some lady near the footlights, requesting her to hold it up in her hand so all can see it. Then collecting the drawn cards he pretends to pass them into the bouquet (really palming them only to vanish into one of his numerous pockets.) Then taking hold of the bouquet again, he requests the lady to hold it up a little higher. This gives him an opportunity to get hold of the silk thread. He then asks

the first card to rise, and by waving his hand, which holds his wand and conceals the thread, he pulls a little on it and the card comes up slowly. As it comes up to full length he takes it out and asks the next one to appear and continues in this manner until all have appeared. He then takes the bouquet and stepping back to his table, drops out the little tin case, asks another person if the flowers are not genuine and returns and presents the bouquet to the lady with his compliments. As each card



FIG. 13. A CARD OUT OF A BOUQUET.

rises and the thread becomes longer, a step backwards is necessary to take up the slack. (Fig. 13)

No. 13. The Magic Card Bottle.

The following is a very interesting and effective trick either for the parlor or stage. Bore a small hole in a flint glass bottle a little distance from the bottom. If you wish to have wine in the bottle you can stop up the hole with wax until enough wine has been poured out of the bottle to bring the wine inside below the level of the hole. Take a piece of thread of the same color as the bottle and pass one end through this hole and out at the mouth of the bottle. Bring this upper end down alongside the bottle and attach it to the middle of a card, say the Queen of Hearts. Place this card under the bottom of the bottle, to be held there unseen. The other end of the thread comes out of lower hole and leads off to an assistant. Now have some one in the audience draw a Queen of Hearts. Have it replaced in pack and pack shuffled .Then you show the Queen of Spades which you lay on the table and stand the rest of the cards up against the bottle. In doing so you move the bottle slightly and mix with these cards the card that is attached to the

thread. Now set the Queen of Spades on top of the bottle and say: "To spare her royal limbs from fatigue, she must feign lay down on the flat of her imperial back; she cannot stand upright on top of the bottle." "Ah! who spoke? Oh! did somebody say the Queen of Hearts? You do not understand why, after having been selected by the audience, the other Queen should have stood, —I beg pardon,—you mean lain over all their heads. Well, ladies and gentlemen, may the wrong personage contest that exalted position with her rival?" You then wave your wand, and after struggling a little, the Queen of Hearts flies to the top of the bottle and is then taken off the thread and handed to the person to identify. Your assistant causes this effect by pulling the thread easily and slowly as you wave your wand.

No. 14. Card Printed on a Handkerchief by a Pistol Shot.

Borrow a Handkerchief and place it on the table. Ask a person to select a card from the pack, which card you take, tear to pieces and load in pistol; throw the handkerchief in the air or let some one do it for you, shoot at it, and the card in the pistol will be found printed on the handkerchief.

Secret: Have the figures of a card printed in relief on a small board or rubber stamp; rub the figures of this with powdered vermillion if the card is red; if black, take soot or blacked cork. Some parties paint the figures with the same colors dissolved in water, but you must be very quick in doing this trick on account of the short time that these colors keep moist. The safest way is to put oil colors on these spots which would not spoil the handkerchief. The board thus prepared is placed on your table behind some object or sunk in flush with the table top. When you place the handkerchief on the table to fold it up, you simply press it on this stamp; the rest is clear; throw up handkerchief and shoot; then unfold it

to show the card which, of course, was a forced one.

No. 15. Any Card Thought of Disappears to Reappear Elsewhere.

Ask any person to think of a card, then deal out the pack in three packs or heaps on the table, putting one card on each pile alternately to the end of the pack. You ask the person who thought of the card to tell you in which pile it is; you take the pile indicated and put the two others underneath it. Do this three times in succes-

sion, always putting the pile indicated on top of the others. The third time the card is on top, that is, it is the first of the pack indicated. When you take up the cards quickly the audience does not notice where the one thought of goes, and does not imagine that you know it already. Then instead of naming the card, palm it off and let the pack be shuffled; while they are doing so put your palmed card in your pocket. Then tell the person who has the pack to hold it tightly between his fingers and you say: "Sir, I know not only the card and can name it, but I will make it disappear from the pack." Tap on the pack with your wand, ordering the card to leave it and pass into your pocket. After it has been named, you show it, or by putting it into a card box which you fetch while they are shuffling the cards and first show empty, then hand to some person to hold, you can on taking it from him, show the card thought of inside the box, or can make any other ending you see fit.

No. 16. The Bottle and the Flag.

A very pretty trick is sometimes called "All Nations in one Bottle." This was also a favorite of Herrmann's. A small stand with a top only one inch thick is placed

in the center of the stage near the footlights. On this is placed a black bottle and two glasses. Two gentlemen are invited from the audience to join the performer in a social glass of wine or beer. They take seats one on each side of the little stand and a glass is handed to each one. They are asked what they would like to have. It does not matter what they ask for, the liquor is all of one kind in the bottle and a little is poured out into each glass. They are then served with a drink and, of course, announce their appreciation of it. Then replacing the bottle in the center of the little table top the professor asks what flag shall be taken out of the bottle. Anyone can call for the flag of any nation and the professor then strikes the bottle with his wand and holding his fingers on top of the bottle, takes out of it a small silk flag, rolled up, which he immediately unrolls and shows to the audience. He then pours more liquor out of the same bottle for the gentlemen. This he continues until a very large number of flags have been produced, occasionally treating his company to an additional drink from the bottle. This trick, so pretty in effect, is very easily executed. The table or stand has only one leg, a center pillar. This is hollow and is placed on the stage over a small hole in the floor, up which a little rod can be shoved. The bottle has

a hollow tube running down through the center of it open at the bottom and top, and when placed on top of the stand the hole in the bottom of it must be directly over the hole in the top of the table. The assistant underneath the stage has a large number of small silk flags tightly rolled up. As soon as he hears the professor call for a flag he takes the one desired and puts it on the end of a long slender rod, and when he hears the rap of the wand on the bottle, which is the signal for him that the finger of the professor is at the top of the bottle to catch the flag, he shoves the stick up through the floor, through the leg of the table and into the bottle, and when he feels the resistance of it striking the fingers at the mouth of the bottle, he pulls down the stick and the professor takes out the flag and shows it to the audience. Herrmann sometimes made the trick more effective by

having a confederate in the audience call for a Chinese flag which few people think of, much less see. This gave him a chance to ask the person if he would know a Chinese flag when he saw it. He would, of course, produce one from the bottle immediately.

No. 17. Herrmann's Ring and Bottle Trick.

This was for some time a great favorite with Prof.

Herrmann, and it is a very entertaining trick for the parlor or stage.

First procure a bottle with the bottom knocked out, an implement which you can easily make with any sharp tool. Then paint the inside of the bottle black. Get a small tube, the shape of the upper half and neck of the bottle, which will look like an inverted funnel. Have this filled with one or two glasses of wine. Fasten this up in the neck of the bottle, which can easily be done by having a thread tied around the top of it and coming up outside of the bottle and then tied around the bottle. Have a round piece of black cardboard to fit the bottom of the bottle. Procure three little bouquets of real flowers with a ribbon tied to each. Have all these in the hands of your assistant. Have a small piece of paper screwed up into a little bundle as though containing some rings. Have this lying on your table, covered with another piece of similar paper. Now borrow three rings, and picking up the papers on the table together, wrap the three rings up in the top piece of paper. Exchange this for the piece of paper already wrapped up as you go to drop them into a glass on the table, but stop before you do that, ask the assistant for your pistol, and as he hands it to you, you take it with the same hand in which you hold the bor-

rowed rings, wrapped in a piece of paper, which he takes from you as he hands you the pistol. As soon as he receives them he walks off and ties them onto the small bouquets by the ribbons attached thereto, and puts these three bouquets into the bottle, fastening the cardboard cover on the bottom, then bringing the bottle forward on a tray with a couple of glasses. The performer in the meantime has loaded the piece of paper, supposed to contain the rings, into his pistol, killing time with proper talk until the assistant appears. He then shoots at the bottle, from which he first pours some wine, and hands it out for consumption. Of course the spectators "de-claret gin-u-wine." He then breaks the bottle and finds in it the rings attached to the bouquets and restores them to their original owners with his compliments.

In tricks like these it is generally more effective to have somebody else do the shooting and this will give the performer a chance to occupy more time in working up the trick and to show how skillful he is in devising the proper patter or talk to accompany it. For instance, if he secures the aid of a young gentleman to assist him in doing the shooting part, he can say to him: "Now I wish you to demonstrate one of your aims in

life," and after he has done so it will give the performer an opportunity to make such remarks as: "Are you not tickled to death to think you are still alive?"

No. 18. The Famous Rabbit Trick.

Another favorite trick of Herrmann's was the Rabbit Trick. This probably created as much laughter as any performance in his repertoire. He first borrowed a silk hat, and then suddenly turning around, swung it in the air and took a rabbit out of it. He generally placed this one on the floor, stooping down to do so, and as soon as he stood upright he found another rabbit in the hat, thus having two. These were in his coat pockets and in turning around it was comparatively easy to drop one into the hat without being noticed. The second one was dropped into the hat when in the act of stooping down to place the first one on the floor. This sudden production of two live rabbits from a borrowed hat always cre-

ated a ripple of laughter which he intensified by suddenly pointing to a person in the audience and asking him if he would like to swallow the rabbit. The party addressed might or might not make a reply and Herrmann would say: "Well, you think I can't make you

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do it; I will show you; I will rub one rabbit into the other and you swallow one. You don't believe it? Now look out!" Stepping back to the table and placing the rabbits on it, beside each other, he would, while pretending to rub one into the other, push one through a hole in the top of the table; then firing his pistol and picking up the remaining rabbit by the ears, he would call attention to the apparently increased size of the rabbit, which all of them show when held up in this manner. Then suddenly dropping it, he would rush pell-mell at the gentleman spoken to before and seize him by the collar. The party would object and there would be a lively time between them for a few moments. Finally pulling him up onto his feet and running his hand down into the gentleman's coat, Herrmann would pull out a rabbit to the intense amusement of all the spectators. This rabbit was necessarily like the other one and was put in the inside pocket of the gentleman who would take a certain seat before the performance began. This person was usually one of his company, his secretary or his property man, but sometimes outside help was called in to hold the docile bunny.

A brother professional once played a severe practical joke on Herrmann in this trick. It was at Rochester

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some years ago and the gentleman happened to occupy the seat next to the confederate who held the rabbit in his coat. Our friend was not long in discovering it, and desiring to show Herrmann a trick he had not seen, prevailed upon his neighbor to go out with him at the first intermission "to see a man," the rabbit trick appearing later on the programme. Our friend found the confederate enjoyed a glass of dark liquor and plied him with quite a number of them until he was in such a condition very soon that he could not return to his seat. Herrmann went on with the programme, going through with the rabbit trick up to the time when he had rubbed one into the other, and then rushing down to the seat where the man should have sat with the duplicate rabbit, discovered he had disappeared. This of course threw Herrmann into a furious rage, and picking up his pistol he fired it at the floor several times, saying he wished he had the man there who had played him that mean trick and he would "do him up." The audience enjoyed his discomfiture and it is needless to say he never found out who the one was that had spoiled the trick.

During one of his recent performances Herrmann was again left in the lurch by one of his assistants, an old employee at that. One of his tricks was to borrow a

160 TWENTY DOLLAR BILL TRICK.

twenty dollar bill and have the number of it noted by a gentleman present. He would then make a few passes and the bill would disappear only to reappear in the hands of the sable assistant who would bring it forward, he being off the stage at the time the bill was being manipulated by the professor. The disappearance of the money had always been very successful, but he had never been able to make both bill and negro disappear so successfully as he did that time. He had a full house and the trick was performed as usual, the bill shown and the number put down. Then taking it in his hands it soon disappeared. This was easy so far; the trouble came when he attempted to make it reappear. He began calling for his sable assistant who was known on the stage as Gumbo, but Gumbo came not. The professor waited a few moments, killing time by doing some fancy shuffling of cards; still the negro came not. The professor began to get uneasy. The two minutes became three, then five passed, and it was ten minutes; still no Gumbo although repeatedly called for. Then getting excited Herrmann excused himself and rushed off the stage in search of his assistant. He found that Gumbo had totally

disappeared and with him the money. Returning to the stage the professor paid back twenty dollars to the gen-

tleman from whom he had borrowed the bill and then went on with his programme. Although he afterwards invoked the aid of several detectives to aid him in completing the trick and returning the money and negro, he could not find either.

No. 19. The Multiplying Coins.

A very old trick called "The Multiplying Coins" Herrmann placed in his programme under the name of "The Detroit Banker." In doing this trick he borrowed a hat and by skillful palming pretended to catch a number of coins which he threw into the hat, one at a time. He placed the coins in the hat when he borrowed it. After he had apparently secured quite a number he brought out a large nickel plated oblong tray or server. He held this in one hand and had a spectator count out onto the plate fifteen of the coins. He then requested the person to hold his hands together and he would pour the coins from the plate back into his hands. This he did and then asked the person to hand him five of the coins. This being done, Herrmann took the five coins into his right hand and pretended to pass them into his left—in reality palming them in his right hand and soon dropped

them unobserved into his right pocket. The person was asked how many coins he had at first; the reply was fifteen. "Correct," said Herrmann, "and how many did you give me?" The answer was five. "Very well," replied the professor, "then you have ten left. Please count them out onto the plate, one at a time, so all can see." This was done, and to the surprise of all, fifteen coins were counted out,—the original number. This simple trick was worked by the plate having a hollow space in the bottom of it, open at one end. Five coins were placed in this space, and when the coins were poured into the person's hands of course these coins fell out with the others from the plate which was held down low. (Fig.

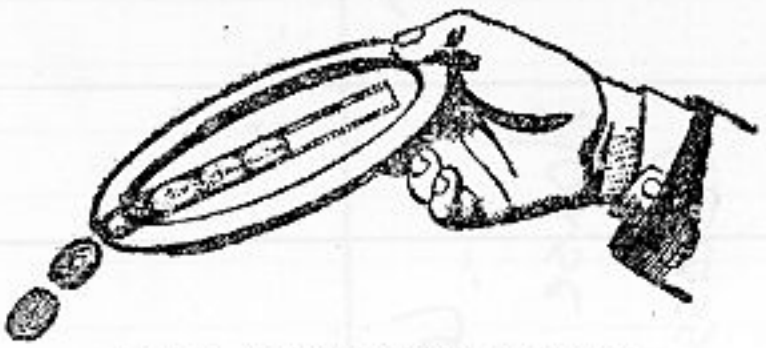


FIG. 14. THE MULTIPLYING COINS.

14.) This would put twenty coins into his hand and after he had handed back five to the performer, he thought he had only ten left, but had fifteen.

No. 20. Herrmann's Flower Production.

This also was one of Herrmann's most effective tricks —the producing of a large number of flowers from a paper cone which was repeatedly shown empty. This was not the invention of Herrmann as many people supposed. It was invented by Buatier some ten years ago and since then has been in the repertoire of nearly every conjurer, some of whom have elaborated it to a far greater extent than did Herrmann, although his manner of producing it was very clever and the immense number of flowers he produced made it very interesting. The solution of the trick is almost as simple as it is effective. The flowers are made of very fine tissue paper in assorted colors. Each has a small spring in the center which causes it to open in the shape of a rose or tulip as soon as this spring is released. In ordinary use twenty-five to fifty are put together in one small package and fastened by a band of paper around them, or by little metal holders the same size and color as the outside leaf of the flower. Usually three of these packets are produced, one placed in the profonde on each side and one just inside a small wicker work basket, lying against the side. The performer shows a large piece of ordinary

paper and rolls it into the shape of a cone and places it on the table with the mouth towards the audience. He

then, with his right hand, picks up the work-basket, with the fingers on the inside of the basket, inclosing the packet of flowers lying there. He immediately transfers the basket to the left hand, showing the basket empty. As he does so he palms the little packet of flowers in his right hand, with which he now picks up the cone by slipping the fingers inside the mouth of the cone, with the thumb outside, and taking hold of the pointed end of the cone with his left hand. At the moment he does this he drops the palmed packet in the cone from the right hand. This packet of flowers falls to the bottom of the cone, which is now pressed together tight by the left hand. This allows him to show the cone empty. Now standing with his left side to the audience, the cone in his left hand, he shakes the flowers out of it into the basket. As he is doing this his right hand slips into the right profonde and palms the little packet of flowers in that pocket. As soon as he has shaken the first packet of flowers out of the cone, he raises it up, mouth towards the audience, to show it is empty. As he does so, he puts his right hand at the mouth of the cone, with his fingers inside and thumb outside. This leaves the palmed packet

of flowers just inside the cone, where it drops as soon as he removes his right hand. The performer now takes hold of the lower or pointed end of the cone with his right hand, and turning his right side to the audience, shakes these flowers out of the cone into the basket. As he is doing this his left hand drops into the left profonde and palms the little packet of flowers concealed there, which he introduces into the cone in precisely the same manner as he did the second packet in the right hand as mentioned above.

In introducing it in this manner one hundred and fifty flowers are generally used, fifty in each packet. Herrmann, however, used a somewhat different method in producing the flowers. He generally produced the first hundred as above described and poured them into the basket, which he had placed on one of the side tables and moved to the center front of the stage, he standing behind it, holding the cone in his right hand, and while pouring them out into the basket, he picked up with his left hand a packet of flowers from the shelf on the little table, and introduced these into the cone when he had placed his hand at the top of it to show it empty or while pretending to pull the flowers out of the cone into the basket.

No. 21. Flower Production on an Empty Plate.

This is a very effective trick to produce a large bouquet of real or artificial flowers on any ordinary plate without covering. Take any ordinary china, glass or metal plate and have a tiny hole drilled through the center of it. Make up any kind of a bouquet that will lie tolerably flat. Attach a strong silk cord to the lower center part of the bouquet. Pass the free end of this cord through the hole in the plate, from the top of the plate down. Carry the cord up the right sleeve, across the back, and down to the left wrist, where you tie it around the wrist or forearm. Adjust this cord to such a length that when the arms are extended in front of you, the bouquet will lie flat on the plate. Now contract the arms and pull the bouquet up under the arm, under the coat, or just under the armpit outside of the coat, where you can hold it by pressure of the arm, holding the plate in front of you, and waving it around slightly to show it is empty. Now if you suddenly extend the arm quickly and forcibly, the bouquet will instantly fly to the center of the plate, and a strong pull will break the thread. The bouquet can then be handed out for examination, and, if it consists of real flowers, they can be distributed to the audience.

No. 22. The Great Shooting Trick.

This is a very simple trick, but, at the same time, there is always danger in introducing it. It is one of the oldest tricks known and has made the fame of more than one

conjurer. There are many different ways of introducing it.

In the novel method which Herrmann employed it depended entirely upon the cartridges containing the solid bullets being changed for cartridges containing imitation bullets. These imitation bullets are generally made of wax, formed like a bullet, and coated with plumbago. Herrmann made a great sensation with his trick by having a file of soldiers in full uniform on the stage. The officer in command of them would examine each gun and allow others to inspect them, after which he would return them to the soldiers who stood up in line. The officer would then take the cartridges which would be handed out for examination and if desired they could be marked for identification afterwards. He would then collect these cartridges on a plate and hand one to each soldier. On command, they would load their rifles and step out in line. The performer, in the meantime, taking a plate in his hand, would step to the other

side of the stage, holding the plate in front of him. On command from the officer, the soldiers would fire and the performer would catch the bullets on the plate and hand them out for examination. When executed in this manner, the officer is the confederate, and while returning to the stage he changes the solid cartridges for the dummies, and these are the ones the soldiers hold up to view and afterwards load into their rifles. The officer steps off the stage for a plate, leaving the loaded cartridges in the hands of an assistant who quickly extracts the real bullets and hands them to the performer who holds them concealed in his hand behind the plate on which he drops them as the rifles are discharged.

Practically speaking, this is a foolhardy experiment and has resulted in the death of more than one person. A slip can occur at any time by the person handling the cartridges not changing a sufficient number, or getting them mixed, and it has been known that even the soldiers would substitute a real cartridge for a dummy—death being the result.

In this manner a sad catastrophe darkened the latter years of the conjurer De Linsky, who enjoyed a considerable repute on the continent at the beginning of the present century. On the 10th of November, 1820, he

gave a performance at Arnstadt, in the presence of the family of Prince Schwartzburg-Sondershausen, and wished to bring it off with as much eclat as possible. Six soldiers were introduced, who were to fire with ball cartridges at the young wife of the conjurer, having previously rehearsed their part, and been instructed to bite off the bullet when biting the cartridge, and retain it in the mouth.

This was trusting too much to untrained subordinates, and the result justified the apprehensions of Madame De Linsky, who is said to have been unwilling to perform the part assigned to her in the trick, and to have given way reluctantly to the persuasion of her husband.

The soldiers drawn up in line in the presence of the spectators presented their muskets at Madame De Linsky and fired.

For a moment she remained standing, but almost instantly sank down, exclaiming, "Dear husband, I am shot."

One of the soldiers had not bitten off the bullet, and it had passed through the abdomen of the unfortunate woman, who never spoke after she fell, and died on the second day after the accident. Many of the spectators fainted when they saw her fall, and the catastrophe gave

a shock to De Linsky which, for a time, impaired his reason. He had recently lost a child, and his unfortunate wife was expecting soon to become a mother again when this terrible event deprived her of life.

During the '60's many conjurers were introducing in their performances the "Bullet Proof Artist", and many of them created quite a sensation. One particularly, Prof. Epstein, of Germany, drew full houses with this

attraction.

The fear and anxiety for the magician's life, as well as curiosity to see how the shot was fired at him, without doing any injury, attracted the public to these performances.

The magician realizing that to keep curiosity alive would be the means of pecuniary success to him, proceeded to utilize his knowledge to the best advantage, and in this he succeeded. But the secret of the trick had finally become known and this had caused it to lose much of its attraction.

While at a watering place, Prof. Epstein was taken sick and it was soon rumored that he had been accidentally shot during one of his performances, and that his case was almost hopeless.

A great deal of sympathy was entertained for him,

especially by those who had witnessed his performances. Everybody talked about the accident and expressed sorrow for the unfortunate professor. He was mentioned as being a very skillful performer, etc.; in a few days the papers published, as quasi-official, the fact that Prof. Epstein had been accidentally shot during one of his interesting exhibitions.

It is unnecessary to state that this was only an advertising scheme to attract public attention. At first it worked like a charm; in those days people were unaccustomed to the exaggerations of the press. When it was reported that the professor's recovery was expected in the near future, friends, to show their sympathy, commenced making preparations for his reappearance. The Casino was not large enough to accommodate the spectators, and instead of one performance, three had to be given.

Epstein thought it advisable not to exhibit the shooting trick on this occasion, and the hero (?) of the evening entertained and amused his appreciative audience with other experiments of his skill.

When the magician made his appearance at other places, though, things were different; the public grew suspicious, felt itself deceived and did not quite believe in the resurrection of a magician who had been shot.

From that time Prof. Epstein was "dead to the world."

An easy manner of introducing the shooting trick, is by the use of an old-fashioned genuine muzzle-loading pistol. When presented in this way the audience knows the pistol is genuine and has no special preparation, and if you ask people to come up and load it with powder and ball, you surely convince them, and yet this is most easily managed. Kamouchi, the lady magician, introduces it in this manner, which is the one that has been used for a great many years. It is necessary that the bullets be about two sizes smaller than the barrel of the pistol. The ram rod is of either iron or steel, about 6 or 8 inches long, and tapers slightly at each end. A small piece of metal tube, polished or painted to resemble the ram rod and closed at one end, is made to fit tightly upon either end of the ram rod and also to fit loosely in the barrel of the pistol. This little tube is concealed by you where you can get at it easily and quickly. Have your powder and bullets handy. Allow the pistol and ram rod to be passed to the audience for examination. When they have examined it, request a person to assist you in loading it. Hand him the bullets and request him to have one of them selected and marked in order to identify it. Allow two or

three people to mark this bullet, and while they are doing this you get the little tube in your right hand, between the fingers, and holding the pistol in the left hand, carelessly place the muzzle in the right hand. This movement will allow you to slip the tube into the barrel of the pistol, the closed end going in first. We should have remarked that before doing this you allow the person to put a small charge of powder in the pistol. The bullet now having been marked, allow the person to take the pistol, handing it to him in an upright position, and drop the bullet in it. Then hand him a small

piece of paper to serve as wadding which he inserts in the barrel. Then hand the ram rod to him to push it down with, which he does. The bullet, of course, has fallen into the small tube followed by the little piece of paper, and as the ram rod is shoved into the pistol tube, it is pushed down tight into the tube containing the bullet and the tube becomes attached to it and is pulled out with the ram rod. Before the person has finished this loading it is better to have the performer take this pistol and ram rod from him and continue to ram it down once or twice, finally drawing out the rod with the right hand. Slip this hand down to the end to cover the tube. He can now throw this to one side, off the

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stage to an assistant, who picks it up, and removes the tube to get possession of the bullet, or the performer can carry the ram rod off with him as he goes to bring on a plate or get a box of caps. The moment he is behind the scenes the tube is removed and the bullet extracted. The performer then returns to the stage with a plate of caps and hands one to the person holding the pistol to attach to the nipple, asking him as this is being done if he is a good shot and has plenty of nerve. You then step to one side with the plate, holding the bullet concealed under it by your fingers, and tell him, when you count three to shoot directly at you. You hold the bullet between the first and second fingers, against the rim of the plate, which you hold up perpendicularly for the person to fire at. When you have counted one, two, three, he fires. You release the bullet quickly, turning the plate into a horizontal position, when the bullet will be heard to strike the plate. You then hand the bullet for identification. There is no particular danger in producing the trick in this manner, but on no account should the performer drop the bullet on the plate before he hears the report of the pistol, as was done once by Kamouchi, in New York city, who caught the bullet in her mouth and let it fall onto the plate. In this instance

she let it fall onto the plate when she heard the report of a pistol which had been fired by a person in the audience, the one in the hands of her assistant not having been fired off. This, of course, left her in a very embarrassing position.

The latest method of introducing the shooting trick is that of using a revolver with five or six chambers, allowing any person from the audience to empty this revolver at the performer who catches each bullet in succession. This is also easy of execution and quite simple from the fact that very few persons think two revolvers are used in it; in fact, one revolver is used, but two chambers are used, one of which is empty and is shown around with the revolver. A duplicate chamber has already been loaded with dummy cartridges, made like an ordinary cartridge, but the bullets are merely wax tips that have been cast in a small mould and coated with plumbago to look like an ordinary revolver bullet. These are concealed in one of the pockets of the performer. When the empty chamber has been examined and also the cartridges, a gentleman is selected to load it. The performer then takes it to hand to the gentleman holding the revolver to insert in same, and as he does this he must exchange this chamber for the one he has

176 RICE AND ORANGE TRICK.

containing the imitation bullets. The performer retires a moment to secure possession of the bullets and to bring a plate and is then ready to have the revolver fired at him, with the usual result of catching all the bullets in rapid succession.

No. 23. Herrmann's Rice, Cone and Orange Trick.

This was one of Herrmann's favorite tricks and is a very pleasing one inasmuch as it seems to be left to the choice of the spectators how the trick shall be performed.

The performer shows two metal cones and a handsome vase with a bag or box of rice. He allows a cursory examination of the vase, removes its cover and pours the rice into it; then places this vase upon the table or a chair. Stepping down among the audience, apparently for the purpose of borrowing a tall hat, he suddenly produces an orange from a gentleman's whiskers, generally with the remark: "Thank you; just what I need for the trick." Returning to the stage he places the hat on a chair and the orange on one of his tables. The two cones are on the table, and stepping behind

this he draws attention to them and asks the audience which one they will select, the right or left. He takes the one selected and places it upon the hat. He says he will put the other one over the orange, showing it to be empty and handing it out for examination if need be. Then addressing the audience he states that he will cause the rice to pass under the cone upon the hat, and the orange, which is under the second cone, to pass into the vase in place of the rice. He raises the second cone and puts the orange under it, but apparently does not, for as he turns around he makes a feint of putting it in his coat tail pocket. Pretending to hear a murmur he faces the audience and says he would not deceive them that way, and lifting the cone, shows the orange under it. Then reconsidering the matter he says he will not use the cone at all, but will place the orange on the table and not cover it with anything. After doing this he orders the rice to pass from the vase under the other cone which he had placed upon the hat, which cone he raises at once, showing a large pile of rice on the crown of the hat. He then puts his hands around the orange and apparently picks it up and holds his hands as though they contain the orange. He rubs his hands together over the top of the vase into which he says he

is passing the orange. He then removes the cover of the vase and shows the orange in it, the rice having totally disappeared. This is really a very old trick, the changes depending entirely upon the mechanism of the apparatus. The vase is made of brass and nickle-plated. Inside of the vase is a wire rod working on a piston or spiral spring, the pressure being downward. Figure 15 explains the construction of the vase. The lower end of the rod is attached to a metal plate A at the base of the vase. The upper end is attached to a plate somewhat concave in shape, which is about one inch in diameter, and forms the bottom of the vase, see B. There is a double space,—C, C,—and around the vase which forms a cavity sufficiently large to hold the rice which falls into this space as soon as the plate B is raised by the pressure of the fingers at A. The cones are made of brass, nickle-plated, about eight or nine inches high and about four or four and one half inches in diameter at the base. One is perfectly hollow with no special preparation. The other one (Figure 16) is divided into two parts by a hinged flap which is round and just fits in



FIG. 15. RICE AND ORANGE TRICK.

neatly at about half way of the cone, hinged on one side of A and caught by an ordinary catch at the opposite side, B. This catch is in connection with a small stud or button on the outside of the cone, which, on being pressed, will allow the flap to fall down.

To work the trick the upper part of this cone is filled with rice and the flap secured by the catch. Then an orange is placed inside of the vase. The cones are placed upon the table or upon the floor, the prepared one being on the right of the performer who comes forward, and taking up the vase, removes its cover and pours the rice into it on top of the orange which it will thoroughly conceal. Then placing on the cover he presses the piston in the base



FIG. 16. RICE AND ORANGE TRICK.

of the vase with his fingers which causes the flap in the bottom of the vase to rise and the rice to fall into the space beneath, which it does very rapidly. This vase is then placed upon a table or chair. The performer then goes down amidst the audience, holding an orange palmed in the hand, which he had taken from the shelf on the table or from one of his pockets, and while he is borrowing a hat he suddenly

produces this orange from some person's whiskers. Returning to the stage he places the hat on the side table and the orange near it. Then standing behind the cones he asks the audience which they select, the one on right or the one on the left. Whichever it is he takes the one on his right as that of their choice and puts it upon the crown of the borrowed hat, at the same time pressing the catch which causes the flap to fall and the rice to pour out upon the hat. Leaving the cone there he returns to the other table and takes up the second cone which he places over the orange. When he has done this he addresses the audience telling them that he will cause the rice to pass from the vase to the cone and the orange into the vase. Then lifting the cone covering the orange he apparently takes it and makes a feint of putting it into his pocket, replacing the cone. Pretending to hear a murmur to the effect that the orange had been taken from the cone, he says: "I would not deceive you in this manner", and lifting the cone shows the orange still beneath it,—then adds: "I will not cover the orange with the cone, but place it here on the table where you can all see it." Having shown the cone to be hollow he steps to one side. Apparently picking up the orange, he pushes it into a trap in the table. He walks

over to the vase, and rubbing his hands together finally shows them empty. He then removes the cover of the vase and shows the rice has disappeared. He pours out the orange, and stepping to the cone on the hat he lifts it up and out pours the rice.

No. 24. Herrmann's Kling Klang Trick.

This was one of Herrmann's favorite tricks and he always professed to expose it on the stage, but the fact is he did not expose it completely. It is a very clever trick, although considered one of the "Old Timers." It consists of making an egg, placed in a glass, change places with a silk handkerchief, the egg appearing in the performer's hand instead of in the glass and the handkerchief disappearing from the performer's hand and appearing in the glass. (Fig. 17).

The necessary requisites are two small silk handkerchiefs exactly alike. Then a larger silk handkerchief, an ordinary glass goblet, a hollow metal egg, painted white, with a small hole cut out of the side of it, and a blown egg shell. In place of the blown egg shell performers generally use a solid wooden egg, there being no danger of breakage. This egg shell, or wooden egg,

whichever is used, is attached to a short piece of silk thread the other end of which is sewed to the center of the largest handkerchief in order that when this handkerchief is lifted up by any two corners, the egg is also

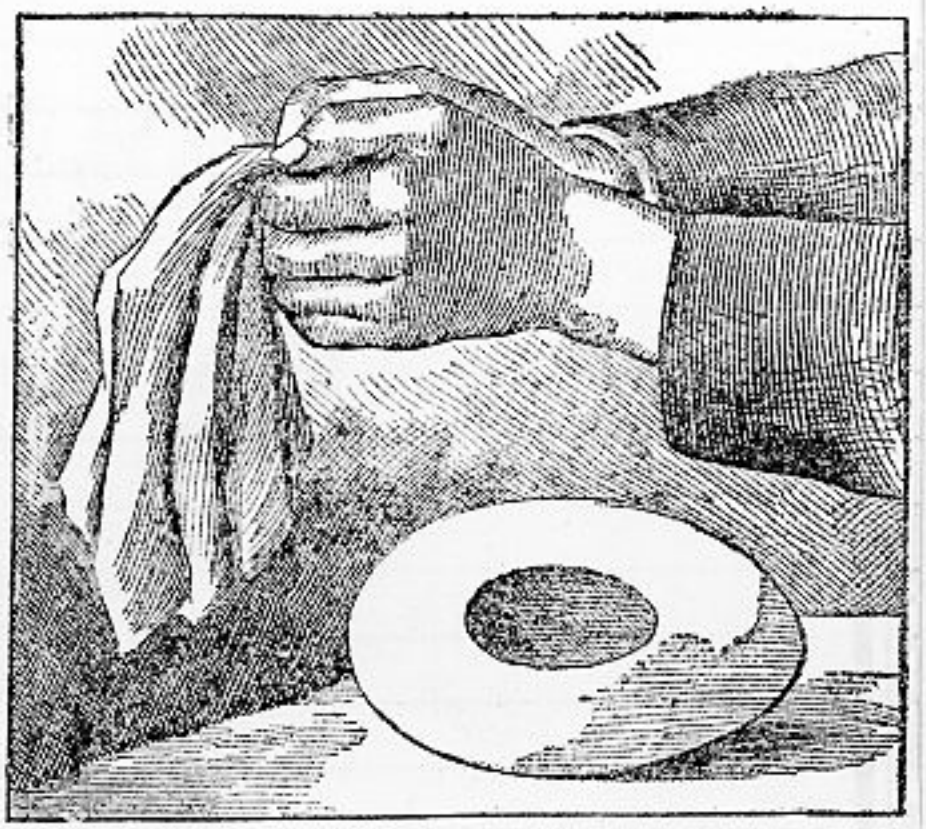


FIG. 17. THE KLING KLANG TRICK.

lifted up and remains hidden behind the handkerchief.

The performer uses any person to assist him, generally taking one from the audience. One of the small silk handkerchiefs lies on your table, concealing the hollow egg. The other small silk handkerchief must be

rolled up and palmed in your left hand. The large silk handkerchief, to which is attached the egg, is lying on your table with the egg on top of it in full view of the spectators. Pick these two up together, the handkerchief in the right hand, the egg in the left hand in which is palmed the small silk handkerchief; call attention to the egg and the large handkerchief, but do not hold your hands far enough apart to allow them to see that it is attached by a thread. Step to the person who is assisting you and to whom you have previously handed an empty glass goblet. Tell him to hold it up a little higher and you will place the egg in the glass, which you do, at the same time letting the palmed small silk handkerchief fall in the glass first with the egg on top of it and at once cover the glass with the large handkerchief. Do all this simultaneously. Then tell him to shake the glass a little and he will hear the "Kling Klang" of the egg in it against the sides of the glass. Now proceed to your table and pick up the small silk handkerchief lying there, picking up the hollow egg with it. Wave this handkerchief about slowly, and placing your hands together, gradually work the silk handkerchief, by means of your fingers, through the hole into the hollow egg, every few seconds asking the

gentleman to "Kling Klang" or shake the goblet so the egg can be heard in it. When you have worked the handkerchief fully into the egg, hold the egg up in your fingers to the audience, showing that the handkerchief has disappeared and is replaced by the egg. Then, stepping over to your assistant, take hold of the large handkerchief in the middle, over the glass, and lift it up, when the egg will come away with it, being concealed inside the folds of the handkerchief, exposing to view the duplicate silk handkerchief in the glass, which, of course, the audience takes to be the one they have seen disappear from your hands.

No. 25. Herrmann's Fish Bowl Production.

The production of glass bowls of water and gold fish from under a handkerchief or shawl is one of the most entertaining tricks in the repertoire of any amateur or professional conjurer. Perhaps Prof. Herrmann was asked more often how he did that trick than anything he ever did and yet it is one of the oldest tricks known and was introduced in England over a century ago by conjurers in Chinese costume, this costume affording

better facilites for concealing the bowls than the modern costume does. In effect the trick is as follows:

The performer appears in evening dress and from several handkerchiefs he produces several bowls of water with or without gold fish as he may elect.

These bowls are generally about seven inches in diameter and two inches deep. They are filled with water and when the performer has gold fish these are, of course, added. A strong rubber cover, specially made for this purpose, is stretched over the top of each bowl. The performer usually has pockets in the back of his vest, one on each side and on the inside of the front of his vest. Each pocket contains one bowl. More bowls can be carried in the coat tail pockets and in the upper breast or loading pockets of the coat, but very few performers care to produce more than three or four bowls. A large handkerchief is taken, shaken about to show there is no preparation about it and then thrown over the left arm. Under cover of this the bowl is taken out of the pocket with either hand, whichever is the most convenient for the performer. Holding the bowl under cover of the handkerchief in one hand, he removes the handkerchief with the other hand, taking hold of the edge of the bowl from the outside through

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the handkerchief, nipping into the edge of the rubber cover and pulling it off inside the handkerchief. He then immediately throws both aside and shows the bowl filled with water. Picking up another handkerchief he produces the second bowl in the same manner. Prof. Herrmann generally produced two or three bowls and wound up the trick by producing the last bowl with an ornamental metal foot to it, the bowl standing about six inches high on this foot. This foot is in three pieces which fold up against the sloping sides of the bowl and remain in that position until taken from the pocket when the three pieces drop down together, and by means of a catch in their center, fasten securely, but there is always danger of these feet catching in the clothing of the performer. Carl Herrmann was particularly expert in this trick and would come down among the audience and allow gentlemen to feel his arms and under his coat to show that he had nothing concealed there. Then taking a very large handkerchief he would let two gentlemen hold it up against his breast and from it would produce an extra large bowl, probably larger than that produced by any other performer. He carried this bowl concealed under the front of his vest where it was supposed to form part of his anatomy. When it is not convenient to pro-

CAZENEUVE'S CARD IN AN ORANGE. 187

cure the regular rubber covers anybody can make their own covers by buying at any rubber store sheets of thin rubber, such as dentists use, and fastening them with a strong rubber band on any ordinary glass bowl. Small bowls should be used at first until the performer becomes skillful in handling them.

No. 26. Cazeneuve's Card in an Orange.

When the celebrated French conjurer, Commandeur Cazeneuve, toured this country, years ago, he introduced a number of popular tricks with oranges and other fruits. One of his neatest effects was the finding of a card, which had been selected by one of the audience, inside one of two oranges. When introducing this trick he would bring forward two oranges, handing them to ladies for inspection, saying that he would do a trick for them only. He then allowed a lady to draw a card which was torn and placed in his pistol. One of the oranges was selected and after shooting at it he would take a fruit knife and cut the orange into two halves and the previously selected card, or a card of the same kind in miniature would be found in the orange.

Take any orange and cut out the black or stem part

188 THE FLYING CAGE.

of it very neatly with an ordinary pen knife, and then with a pen holder or small stick make a hole through to the opposite side of the orange, being careful not to cut the skin. Use a small card, or, if necessary, split the card in two in order to roll it up into a small tube, which you push into the hole in the orange. Then put in the little piece or plug of the orange that was cut out and rub a little burnt cork around the cut edges and it will not be noticed. After the orange has been examined cut through the center of it and take out the card and show it. Of course the cards that the ladies draw must be forced cards or drawn from the pack of forcing cards. Prepare both oranges alike.

No. 27. The Flying Cage.

This celebrated trick, which still creates most profound amazement, has made the reputation of more than one conjurer. (Fig. 18.) The cage is of brass or nickel plated wire and contains a live canary. While held in the hands of the performer it instantly vanishes, leaving no trace behind.

This cage, be it known, while apparently quite sub-



FIG. 18. THE FLYING CAGE.

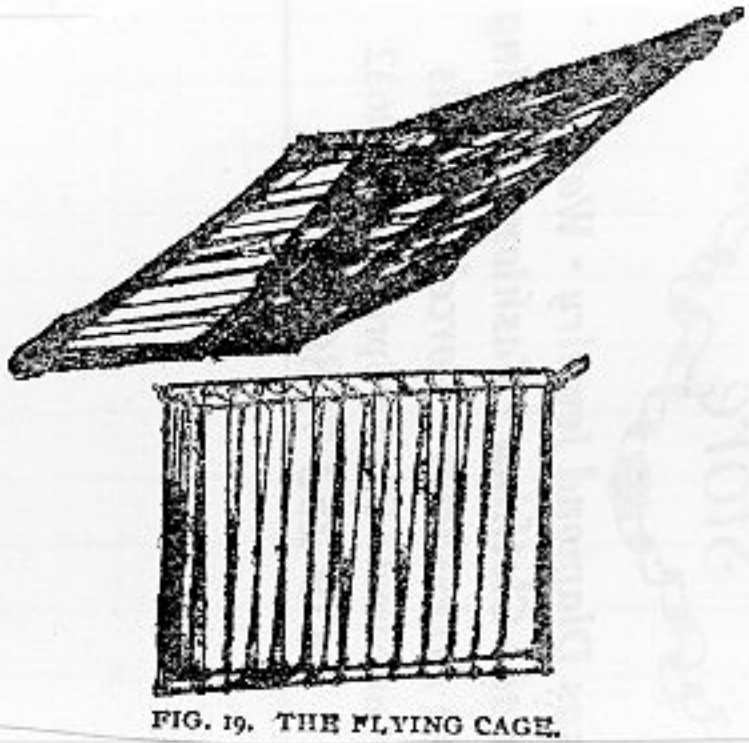


FIG. 19. THE FLYING CAGE.

stantial, is really of the most flimsy construction. (Fig. 19.) All of its joints are hinged, the corner pieces and cross bars being attached together by having the ends sewed loosely round each other. Set this cage upon a table and it will fall flat of its own weight. Hold one end and pull upon the other and it may be elongated to twice its normal length. When the operator holds the cage before his audience, therefore, he must hold it firmly and steadily with both hands. Passing up one sleeve of the operator, across his back and down the other sleeve, is a strong cord. (Fig. 20.) One end is fastened to his left wrist, the other to one

corner of the cage by his right hand. When he says "Presto" and waves his arms towards the ceiling the string is drawn tight, and, the distance between his hands when his arms are outstretched being so much greater than when his arms are held closely by his



FIG. 20. THE FLYING CAGE.

side, either the string must break or one end of it must fly up his sleeve. The latter is precisely what happens, and while the eyes of the spectators are looking toward the top lights, the cage collapsing when the operator's hands are withdrawn from its support, flattens out, elongates and follows the end of the string

192 THE FLYING CAGE.

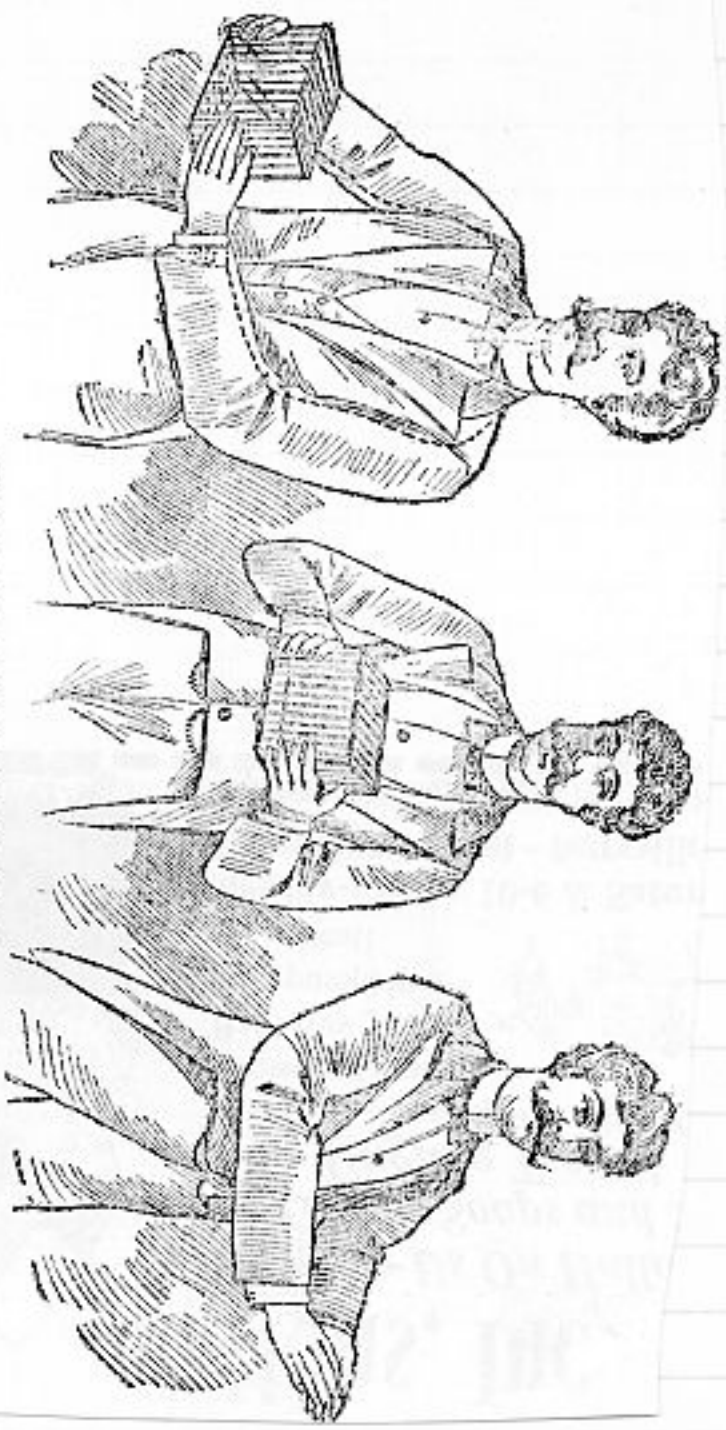


FIG. 21, 22, 23. THE FLYING CAGE.

THE FLYING CAGE. 193

up the operator's sleeve, lodging between his elbow and shoulder. (Fig. 21, 22, 23.) It thus secretes itself very quickly, and the audience is greatly mystified thereat. (Fig. 24.) The bird? It does not leave the cage. It, too, goes up the operator's sleeve. The wires of which the best cages are made are thin and elastic and give sufficiently to avoid squeezing the bird to death. In the old style cages the bars were rigid and a bird's life was the forfeit for every production of the illusion, unless a stuffed bird was used, which was generally done.



FIG. 24. THE FLYING CAGE.

194 CANDLE OF MEPHISTO.

No. 28. Chronological Catastrophe and Candle of Mephisto.

"My next experiment will be one of the very latest suggestions. For its success I shall need the loan of some gentleman. Will someone kindly step on the stage? You, sir? Very well, come on, I shall not detain you any longer than is necessary,—just a matter of three or four hours;—quite a consolation, I presume. I have a piece of paper here which you will please inspect, madam. You are satisfied there is no deception about it? Please write a question or a few words on it,—no matter what. Now I wish some gentleman would lend me his watch. Thank you,—a very nice one. I must be careful of it. (Return to stage and give watch to gentleman to hold.) Will you please hold this timepiece for a moment? Now, madam, have you those few lines written? Thank you. Now, I wish to call your attention to the fact that I use no mechanism whatever in this illusion. (You have a piece of paper palmed in hand.) Here I have a cleft stick. (Show it.) Please examine it minutely. It appears to be an ordinary piece of white wood, but it has a charm in it which I cannot describe. I have reason to believe it grew in another

CANDLE OF MEPHISTO. 195

world, as it is known to all magicians as Charon's Rod and it is quite possible that it grew on the banks of the river Styx. Now, madam, please tear the paper you have written on in two pieces, and fold those up. Yes,

so; now fold them up once more. Allow me—. (Take and fold them up and exchange as you do so with the palmed paper and have stick returned.) Now, please place in this envelope and place the envelope in the cleft portion of this stick. (Return to stage and give it to the gentleman to hold in exchange for watch. Drop watch in a small double bag, one pocket having no bottom, the other containing a dummy watch. It falls into left hand. Palm off the watch and hand the bag to him to tie up. Pochette watch; hold dummy in bag up to ear and say:) "Excuse me, sir, but was your watch in good order when you gave it to me? It was? Well, it has stopped now; something is wrong; you had better have it. (Let it drop.) Now something is wrong; that's too bad; (Up to ear.) what! it's all right; it's going now; no, stopped again; better shake it a little; the works need oiling. (Hammer violently.) Well, I guess I pounded it too much. What is done cannot be underdone,—no, undone, I mean; you must not leave without a time-piece if I have to give you a sun dial or a

tower clock. (Fold up and lay parcel in full view.) Now, sir, have you held the envelope all the while? Well, you should not have done so; it was the stick you should have held. (The man says he held the stick.) Oh! all right then. Madam, will you please hold this? (Give stick to lady.) And you, sir, please hold this mighty implement of Vulcan. (Give him a hammer.) Here are two candles, both lit as you see; take care they don't light out. Will some person please select one of these candles? One moment, please. I ask you to choose one because I wish to command the note, or rather the pieces of it in yonder envelope, to instantly vanish and fly into either of the candles you choose; choose either one, please. This one,—very well,—this is in truth a (s) candle (ous) affair or rather experiment. This is the one then. (Extinguish both.) Now, sir, (to gentleman) please step up here, take this knife and cut this candle in six pieces as even in size as possible. It is done; now

select any one of the pieces. This one? Very well. (Have piece containing paper palmed in right hand, take selected one in left, make tourniquet pass and show your piece.) Now, sir, please take the hammer and break this package; (Bang on parcel supposed to contain watch.) Open it, give it to me, please; now be seated a moment.

Are you feeling well? You look pale; will you try a little medicine? One of my patent doses? It won't hurt you, —just open your mouth and swallow the remains of the watch. (Make tourniquet pass in left hand in which have the borrowed watch.) Here you go,—look out! (Throw at him,—a motion.) How was it, tasteless? (Pat him on back and fasten watch there by bent hook.) Perhaps you swallowed it too far down; see if it is behind you." (Gentleman turns around and watch is seen. Return it and excuse gentleman. When you go for the candles put paper in piece of a hollow candle and seal over the flame of one; then vest or pochette it. First have question written, make a change and leave it in full view; go for candles, fake piece as above; borrow watch, have it put in faked bag (one inside the other), tie and seal; wrap empty one in paper and give to gentleman to hold, drop one containing watch on shelf of chair and go on as above.)

No. 29. Mind Reading by Impression.

Have a figuring block with carbon paper between the sheets. Commence: "Ladies and gentlemen, in introducing my next experiment I wish to call your attention to

the psychological affinities existing between kindred minds, but first I would like to have any gentleman or lady write a question on a slip of paper. Will you kindly do so? Here is a pencil. Write any question you please, —very plainly. Thank you. Just tear it off, fold it up and put it in your pocket. Keep your mind fixed on

what you have written." You take the figuring block back and toss it to your assistant who takes out the copy, writes the answer to it on the same kind and size of paper and puts it with the copy in a double envelope and holds ready "To better illustrate what I mean by psychological affinities, I might instance what Goethe, the celebrated German poet, tells in his "Elective Affinities" of two renowned philosophers who had a high regard for each other. The time arrived when they were to part, each going to foreign lands, but they first agreed that when they found themselves thinking intently of each other they would make a memorandum of it and afterwards compare notes. They did this and both found that when their thoughts of each other were most vivid they were both thinking of each other at the same time. No doubt many of you have experienced the same thing when, 'in the days of your youth,' you were enjoying the sweet delights of 'Love's young dream'. Now

in this experiment I am not obliged, like all poor conjurers, to borrow something, and as that reminds me of a funny story, I must tell it to you:

"There was a certain Mrs. Murphy who was always borrowing and who sent her boy Jack over to Mrs. O'Brien's to borrow some tea, sugar and a plate of butter. Mrs. O'Brien was very busy and had no inclination to lend to neighbors who never returned anything they borrowed; at the same time she did not care to offend them. 'I'll be glad to accommodate yees,' she said politely, 'but I'm in a hurry and haven't the toime to wait on ye; I've other fish to fry jist now.' The boy returned to his mother and reported that Mrs. O'Brien was too busy to attend to him and had other fish to fry, etc. 'An' why didn't ye wait,' asked his mother breathlessly, 'go back and tell Mrs. O'Brien you're in no hurry and your mother will be obliged to her for a plate of fried fish.'

"But 'Let us return to our mutton,' as the Frenchmen say. To continue our experiment I must have a few

envelopes." Go for them, get a faked one and a plain one from assistant who tells you question and answer. Show faked one empty and put slip of blank paper in it, seal it and put it in a second envelope and then hand to a

gentleman from the audience to hold. Have a blackboard handy, ask two gentlemen to come on the stage and have them face each other. Do a pretended mind reading act and write the question on the board and the answer at the same time. Now have the first gentleman burn up the question and rub ashes on the envelope. Open the envelope and find the original question and answer therein. Have it identified by the writer and dismiss them.

No. 30. Mind Reading. Cards and Questions.

A communication is written on a small thin card or paper and then sealed up in an envelope, the performer not holding either the cards or envelope. The performer now takes a blank card or envelope, hands them for inspection, has it sealed by one of the audience and holds it between the hands of one of the company. The performer now requests both persons, the one holding the communication and the one holding the envelope containing the blank card, to face each other and to look each other in the face intently. The performer now commences to scan their faces as though trying to read their thoughts, especially the one holding the question. After

considerable by-play such as holding the hand of one to the forehead, etc., he slowly commences to read the contents of the sealed letter which is still held by one of the audience and as he reads it he writes it on a blackboard. He now writes a suitable answer on the blackboard, requesting the person holding the blank to impress the answer firmly on his mind. The performer now asks that the envelope be opened and contents read; they correspond with the one on the blackboard and

there is an answer on the blank card, in black ink, corresponding to the answer on the blackboard. The question is now burnt up by the one holding it and the ashes rubbed over the surface of the blank card. The answer is also burnt and the ashes rubbed over the same card the ashes of the question were. The card is then split in two and on the inside of one half will be found the answer and on the other half the exact handwriting of the question.

This trick is good and dumbfounds an audience, especially in private circles. Buy of a stationer a book containing tracing paper, i. e., between each leaf there is a black (carbon) sheet of paper. When the first page is written the impression is sent through the black paper onto the next page or sheet; or you can make it by

spreading a thin solution of gum arabic over a sheet of paper and then some lamp-black over that. Take a board about six inches square, place it on a piece of white paper, the black next to it and over all a white piece. This is the board to hold the card on while writing. When the card is written the board is carelessly tossed onto the stage and it is carried off by an assistant who tears off the paper coverings and removes the duplicate of the question. He cuts it out of the large sheet the same size as the card, takes a blank card and writes an answer in ink on it. He then pastes both cards together and this is the card which is afterwards split. He now takes another blank card and writes the answer on it with sympathetic ink, the heat of the hand being sufficient to bring it out.

No. 31. Spirit Calculator.

A number of pieces of paper are taken by the performer and are shown to the audience as all blank. One of them is given to someone in the audience to fold up and place in the pocket. Another piece is passed around among the audience and several persons are asked to write three figures each upon it. It matters not what

figures they put down, when the total is summed up it will amount to a number which will be found on the blank paper in the first gentleman's pocket

Explanation: Hand a piece of blank paper to a gentleman to fold up and put in an envelope and tell him to put it in his pocket. Have a similar piece of paper palmed with the number 1495 on it. Take the blank slip from the gentleman, tell him he does not fold it properly, and fold it yourself, at the same time dexterously changing it for the palmed paper which you place in the envelope and give to the gentleman to put in his pocket. Now have another piece of paper prepared on which a series of numbers are written the total of which amounts to 1495, thus:

140
147
323
654
231

1495

Have this paper palmed in the other hand. Now give a similar piece of (blank) paper to the audience, telling several of them to write three numbers each on it. Then

take this back from the audience, exchange it for the one palmed which give to some other gentleman to add up. He does so and of course it amounts to 1495. Ask the first gentleman to open the envelope. When he does so he finds the paper inside with 1495 thereon. As a finale another blank paper is handed to some one else, while the trick is going on, and is changed in the same way as the other,—in process of folding,—for one having 14 marked on it which one you place in another envelope, the audience thinking it is a blank card (or paper). Give it to a gentleman to place in his pocket

the same as you gave the envelope to the first gentleman. The paper on which is written 1495 is now given to someone else in the audience and he is requested to erase either the first two or the last two figures. If he should erase the last two it would leave 14; if the first two it would leave 95 which he is asked to add, also making 14 which corresponds with the figures on the piece of paper in the pocket of the gentleman before referred to.

No. 32. Heavy Weights from a Hat.

Herrmann was noted for his ability to produce large quantities of different articles from a hat and especially heavy cannon balls. One of the modern additions to

the hat trick is the production of three heavy 25-pound weights. These weights are in size and shape the exact counterpart of the 25-pound weights usually employed by scale men to test the bearing capacity of scales. (Fig. 25.) They are made of heavy tin, each



FIG. 25. WEIGHT FROM HAT.

side cut out separately and soldered together to form a square. The top part is also separate and soldered onto the rest. Another piece is soldered onto the top piece. This piece has a large oval ring attached to it. This ring is made of thin tubing bent round in the

proper shape to show an apparently solid handle. The bottom of each side is turned slightly inward to form a $\frac{1}{8}$-inch lip. A flap is attached to one of the lower sides and folds up inside. This flap is also made of tin and is so arranged as to fall down, thus apparently showing a solid bottom. These weights are all Japanned black inside and out, the figures "25" appearing on the face in any appropriate color, the idea being to make them exactly the same as an ordinary 25-pound weight. No. 2 fits inside of No. 1 and No. 3 fits inside of No. 2. Weight No. 3 can be loaded with small articles for production from the hat, such as baby clothes, flowers, etc. The ring or handle on top of each weight must be folded down flat before they are placed one inside of the other. The flap at the bottom of the weight opens inwardly, permitting each weight to be placed one inside of the other, and when being produced from the hat these flaps fall into their place at the bottom, the lip around the inner edge preventing the flap from falling outwardly. The weights, when placed one inside of the other, are placed on the shelf of the side table upon which the hat is placed for a moment. In the act of moving the table to one side the weights are loaded into the hat. The production

of the small articles then follows, ending with the production of the weights. Figure 25 shows weights packed one inside of the other and also shows the flap by the dotted lines.

No. 33. How to Lift a Bowl Full of Water With the Hand in the Water.

Show a bowl empty and pour a pitcher full of water into it. In this pitcher of water there is concealed a little fake that falls out with the water into the bowl. This little fake is made of sole leather, the edges of it painted white and a disc of white oil or enameled cloth

on top of it. There is a hook for the finger to catch onto. This hook is a flat piece of brass spring extending up from the center of it and is about § inches wide, with a piece of brass soldered in the middle ⅛ inch thick, and with a threaded hole to admit the screw which secures the countersunk washer to the leather. The hook for the finger is painted flesh color. This does not take up much room, does not rattle in the pitcher and is not easily seen. After it is in the bowl simply insert a hand in the water, catch the fingers onto the hook, press it down in the center of the bowl, then lift it up and you

can carry it around with the hand in the water and allow the people to look into the bowl.

No. 34. The Magi's Wand.

This very clever trick was invented by a young American conjurer, and in the course of time, a few years ago, the secret of it was sent to Europe where it met with considerable approval, especially in France, some of the conjurers using it very often, and writers on magical tricks quoting it as a French invention, which has been the case with a good many other tricks first invented on this side of the water.

Select a piece of hollow brass rod, or any other material will do for that matter, which should be about ⅜ inch in diameter and 16 or 18 inches long. Two small balls made of brass or any other ornamental material of about one inch in diameter are made to screw one on each end of the rod or they can be made to merely slip closely over the end of the wand. A very small hole must be drilled through each ball, only large enough to allow a fine silk thread to pass through (Fig. 26.)

To prepare the trick for exhibition take a fine needle, thread it with a long piece of fine black silk thread; pass

the needle through the balls clear through the wand and attach a bent black pin to each end of the thread. The thread should be long enough to reach under each arm when the arms are extended in front of the body, and still be slack enough so that the wand can be held in



FIG. 26. THE MAGI'S WAND.

the hand in a perfectly natural position like the baton of an orchestra leader. The bent pins at the ends of the thread are attached to any convenient part of the coat, preferably near the arm pits. The performer pretends

to magnetize or mesmerize the wand by passing his hands over it, gradually extending the arms from the body and allowing the thread to go in between the second and third fingers of each hand, gradually separating the hands at the same time and bringing them closer to the body, when the wand will remain suspended in the air, on the thread, at a distance from the hands. It can then be held in a horizontal or vertical position and the performer can move about without any danger of the thread being seen. The wand can be passed for examination at any time by simply breaking the thread without attracting attention, and if the wand is properly and nicely made, it will bear minute inspection without anyone discovering the secret.

No. 35. The Floating Hat, Wand and Table.

This combination of three excellent tricks is very easily executed. The performer shows a small black wand or ruler, which he allows the audience to examine, and as soon as it is returned to him it sticks to the palm of his hand or the extended fingers without falling off and without any visible attachment to his hand or fingers. He then borrows a stiff hat and when he places his

hand on the top of it, it clings to his hand. He walks around among the audience with the hat in this position and allows any person to take it from his hand, they being unable to discover how it clings to the palm of the hand. He then introduces a small stand or table, and showing his hands to be without preparation, places them on the center of the table, and lifting it up sways it about, clinging to the palm of his hand. Both table top and hands can be examined and nothing can be discovered. This lifting of the table has been used for some years as an anti-spiritualistic effect. For some time, Prof. Herrmann used to explain this trick during the performance of it and allow a person from the audience to do the trick, but he soon found that nothing was gained by doing that and he dropped the explanation.

There are several ways of managing the floating wand. One is by a slight attachment held between the fingers, which fits over the wand like a little clamp, and it can then be held in position, but probably the best manner is to have a long loop of fine black thread thrown around the neck of the performer, or it can be attached to a button or button hole of the coat or vest. After showing the wand or cane (which should always be black), the performer, when it is returned to him,



FIGS. 27 AND 28. THE FLOATING TABLE.

passes it through the loop and the wand is held in a supported position by the fingers pressing against it. This is easily executed, and with a little practice can be made quite interesting, as it can be passed from one hand to the other and at any time handed out for examination.

In the hat lifting, the performer wears a ring in which a little notch has been cut about 1-16 or $\frac{1}{8}$ of an inch deep,—say one half the thickness of the ring. The performer has a long black pin in the lapel of his coat, and as the hat is extended to him, his hand secures this pin, and in passing the hat from the left and into the right hand, he pushes the pin through the center of the crown of the hat, and as he turns to go to the stage, his left hand bends over or clutches the sharp end of the pin inside the hat. Then placing his right hand on the hat, and pretending to mesmerize it with a few mesmeric passes with the left hand, he takes care to engage the

head of the pin in the slot in the ring, and he gradually lifts the hat up and waves his hand about, passing his left hand over and around the hat to show that no threads are used. Then walking down to the audience, he waves the hat, still apparently attached to his hand, close to the faces of the spectators, finally allowing the

owner to remove the hat from his hand, and as he does, he pulls the pin out of the hat and with his thumb he pushes the pin out of the slot in the ring and lets it drop on the floor.

He can then show there was nothing on his hands, first turning the ring a little with his thumb in order that the slot in the ring be concealed between the fingers.

In the table lifting, any ordinary table or stand may be used. It is only necessary to drive one or two strong black pins into the top of the table, leaving the head of the pin or pins projecting about 1-16 of an inch above the table top. One ring on one hand will lift a small table. A ring on each hand will enable the performer to lift a large and heavier table. If the table top is of a dark color it is not necessary to have any cover on it because the black pin cannot be seen. Attention is called to the table being an ordinary one without preparation. The hands are passed over it as though mesmerizing it, and as one end or side of it is being raised by pressure of the hand, the slot in the ring is slipped in under the head of the pin. The performer can now proceed to lift and swing the table about. When the table is lowered to the floor, the pin is pulled out in the same manner as it is from the hat, a little jerk being sufficient, and the

pin dropped on the floor by being pulled out of the slot as above mentioned. Some performers, to show that the table was not in any way prepared, place a borrowed silk handkerchief over the top of the table, and smoothing it out, press hard enough on it to force the pin head through and then proceed as above described.

In introducing this Prof. Kellar was wont to wind up the trick by using an ordinary wood seat kitchen chair having a pin in the seat of it and also one driven in the under side of the seat. The chair could thus be picked up with the right hand on the seat of the chair, and while held suspended in the air, the left hand could be placed underneath the seat of the chair and the chair held suspended with the opposite side down attached to the left hand.

These are three tricks that can be easily executed, and when well presented always attract considerable attention and speculation as to how they are done.

No. 36. The Artist's Dream.

This wonderful and charming illusion is meeting with great success in England. A large frame with a curtain in front rests on a three step platform on the stage.

The artist pushes aside the curtain, removes canvas with picture of lady on it from frame, turns canvas and frame around to show that no one is concealed anywhere about the frame and canvas. The canvas is then replaced in the frame, the curtain drawn in front of frame and the artist, seating himself on a chair, apparently goes to sleep and dreams that the picture came to life. While in pretended dream, the curtain opens and a living lady steps from the frame; the artist awakens and sees her; they exchange a few words, then she goes back into the frame: the artist says, "Has my model come to life or have I dreamed it?" He goes to the frame, opens the curtain and there finds only his painted canvas, the lady having vanished.

The canvas with the painting on it is on a separate frame or stretcher which is very heavy, the top piece of this frame is hollow and contains a roller on which the canvas rolls up. On the back of the stretcher on each side

is a handle, these handles are apparently placed there for the artist to lift the frame in and out by. But they serve another purpose which will be stated below. At the top corners of the stretcher are fastened two wires which lead up to the flies, over a pulley and then down

behind the screens to the assistant; when the wires are slack the stretcher may be turned around just the same as if they were not there. The large frame is on rollers and may be turned around to show that there is nothing concealed in or behind it. After showing frame and back and front of canvas, the artist sets the canvas back into the frame. When the canvas stands on the floor in position to replace, the lady comes up through trap door behind the canvas which conceals the movement, she takes one of the handles referred to above in each hand and places her feet on the lower part of the stretcher which projects enough for her to get a passable footing. The artist now raises the canvas back into the frame. The wires attached to the stretcher are pulled by an assistant, this makes the lifting of the stretcher with the lady on it easy enough. Now all the lady has to do is to unfasten the canvas and let it roll up into the stretcher; she now steps out on the stage from under the curtain. After she goes back she lowers the canvas and hooks it The artist then pushes aside the curtain and finds only the painted canvas.

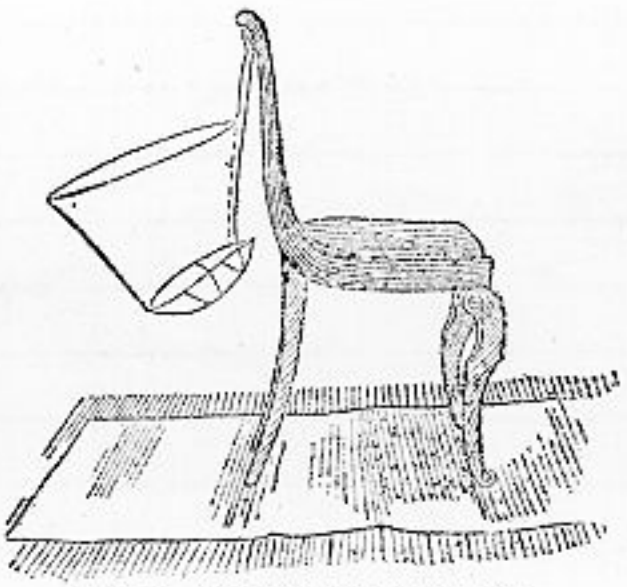


FIG. 29. THE VANISHING LADY.

No. 37. The Vanishing Lady.

In recent years one of Herrmann's many masterpieces was the illusion known as the "Vanishing Lady," a full view of which is given as a frontispiece to this book. This brilliant trick created more talk and speculation than has any other trick of the past decade. In Herrmann's hands it proved a strong attraction as he could introduce it on a brightly illuminated stage or in his representation of Black Art.

The ordinary manner of working the trick of the vanishing lady is to have a chair made so that the seat lets down backwards or sideways on spring hinges that throw it back into position, after the person has gone through. (Fig. 29.) A little lever on the side

of the chair underneath keeps the seat solidly in position. The back of the chair is either upholstered, or of thick double cane, in order that it can not be seen

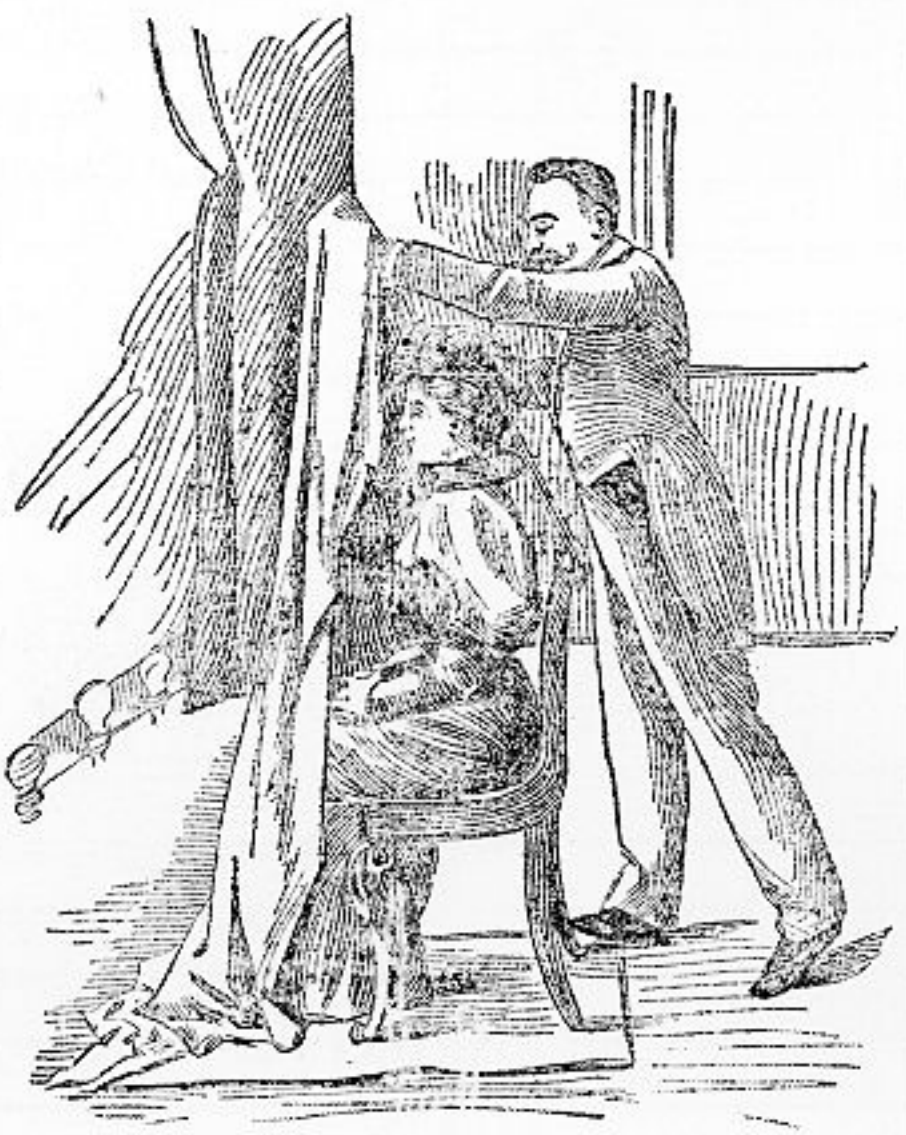


FIG. 30. THE VANISHING LADY.

through. Hanging down the back is a wire frame which can be thrown up over the back of the chair, to

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represent the head of the person when it is covered with cloth. When this cover is removed the frame is thrown back behind the chair back. In some chairs this must be done with the hand, in others it is done by

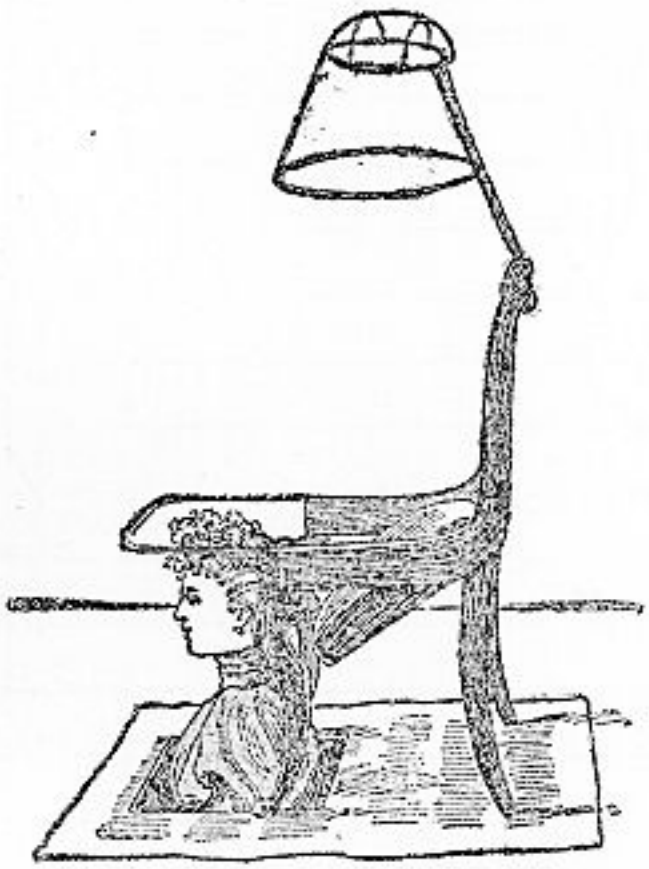


FIG. 31. THE VANISHING LADY.

stepping on a lever at the back of one of the hind legs of the chair, which works a wire or a string stapled up the back of the chair, and thus throws back the framework of the head and shoulders. A newspaper is cut

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to fit the trap in the stage, and laid on the floor, the other uncut half of it is pulled over to the front and chair placed on the cut part, which is cut around only three sides of it.

Lady seats herself on the chair ,and the performer covers her with a large silk covering, that conceals her and chair completely (Fig. 30); at the moment of covering she lets the framework come up over her head, and pulls the lever under the chair, at the same time rising slightly to let her own weight off the chair, and the seat goes down with the trap (Fig. 31), she with it through the trap, which is shut at once, the performer in the meantime standing or holding on the silk covering to prevent it being blown up by the wind from trap. At the proper moment he takes the cover off and the lady has disappeared to come on smiling from the side.

No. 38. The Spiritualistic Sack.

This trick has been used by a great many so-called mediums in their spiritualistic performances, and of late has been used more and more by conjurers. There are several methods of performing it. We will mention two

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of the best known. Prof. Herrmann used it when he did his Trunk Mystery, which will be described later on. This trick is equally as good for the stage as for the parlor.

A large sack, made of cheap muslin, is handed out for examination. When it is returned an assistant is placed in it. The mouth of the sack is gathered up around his head and securely tied and sealed. A screen is placed in front of him and in a few moments the assistant comes from behind the same, carrying the bag with him with the seal unbroken and everything intact.

The secret of this is that there are two sacks. One is examined by the audience and found to be perfectly sound; the other is secreted up the back of the assistant's coat, mouth upwards. When the first sack is returned it is held open and the assistant steps into it. When the assistant gets into it he takes the one from underneath his coat, and gathering up the mouth as if to tie it together, passes it up through the mouth of the sack in which he is, and as the performer is drawing it together to be tied, he takes hold of this inner sack and gathers the mouth of the outer sack around it, leaving the mouth of the inner sack protruding, holding the hands about the folds of the outer sack to hide this from view, or as

generally managed, ties a handkerchief around the sacks at this point, which prevents the junction of the sacks being seen. Now the mouth of the sack (really the inner sack) is securely tied with strong cord and sealed with wax. Then a screen is placed in front of the person in the sack. All he has to do is to pull the sides of the outer sack down and push forth the second sack, making his exit. He either conceals the first sack under his coat or throws it behind the scenes and comes forward carrying the second sack, which is the one the audience or the committee sealed and to which they now give their testimony that it has not been disturbed.

The second method, which is not so generally known, is the following:

The performer uses an ordinary sack of cotton or burlap. The bottom of it has been taken out entirely; the sack turned inside out and the seams sewed up with long stitches with a strong cord which has a large knot at one end, the other end being left loose in the seam. The bag is then turned back into position. When the conjurer wants to get out of it, he simply pulls out the cord, taking hold of the knot, and the bottom of the sack then falls out. The sack can be examined without fear of detection.

No. 39. Decapitation by Vanek.

A San Francisco writer gives the following description of the decapitation introduced by Vanek:

"The first illusion of this sort seen here was that shown by a man calling himself Professor Vanek. He was a German and spoke very little English, while in the decapitation act he appeared in an Oriental costume and spoke none at all. The hall was darkened, a strain of weird music was wrung out of the piano, which in those days "went with the hall,' and to its rhythm the magician marched slowly on to the stage, accompanied by a pale-faced youth. The attendant laid himself upon a table in the center of the stage, and was there sent to sleep by being subjected to mesmeric passes. The magician then drew a small box from the recesses of his robes, and from it took a pinch of powder, which he sprinkled on the youth's face and neck. A cloth was then arranged about the victim's neck, and everything being ready, Vanek drew a scimetar, or tulwar, sent it hissing through the air, and with one sweep drew the blade across the youth's neck, separating it from the body. The head was lifted up with the blood streaming from it, and placed upon a salver to be handed around for the company to examine.

"The examination was not superficial nor hasty, people being invited to put their fingers in the open mouth and move the closed eyelids. The ghastly death's head was then taken back and joined to the body, the magic powder being once more brought into requisition, and the subject, being awakened, sat up, looked dreamily around and backed off the stage.



FIG. 32. DECAPITATION BY VANEK.

"The explanation is as follows: The table was really a long hollow box, covered on the top and sides with black cloth and with the interior painted black. In the top of the table, and under where the head and shoulders of the youth would lie, was a trap-door, which gave way under pressure and swung downward like a door, and which was closed by a spring as soon as the pressure was removed. Everything being black it will be clear

to the reader that it might be opened or closed without

any one in the audience being the wiser.

"Before the trick was introduced the trap was depressed and a rubber head placed in the cavity of the table. This head was a work of art. It had all the lividity of death, was fitted with real teeth, real hair, glass eyes, a flexible tongue, movable eyelids, and was soft and clammy to the touch. The assistant was Vanek's

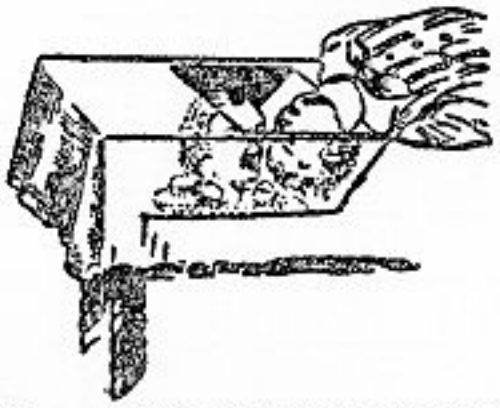


FIG. 33. DECAPITATION BY VANEK.

son, and the head, made by a celebrated French artist, was a striking likeness of the lad. The head was placed on a plate on the table, having for companion objects a lump of ice to give the head the requisite clamminess, and a sponge dipped in 'property' blood. The 'subject' for the experiment having been laid on the table, the magician, standing with his back to the audience, seized his son by the hair with his left hand, and as the scimetar

went whizzing through the air, pressed down the trap until his son's head was below the level of the top of the table and brought the sponge and rubber head up to take the place of the living. The scimetar was then drawn across the victim's neck—only just above it—and the rubber head was held aloft with the blood dripping from the pressed sponge. The head was then boldly passed about, the magician shrewdly counting upon the darkness of the room and the aversion of the audience to handling dead things as sufficient guarantees against detection. The rest of the trick simply consisted of putting the head back in the table, bringing the victim's head up to the proper level and removing the cloth which had conveniently hidden the line of deflection in the neck and the slight sinking of the shoulders. It will be seen from this explanation that the trick was simple enough, but like all simple tricks it was very effective, and in this particular instance was realistically horrible."

No. 40. Decapitation by Herrmann.

For a number of years the masterpieces of Alexander Herrmann have been his two decapitations. The first

one he generally used in his magical sketch where a countryman with "a sorter buzzing" in his head has it cured by cutting off the offending member. The subject takes a seat in a high back, upholstered chair. The long back of the chair is thickly padded and has two silk cords running crosswise on it, one from the inner edge of either arm up to the top corner of the opposite side, thus



FIG. 34. DECAPITATION BY HERRMANN.

making a broad X. The subject being seated in a chair, a large helmet or "receiver" is placed on his head. This helmet is of any bright metal, has a vizor in front, and is open at the back. After it is placed over his head the vizor is lifted to show that the head is there, but in reality a dummy head is seen, made up to represent the subject. As the performer closes the vizor he tilts the helmet for-

ward a little, while the subject at the same moment draws his head out of it and presses it back against the back of the chair, which gives way under the pressure and a triangular space opens, the two sides of which are

formed by the lower portion of the X in the padding, the base being on a line with the chair arm, where this swinging portion of the back is hinged on. On this flap,

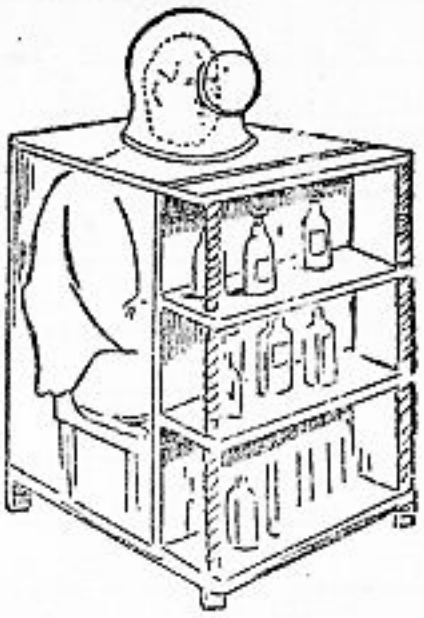


FIG. 35. DECAPITATION BY HERRMANN.

the opening of which is concealed by the receiver and a towel placed in front of it to hide the blood (?), rests the head of the subject. The receiver is now removed and placed on a small cabinet, the towel being left at the neck of the subject in the chair. In a moment the receiver is removed from the top of the cabinet, and

the head is seen resting there; it moves and speaks, and is the head of another person made up to represent the first one, and who sits behind the mirror in the cabinet, and pops his head up through a hole in the top of it as soon as the receiver is placed there. This cabinet is shaped like a safe, and contains several apparently deep shelves. In reality the shelves are shallow, a mirror of proper size being placed in it, in such a position as to leave about four-fifths of the cabinet vacant.

No. 41. The Indian Mail.

This astonishing trick has made the fortune of many a conjurer and has been exhibited in many ways, some of them very complicated; some necessitating the use of a trap in the floor of the stage and a trunk made with great accuracy in order that the secret door or opening in it may be invisible. This door or opening usually swings on a pivot and is kept closed by means of a spring. The effect of the trick is generally as follows:

The conjurer is put in a bag, which is then tied together and securely sealed. The bag, with its contents, is placed in the trunk, usually resting on two chairs or trestles. The trunk is generally fastened with

two good locks and is also tied round with any quantity of rope desired. (Fig. 36.) The screen is usually placed in front and behind it, and spectators can stand on each side of the screen to show that no person can escape behind them. In a few moments the conjurer claps his hands and at this signal the screen in front is removed and the audi-

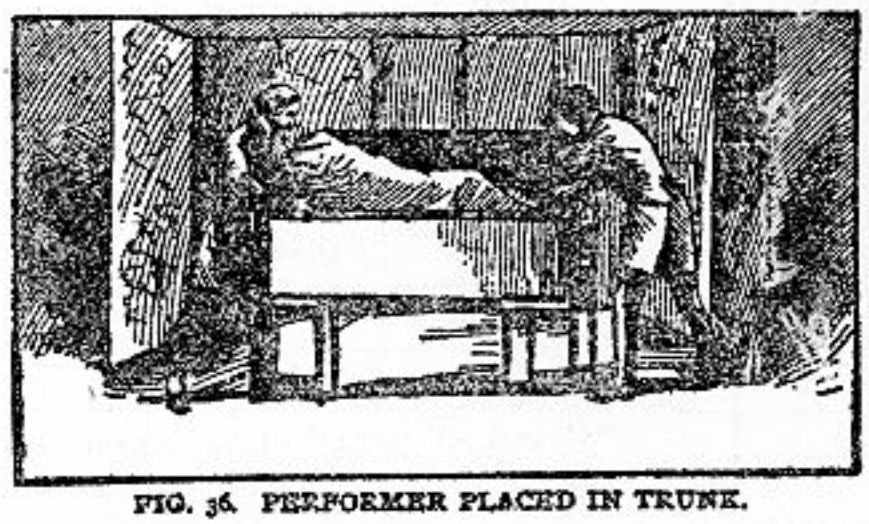


FIG. 36. PERFORMER PLACED IN TRUNK.

ence see the conjurer standing by the side of the trunk, outside of the sack, with the ropes and seals of the trunk intact. Again the screen is placed in front of the conjurer and in a few moments a stifled voice asks that the screen or curtain be removed, which on being done, it is found that the operator has returned to the inside of the trunk and bag, neither of which show the appearance of having been opened. The spectators are

allowed to untie the ropes, break the seals, unfasten the locks, and lift out the conjurer in the bag. (Fig. 37.)

The arrangement of the trunk or box, which can also be used, is not complicated. The bottom of it must be arranged in the following manner. Supposing that the bottom is about 4½ feet long, it should be divided into

three parts or three boards, each of which is about 1½ feet

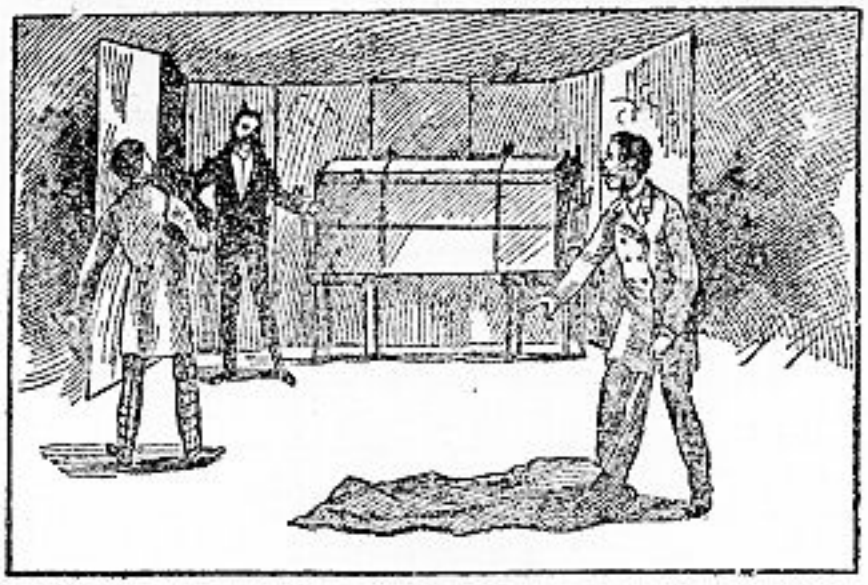


FIG. 37. PERFORMER OUTSIDE OF STILL CLOSED TRUNK.

long. Then at each end, to right and left, that is A and B (Fig. 38) are securely fastened by nails driven in on three sides. This will leave a space of 1½ feet between them in the bottom of the trunk. On the inner side of these end pieces, that is, towards the middle of the trunk, the sides are grooved, and in between these

slides the center piece (c), which is tongued and fits exactly into the grooves on each side. Dummy nails are in the bottom of this, along the end, which makes it look as though it was nailed to the bottom sides of the trunk as it should appear. To get in or out the conjurer simply sticks the point of a knife or a nail into a small hole at one end of this middle board and slides it out. Of course the ropes which encompass the trunk must

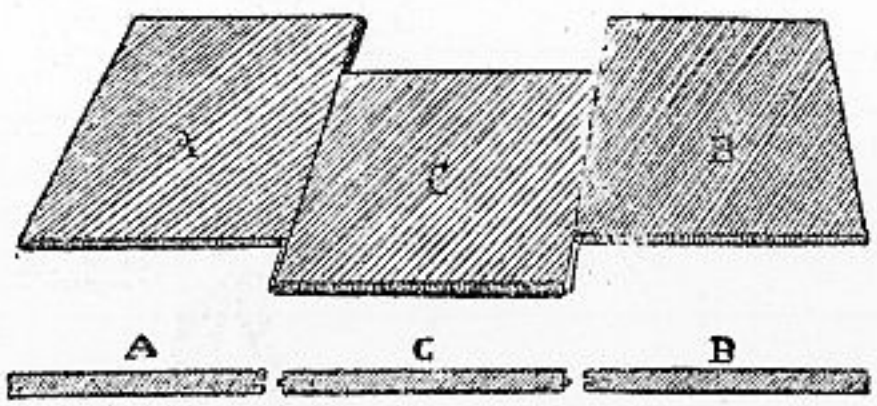


FIG. 38. THE INDIAN MAIL.

not interfere with the sliding in or out of this board. One, two, or three trunks can also be made to work on this same principle each one fitting inside of the other. Some conjurers take the trouble to sew the bag up again after they re-enter it, but this is a difficult as well as a useless task for the bag is never fully examined a second time. The audience simply believe that the conjurer comes out of it when he only goes through it. Of course

it is unnecessary to add that the operator gets out of the bag while the trunk is being tied, locked and sealed.

No. 42. Modern Black Art.

This modern effect, in the repertoire of a conjurer, is one of the best and most brilliant magical effects that have been introduced for many years. It was first introduced by a gentleman in Berlin, who has had better success with it than any of his followers, owing principally to the fact that he introduced more original and sensational features in it than any of his imitators.

The next one to introduce it was the Hungarian conjurer, Buatier, who took out a patent in England on some appliances used in it, and he produced it at Egyptian Hall, London, with the assistance of the well-known firm of Maskelyne & Cooke, Illusionists. From there it soon came across the water to Boston and New York and has been introduced on a good many stages in the United States, but no performer who has as yet produced it, except, perhaps, the Great Herrmann, has endowed it with all the attractions that can be used in it.

The name "Black Art" not only shows that it belongs

to magic, but expresses it perfectly, as everything about it is black except the articles which appear, and these are white. The stage setting of this act is entirely black; the walls, floors and ceiling of the stage are all draped with black velvet, and not a spot of color is to be seen. Around the sides and across the top is a row of brilliant lights, with reflectors throwing the light into the face of the audience. As soon as the curtain has gone up the performer makes his appearance suddenly and myste-



THE FLOATING TABLE.—*See page 212.*

ously, and it seems hard to understand where he came from. He is dressed in a robe of white silk or cassimere, —generally in the eastern style with the robe held together at the waist by a belt or sash. Some performers merely adopt an evening dress costume of white satin.

The performer, after making his opening remarks, discovers that his magic wand is missing. Raising his hand, he calls for the spirits to produce the same, and the wand is immediately seen in the upraised hand. He then orders two small tables to appear and they are suddenly seen standing, one on each side of the stage. Now, at his command, the spirits send him two vases which appear one on each table. The conjurer shows that they are empty, and requesting the loan of a watch for a few moments, he drops the watch into one of the vases, which

is immediately raised and turned towards the audience in order that the watch may be plainly seen in it. The vase is then returned to the table. The conjurer moves across the stage to the other vase, into which he thrusts his hand and draws forth the watch which he returns to the owner with thanks. Now he can again show the vases empty, and if desired, he will produce coffee and cake from either one of the vases after first pouring into one sugar and into the other cream. When he is ready to produce the sugar and coffee from them he asks for the silver service, and behold! there stands at his side a table with a complete silver tea or coffee service. The conjurer serves the coffee to the spectators, or it is handed out by his assistant. While the assistant is doing this another assistant can appear with a tray of cakes or bonbons that are also produced from the vases that held the coffee or the sugar, the vases being shown empty after each production. After the refreshments are served the performer produces from the vases doves and rabbits and throws them in the air, when they instantly vanish. He can then introduce a large basket or hamper, and securing a child from the audience, he places it in the basket, ties the cover securely, and taking one or more sharp swords, which have been handed to the audi-

ence for examination, he thrusts them through the basket in all directions. This action is accompanied by screams that seem to come from the child in the basket. The swords are brought forth covered with what appears to be blood. The cover is removed and the child lifted out smiling, not even having been scratched.

The performer now taking a shawl, swings it in the air, and produces from it a lady. The lady asks for a chair, which request is immediately granted by the performer waving his wand and the chair immediately appears. She seats herself, and the performer, swinging a large knife, immediately decapitates the lady.

Carrying her head across the stage, he places it on

a pedestal which makes its appearance on the other side. The head moves and speaks and the headless trunk is also seen to move. In a few moments the conjurer raises the head and carrying it back across the stage, replaces it on the body, when the lady arises, bows her acknowledgments and instantly disappears.

All these startling effects are very easily executed. The stage being draped entirely in black and lighted only by the reflectors on the side and front, the center and back of the stage cannot be seen by the audience. The articles to appear are placed behind black screens

or are covered with black velvet. It is only necessary to remove the cover or pull the screen quickly to one side, when the objects appear or vanish as may be desired. The conjurer, his assistant and the objects, all being in white, show out of the blackness in bold relief. During the performance the attendants or assistants of the conjurer are, of course, invisible to the spectators and move freely about the stage. They are completely enveloped in black velvet, wear black gloves, and have over their head and neck a large black hood with little openings for the eyes, but even the eyes are covered with fine black veiling, preventing the lustre of the pupils being noticed by the audience, but allowing them to see well. These assistants carry black cylinders, which they place in the vases, and in these are placed the watches, sugar and other things that are to appear or disappear. If they are to disappear the black cylinder is removed with its contents and carried to the other side of the stage and placed in the vase there. Thus it is that in the first trick usually performed of causing the watch to disappear from one vase and appear in the other, as soon as the conjurer has placed the watch in the vase, his invisible assistant removes it, and stepping noiselessly across the stage, places it in the other vase from which it is produced a few

seconds later. The coffee trick is performed in the same manner. After the vases have been shown empty, the invisible assistant drops a black cylinder into each vase. The sugar and other things are poured into these and not into the vases. These are then quickly removed by his assistant and replaced by others containing the coffee, cream and whatever else is necessary. The production of the doves or rabbits is in the same manner,—merely removing the cover or letting them fall out of a black sack. The production of the tables, chairs or lady is caused by the removal of the black velvet screen. In this manner of introducing the Indian Basket trick, the basket in which the child is placed contains a large piece of black velvet, which the assistant wraps around the child, completely enveloping her, in order that she may be removed before the cover is tied on. She can then be easily lifted out and carried away from the basket behind the screen. While the assistant is carrying her away, the attention of the audience is attracted by allowing them to examine the swords.

The blood that appears is a colored preparation, concealed in the handles of the swords, which are arranged to open by the pressure of a spring, allowing the liquid to run down the blade of the sword.

In the decapitation the lady wears a form or double costume made over her own. Her inside costume is all of black, and as she sits down she slips out of the double or outside costume and slips through or behind a black screen which extends across the stage and is just the height of her neck. Her head is held over this screen by the performer and thus he apparently carries the head across the stage to place it on the other pedestal, while the lady really walks along with him, but behind the screen, and the pedestal on which the head is placed is cut out in an oval shape at the back to allow her to rest her head apparently on the top of it.

Prof. Herrmann always executed this very cleverly when using his wife as his subject.

Of course the assistants in black must be very careful not to pass between the lights and the performer or

between the performer and the tables or chairs. With a little ingenuity it will be readily seen what marvelous effects can be introduced by means of this Modern Black Art.

Prof. Bancroft was introducing, in his performances, Black Art on precisely the same style as recently shown by Prof. Herrmann. In it he introduces an illusion of changing a lady to a lion. He calls for a shawl

and one appears in his hand. He waves it in the air and from under cover of it produces a lady dressed in white. They come down to the footlights and then retire to the centre of the stage, where he covers her over with the shawl, which he immediately removes and the lady has disappeared, and at the same moment the black screens are pulled open, showing in place of the lady a large cage containing a live lion. On this same principle European performers have produced the appearance and disappearance of a horse and rider, but such large effects as these do not meet with success because the distance for the screens to travel is so great that the illusion is not perfect enough. It cannot be worked quickly enough to prevent the audience from seeing that the change is caused by merely removing a cover or a screen.

No. 43. The Escape from Sing Sing.

For this illusion you have two cages, each 7 feet high, 4 feet wide and 4 feet deep. Each cage rests on 4 legs which elevate them eight inches above the stage floor. The sides and the door have dark red curtains and the back has a curtain of the same color as the stage is draped with; usually a dark grey to represent a cell

The sides, front and back of the cages also have wooden rods running up and down. These are blackened so as to look like iron, they are about half an inch thick and are set in the framework of the cage about 4 inches apart. Three or four of these rods are loose at the back and can be moved so the prisoner can come through. Each cage has a small shelf at the back for the assistant to stand on. To work this illusion you require two men dressed alike as prisoners and one dressed as a policeman or guard. When the stage curtains go up, the cages are standing well back on the stage. Cage number 1 has all curtains up and the performer walks behind this when entertaining. Number 2 has back curtain down and as it is of the same color as the stage background, the audience do not see it nor do they see the guard who stands on the shelf behind it. Now prisoner number 1 rattles chains in the wings and comes running on the stage. Performer stops him at the point of a revolver and puts him in cage number 2, closes the door and pulls down the curtains. Soon a voice is heard calling, "let me out"; the performer opens the door; the prisoner has gone and there stands the guard. At this moment the prisoner comes running in through the audience to the stage. Performer and guard seize him and

put him in cage number 1; then close doors and draw blinds of both cages. Fire pistol. Open cage door and blinds of both cages and behold the prisoner is seen in cage number 2. You see that when the performer puts the prisoner in cage number 2, he removes the back bars, lets down the curtain and changes place with the policeman, who raises the curtain, puts back bars and then calls to be let out. The other prisoner then rushes in through the audience. Now when they put him in cage number 1, he gets behind the curtain and the prisoner in cage number 2 comes into the cage and leaves the back curtain up.

No. 44. The Enchanted Organ or the Unexpected Supper.

This very interesting trick is of modern invention and when properly introduced by a clever performer,

produces a very agreeable and satisfactory effect upon the audience, particularly upon those who are invited to partake of the articles produced in the trick.

When the curtain arises two chairs or trestles, a short distance apart, are seen upon the stage. A large sheet of glass rests on the top of them, and six metal

cylinders, each about 15 inches high and 5 inches in diameter, are upon the glass in a row. (Fig. 40.)

Upon entering, the performer tells the following story:

In returning from his journey around the world he had visited the island of St. Helena, where an Italian

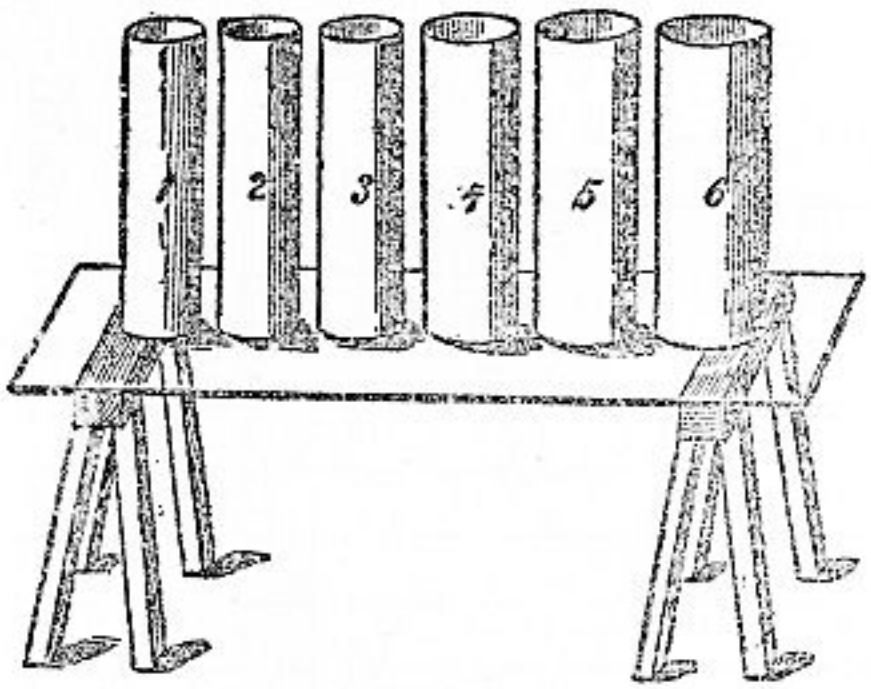


FIG. 40. THE ENCHANTED ORGAN

ship had been wrecked and only one of the crew had been saved. This man had been an organ builder by trade and had managed to save some organ pipes, which he had with him. He had been engaged to make an organ for a foreign city, but the shipwreck

had brought his journey to a sudden and unexpected close and disappointed his hopes. The performer endeavored to comfort him and assured him that he would never be in want as long as he kept the pipes with him, for these pipes, in addition to the soft harmonious tones concealed in them, contained all that a human heart could desire. To prove this he had passed his wand over the pipes and immediately produced from them many beautiful articles. After he had taught the poor man how to do this, he had cut the pipes through endwise and had presented half of each to the organ builder in order that he might never more know want.

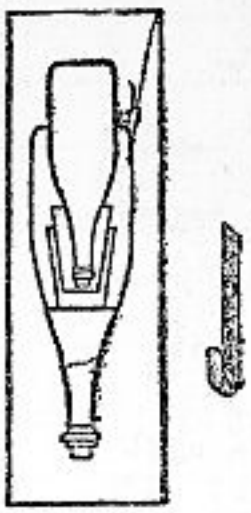


FIG. 41. THE ENCHANTED ORGAN.

The performer then introduces the trick, passes the pipes to the audience for examination, and then places them as before upright on the glass plate. He then invites two persons to dine at his table and proceeds to set it with the following, which he takes out of the cylinders while his sleeves are rolled up: A table cloth, napkins, plates, knives, forks, some fresh eggs, a loaf of bread, a roasted duck, two bottles of wine,

one of brandy, two glasses, a whisky glass, a vase of flowers, etc.

The tubes are made of metal, numbered, and all fit one over the other. They are all of the same height and stand on the glass plate in the order shown. The tubes No. 2, 3, 4, 5 and 6 contain false insides or cylinders, made of tin without bottoms. All the articles are hung in the cylinders by small flat hooks attached to the article, the upper end of which fits over the top rim of the cylinder as shown in the illustration. The performer shows tube No. 1 empty, lifts up tube No. 2 with its false cylinder and places it over No. 1, leaving the inside of No. 2 remaining in No. 1. He again lifts up and off tube No. 2 and shows it empty. He proceeds with all of the other tubes in this same manner, remarking as he does so that each tube fits over the other. Thus out of the tube just shown empty he can take or produce any quantity of articles after he has placed over it the following tube, which is to be taken off first and placed alongside. When one tube is empty he can proceed with the next in the

same manner. (Fig. 41.) Shows the flat hook for suspending the articles, and also the manner in which bottles and glasses are hung in the cylinders.

No. 45. The Mystery of She.

This illusion, the first one based on the character of "She" in Rider Haggard's well-known work, was first introduced in London. It is much the same in principle as the well-known Sphinx or Talking Head which was invented many years ago.

An ordinary platform on four legs is placed on the stage, and around the platform is placed a three-fold screen. On the platform is then placed a small ornamental brass table and a bowl. Some incense is thrown into the bowl and set on fire. As the smoke arises, the performer stretches a silk curtain or flag across the front opening of the screen and drops it almost instantly on the floor, when a lady, dressed in white, is seen behind the stand. She moves about and speaks. The performer again stretches the curtain between the front ends of the screen and almost instantly lets it fall, when it will be seen the lady has disappeared. Any committee can go on the stage before and after the performance of the illusion without discovering the secret of it.

The platform is about one foot high and the screen, which is placed around it, rests on the floor. The screen, the carpeting on the floor and the platform are all of one color. There is a trap in the center of the platform

which is placed directly over the trap in the stage. As soon as the screen is put around the platform the assistants beneath the stage open the trap and shove up two mirrors which are joined together at an angle of 45 degrees. These mirrors are shoved up against the bottom of the platform and cannot be seen by the audience because they reflect the sides of the screen which are of the same color as the floor and back ground. When ready to appear the lady stands on a lifting trap beneath the stage and is shoved quickly through the trap in the stage, through the trap in the platform, making her appearance on the same. This can be done in a few seconds. Of course she disappears in the same manner and the mirrors are drawn down underneath the stage, giving opportunity for examination of the platform and screen. The carpet on the stage and platform is of variegated pattern, which prevents the openings of the traps being seen.

No. 46. Modern Metempsychosis.

This wonderful illusion is also known as Walker's Illusion and is similar to or identical with the Blue Room of Prof. Harry Kellar. It was patented in England and the United States in 1879, by John Henry Pepper and

James John Walker of London. The apparatus was really the invention of Mr. Walker who first introduced it at the Royal Polytechnic Institution in London in 1879. It met with instantaneous success and was probably praised by the press more than any illusion of modern times. For awhile, owing to the unfortunate affairs of Mr. Walker, the presentation of the illusion was not pushed to any great extent, but a few years ago it was taken up again by him and produced in the proper manner. Some three or four years before Prof. Herrmann died it was rumored that he had purchased or would purchase the Walker Illusion, but Mr. Walker's price at that time was something like $2,500 and the patent only having a few years to run, no performer in this country felt like investing so much money in it. With this illusion the following effects can be performed:

No. 1. Living forms walk bodily out of blank space and step to the foot lights, afterwards changing into other shapes and finally vanishing in the thin air.

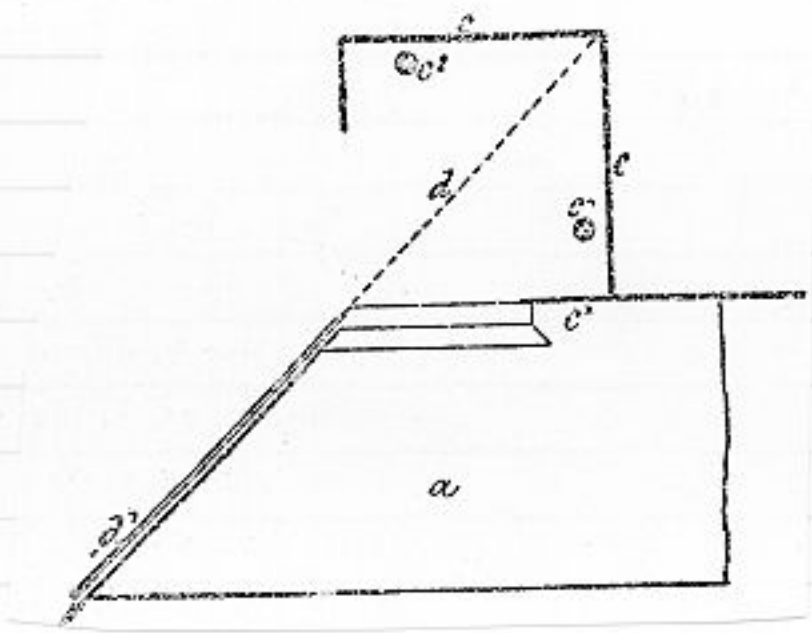
No. 2. A ghost gradually becomes visible and develops into a living person, walking about the stage. Then slowly or quickly, as may be desired, returns to its former ghostly state.

No. 3. Any solid substance may be gradually changed into any other solid substance.

No. 4. Impalpable images can be materialized or the reverse.

No. 5. A woman can be visible and gradually metamorphosed into a man or the reverse.

The patent states that the object of the invention is by a peculiar arrangement of apparatus to render an actor or object gradually visible or invisible at will, and also to substitute for an object in sight of the audience the image of another similar object hidden from direct vision, without the audience being aware that any such substitution has been made. For this purpose there is employed a large plate of glass which is transparent at one end and more and more densely silvered in passing from this towards the other end. This plate is mounted so that it can at pleasure be placed diagonally across the stage or platform. As it advances, the glass gradually obscures the view of the actor or object in front of which it passes and substitutes the reflection of an object in front of the glass, but suitably concealed from the direct view of the audience. When two objects or sets of objects thus successively presented to view are properly



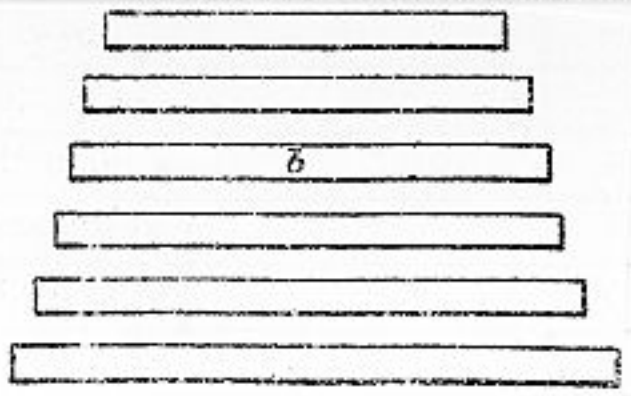


FIG. 42. MODERN METEMPSYCHOSIS.

placed and sufficiently alike, the audience will be unaware that any change has been made.

Figure No. 42 represents a plan view of an arrangement such as described above. A. is the stage of either a lecture room or theatre; B. B. are the seats for the audience in front of the stage. C. is a small room 10 or 12 feet square and 8 feet high. This will be sufficiently large, although, of course, it can be of any size. If deemed advisable, one or two steps may be placed in front of it, in which case the room or chamber must be raised a little off the stage. D. is a vertical mirror passing diagonally across the chamber, C. dividing it into two parts which are exact counterparts of each other. The mirror "D" is so arranged that it can be rapidly and noiselessly withdrawn whenever desired, which can be done by running it in guides and upon rollers to a position D where it is hidden by a screen or part of the stage scene, which limits the view of the audience in this direction or the mirror can be raised and lowered vertically. It is not necessary for the mirror to pass entirely across the chamber C. If the chamber is of large size it can pass only partly across it. In consequence of the exact correspondence of the two parts of the chamber C, that in front and that behind the mirror, the audience will

observe no change in appearance when the mirror is passed across. The front of the chamber is in some cases partly closed at C X, either permanently or whenever required. This is done in order to hide from direct view

any object which may be at or about the position C. I.

The illusion may be performed in various ways, for instance, an object may, in sight of the audience, be passed from the stage to the position C 2 and there be changed to some other. This is done by providing beforehand a dummy at C 1 closely resembling the object at C. 2. Then when the object is in its place the mirror is passed across without causing any apparent change, but when hidden is changed for another object resembling the first. The mirror is then withdrawn and the audience may then be shown, in any convenient way, that the object now before them differs from that which they saw at first. In many cases it is preferable not to use an ordinary mirror at D, but one of graduated opacity. This may be produced by removing the silver from the glass in lines, or if the glass be silvered by chemical deposition, causing the silver to be deposited upon it in lines. Near one side of the glass the lines are made fine and open and progressively in passing towards the other side they become broader and closer until the com-

pletely silvered surface is reached. Other means may also be used for obtaining a graduated opacity and reflecting power. In order that the edge of the glass mirror may not be observed as the mirror is moved across the chamber C, the forward edge of the mirror D is in some cases formed in steps, say about one-eighth inch in depth, in place of having it with a square or straight end or edge. The edge will thus, as it were, be broken up into a number of comparatively narrow edges, each one of which is practically invisible at the distance from which the spectators view it. The objects at C1 and C2 may be alternately illuminated by any suitable bright light, at the same time the glass D is pushed forward into the chamber which will cause one object to dissolve into the other like the dissolving view effects in the magic lantern.

This is a very attractive illusion and can be used in scenic productions where a gas light effect is required. The only objection to it is the expense and danger of transporting such a large glass.

No. 47. The Great Flight of Objects.

This trick is one that is seldom introduced by modern professors, although effects of this kind were used in the

first half of this century by nearly all the leading conjurers to make themselves more prominent and increase their fame. Pinetti, Robert Houdin and other modern conjurers have not hesitated to use tricks of this character requiring confederates. Prof. Herrmann probably used more confederates in his performances than any modern conjurer. This was particularly noticed at the time he played his engagements at Paris, and on that account he incurred the displeasure of all the French conjurers. The trick was generally introduced in this manner:

The performer borrows a wrap or hat from a lady or a gentleman in the audience. Let us suppose he borrows a hat. He wraps this up in a large handkerchief, places it on one of his side tables, and covers it with a vase or a cone. He then announces that he will cause the hat to disappear, to be found in the theatre, in the town hall, or any place in the town where wanted, and in order to avoid all dispute, chance alone shall decide where it is to be found. Any spectator who desires to do so is therefore asked to write a destination on a piece of paper which is handed to him. All the papers are then folded and collected in a little bag or sack, and to prevent a thought of collusion, a child is allowed to draw one of these papers

from the bag. Carriages are at the door ready to take the committee to find the hat that is to disappear and be found at the place named on the paper which is drawn by the child. The performer returns to the table, shows the hat once more, then wraps it up a second time and covers it as before. Taking the wand, he raps on the cone

or vase and commands the hat to go to the place mentioned on the paper drawn from the bag by the child. The performer then lifts the cone or vase covering the hat, but nothing appears to be gone. The audience still see the package lying there. They usually begin to murmur, and as the performer appears undecided what to do, the murmuring increases and the noise becomes general. Evidently the magician has failed in his trick. He acts awkwardly and seems to be in a "fix." The audience, as a rule, laugh at his embarrassment, some applauding, some hissing. Finally stepping forward with a good conscience, he stretches forth his arms to calm the storm, and obtaining silence, he asks in what way he has displeased his audience. This gives him an opportunity to have a little fun with a confederate placed among the audience, who tells the performer to put his question to the package on the table. He asks why. The man in the audience replies: "To reproach it, of course, for still

being there." "But it is in nobody's way." "Well, did you not promise to send it to the place written on the paper?" "Yes, when I announced this I said I would make the hat disappear, but I did not say I would do the same with the handkerchief around it." Then grasping the handkerchief the performer shakes it to show it is empty and the hat has gone on its way as promised. The audience then, of course, applaud in good faith, and usually a committee of the most inquisitive are appointed to start out in search of the hat and see if it is really in the place selected, which, of course, is always found to be the case.

The inventor of this manner of working the trick tells a very good joke on himself. He first made an agreement with a servant of one of the leading merchants of the town where he was performing to place a lady's hat in his master's bed. The servant was induced to do this, believing it was only an innocent joke and being further mollified by the receipt of a five dollar bill from the magician. This merchant was a widower, very fond of sport and considered somewhat of a ladies' man. A stylish confederate of the magician sat in one of the first boxes on the night of the performance with a bonnet on exactly like the one which had been concealed in the bed of the

gentleman. When the performer asked for a hat or a bonnet, the ladies were in no great hurry to hand theirs over, but the confederate, however, took hers off and handed it to the performer with an amiable smile. The bonnet was folded in the handkerchief, the parcel being tied rather tight and placed on a trap in a table standing next to the side scene of the stage and was then covered up with an empty cone. The assistant behind the scene opened a trap in the same, put his hand through, opened the trap in the table, took out the package, and substituted another one, wrapped up in the same manner with the same kind of a handkerchief, and held in the same shape or position by two pieces of very fine bent wire laid crosswise. Then the performer announced what he intended to do with the bonnet and asked the audience to write the name of a place on a few square pieces of paper which he distributed. When the names of the places were written and the papers rolled up they were all put together in one pocket of a small double sack; the other pocket in the sack contained a number of small rolls of paper on each one of which was the same inscription, namely,—in Mr. Blank's bed. When the sack was ready a child drew one from this pocket. A committee was immediately sent in a carriage to the merchant's house, and, sure enough, in

his bed was found the bonnet, of course an exact duplicate of the one the lady had handed to him from the box. This trick made such an impression on a large portly gentleman who was on the committee, that on perceiving it in the gentleman's bed, he immediately fainted.

No. 48. The Cocoon.

The most ingenius illusion introduced of late years was

certainly that of the Cocoon, and its perfection is due, in a great measure, to the mechanical skill of Mr. Maskelyne, of London. This has been and is still a leading feature with all prominent conjurers. A patent for the same was taken out in England, but not in this country. Several explanations of it have been given from time to time in the press, but none of them have been correct. The true explanation of it is as follows.

The performer stretches a ribbon across the stage, looping it over a hook at each side. To each end of the ribbon is attached a small bag filled with sand, which has previously been examined by the audience. He then calls their attention to a framework of light wood or cardboard about three or four feet square and a foot deep. There is no cover to it, and the bottom is formed by a large piece of plain paper

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stretched over it. After this is also examined it is placed in the center of the stage, the ribbon is pulled down at about the middle of it and is fastened to one or two hooks in the top part of the frame, which is lifted up. The sacks at the ends of the ribbon apparently keep it suspended horizontally in the air, some distance above the floor. The performer draws on the paper a sketch of the silk-worm,

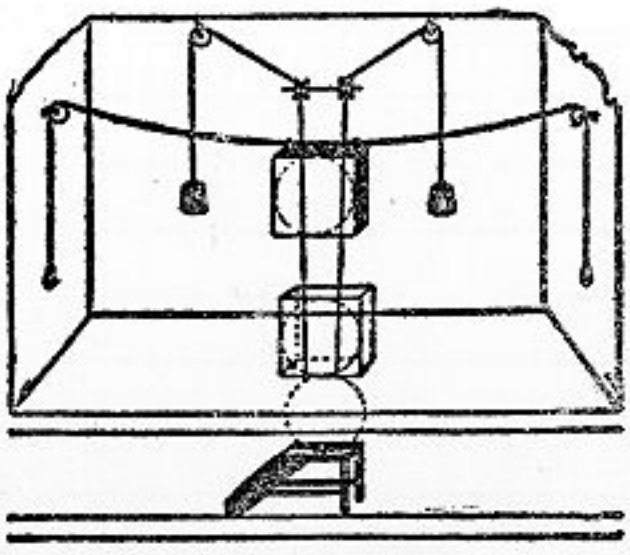


FIG. 43. THE COCOON.

and as soon as he waves his wand the paper bursts and a large, bright, silk cocoon is seen in the frame. A stool is placed underneath it, the frame lowered by slacking up the ribbons, and as soon as it touches the stool it bursts, and from the inside of the cocoon appears a charming woman dressed in the costume of a butterfly.

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The cocoon is made of fine silk and is stretched over an oval, or rather round, framework of iron. It is large enough to allow a person to sit in it Turkish fashion, and opens on one side. This cocoon is hung on two fine wires, on the other ends of which are fastened the proper counterweights to balance the woman and the frames. These wires lead up through the stage to the flies and over rollers or pulleys to the counterweights. After the performer has placed the ribbon in position he places the framework on which the paper is stretched in the middle of the stage on the carpet, and while he is pulling the ribbon down to fasten it, the assistant below opens a trap in the stage floor, and a flap cut in the carpet, and pushes up the cocoon which contains the woman and which the performer fastens in the framework. Now he has only to touch his hand to the framework and his assistants pull down the counterweights, thereby raising the framework and the ribbon, which now apparently supports all. The rest is clear. At the proper signal the lady bursts the paper and the assistants lower all onto the stool, and the trick is done. Some performers use a windlass to wind up the wires. When proper wires are used on a brightly illuminated stage, they are absolutely invisible.

264 SILENT THOUGHT TRANSMISSION.

No. 49. Silent Thought Transmission.

One of the most mysterious and entertaining feats of late years has been the act, known under the above title, in which a person, preferably a lady, is blindfolded by the performer. She remains on the stage while the performer goes amidst the audience and when anything is handed or shown to him he merely glances at it, then points his finger at the lady medium on the stage when she immediately describes what he has seen although he does not speak a single word. Any request whispered in his ear is immediately carried out by the lady without a

word being spoken by either of them. When properly introduced, this act is a perfect one of its kind and cannot be duplicated except by people who have an understanding of this kind of business, and even then they could not duplicate it without much ingenuity in devising the silent code of signals which is used. Especially does this seem miraculous when it is considered that the lady is apparently thoroughly blind-folded.

The blind-folding is a "blind." Any handkerchief can be used. It is folded over in the ordinary manner and placed directly over the eyes and partly on the forehead of the lady; then tied at the back of her head as is usually done in such cases. If the lady wrinkles her forehead two

or three times, the handkerchief will rise sufficiently for her to see the performer in the audience, provided she inclines her head backward which she must do as though she was listening intently to something he was about to say. She, being on the stage, is elevated several feet above him, making it easy for her to see his movements. This is the main point, and an ordinary blind-fold in this manner, with any handkerchief, by any person, will not prevent her from seeing him, provided he does not go too far away from her or above her range of vision.

The next important part is the signals by means of which he is able to communicate with her. These each person can, when he understands the act, arrange to his or her own liking. For convenience, we arrange in sets the most common articles that a performer is liable to meet with,—ten numbers or articles in a set, and we give particulars of ten or more sets, thus making one hundred articles and more of the most common kind generally met with. During the ordinary performance, not more than from twenty-five to thirty-five articles or requests will be made. It is well though for performers to extend the sets which they commit to memory to comprise about two hundred or three hundred articles.

Now that we have the first principle explained in the

blind-folding, and the second in how the articles are learned, we will take up the manner of communicating the number of the code and article. This is done by a code of signals.

When not communicating a signal, the performer stands with his right hand hanging at his right side and with his left hand and forearm resting behind him, a natural position.

Signals.—The first signals are made by raising the right hand and pointing directly at the medium; this movement must be made in as many different ways as you have sets of objects, or you can have a certain number of these gestures for a certain number of sets and an additional number of sets may be used, the numbers of which can be communicated by a signal given by the left hand, which is the hand that communicates the number or name of the article in each set.

For instance:—Let us look first at the manner in which the signals are made by the right hand to communicate the number of the set. The forward movement of the right hand can be made in many ways and Second Sight Artists will no doubt be able to arrange or modify these signals to suit themselves.

For Set No. 1:—Face the medium, your left hand at your back, raise the right hand up to a level with your head and point with forefinger extended directly at the medium, the other three fingers and thumb remaining closed. She sees at a glance this position and knows it means Set No. 1.

Set No. 2:—Repeat the motion for No. 1, viz: Face the medium, your left hand at your back, raise the right hand up to a level with your head and point with forefinger extended directly at medium, with the difference that for set No. 2 you take one step forward simultaneously as you make the motion. This is set 2.

Set No. 3:—Repeat No. 1, namely: Face the medium, your left hand at your back, raise the right hand up to a level with your head and point with forefinger

extended directly at medium, but take one step forward—first—before making the motion.

Set No. 4:—Extend the right hand away from the right side about 2ϐ inches—about one-eighth of a circle, then bring it forward and up in front of your head and above it, the same hand and fingers held in same position as for No. 1, viz.: Forefinger extended directly at the medium and the other three fingers and thumb remaining closed.

Set No. 5:—Same as No. 4, viz.: Extend your right hand away from the right side about 18 inches, describing one-eighth of a circle, then bring it forward and up in front of your head and above it, but take one step forward—simultaneously—as you make the motion.

Set No. 6:—Repeat No. 4 by extending your right hand away from the right side about 18 inches describing about one-eighth of a circle, then bring it forward and up in front of your head and above it, but taking one step forward—first—before making the motion.

Set No. 7:—Extend your right hand away from the right side and bring up on a level with your shoulder, thus describing one-fourth of a circle, then swing your right hand around in front of your head.

Set No. 8:—Repeat No. 7 by extending right hand away from the right side and bring up on a level with your shoulder, thus describing one-fourth of a circle, then swing right hand around in front of your head, but taking one step forward—simultaneously—while in the act of raising the hand and pointing at medium.

Set No. 9:—Repeat No. 7 by extending right hand away from the right side and bring up on a level with

your shoulder, thus describing one-fourth of a circle, then swing right hand around in front of your head, but taking one step forward—first—before making the motion.

Set No. 10:—Raise your right hand upward along and close to your body till forearm and hand is resting on a level with your waist line, then throw or point it directly out in front of you while standing still.

Set No. 11:—Repeat No. 10 by raising your right hand upward along and close to your body till forearm and hand are resting on a level with your waist line, but taking one step forward—simultaneously—as you throw or point your hand at medium.

Set No. 12:—Repeat No. 10 by raising you right hand upward along and close to the body till forearm and hand are resting on a level with your waist line, but taking one step forward—first—before pointing at the medium.

Set No. 13:—Raise your right hand upward along and close to your body till it reaches your cheek, then throw or point it out in front of you, while standing still.

Set No. 14:—Repeat No. 13 by raising your right hand upward along and close to your body till it reaches your cheek, then throw or point it directly out

in front of you, but taking one step forward—simultaneously—as you point at the medium.

Set No. 15:—Repeat No. 13 by raising your right hand upward along and close to your body until it reaches your cheek, then take one step forward—first—before pointing at the medium.

Set No. 16:—Repeat No. 1 by facing the medium, your left hand at your back, raise the right hand up to a level with your head and point at medium, but with the addition that your hand is open and held with palm downwards, finger and thumb fully extended.

Set No. 17:—Repeat No. 2 by facing the medium, left hand at your back, raise right hand up to a level with your head, extend arm toward medium, palm down and hand open, while at the same time taking one step forward—simultaneously—as you make the motion.

Set. No. 18:—Repeat No. 3 by facing the medium, your left hand at your back, raise right up to a level with your head, extend your arm, hand open and palm downward, but take one step forward—first—before pointing at the medium, with your open hand.

Set No. 19:—Repeat No. 4 by extending the right hand away from the right side about 18 inches, de-

scribing about one-eighth of a circle, then bring it forward and up in front of your head and above it, your hand open and palm downwards, pointing at the medium.

Set No. 20:—Repeat No. 19 by extending the right hand away from the right side about 18 inches, describing about one-eighth of a circle, then bring it forward and up in front of your head and above it, with your hand open and palm downwards, but taking one step forward—simultaneously—as you point at the medium.

Set Nc. 21:—Repeat No. 19 by extending the right hand away from the right side about 18 inches, describing about one-eighth of a circle, then bring it forward and up in front of your head and above it, take one step forward—first—before pointing at the medium.

Set No. 22:—Repeat No. 7 by extending the right hand away from the right side and bringing it up on a level with your shoulder, thus describing one-fourth of a circle, then swing your right hand around in front of your head, hand open and palm downwards.

Set No. 23:—Repeat No. 22 by extending your right hand away from the right side and bring same

up on a level with your shoulder, thus describing one-fourth of a circle, then swing your right hand around in front of your head, hand open and palm downwards, but taking one step forward—simultaneously—as you point at your medium.

Set No. 24:—Repeat No. 22 by extending your right hand away from the right side and bring it up on a level with your shoulder, thus describing one-fourth of a circle, then swing hand around in front of your head, hand open and palm downwards, but taking one step forward—first—before pointing at the medium.

Set No. 25:—Repeat No. 10 by raising your right hand upward along and close to your body till forearm and hand are resting on a level with your waist line, then throw or point it directly out in front of you while standing still, your hand open and palm downwards.

Set No. 26:—Repeat No. 25 by raising right hand upward along and close to your body till forearm and hand are resting on a level with your waist line, then throw or point it directly out in front of you, with hand open and palm downwards, but taking one step forward—simultaneously—as you point at the medium.

Set No. 27:—Repeat No. 25 by raising your right

hand upward along and close to your body till forearm and hand is resting on a level with your waist line, hand open and palm downwards, but take one step forward—first—before you throw or point your hand directly out in front of you at the medium.

Set No. 28:—Repeat No. 13 by raising your right hand upward along and close to your body till it reaches your cheek, then with hand open and palm downwards, throw or point it directly out in front of you while standing still.

Set No. 29:—Repeat No. 28 by raising your right hand upward along and close to your body till it reaches your cheek, then with hand open and palm downwards, take one step forward—simultaneously—as you throw or point your hand directly out in front of you at your medium.

Set No. 30:—Repeat No. 28 by raising your right hand upwards along and close to your body till it reaches your cheek, then take one step forward—first—and

with hand open and palm downwards, throw or point your hand out in front of you directly at your medium.

The above signals give thirty sets, that number generally being sufficient.

Having mastered this easy beginning, we have now to

learn the signals to be given by the left hand in conjunction with above signals. We only need ten signals expressing the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 0, the cipher meaning 10.

Number one of each set, left hand hanging down along the left side in its natural position.

Number 2, left hand at bottom front of dress coat on a line with the bottom of the vest, hand closed over edge of coat.

Number 3, left hand in same position as in Number 2, viz., holding bottom front of dress coat, but about three inches higher up, say on a level with middle button of vest (performer supposed to be wearing a three button low cut vest.)

Number 4, same position as in Number 3, namely, hand enclosing front left side edge of coat, but three or more inches higher on coat, being just above the level or line of top button of vest.

Number 5, with left hand enclose bottom front of dress coat on a line with the bottom of the vest, hand closed over edge of coat, but grasping the right flap of the coat at about the bottom.

Number 6, repeat Number 5 by grasping with the left hand the right flap of front edge of dress coat about

three inches or more above bottom, say on a level with the middle button of your vest.

Number 7, repeat Number 5 by grasping with the left hand the front right edge of dress coat, but hold edge about three or more inches higher, being about on a level with the top button of your low cut vest.

Number 8, left arm and hand akimbo, hand resting on hip, on the outside of dress coat.

Number 9, left arm and hand akimbo, hand resting on hip, but with the front and left side of coat pushed behind the left arm and hand which is resting on the hip.

Number 0, or (10) left hand extending down along the side with thumb in trousers side pocket, hand in front of tail of coat.

These signals are all that is necessary to learn except for very complicated tests and for things not in the sets, execution of which will be explained further on.

As far as possible performer should always use the center aisle to work in. The medium walks about the stage, facing the audience all the time, and if the performer goes into a side aisle, she walks to that side of the stage in order that she may have a front view of the performer while he is giving the signals.

As far as possible the performer takes requests from persons occupying end seats or second or third seats from the aisle. He should always be in front of the person for whom the medium is about to describe something. Then this person cannot see him make any motion with his left hand.

The tests should be done as rapidly and as quickly as possible, not giving persons a chance to press you for detailed descriptions until you are thoroughly "well up" in the act.

If your lady medium has difficulty in memorizing the majority of the sets, you can have them engraved or printed in small characters on any suitable material and fastened on her fan or the sides of her fan, which she carries and moves about in her hands. Thus if she forgot a certain number of a certain set she could see it by glancing down along her nose while holding the fan in a line with it.

The sets are arranged in an appropriate manner naming such articles as naturally come together. This is done for convenience in memorizing.

It is, of course, understood that the performer first

gives with his right hand the signal for the number of the set and follows this immediately, without changing

his position, with the number of the article of the set, given with the left hand.

Set No. 1. Articles of Wear, Ornaments.

1. Bracelet.
2. Breast pin.
3. Chain.
4. Charm.
5. Ear ring.
6. Hair pin.
7. Necklace.
8. Ring.
9. Scarf pin.
0. Watch.

Set No. 2. Articles of Wear, Ornaments.

1. A. O. U. W. Emblem.
2. Masonic Emblem.
3. Musical Emblem.
4. National Union Emblem.
5. Ornamental Emblem.
6. Odd Fellows Emblem.
7. Knights of Pythias Emblem.
8. Royal Arcanum Emblem.
9. Stud.
10. Society Emblem.

Set No. 3. Articles of Wear.

1. Boot.
2. Button.
3. Cane.
4. Muff.
5. Parasol.
6. Sleeve button.
7. Shoe.
8. Umbrella.
9. Umbrella cover.
10. Whip.

Set No. 4. Articles of Wear.

1. Bag.
2. Belt.
3. Collar.
4. Cuff.
5. Fan.
6. Glove.
7. Handkerchief.
8. Necktie.
9. Ribbon.
10. Veil.

Set No. 5. Articles of Wearing Apparel.

1. Cap.
2. Cloak.
3. Coat.
4. Dress.
5. Hat.
6. Hood.
7. Muffler.
8. Cape.
9. Shawl.
10. Vest.

Set No. 6. Articles of Sight.

1. Compass.
2. Eye glass.
3. Eye glass case.
4. Magnet.
5. Magnifying glass.
6. Opera glass.
7. Opera glass case.
8. Spectacles.
9. Spectacle case.
10. Telescope.

Set No. 7. Pocket Articles.

1. Bunch keys.
2. Card case.
3. Comb.
4. Memo. book.
5. Playing card.
6. Purse.
7. Key.
8. Key ring.
9. Knife.
10. Visiting card.

Set No. 8. Pocket Articles.

1. Bill.
2. Book.
3. Envelope.
4. Letter.
5. Newspaper.
6. Paper.
7. Pamphlet.
8. Pocket book.
9. Programme.
10. Shoe string.

Set No. 9. Pocket Articles.

1. Capsule.
2. Chalk.
3. Fish hook.
4. Money order.
5. Pass.
6. Old coin.
7. Prescription.
8. R. R. ticket.
9. Street car ticket.
10. Theatre ticket.

Set No. 10. Pocket Articles.

1. Bullet.
2. Cartridge.
3. Horn.
5. Musical Instrument.
5. Powder.
6. Revolver.
7. Shot.
8. Surgical instrument.
9. Tuning fork.
10. Telegram.

Set No. 11. Pocket Articles.

1. Button hook. 4. Eraser. 8. Rubber.
2. Cork. 5. Pen. 9. Tablet.
3. Cork screw. 6. Pen holder. 10. Tweezers.
7. Pencil.

Set No. 12. Fruits.

1. Apple. 4. Cake. 8. Pear.
2. Banana. 5. Lemon. 9. Peach.
3. Candy. 6. Nut. 10. Pop corn.
7. Orange.

Set No. 13. Fruits.

1. Apricots. 4. Grapes. 8. Raspberries.
2. Cantaloupe. 5. Plums. 9. Currants.
3. Cherries. 6. Water melon. 10. Gooseberries.
7. Strawberries.

Set No. 14. Liquors.

1. Ale. 4. Gin. 8. Water.
2. Beer. 5. Lemonade. 9. Wine.
3. Cordial. 6. Milk. 10. Whiskey.
7. Rum.

Set No. 15. Liquors.

1. Angelica. 4. Mixed drink. 8. Sherry.
2. Champagne. 5. Muskatelle. 9. Tokay.
3. Claret. 6. Port wine. 10. Cocktail.
7. Rhine wine.

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Set No. 16. Money.

1. Bank note. 6. Deed.
2. Bond. 7. Gold.
3. Check. 8. Nickel.
4. Currency. 9. Postage stamps.
5. Copper. 10. Silver.

Set No. 17. Smoker's Set.

1. Cigar. 6. Cigarette case.
2. Cigar case. 7. Cigarette holder.
3. Cigar holder. 8. Cigarette paper.
4. Cigar cutter. 9. Match.
5. Cigarette. 10. Match box.

Set No. 18. Smoker's Set.

1. Pipe. 6. Tobacco box.
2. Pipe rack. 7. Tobacco pouch.
3. Snuff. 8. .....
4. Snuff box. 9. .....
5. Tobacco. 10. .....

Set No. 19. Sundries.

1 Buckle. 4. Lock. 8. Screw.
2. Cord. 5. Measure. 9. Tack.
3. Hinge. 6. Nail. 10. Tool.
7. Rule.

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Set No. 20. Miscellaneous.

1. Brush. 4. Pin. 8. Thimble.
2. Looking glass. 5. Scissors. 9. Tooth pick.
3. Needle. 6. Shears. 10. Thread.
7. Spool.

Set No. 21. Miscellaneous.

1. Bottle. 4. Doll. 8. Plate.
2. Bouquet. 5. Flag. 9. Soap.
3. Cup. 6. Fork. 10. Toy.
7. Flower.

Set No. 22. Miscellaneous.

1. Album. 4. Clothes pin. 8. Package.
2. Basket. 5. Crutch. 9. Picture.
3. Calendar. 6. Ink stand. 10. Spoon.
7. Napkin.

Set No. 23. Watches.

1. American Watch Co. 6. Elgin Watch Co.
2. Dueber Watch Co. 7. English Watch Co.
3. Tobias Watch Co 8. .....
4. Swiss Watch Co. 9. .....
5. Springfield Watch Co. 10. Waltham Watch Co.

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Set No. 24. Fabric.

1. Chamois. 4. Lace. 8. Wool.
2. Cotton. 5. Linen. 9. .....

3. Fur. 6. Leather. 10. .....
7. Silk.

Set No. 25. The Setting.

1. Amethyst. 4. Garnet. 8. Sapphire.
2. Diamond 5. Opal. 9. Topaz.
3. Emerald. 6. Pearl. 10. Turquoise.
7. Ruby.

Set No. 26. Material.

1. Bone. 4. Coal. 8. Marble.
2. Bronze. 5. Glass. 9. Stone.
3. China. 6. Ivory. 10. Wool.
7. Lava.

Set No. 27. Metals.

1. Brass. 4. Iron. 8. Steel.
2. Copper. 5. Lead. 9. Tin.
3. Gold. 6. Nickel. 10. Zinc.
7. Silver.

Set No. 28. Of What ——

1. Animal. 4. Drawing. 8. Lady.
2. Boy. 5. Gentleman. 9. Landscape.
3. Child. 6. Girl. 10. Sketch.
7. Group.

Set No. 29. Countries.

1. America. 4. France. 8. Mexico.
2. Canada. 5. Foreign. 9. Russia.
3. England. 6. Germany. 10. Spain.
7. Italy.

Set No. 30. Colors.

1. Black. 4. Green. 8. White.
2. Blue. 5. Grey. 9. Yellow.
3. Brown. 6. Purple. 10. Drab.
7. Red.

Descriptive Set.

1. Colors. 3. Fabric. 6. Of What.
2. Countries. 4. Material. 7. Setting.
5. Metals.

Signal to tell your medium that you are about to give number of a Descriptive set; smoothing back your hair with your left hand.

Sets numbers 24-25-26-27-28-29 and 30 are used only for fuller description of the articles presented to you, but you can avoid giving fuller details if you desire, by rapidly proceeding to the next experiment.

The Descriptive Set we keep separate and have same numbered from 1 to 7 and anything in any of these seven sets must be signaled to your medium by the left hand, after you have given the number in the set of the article and while the right hand is still pointing at her.

To let her know that you are about to give her a signal for a further description of the article, you, after giving her the number of the article in the set, raise your left hand and brush your hair back, which notifies her to look for the next signal you are about to give her, which will be one of these seven sets. Then drop left hand for an instant to your side and immediately give her the signal for the number in the set.

For instance: You desire to have her describe a Gold watch made by the Elgin Watch Co. With your right hand you have given her signal for set No. 23, while holding this hand in position, with the left hand you sig-

nal No. 6 in set 23 to her, she immediately says: "A watch made by the Elgin Watch Co."

While she is saying this you turn your head, meaning you are about to give her the set number for the metal which is No. 27, which you signal to her, following it immediately with the number 3, which means Gold, and

she says further, "it is a Gold Watch."

Set of Numbers.

1. Hundreds.
2. Thousands.
3. Tens of thousands.
4. Hundreds of thousands.
5. Millions.

Signal for the set, meaning, "I am communicating numbers." Touch your Collar or Neck-tie with your left hand.

Suppose you wish to communicate to her the number of a Bank note 2,367,405; when you have given the signal for this set with your left hand as above described, you give your signal for No. 5 in this set which is Millions, then communicate to her the regular number two, and she says 2 millions, you go right ahead giving the Nos. 3-6-7-4-0-5 and she continues calling Three hundred sixty-seven thousand, four hundred and five. Thus

you see all her answers must be slow, and in descriptions of articles, naming them first and describing them afterwards.

The following set can be omitted if your medium does not care to sing, dance, whistle or laugh:

1. Annie Laurie.
2. America.
3. Dance.
4. Home, Sweet Home.
5. Laugh.
6. Sweet Marie.
7. Paradise Alley.
8. Sit Down.
9. Sidewalks of New York
10. Whistle.

Above set for you to use when your medium is requested to sing a verse of a song, dance, whistle, sit-down, etc., etc., as may suit yourself. In communicating to your medium that you are about to give her a number in above mentioned set, point at your medium with your left hand, using forefinger, and having the other three fingers and thumb closed; on seeing this she knows you mean that for the set of songs.

Set of Actions.

1. Tie knot in person's handkerchief.
2. Take watch out of gentleman's pocket and place in another's.
3. Write down time by gentleman's watch.

4. Write any number selected, on a card.
5. Take a cane or umbrella and put in hands of another person.
6. Find any certain thing in a person's pocket.
7. Take any certain thing from a person's pocket and give to another, or place in another's pocket.
8. Remove any certain ornament or article of wear from one person and place on another.
9. Write autograph on program person holds.
10. Give time shown by this watch.

In signaling to your medium that you are about to communicate a number contained in the set of Actions, extend your left hand towards your medium with hand open and palm downwards, then proceed to give the number in the set.

In above set, when it is necessary for your medium to remove a certain object from a person's pocket, you should see that the questioner has everything else removed from that pocket but that one particular object, then it is easy for her to get it, and the pocket you designate by placing your left hand on the corresponding pocket on your own person; do this while standing in front of the person and, as she comes towards you, step back and touch the person, then step back till she is

through, or go and stand in front of the person to whom the article is to be conveyed.

In tests of this kind always use persons occupying end seats.

If an article of wear is to be removed, touch that article on your own person as she comes towards you, and proceed as above described.

The above sets are sufficient for all ordinary performances.

Do not let a person think long before giving you a test, then go to some one else and a good many requests you ignore entirely, not doing too many at one performance.

Where odd things are offered not in any of your sets, and you feel you must give them, you must have recourse to a spelling code which you arrange in the following manner. Number the alphabet as follows: The first ten letters A to J are numbered 1 to 10 consecutively, the second ten letters from K to T are numbered from 1 to 10 consecutively, and from U to Z are numbered 1 to 6, this makes two divisions of 10 each and 1 of 6. Learn thoroughly the letter represented by each number.

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Letters.

1st Set.	2nd Set.	3rd Set.
1. A.	1. K.	1. U.
2. B.	2. L.	2. V.
3. C.	3. M.	3. W.
4. D.	4. N.	4. X.
5. E.	5. O.	5. Y.
6. F.	6. P.	6. Z.
7. G.	7. Q.	
8. H.	8. R.	
9. I.	9. S.	
10. J.	10. T.	

The signal "I am spelling," is the signal for set No. 1 with the addition that your head is turned to the right, presenting the left side of your face to your medium. You then proceed to give the numbers for the letters with your left hand.

When you are spelling a word by giving the number in the first set of letters (first set of 10 letters), keep your face turned to the right.

When you are giving a number for a letter in the second set, face your medium, when giving a number for a letter in the third set turn your face to the left.

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In presenting the above act to your audience, you should make some remark to the effect that Miss ——, your medium, will while blindfolded be able to describe anything shown to you while amidst the audience, or she will do any reasonable act desired of her, such as finding or moving objects in the audience, whistle, sing any popular song without your speaking a word to her and without any means of communication.

Any person can blindfold her,—pause here a moment,—and as usually no one offers quickly to do this, you take out your handkerchief and do it yourself, letting the audience see how you fold the handkerchief, which you do in the usual manner.

No. 50. A Comedy of Errors.

Necessaries: Two umbrellas, long gloves, cards, a chair at right entrance, parcel paper, handkerchief vanisher and shears on side table. Vanisher up left sleeve, handkerchief palmed, small glove under left vest, big glove right vest or in pochette, shred handkerchief and strip handkerchief. Assistant on the alert. Commence:

"For my next combination I shall need some assistance. Yes, if you wish, come right up; please be seated. Do not get nervous but make yourself at home. I pre-

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sume you are an expert conjurer. Ah! I thought so, your having such a knowledge of the black art will be of much assistance to me. Will some lady or gentleman please lend me a handkerchief, a white one, please? Thank you, this will do. (Make exchange, hold it up in left hand; hand him dummy handkerchief in his right hand, get rid of borrowed one to assistant behind back of chair.) Now please hold it up high in full view of our audience. (Assistant behind tells gentleman to take up shears and cut handkerchief in strips quickly. Assistant has dummy umbrella ready and open and at first opportunity ties handkerchief to ribs.) The reason I do not use my own handkerchief for this trick is simply be-

cause I do not perform this illusion myself, but my admirable assistant, whom you see seated before you does it all. Will some lady or gentleman please lend me a pair of kid gloves? These will do. Thank you. (Hold them at arm's length, take paper from table and wrap them up, making change for dummy parcel, as you do so, from table or vest. By this time a laugh from the audience. Walk forward, half surprised, without looking at gentleman. After a while look around and find him with cut handkerchief. As you look around pull down vanisher, start back and let wrapped-up handker-

chief up sleeve if not already exchanged on table.) Sir, what have you been doing? As a joke this is funny, but this is by no means a joke. (Hold it up.) Do you want our entertainment to end abruptly? Please hold these gloves up high and give me the shears. It was cruel for you to cut up a lady's handkerchief. (Turn to audience.) This young man has destroyed my illusion. I fear I cannot do as I desired. (Eye gentleman suspiciously.) You had better not cut up those gloves too. Will you accept this handkerchief thus? No? Well, I did not think you would,—perhaps you wish it in one piece. Well, sir, (Take gloves from him and pass them to assistant behind chair.) Please make this into one piece. What! you can't do it? There is no such word as "can't"; let me see what I can do. (Roll up, palm off and get long strip in hand.) Now take hold of this corner and we will sew it up; here goes! (Pull out and walk off with your end.) Here it is, madam, as you desired, in one piece. (Assistant tells gentleman on chair to open parcel you left with him. He does so and there is laughter.) Pray accept it. What! not have it? Why I thought you wanted it in one piece. Oh! of course you do not want it in one strip. I ought to have known better. (Roll up and lay on table in full view.) I will

leave it here for the present. Now, sir, please let me have the gloves. (He offers you small ones.) No, no, not those,

not yours, the lady's gloves I gave you. What! these the same pair, this is strange. (Get down large glove.) Surely, madam, you did not give me these. I thought not. They were somewhat larger, were they not? I thought so. They were somewhat larger? Suppose I make these a little larger? I think I can. What size do you wear,—about 6½? (Rub violently.) Yes, they are growing. (Thrust small ones in larger ones.) Ah! yes, here they are (unroll) but this is 13s. Oh! yes, if you cut it in two it will make a pair of 6½. Will that do? No? Well, they must go with the handkerchief. (Lay on table with handkerchief.) But I must not delay the programme—I mean the performance. (Introduce cards.) Please select one, sir (or madam). Thank you. Please write something on it that you may afterwards identify it. Please return to the pack. (Look at gentleman, turn half around, make pass and palm card and hand out to be shuffled, putting card in right pochette.) Now, sir, please hold them in view of audience. No, not that way. (Go behind chair and assistant gets card out of your pocket) this way,—so. Now, ladies and gentlemen, I wish to call your attention to the fact that you

noticed me give the cards instantly to this gentleman to hold, — (while walking, or rather talking across the stage, stumble against the umbrella lying on the floor near the chair.) Well, well, here is the very thing I was looking for. I thought I had lost it. I lose so many of them; the old story, you know. (Open it out.) I can never keep an umbrella over a week. I have had this one almost a week, but have lost it three times already. You see this is a very cheap one. When I lose one like this I don't miss it so much as I would a silk one. I must tell you what a time I had buying this one. I bought it at Siegel, Cooper & Co's. (Lay down umbrella half open, and openly place all articles in paper in it and bring over right hand, taking in left a newspaper.) On entering I saw a bright-eyed young lady behind the counter. I said: "Please give me an umbrella." She

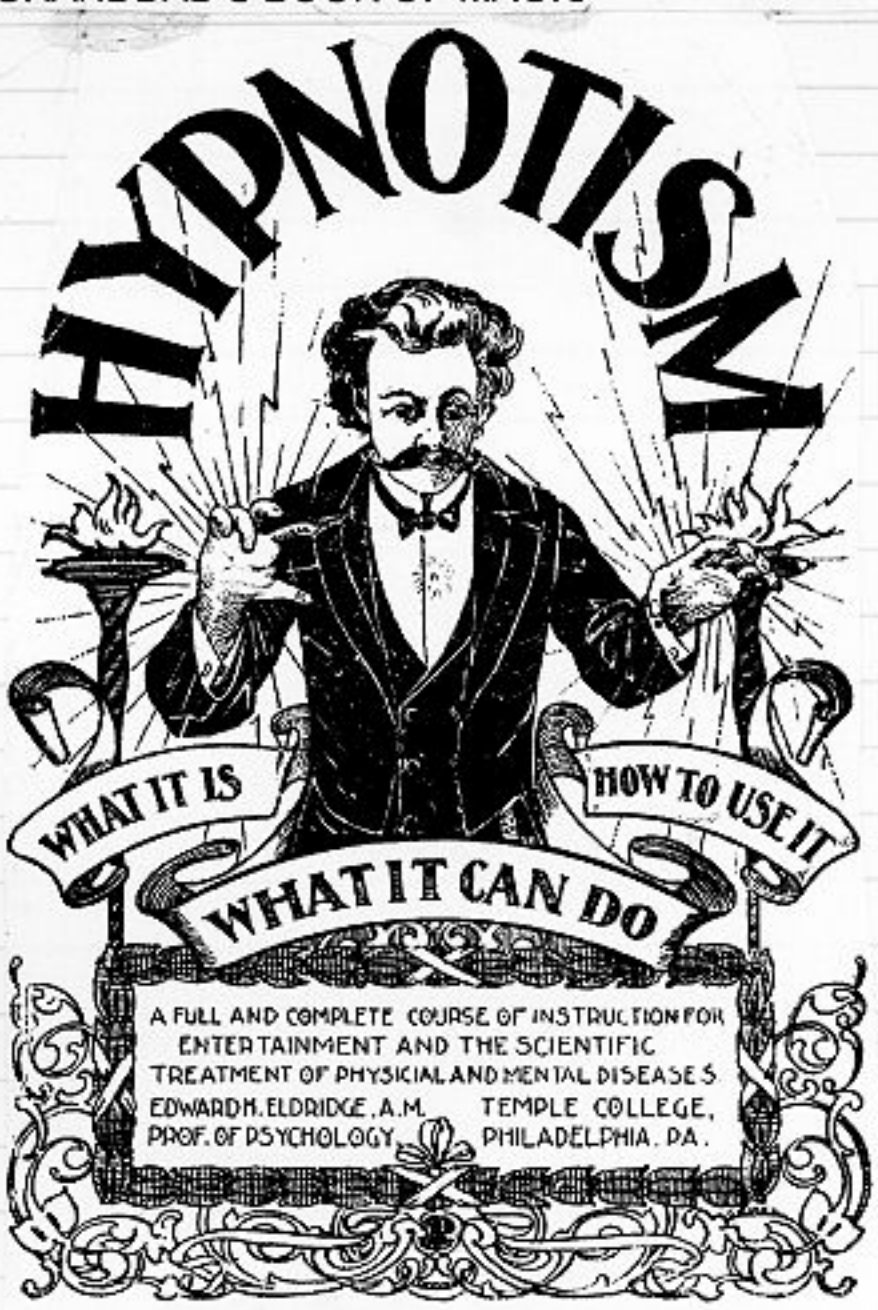
smiled and said: "Yes, sir, what shade do you require?" Well, now it was a warm day. "Why, now, my good girl," I said, "I require the shade of the umbrella of course." "I mean," she said, "what shade do you want?" "Why," said I, "I expect the umbrella to give me the shade I want." I thought I heard her mutter angrily under her breath that the Lunatic Asylum was what I wanted, but I am not

certain, as she hurried off quickly to get several, but on her return she said it was the color of the umbrella she had asked me about. Of course I apologized and bought this one. (We should here explain first you gather up shreds of handkerchief, long gloves, wrap them in paper, go over to gentleman, take pack of cards and make a change behind chair, leaving paper parcel and taking another like it in which is wrapped the covering of an umbrella. This you give to boy to put in pocket or you make a change while wrapping up on table. Then go and get a newspaper, trip up against umbrella, taking it in hand, and giving the newspaper to the boy, you make a change of umbrellas with assistant behind chair.) I presume, sir, you find this rather monotonous and would like to read the evening news. Place the cards on this plate and place this package in your coat pocket. Now button up your coat. Talking of umbrellas reminds me of a funny story or a funny piece of business that occurred to me a few days ago, while coming from New York. I had an exquisite silk umbrella (leave fake umbrella by chair) which I had, as usual, left behind in the train. As I was walking up town some hours afterwards I saw a sign in a shop window with the startling announcement:

Umbrellas Recovered in Two Hours.

"I'm in luck" I thought. As I looked at my watch I saw it was four hours since I had left the train. I entered the shop and noticed a rusty individual smoking a pipe. I said: "My dear sir, you are my best friend. Have you got my umbrella?" "Vat is?" he replied gruffly. "My umbrella," I said. "Vat for von vos it?" "For keeping off the rain," I said. "Ugh," he said, "no humbugs; vatsortof von vas idt, deschribe idt?" "Oh!" I said, quickly, "a dark green silk, paragon frame with silver buckle on it in which was engraved the simple word, Bamberg." "Vell," said he, "ve shall see." And he left the shop, returning almost instantly, saying: "No, zur, dere is no ombrella like dot here." "How is that?" I exclaimed. "You vas sure it vas here you lefd idt?" (Assistant tells gentleman to open parcel.) "No," I said, "certainly not; I left it in the cars." "Vell, vat for you comes here mit your humbugs? You bedder clear oudt right away. How do you egspect ve coodt haf idt?" "See here, my good friend," I urged, "do you not have a sign in your window 'Umbrellas recovered in two hours'? I lost mine over four hours ago,—why you—" And he gave vent to a long loud laugh as he blurted out: "Dot ish not vat idt meens; idt ish ombrellas recovered

in two hours." (Audience laughing. You look at gentleman with cover of umbrella open, then look at cards and then at umbrella and exclaim:) "Here, what in the world have you been doing?" (Open umbrella to find all pendant, call attention to card, rush off gentleman, feeling much obliged for his valuable assistance.) On opening the umbrella there are the bare ribs. Hanging to them are restored handkerchief, and gloves stuck in slit in top or end is the card.



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HYPNOTISM.

A Complete System of Method.

WHAT IT IS.
WHAT IT CAN DO.
HOW TO USE IT.

By EDWARD H. ELDRIDGE, A. M.
Prof. of Psychology,

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CHAPTER I.

HISTORY OF HYPNOTISM.

Hypnotism, under various names, at different periods in its history, has been involved in such superstition and wild speculation, that even those most interested in the development of human knowledge have hesitated to associate themselves with a subject that seems to present such a mass of riddles.

It has been employed by nearly all the quacks and charlatans and imposters, who have endeavored to render it of use to themselves. The great mass of mankind know absolutely nothing of the hypnotic state, and it is a well-known tendency of human nature to ascribe what they do not understand to the supernatural. Hence hypnotism and its practice fell into disrepute.

Some of the early investigators were earnest in their efforts, but many others used hypnotism simply as an aid to their own schemes, and purposely imposed on the public.

As the history of hypnotism is so mixed up with fraud, it seems essential that the person who would have a clear idea of what hypnotism is, and what it is not. should know something of its history.

It would appear that in all ages the claim was made that diseases could be cured by the touch of the hand of certain persons who were supposed to communicate a healing virtue to

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the sufferer. It is also known that among the Chaldeans, the Babylonians, the Persians, the Hindos, the Egyptians and the Greeks, many of the priests effected cures and threw people into deep sleeps in the shades of the temples. At this time these influences were held to be supernatural, and they probably added to the power of the priesthood.

In the British Museum there is a bas-relief from a tomb in Thebes, representing a man standing with his hand uplifted. It has been claimed by some that he is about to make a pass over his subject. The Goddess of Isis is sometimes represented in the same position. An account in an ancient manuscript of the methods practiced in Egypt prior to 1500 B. C., in the cure of disease, speaks of the laying of the hands on the head as a part of the treatment.

Mr. Vincent in his book on hypnotism says: "How far the Egyptians, Persians, Greeks, Romans knew of the scientific import of these phenomena and how much they knew seems impossible to decide. We have but the bare record of a number of isolated facts; there seems to be no evidence of any common method or principle. It is not improbable, since many of the phenomena were connected with the oracles or with the most learned physicians, that the people either never took the trouble to look for any explanation, or attributed the results to supernatural agency. The first traces of any system appear towards the end of the Middle Ages, and this system grew out of the doctrines of astrology. Some of the most famous men of the day were at work on

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the subject, and notwithstanding the strange doctrines advocated in most of their writings the student who ventures on them will find his time by no means lost."

The belief at this time was of a universal magnetic force and by this force many of these phenomena were to be explained. Even at this early date, 1500 B. C., one of the teachers sought to prove that sickness and disease were curable by means of the magnetism existing in each person.

The tendency of to-day is to disbelieve entirely in these old magnetic theories, and no doubt many of the beliefs were exceedingly wild and their method entirely unscientific, and yet we are to-day practically ignorant of the nature of the force which governs the nervous system.

We know that if we take a body of a human

being or an animal which has recently died and stimulate the nerves by means of a galvanic battery, the muscles of the dead animal will contract violently. It has been said that the dead man will sometimes spring upon his knees, move his head, roll his eyes and chatter his teeth. We see that electricity certainly has an immense force on the nervous system, and the difference between electricity and magnetism is not so great.

In the middle of the seventeenth century there appeared in England several persons who claimed to have the power of curing diseases by stroking with the hand. One notable case was that of Valentine Greatrakes, of Ireland, who was born in 1628, and who had the supposed power of curing the king's evil,

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or scrofula. The cures were witnessed and attested to by many of the most distinguished scientists and theologians of the day, and thousands of people flocked to him from all parts of England for relief.

It is a law of the human mind that these marvelous happenings, especially when they imply some mysterious or supernatural influence of one person over another, attract attention and take such a firm hold of the imagination that belief in them at times assumes the intensity of an epidemic. There have been several instances since the time of Greatrakes, at short intervals, when men have arisen and led the public captive to their will.

About the middle of the eighteenth century a Roman Catholic priest conceived the idea that nearly all diseases arose from demoniacal possession and could only be cured by the casting out of the devils. The method used by this priest was undoubtedly similar to that used by Mesmer, except he believed that his power was altogether supernatural. A brief description of his method might be interesting. He ushered his patient into a semi-dark room and, coming out from behind the curtain with outstretched hands, holding the crucifix in one, he looked sharply at the patient and spoke to him in Latin. In many cases the patient would fall into an unconscious condition and while in that condition the priest would command the devils to leave him, and when he came to himself he would be cured.

Friedrich Anton Mesmer, a man of extraordinary talents, whose influence is still felt, was born on the banks of the Rhine in 1734.

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He studied medicine at Vienna, and there obtained his doctor's degree and commenced practice. He chose for his thesis on taking his degree, "The Influence of the Planets on the Human Body." He was much interested in astrology, and imagined that the stars exerted an influence over all human beings. He at first thought the force which they exerted was electricity, but afterwards was convinced that it was magnetism, and from this it was only a short step to suppose stroking diseased bodies with magnets might produce a cure.

Mesmer beheld some cures performed by a Jesuit father, which were supposed to be due to the influence of magnetism, which was imparted to the patients from steel plates or magnets prepared for the purpose, and saw that these cures were genuine. According to some accounts he afterward met Gassner, the priest already spoken of, and observed that he effected cures without the use of magnets. Another report says that one day Mesmer was bleeding a patient and was getting his magnets to cure the wound, when he accidentally passed his hand over the scar and found that this had the effect which had hitherto been possessed by the magnets. Whichever of these accounts be true, Mesmer was led to discard the use of the magnets and depend entirely upon the passes. He claimed that a magnetic force existed throughout the entire universe and especially in the nervous systems of men.

In 1775 Mesmer sent a circular letter to the leading academies of Europe, in which he claimed the existence of an animal magnetism by means of which men could mentally influ-

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ence each other. He endeavored to show the difference between the magnetism of metals and this influence which he called animal magnetism.

Of course the reports of Mesmer's cures became noised about. A director of one of the academies of science said he had been cured of paralysis, and many other testimonials of Mesmer's power were given. He at first cured only by contact, but later claimed that iron, wood, etc., were capable of receiving the necessary magnetism.

Vienna was greatly aroused by his cures, but he also excited considerable enmity. For some reason, probably on account of the hostility exhibited to him on the part of the medical faculties, he left Vienna in 1778, and went to Paris.

In a short time the excitable French people were in a tumult over the extraordinary effects of what was now known as Mesmerism. Mesmer made many converts, and created many enemies. The medical faculty of Paris was

indignant, and called him a charlatan, but the people crowded to his doors. The French Government offered him twenty thousand francs for his secret, but he refused to accept the offer. He received, however, large sums of money from his private patients.

Mesmer understood the necessity of stimulating the imagination of his patients, and in order to do this his consulting apartments were dimly lighted and hung with mirrors. Occasionally strains of sweet music broke the profound silence. Sweet odors were wafted through the room, and the patients sat around

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what was known as a baquet, which was placed in the centre of the room. A description of this baquet has been given by another writer as follows:

"In the centre of a large room stood an oak tub, four or five feet in diameter and one foot deep; it was closed by a lid made in two pieces and enclosed in another tub or bucket. At the bottom of the tub a number of bottles were laid in convergent rows, so that the neck of each bottle was turned toward the centre. Other bottles filled with magnetised water tightly corked down, were laid in divergent rows with their necks turned outwards. Several rows were thus piled up, and the apparatus was then said to be 'at high pressure.' The tub was filled with water, to which was sometimes added powdered glass and iron filings.

"There were also some dry tubs; that is, prepared in the same manner, but without any additional water. The lid was perforated to allow of the passage of movable bent iron rods, which could be applied to the different parts of the patients' bodies. A long rope was also fastened to a ring in the lid, and the patients placed this loosely round their limbs. No diseases offensive to the sight, such as sores, wens, or deformities, were healed.

"The patients drew near to each other, touching hands, arms, knees or feet. The handsomest, youngest and most robust magnetisers held also an iron rod, with which they touched the dilatory or refractory patients. The rods and ropes had all undergone a prep-

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aration, and in a very short space of time the patients felt the magnetic influence.

"The women, being the most easily affected, were almost at once seized with fits of yawning and stretching, their eyes closed, their legs gave way, and they seemed to suffocate. In vain did musical glasses and harmonies resound, the piano and voices re-echo, these supposed aids only seemed to increase the patients' convulsive movements. Sardonic laughter, piteous moans and torrents of tears burst forth on all sides. The bodies were thrown back in spasmodic jerks, the respirations sounded like death rattles, the most terrifying symptoms were exhibited. Then suddenly the actors of this strange scene would frantically or rapturously rush toward each other, either rejoicing and embracing or thrusting away their neighbors with every appearance of horror.

"Another room was padded and presented a different spectacle. There, women beat their heads against the padded walls or rolled on the cushion-covered floor in fits of suffocation. In the midst of this panting, quivering throng, Mesmer, dressed in a lilac coat, moved about, extending a magic wand toward the least suffering, halting in front of the most violently excited and gazing steadily into their eyes, while he held both their hands in his, bringing the middle fingers in immediate contact, to establish the communication. At another moment he would, by a motion of open hands and extended fingers, operate with the 'great current,' crossing and uncrossing his arms with wonderful rapidity to make the final passes."

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In 1779 Mesmer published a paper in which he claimed that he had discovered a principle which would cure any disease. Mesmer's success in Paris was very great. So numerous were the demands upon him that he was not able to attend to all the cases himself, but employed assistants. There seems no doubt that the crises spoken of were nothing but hysterical attacks, brought about by the circumstances. The peculiar condition and the excitement were sufficient to bring about this state in some, and after these became influenced the rest were easily affected by imitation.

Mesmer purchased a large house, where he established four baquets. He reserved one of these exclusively for the use of the poor, and treated them without charge. This, however, was not sufficient, and he magnetised a tree, to which thousands of sick people came and connected themselves with it in the hope of being cured, and although it was efficacious in a few cases, it was not as successful by any means as his personal treatment.

In 1784 several scientific commissions in France examining the question reported

against the existence of animal magnetism, and one of the members of the commission filed a minority report. The report of the Academy of Science, which was signed by our own Ben Franklin among others, said:

"The commissioners have ascertained that the animal magnetic fluid is not perceptible by any of the senses; that it has no action, either on themselves or on the patients subjected to it. They are convinced that pressure

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and contact effect changes which are rarely favorable to the animal system, and which injuriously affect the imagination. Finally, they have demonstrated by decisive experiments that imagination, apart from magnetism, produces convulsions, and that magnetism without imagination produces nothing.

"They have come to the unanimous conclusion with respect to the existence and utility of magnetism, that there is nothing to prove the existence of this animal fluid; that this fluid, since it is nonexistent, has no beneficial effects; that the violent effects observed in patients under public treatment are due to contact, to the excitement of imagination, and to the mechanical imitation which involuntarily impels us to repeat that which strikes our senses. At the same time they are compelled to add, since it is an important observation, that the contact and repeated excitement of the imagination which produced the crises may become hurtful; that the spectacle of these crises is likewise dangerous, on account of the imitative faculty, which is a law of nature, and consequently that all treatment in public in which magnetism is employed must in the end be productive of evil results."

It will be seen from this report that the commission did not deny the great effects which were produced by imagination. All it denied was that there was a force which resembled true magnetism. After these reports Mesmer decided to leave Paris and return to Germany, where he died in 1815.

Mesmer left many disciples, the most dis-

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tinguished of whom was the Marquis de Puysegur. He showed that many of the phenomena of mesmerism might be caused by gentle manipulation which causes sleep, and without any of the violent means employed by Mesmer.

In Germany animal magnetism was employed to some extent, especially in the early part of this century up to 1820; but after that time belief in magnetism began to decline. The cause of this, according to Moll, was the rise of the exact natural sciences.

In England, in spite of two or three celebrated physicians, magnetism gained no footing.

In this country some experiments were made, and many adherents to the belief had been gained, especially in New Orleans, which for a long time was its chief centre.

We now pass from the history of mesmerism to that of hypnotism. In 1841 Dr. James Braid, a Scotch surgeon, then residing in Manchester, made his first investigations into the subject. In that year Monsieur Lafontaine, a French or Swiss magnetiser, was giving exhibitions in Manchester. Dr. Braid attended one of these performances with the express object of endeavoring to discover the means by which the tricks were performed. At this exhibition he saw nothing to change his opinion that the results were produced by trickery. He attended another seance, however, six days later, and at that time noticed that one subject was not able to open his eyes. He considered that here he had found something tangible, and as a surgeon was

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anxious to discover its physiological cause, and the following evening believed he had done so. He was convinced it was caused by the tiring of the nerves and he experimented by means of this method on his family and friends.

The first experiments are said to have been conducted by Dr. Braid one evening at supper. He first had a friend look at the neck of a wine bottle intently, and he says that in three minutes the eyelids closed, tears flowed down the cheeks, the head dropped and with a deep sigh his friend fell into a profound sleep. He then experimented with Mrs. Braid, who fixed her eyes on an ornament of the porcelain sugar basin. In two and a half minutes her eyelids closed, her chest heaved, she fell back and Dr. Braid awoke her.

After some further experiments he expressed his opinion that the phenomena he observed were not caused by magnetism or in any way by his influence over the patient, but they were due to the patient's own mental condition. In order to discriminate this condition from the mass of speculation and superstition which had come in existence under the term animal magnetism, he invented the name neuro-hypnotism (nerve sleep). The word neuro was soon afterward dropped and the word hypnotism came into general use. The

term was used by Dr. Braid to indicate "a peculiar condition of the nervous system, induced by a fixed and abstracted attention of the mental and visual eye to one object, not of an exciting nature."

Dr. Braid endeavored to make use of hyp-

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notism in the treatment of diseases and in his writings gives examples of what he considers to be a number of cures. The public in England, however, were not prepared to accept his views, and he was unable to obtain recognition in the British Association.

Dr. Braid demonstrated two things; first, that the assumption of any such force as a magnetic fluid, mesmeric influence or any other unknown agency was entirely unnecessary; second, that the state was a super-normal physiological one, induced by a physical or appreciable action on the nervous system. He found that it was a great help, if not absolutely necessary, for the subject to concentrate his thought as well as his vision; in other words, that expectant attention was an important factor.

In France extracts from Braid's writings were published, and in 1859 Professor Azam, of the medical faculty at Bordeaux, repeated some of his experiments, and reported the results to Broca in Paris. Broca was much impressed by the subject and brought it up before the Academy, and several surgical operations were performed while the patients were in a hypnotic sleep.

Liebault made himself familiar with the phenomena of hypnotism and animal magnetism. He endeavored to disprove the existence of the latter, and has been called the founder of suggestion in medicine. In 1866 he published his book, which is even to-day well worth reading. At the time, however, his ideas were laughed at and remained but little known.

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In 1878 Charcot, one of the best known neurologists in France, began his public classes, and under his influence some hospital investigations were undertaken, but still the subject was but comparatively little known.

It was not, however, until the school of Nancy, under the leadership of Professor Bernheim (who had studied the question with Liebault and had accepted the latter's views) investigated the question that it took a real position in the science of medicine. Nancy became the headquarters of the leading French hypnotists. The disputation and controversies between the school of Nancy and that of Salpetriere (Dr. Charcot's school) became more and more intense, and although it is not yet entirely settled, Charcot's school became more and more discredited, until their views were hardly accepted outside of Paris, and at the present time the school of Nancy is victorious.

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CHAPTER II.

WHAT IS HYPNOTISM?

As we have tried to show in an earlier chapter, hypnotism has been largely in the hands of charlatans and those who used it for their own benefit. Many of them endeavored purposely to create erroneous ideas concerning hypnotism. The more mysterious a thing can be made the more it will appeal to the imagination of many people. There is widely prevalent to-day among those who know nothing of the subject a belief that hypnotism is the controling of a weaker mind by a stronger; that the person who is hypnotised is under the control of the hypnotiser, who exercises an influence over him similar to the spell placed over her victim by a witch.

The first thing to be done in endeavoring to understand hypnotism is to exclude from our mind the idea that it is something mysterious or marvelous. Hypnotism does not depend on the power or the influence which a man possesses, and by which he can influence someone else.

The essential thing in hypnosis is that the individual who is hypnotised accepts suggestion from others more easily than he does in his normal condition. Hypnotism might be defined as a peculiar mental condition in which the individual's susceptibility to suggestion is greatly increased; sleep is generally present, although hypnosis may exist without sleep.

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We will now endeavor, by a description of a number of typical cases, to obtain a clear idea of the phenomena of hypnotism. We are not at present concerned with any theories, but are simply trying to understand the condition itself.

Let a man stand with his feet together, his eyes closed, and think what it would feel like to fall over backward, try to keep his whole mind on the sensation of falling. If he keeps his mind on this idea of falling and does not resist, in a short time there is a decided tendency to fall backward. Sometimes the individual will fall backward with his eyes closed and be almost asleep. At other times there will simply be a tendency to fall, and as he

starts to go backward the movement will arouse him. In this case we see the effect of the suggestion of falling. The subject is not asleep and has not lost consciousness.

Take a young man, place him on a chair, let him clasp his hands together and look the operator in the eye. The operator says to him emphatically and slowly: "Your hands are getting stuck fast together, you can feel your arms getting rigid, your hands are stuck so fast you cannot take them apart, the more you try the tighter they become stuck together. You can't get them apart. Try hard. You can't possibly do it."

Before trying this experiment it is wise to tell the subject that you want him to try to believe what you tell him. When you tell him his hands are stuck fast together he should try to believe it, and when you tell him to try to take them apart he should try just as hard

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to take them apart. If you can get the subject into this condition of mind and be careful to keep his eyes fastened on yours, in at least fifty per cent. of cases the hands will be stuck tightly together, and the subject will be unable to pull them apart. Here again the subject is not asleep, has not lost consciousness, and the influence is but momentary.

Place another subject in a chair in the most comfortable position, giving him a bright object at which to stare. Soon the eyelids will grow heavy, he will try in vain to keep his eyes open. His hand, which held the object at which he is gazing, drops to his knee, and he has fallen asleep, and yet it is not a natural sleep, or rather, it differs from a natural sleep in some important particulars. You can converse with him and find that he seems to be conscious, and yet if you tell him his hand is stuck fast to his knee and he cannot raise it, he does not seem able to do so. When you blow on his eyes and tell him to wake up, he seems to be in exactly the condition he was before he began staring at the object.

Take another subject and after you have put him to sleep suggest to him that when he opens his eyes he will see in front of him a dashing stream, with beautiful flowers on the banks, and that he will go fishing in the stream. As he opens his eyes point to the carpet in front of him and repeat to him, if necessary, that here is a stream of water. He may awaken, but in many cases he will see the stream, and be willing to go fishing. If he does this you can get him to do almost anything simply by suggesting it to him.

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The following experiment has been tried in the operating room: A person who has been frequently hypnotised is about to undergo an operation. It is necessary to amputate the right arm. The physician places him in as comfortable a position as possible and proceeds to put him in a hypnotic sleep. When he is asleep the suggestion is made repeatedly that he can feel no pain, that he is absolutely without feeling and that he will know nothing whatever of what is done. When he is in the proper state a surgeon performs the operation. After the bandaging is completed the subject is awakened. He has felt no pain and does not remember that the operation took place, and probably will not be convinced of it until he is shown the stump of his arm.

One more experiment will probably complete this list and will give us a fair idea of the various types and degrees of hypnotism. Put a man to sleep as before. When you are sure that he is thoroughly asleep tell him that after awhile you are going to arouse him, that when he is awake he will feel perfectly well, that he will experience no evil effects, and will be able to walk and talk; in fact he will not be hypnotised at all. Suggest to him that after he is awake, say in five or ten minutes, you will do something, for instance, take out your watch and look at the time. You tell him that when you do this he will go and open the window, but he won't know why he did it.

Impress this idea on him by repetition, and if he is willing to converse with you make him say that he understands just what you have told him, then awaken him. Let him talk

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with anyone in the room, being careful that nothing is said about your suggestion. After awhile take out your watch. He may be confused, possibly pass his hand over his forehead; finally he will go to the window and open it. If you ask him why he did it, he may say he did not feel well, or the room was too warm or some other excuse. Yet he seems to be in a perfectly normal condition, but he has done what you told him to and does not seem to know why he did it. This condition is known as the post-hypnotic state.

From these few experiments we see that hypnotism may assume a variety of phases. It may cause a man's hands to be stuck together for a moment, or he may when hypnotised do all sorts of ridiculous things and have no knowledge whatever afterwards of what he has done. His arm may be made stiff, his body may be made so rigid that the

head can be put on one chair and the feet on another, and two or three persons sit on the unsupported body, seemingly without any injury to the individual and without any conscious muscular effort on his part. We have given these few illustrations just to show what the effects of hypnotism are.

Now let us consider for a moment who can be hypnotised. Some experimentalists claim that all sane people can be. It is certain that the percentage of those who can be influenced is very large.

Dr. Wetterstrand in Sweden found only 17 persons whom he could not hypnotise out of 718 patients. Bernheim and Forel agree that the hospital surgeon who cannot hypnotise at

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least 80 per cent. of his patients is of no value.

Dr. Liebault out of 1012 patients found only 27 that he was not able to hypnotise. He publishes a table giving the results he obtained in his experiments, which is as follows:

Drowsiness	33
Light Sleep	100
Deep Sleep	460
Profound Sleep	230
Light Somnambulism	31
Deep Somnambulism	31
Unaffected	27
Total	1012

Mr. Vincent in his book on hypnotism says: "My own experience, such as it is, has proved to me that susceptibility to hypnotism is a sign rather of a fine than a poor intellect. With the educated and refined my experiences have been uniformly more successful. On referring to my notes I find that among the members of the University of Oxford, England, I have succeeded in hypnotising 96 per cent. of those tried."

These subjects were not all hypnotised on the first attempt, of course. Frequently several trials are necessary before the subject can assume the necessary mental attitude, for one of the first real difficulties in the way of the hypnotist lies in securing a proper mental condition on the part of the subject. The man who sits down with an amused expression and an "I-don't-believe-you-can-hypnotise-me" smile on his face is not likely to be readily influenced.

In the table of Dr. Liebault which we gave above you will notice the number of people

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who are put into a state of somnambulism is small. Most people can be influenced by hypnotism to some extent. Many can be put to sleep; but the proportion who can be made to act out the suggestions given them by the operator is very much less.

There is an idea prevalent that a person who can be hypnotised is weak-minded. We have endeavored to show from the above statements, especially that of Mr. Vincent, that this idea is entirely erroneous. There is no reason whatever why the weak-minded person should make a better subject than a strong-minded one. The question of will power has absolutely nothing to do with the ease with which a person can be hypnotised.

In order to be hypnotised the subject must possess a certain power of attention. He must keep his mind steadily on one idea. Some people do this much better than others, and it is certainly not the weak-minded man who does it the best. The prevalent idea that hypnotism is the influence of a stronger over a weaker will is absolutely without foundation.

Hypnotism depends more largely on the willingness of the subject than on what is done by the operator. Nine-tenths of the work in hypnotising is done by the subject. The operator tells the subject what to do, the subject does it; the operator at the proper time makes suggestions, that is all.

It is not possible for the operator to exert any special influence over the subject. No man can be hypnotised unless he is willing to do as he is told.

In my own experience I have taken some of

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my best subjects and requested them to make up their minds not to do as I told them, and have worked with them from twenty to thirty minutes without success. Yet these same subjects, when they did as they were told, or, in other words, when they were willing to be hypnotised, could be influenced in less than one minute.

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CHAPTER III.

THEORIES REGARDING HYPNOTISM.

It may be said that there have been three great schools of belief regarding hypnotism. The first, that of Mesmer; the second, that of the school of Salpetriere, in Paris, founded and controlled by Dr. Charcot; and the third, that of the school of Nancy, under the direction of Drs. Liebault and Bernheim.

The theory of Mesmer has been disproven time and time again. It is practically as follows: A kind of magnetism, known as animal magnetism, pervades the entire animal creation.

This force, or fluid, or whatever it may be, can, under certain circumstances, be transferred from one individual to another. Some men possess more of this force than others, and by means of magnetism the man with the stronger force is able to overcome the weaker one.

Notwithstanding it has been shown again and again that all the phenomena of hypnosis can be produced without any mesmeric or magnetic force, we find this theory to-day still believed by many people. It is true that most of those who believe it have not studied the subject; but it has become popularized and is still the belief of the masses.

In speaking of the three theories, we have not referred to Braid, and yet there can be no doubt that Braid has explained hypnosis and

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made possible the two modern schools, the Salpetriere and the Nancy. Braid proved, as we have stated previously, that there was no necessity for believing in the existence of any magnetic fluid. He showed that by tiring some of the nerves a physical condition was brought about in which the individual was more ready to accept suggestion than he was in normal life.

Let us now consider Charcot's theory, which is that of the school of Salpetriere. According to this school, hypnosis is an artificially produced morbid condition, and is found only in the hysterical. In the experiments of this school women seem to be more easily hypnotisable than men, and there appears to be danger of provoking hysteria in trying to hypnotise.

According to Charcot hypnosis can be produced by purely physical means, such as pressure on certain parts of the body, and an individual may be hypnotised without his knowledge or consent.

This school lays great stress on its division of hypnotic phenomena into three stages, the cataleptic, the lethargic and the somnambulic. Charcot believes that the cataleptic stage may be produced by a sudden loud noise, or may be brought about by opening the subject's eyes when he is in a lethargic condition and forcing him to look at a bright light. A patient in this stage will retain every position which may be given to the limbs, but the experimenter can easily change the position. There is no stiffness, no rigidity, and yet there is no voluntary change.

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The lethargic stage may be brought about primarily by the fixing of the attention, or if an individual is in the cataleptic condition he may be made lethargic by closing the eyes. The subject here is unconscious and is not easily susceptible to influences from without. Limbs will fall from their own weight and he is in a condition very similar to a natural sleep.

The somnambulic state may be brought about in some persons by means of fixed attention, and, it is claimed, may be induced in all by rubbing the crown of the head of a subject in the lethargic or cataleptic stages. The eyes in this condition are closed, or half closed, and the subject will act in many cases in response to suggestions given him.

These three stages, which are described at length by the school of Salpetriere, and upon which much stress is laid, do not seem to occur spontaneously in the experiments in the other schools.

The belief of this school has been strongly attacked by the adherents of the school of Nancy, who call attention to the fact that the data of the Salpetriere is very insufficient, that according to the statement of its own founders and supporters they have only had a dozen cases of true hypnosis in ten years, and a very large proportion of their experiments have been conducted upon one person.

Many of the beliefs of this school are not accepted by the adherents of the school of Nancy.

Bernheim, who is the head of the school of Nancy, believes that in hypnosis the whole nervous force is concentrated on a single idea.

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The attention may be changed from one point to another in accordance with suggestions from the operator, but though the point of attention may be altered the concentration exists. The school of Nancy believe practically that suggestion explains everything. They claim that hypnosis is produced by suggestion only, and that hypnotism is best produced in persons of sound health and strength.

Let us consider one or two points on which the schools differ. The Salpetriere claims that hypnosis is morbid and can only be produced in the hysterical. There seems to be no doubt that this statement is incorrect. In a previous chapter we have shown that a great proportion of sane people can be hypnotised. The demonstrator of physiology at Cambridge, England, endeavored to hypnotise 170 men, nearly all of whom were undergraduates. He was successful on the first attempt in about 80 per cent. No second trial was made, so that these figures undoubtedly understate the true number that were hypnotisable.

Braid said that he found the nervous and hysterical the most difficult to hypnotise, and Liebault finds that soldiers and sailors make the best subjects.

Dr. Moll believes that every mentally healthy man is hypnotisable, and Forel makes the statement: "If we take a pathological condition of the organism as necessary for hypnosis we shall be obliged to conclude that nearly everybody is not quite right in the head. Intelligent people, and those with strong wills, are more easily hypnotisable than the dull, the stupid or the weak willed."

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Charcot states that hypnosis can be induced by purely mechanical means. The school of Nancy says this is not true. Here there is more ground for doubt. In my own experience I have never been able to hypnotise a person by purely mechanical means, and yet Braid claims that in his early experiments he once instructed one of his employes to watch carefully a certain part of a mechanical apparatus. He returned shortly afterwards and found the man in a hypnotic sleep. Braid believed that in this case there was no suggestion and no expectation on the part of the man that he was to be hypnotised.

The school of Salpetriere says that hypnotism has but little value from a therapeutic standpoint. In considering this statement we must remember that their experiments have been tried on only a few subjects, and have been conducted almost solely for the purpose of experiment. Against this there is the positive evidence of many, many thousands of cases where hypnotism has apparently relieved and cured.

The Salpetriere says that hypnotism is dangerous, that it sometimes induces hysteria. Again we must remember that the methods they employ are violent and startling in many cases, and are such as would be likely to bring about a hysterical condition. The followers of the Nancy school, all of them, declare emphatically that they have never observed a single case of mental or bodily harm caused by hypnosis, but they have seen many cases of illness relieved or cured by it.

There is no doubt but that the school of

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Nancy is triumphant to-day, with possibly one exception. Many believe it is, under some circumstances, possible to produce hypnosis by purely mechanical means; that a man who will intently look at an object will naturally pass into a condition where he will be more likely to accept suggestion than he would in normal life. If we admit this, we can accept the belief of the school of Nancy in every other respect. Suggestion does explain all there is in hypnotism, providing you admit that the individual may be brought into the condition where this suggestion becomes most powerful by purely mechanical means, without any suggestion.



A Passive Subject.

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CHAPTER IV.

SUGGESTION.

The word which best explains hypnotism is suggestion. A man who is hypnotised is more pliable to suggestion than one who is not. In that fact lies all the value and all the danger of hypnotism. Few of us realize how large a part suggestion plays in our ordinary normal life. We would probably be well within the bounds of truth if we should say that at least 50 per cent. of children can be made to believe a thing to be true when it is not.

A series of experiments were conducted by Dr. Small, of Clark University, on the school children of Worcester, Mass. His experiments were conducted upon students, not only in the imary, but up to and including those in the high school.

One day Dr. Small came into the school and gave the children a talk on flowers. He told them of the sweet odor of flowers, and how this sweet odor is taken out of flowers and put into what is known as perfume. He asked how many of them had ever smelt perfume, and told them that he had some with him and was going

to spray it about the room; that as soon as they were sure they detected the odor to raise their hands.

He made one or two generous sprays around the room, and in the lowest class ninety per

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cent. of the children detected the odor; in all the classes an average of over seventy per cent. could smell the flowers. In reality the spraying was done with pure distilled water.

Another experiment tried by Dr. Small was even more interesting. He dissolved some quinine in water and some sugar in water and, calling two children up in front of the class, put a drop of the quinine solution on the tongue of the one and a drop of the sugar solution on the tongue of the other. The children of the class had a good view of their faces and could see the expressions.

He then went around the class and put a drop first of what he said was sugar solution and then of the supposed quinine solution on the tongue of each child. In reality he used nothing but distilled water, yet nearly all the children tasted the sugar, and the effects of the so-called quinine solution were quite remarkable. One child was noticed a half hour afterwards wiping out his mouth to get rid of the bitter taste. A few were sick the next day on account of the quinine, and in some cases their parents came to school to see what the doctor was giving their children. In reality it was only one drop of distilled water.

We smile at this, and say they were only children. But is not the force of suggestion frequently shown in adult life? Have you ever coughed in church and noticed how your cough influenced others? Have you ever yawned in a room full of people, or in a crowded car, and noticed how others followed your example?

Are not women greatly influenced by suggestion? A few years ago how lovely were the

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enormous puffed sleeves; to-day they are "perfectly horrid." Women honestly believed them to be beautiful in the one case, and think them very ugly now.

Did you ever hear of a case like this? One morning a man gets up not feeling very well. It is true he has been working very hard, has not been able to take his meals regularly and has been up many nights with the baby; but he forgets all this, he only knows that he does not feel well. He sees an advertisement in the paper which describes his condition and suggests a remedy. He goes to the drug store, purchases a bottle, and his peace of mind is gone. He reads all the advertisements he finds. He takes every patent medicine under the heavens and at last becomes a confirmed hypochondriac.

Children are exceedingly imitative and follow suggestions without pausing to consider whether they are wise ones or not. Children are influenced by suggestions from their classmates, in their surroundings, and from their teachers. We have not paid enough attention to this side of the child's life. Suggestion from imitation manifests itself in various forms. I give below a few examples, and most of them have been suggested by the investigations of Dr. Small:

A girl of ten says: "I had a cross-eyed schoolmate. I thought it must be nice to look in two directions at once, and practiced trying to look that way, until my eyes were seriously injured."

One little girl in school had a spasmodic cough. Her laughter always ended in a fit of coughing. In a short time the majority of the

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children in the room began to cough in the same way, and did not seem to be able to help it.

A teacher said: "One morning when I was twelve a boy appeared in the reading class for the first time. He stuttered frightfully. I took it up that day and for fifteen years afterwards I did not speak a perfect sentence."

In a certain school where the girls were from twelve to fifteen years old, a girl fainted and four others fainted from pure sympathy.

"One day last fall when I was teaching," says a New England young lady, "I wore the cuffs of my shirt waist tied with ribbons instead of using cuff buttons. The next day the girls fastened their cuffs with ribbons. When there were no eyelets in the cuffs they either tied or pinned the ribbons on. The fad kept spreading, the bows getting larger and the hanging ends getting longer until it was quite amusing. The age of the girls was from twelve to thirteen years."

In a certain school one of the large girls had sore eyes and wore glasses. Within a week eight or ten others were wearing glasses.

"One day," says the narrator of this incident, "I was with a person who kept saying his throat was sore, and my throat began to get sore, too."

Recently about thirty children at Port Jervis, aged seven to ten, decided to give a "Living Picture Entertainment" in the barn. The admission was five pins. Several mothers decided to attend. When the curtain rang up the

parents were horrified to find their children standing on the stage entirely nude.

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In normal life the child and the adult are more or less subject to the suggestion of others. We are influenced by what others do and by their opinions. We think we control our own movements, and yet our actions are largely determined by what others think.

Notwithstanding all this we are sure that we have the power to resist these suggestions if we will.

Have you ever been acquainted with an absent-minded man? What is the difficulty? He is either so deeply engaged in some train of thought that he does not recognize impressions that come to him from without, or if he does receive them he does not interpret them correctly.

The story is related of the German mathematician Gauss that one day he was engaged in a very difficult problem when the maid came and said: "Professor, your wife is sick." He seemed to hear her and said, "All right," and then turned around and went on with his work. In a short time the servant returned and said: "Your wife is sick, she wants you to come at once." He said, "Yes, yes; I'll be there," and went on with his work. His wife continued to grow worse, and the maid came back the third time and said in great excitement: "Professor, you must come at once; your wife is dying." He very calmly looked up from his work and said: "All right; tell her to wait till I come." The impression had been received, but was not properly interpreted. He knew something was being said to him, but did not realize what it was.

It is said of Dr. Robert Hamilton, a well-

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known professor at Aberdeen, that he was so absent-minded that he would go to his class on dark mornings with one of his own black stockings on one leg and one of his wife's white ones on the other. Once he ran up against a cow in the road, and taking off his hat he apologized to her, called her madam and hoped she was not hurt. It is said that he would spend an entire recitation hour in removing the hats of the young men from the table in front of him, where they had placed them, and where they would replace them as soon as he laid them aside.

In these cases the impressions from without were interpreted in accordance with an idea in the mind. The act was, in a measure, caused by self suggestion.

Do you ever dream? Do you ever walk in your sleep? If you do, you act out suggestions which force themselves upon you in some way, without stopping to consider whether they are sensible or not. You have probably noticed the extreme vividness of ideas which present themselves in dreams. You can all remember how bright was the light, how terror-striking the alarm, how fearful the fire, how oppressive the weight on your chest, how strangling the hand on your throat. In other words, how the one idea controlled your entire being. In a dream one minute you seem to be in your home in America, the next moment you are in the wilds of Africa, but the sudden change creates no surprise.

In the dream the suggestion may come to you because of a late supper, extreme weight of bed clothing, your arm being in a cramped posi-

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tion, or any one of a multitude of other causes; the thing to be noticed is that you are influenced by the suggestion, no matter what it is, without considering whether it is true or not.

Is not this condition very similar to that of a man who is hypnotised? In the dream state the suggestions, it is true, may come from many sources; in the hypnotised state the suggestions come almost entirely from the words of the operator.

Let us then try to remember that suggestion is an influence to be considered in our normal life, but that in our normal life it is reacted upon by our common sense and will. In absent-mindedness the suggestions are largely self-suggestions. In dreams the suggestions come largely from physical causes and seem to exercise supreme control. In hypnotism the suggestions are given by the operator, and in many cases exercise very great control.



A Fair Subject.

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CHAPTER V.

DANGERS OF HYPNOTISM.

Is hypnotism dangerous? Many people undoubtedly believe it is. It is almost impossible to convince such persons that the intelligence is not weakened and the brain power of the subject is not destroyed by hypnosis. There is absolutely no testimony to support this view. The idea is entirely due to the ignorance of the people who advance it. The belief is opposed by the statement of nearly every man who knows anything about the subject.

It is difficult to convince people that hypnotism is simply a state very similar to ordinary sleep, in which the individual is more willing to accept suggestion than in his normal life. Professor James says that "Hypnotism has many affinities with ordinary sleep. It is probable, in fact, that we all pass through it transiently whenever we fall asleep; and one might most naturally describe the usual relation of operator and subject by saying that the former keeps the latter suspended between waking and sleeping by talking to him enough to keep his slumber from growing profound, and yet not in such a way as to wake him up. A hypnotised patient, left to himself, will either fall sound asleep or wake up entirely. The difficulty in hypnotising refractory persons is that of catching them at the right moment of transition and making it permanent."

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Hypnosis is not something unreal or mysterious, and yet it is very difficult to convince people of this fact.

A few men of science have attacked hypnotism, but in nearly every case they have been men who knew very little or nothing about the subject from an experimental point of view.

One physician who has opposed its use says that after thirty years of observation he knew at least one case in which, after apparent benefit from hypnotic treatment, mental instability passed into insanity. Mr. Vincent, in speaking of this, says that because in one case a man mentally unstable finally became insane does not seem a very crushing indictment, and even the learned doctor himself does not tell us that this final state was in consequence of, but only that it was subsequent to, hypnotism.

Let us now consider the opinions of those men who have had most to do with hypnotism. Dr. Bernheim said, after having induced hypnotism over ten thousand times: "I have never seen any harm produced by sleep induced according to this method." Another French physician, Dr. Liebault, after using hypnotism in his practice for over thirty years, says he cannot recall a single case in which he regrets having employed it.

Dr. Hamilton Osgood says: "I have seen many neuroses cured. I have never seen one caused by suggestion. I have seen the intelligence restored; I have never seen the mind enfeebled by suggestion."

Not only do many people think the mind may be enfeebled and the will weakened by

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means of hypnosis, but it seems impossible to eradicate from their minds the idea that the subject may not awaken after being put into a hypnotic sleep. This belief has no more foundation than the other. Any man who is properly qualified and who has had experience knows better than this. In most cases a subject can be thoroughly aroused in a few seconds. Very rarely is there any difficulty in awakening the subject when the state has been induced properly. Even where there is difficulty, and the patient cannot be aroused instantly, if permitted to go into a natural sleep he will awaken from this as he would from any ordinary sleep.

Can a man be hypnotised against his will? The statement that he can is the great bulwark on which the opponents of hypnotism make their stand. This statement is without question an erroneous one. A man cannot be hypnotised without his consent; by this we mean without his willingness to do as the operator requests him. It may be possible that in rare instances a man who has been hypnotised night after night for years may be more willing to give his consent than when he first began, and it is even possible that if the hypnosis should be caused in the same way for such a great number of times he would become so accustomed to being hypnotised in this way that he might become hypnotised without desiring to be. But for all practical purposes the statement made a moment ago that no man can be hypnotised without his consent is true.

It seems to be a perfectly safe statement that in itself hypnotism is no more dangerous than

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is ordinary sleep. A man may be injured while he is hypnotised, just as harm may be done to a person while asleep. A person may be made to do things when hypnotised he would prefer not to do. I know of a case where a traveling

hypnotist put his subject to sleep and left him in a store window, offering a reward to anyone who could awaken him. A number of people tried, and finally the driver of an ice wagon succeeded in partially arousing the man by breaking one of his ribs. The man was injured while hypnotised, but not by the hypnotism itself. I think an examination of the evidence will show nearly all the cases of reported injury through hypnosis are of this description.

If a man has been hypnotised repeatedly by the same operator, who has produced the same illusions time after time, it is within the bounds of possibility that these illusions may become to him real, and his mind in this respect partially unbalanced. I have never known of such a case, nor have I ever heard of one upon any competent testimony. We all know, however, that habits are formed by repetition, and we may argue that it is possible to form a habit in hypnosis just as it is in normal life. Although this line of argument may not be correct, it is probably wiser not to permit one's self to be hypnotised and rehypnotised by the same person and allow him to perform the same experiments and create the same illusions day after day and week after week.

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CHAPTER VI.

HYPNOTISM FOR SCIENTIFIC PRACTICE

In order to gain a clear comprehension of hypnotism and its differentiation from animal magnetism, we must recognize two facts: First, that there are some persons who can exercise a personal influence over others, either direct or through contact, and at times even from a distance; and, secondly, the fact that particular psychical states can be induced in human beings by certain physical processes. We do not mean this in the sense that the physical is separated from the mental, as, of course, the reader will recognize the absurdity of such a position, but we mean that the effects produced are immediately connected with physical phenomena and the action is not what we term mental. In order to give the reader an idea of the phenomena of hypnotism we think it well to describe a few experiments. The student will in this way more readily understand, than through any number of general definitions. Experiment No. 1. This is a young man of 20 years of age. I request the patient to seat himself and give him a button, telling him to fix his eyes upon it; in three minutes his eyelids fall, even though he tries in vain to open them. His hands which until now grasped the button, drop upon his knees. I assure him that it is impos-

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sible for him to open his eyes; he immediately endeavors to do so. I say to him your hands are immovable upon your knees, you cannot possible raise them; I continue to converse with him; he is conscious; I raise one of his arms; I let it fall, upon which I blow upon his eyes which open at once and he awakes to perfect self-consciousness. He remembers all I have said.

The result of this experiment was he could not open his eyes, and that he afterward felt a certain degree of fatigue. Second experiment. This is a woman of 40:

I raise my hands and move them downward with palms toward her from the top of her head to the pit of her stomach; I do not touch her; I hold my hands about four or five inches from her; as my hands reach the lowest part of the stroke I carry them with a wide sweep, first with outspread arms, then quite near the subject's head. I repeat these movements from above downwards close to the body for ten minutes. The subject soon breathes heavily with closed eyes. I ask her to raise her arms; she raises them slightly, but they fall heavily; she says she is tired; I forbid her to open her eyes, she attempts to do so, but fails. I lift her right arm, it remains in the air, even though I have let go. I command her to drop her arm, she does so, I lift it again, it remains in the air, upon which I request her to drop it, declaring at the same time that she is unable to do so; she tries, but fails to do it. She cannot pronounce her own name directly I assure her she is dumb. She only makes movements with her mouth without sound. I assure her she can speak

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she does so. I say you hear music, she shakes her head. I repeat positively, "Listen, now you hear it," she smilingly assents. I now awaken her by passes from below, upward over the surface, still turning the back of my hand towards her. She at once recovers entire self control.

This shows that not only the eyes close during hypnosis, but that different movements become impossible, when forbidden by the operator.

Third experiment. This is a boy whom I have hypnotised several times. He is about 16 years of age:

I request him to look me straight in the eyes. After he has done this for a short

time I take him by the hand and draw him along with me, then I let go, but our eyes remain fixed on each other. Then I slowly lift my right arm, the boy does the same, then I lift my left arm, the boy does the same. I make him understand by a gesture that he must kneel, he gradually drops to his knees, he then tries to rise, but does not succeed, so long as my eyes are upon his. Finally I cease to look at him, the charm is at once broken. We see here a youth whose actions become imitations while his eyes remain wide open and fixed upon mine.

Fourth experiment. Mr. G—, age 50, seats himself. I tell him that he must try to sleep, and say: "Think of nothing, except that you are to go to sleep." After some seconds I continue: "Your eyelids are dropping; you are becoming fatigued, you feel tired all over, your arms are going to sleep, your legs are heavy, a desire to sleep is stealing over your

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whole body, now your eyes close, your head is dull, your thoughts indistinct, you cannot resist, your eyes are closed. Sleep!" After the eyelids are closed I ask him if he can open them. He tries to do so, but is unable; he is fast asleep. I say: "Do you hear the canary singing?" "Yes." "Now you hear music." "Of course." Upon this I take a black cloth and put it into his hands. "You feel this dog quite plainly? Now you can open your eyes, you will see the dog clearly; then you will go to sleep again and not waken until I tell you." He opens his eyes, looks at the imaginary dog, smiles, and strokes it. I take the cloth out of his hand and place it on the floor. He stands up and reaches for it. Although he is in my room I tell him he is in the Zoological Garden. He believes it and sees trees and is interested in imaginary animals, etc.

In this case G— is thrown into the hypnotic state by arousing in his mind an image of sleep. He obeys my orders implicity and is en rapport with me and subject to the action of my mind and will. I now call to him: "Wake up!" He awakens at once, but when questioned remembered nothing except having been asleep.

The reader can readily understand that if these suggestions are accepted by the patient under such circumstances, that any other suggestions would be accepted as implicitly. As for instance, in treating him for disease, you would say to him: You are now in perfect health, you have no disease or infirmity of any character. Health is universal, my dear brother. If health is true, disease must be

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false, therefore, you must be perfectly well; you are in perfect health. There is nothing but perfect health, that which contradicts this must necessarily be false. You are now living in the clear recognition of the harmonious action of natural law, you are in perfect harmony with your surroundings, you are therefore en rapport with the infinite source of all life—harmony and love. All else is but the distorted shadow of a dream. You shall henceforth live in peace and harmony and shall live in the enjoyment of health and happiness and love.

Let this beautiful truth be ever present in your heart and mind as your ideal of that which is yours for the holding, recognizing, dear brother, that every thought or seeming condition which contradicts good health is but a compromise upon your postulate that health is true and real and which will only lead you farther away from your true self and highest ideals into the field of compromise and sophistry with great resultant injury.

Remember, brother, that you are well, that you are a part of the great all of health, affection and happiness. Be peaceful, resting in the arms of infinite love, be calm and you shall be powerful, because only in calmness rests power. Peace, peace, peace!

This is a good general treatment for any character of disease. A person in the hypnotic state is called a hypnotic, or subject. A hypnotist is a man who hypnotises, generally for scientific purposes. A hypnotiser is a man who makes hypnotism a profession. The different commands which are given in the ex-

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periments described are called persuasions or suggestions, and if the suggestion is effective it is said, from a hypnotic standpoint, that the subject is under the influence of the suggestion.

The mental method to induce hypnosis is by giving a particular direction to the subject's imagination. The method may be modified or increased to suit special cases, as individuality plays an important part in mental states, and what would succeed with one might not with another. The hypnotist would have to be guided by his own judgment, founded on experience as to the character of the suggestions to be used. I have seen persons who could only be hypnotised when I touched their foreheads, and others who would more readily fall asleep by touching

the hands or soles of the feet. I believe it essential that the subject should fix the eye steadily on some bright object. better to have it polished. something about the size of a silver dime. In other cases more satisfactory results will be obtained when the subject looks steadily into the eye of the hypnotist.

It is claimed by some writers that it is possible to hypnotise a person in the dark. This at present is an open question, the fact remains that the subject yields much more readily to hypnotic influence, especially in the beginning of the treatment through the eye. The passes of the hands are generally useful, though not necessarily in all cases essential. As stated, the intelligent operator will soon be guided aright in his choice of treatment by the general character of his patient as to the best methods to pursue. Most persons who

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have already been under the influence of hypnotism are more easily hypnotised each succeeding time. In many cases some advantageous artifice is brought forward by the operator. I have known a person to promptly respond to hypnotic power by seizing the finger of the subject and pressing the knees closely together. We have cases on record of a person remaining three days in a perfect hypnotic sleep.

An instrument has been made which determines whether a person is hypnotisable; it is known as a hypnoscope. It consist of an iron magnet in the form of a ring, which is put upon his finger. Hypnotisable persons are supposed to experience certain peculiar sensations in the skin, with twitching of the muscles, while with the unhypnotisable this is not noticed. The ability to give the thoughts a certain direction is partly natural and partly habit, and often a power of the will. It seems strange, but children under three years of age cannot be hypnotised at all and even up to eight years of age they can be hypnotised only slowly and with difficulty. Although children are easily influenced, their thoughts cannot be centered upon one object or subject like hypnotism. Old people are more easily hypnotised, and it makes no particular difference as to sex. It is a mistake to suppose that woman is more readily hypnotised than man. There are those who claim that everyone is hypnotisable, if only the attempt is of sufficient duration. I have made 30 or more attempts with some persons without success, but by longer efforts the desired result might have been attained. In many cases the pa-

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tient resists the suggestion through persuading himself that he is not hypnotisable. It is therefore wise to obtain the consent and confidence of the subject rather than to arouse the resistance of his will in the beginning of the treatment. Convince him that you are about to help him, and that under no circumstances would you do him an injury. The influence of one person over another depends upon the individuality of both. We find the same in life in the relation of teacher to pupil, and in the reciprocal relations of friends or lovers. Calm presence of mind is essential to the successful hypnotist. To hypnotise a subject for hours at a time demands perseverence, very much more patience is necessary than for writing medical perscriptions. But we claim that much more beneficent results are obtained, without the ill effects common to the long continued use of drugs.

That it is advisable to gain the confidence and acquiesence of the patient is borne out by the fact that the patient who goes to the doctor to be hypnotised is much more readily affected than others. Delusion and hallucination are defined as follows: The first is the conception of an object where there is nothing; the second is the false interpretation of an existing object, as for instance, a cat is taken for a dog and a knock on the window for the explosion of powder. If the dog is seen where there is nothing, we call it a hallucination.

A chair on which a certain person is often seated may call up the image of that person. This is hallucination.

It is not astonishing that objections have

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been made to the use of suggestion for the cure of disease. Progress in every branch of science has only been made through sustained effort. This is also true as applied to all medical schools. We have hypnotised a patient and opened a boil, the patient remaining immovable and suffering no pain whatever. At times the object of the treatment can be most easily obtained in a round-about way, as, for instance, a person may be weaned from tobacco, not from direct command, but by suggesting to the subject that the aroma is very unpleasant. In other cases I have found it an excellent plan to mentally place the subject back in some earlier period of his life. Hypnotism is frequently most effective in obstetrics, the pains are either diminished or avoided altogether. It was thought that birth was impossible in the magnetic sleep

without a quick awakening, but this, however, has been disproved.

I will not enter further into the advantages which science will gain from a study and application of this wonderful force. I believe it will go far to enlighten us in methods for the cure of human diseases, which members of the old schools never dreamed of, and that it will assist to absolve us from a load of superstition and misconception which cannot but be the dawn of a more intelligent and progressive era for the race.

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CHAPTER VII.

THE USES OF HYPNOTISM.

In what ways may hypnotism be of use? What service has it been or can it be to mankind? We have seen that it is possible by its use to cause the subject to believe things that are not true. We have seen it is possible to cause him to act in ways he would not act in his normal condition. We have also seen that it may in rare instances be possible to cause him to do things which may be injurious to himself.

Hypnotism has been of use to the psychologist, enabling him to better understand the operation of the human mind in some directions. It is of use in medicine.

Not only may illusions be produced by means of suggestion, but real sensations may be abolished. Pain may be relieved. Legs have been amputated, teeth extracted, with no other anesthetic than the assurance of the operator that the patient would feel no pain. The subject may be blind as to a certain person. He will act absolutely as if that person did not exist when he stands in front of him.

It is possible by suggestion to cure headaches. It is possible to relieve many nervous diseases. By its use habits may be cured. It has been used in curing cigarette smoking with success in almost every case.

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Hypnosis has been used in the treatment of drunkenness. Dr. Dill, of England, relates a number of cases, among which is the following: "A housemaid, aged 32 years, had lost her character by her drunkenness. When I first saw her she was very readily hpynotised, and after three or four suggestions that she would dislike all forms of alcohol and be unable to take it, she lost all desire for drink. Eventually a situation in a gentleman's family was found for her, which she has retained for the past six years, and she is a most valued and trusted servant. It is worth notice that when she was suffering from influenza and had been ordered port wine by another medical man who was attending her, she resisted strenuously, and deceived her mistress by pouring it away."

Dr. Dill also relates his experience with a widow of a clergyman, aged about 40 years. "Her husband knew of her weakness and kept all forms of alcohol away from her. but after his death she bribed the undertaker's man to put a bottle of brandy in the coffin when it was brought into the house, and then got drunk in the room with the corpse." Dr. Dill, in speaking of this case, says: "I first saw her some years later, when she had been rescued from the lowest depths of depravity by her sister. She was treated by a hypnotist and was easily influenced; but although a post-hypnotic suggestion that any alcoholic liquor would make her violently sick was effectual for about three days, at the end of that time it had apparently quite passed away. Nor did repeated trials lengthen the period during which it took effect. This could not be continued indefi-

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nitely, and she was finally sent to an asylum."

Dr. Green, of London, relates a very interesting case of a man about 32, who was not able to get a night's rest without bromides and chloral, and who had also an irresistible craving for whiskey. He was the cashier of a large wholesale house, and he seemed to be very close to dementia. He was hypnotised and made to understand that the operator was showing him the way to cure himself by the exercise of his will. He was hypnotised four times. The first time the suggestion was made that alcohol in all forms would taste vile, and if swallowed would be vomited. It was also suggested that he would not awake at 2 in the morning as usual, but would get a good night's sleep. The patient did sleep well that night. He took a glass of whiskey, but had difficulty in keeping it down.

He went away on a trip, and shortly after wrote that he had slept very well for four or five nights, but after that got worse. He came back and was rehypnotised, and the former suggestions were repeated. Two days later hypnosis was again induced. He said he was sleeping well and had very little desire for alcohol. Four days later he was hypnotised for the last time, and the same suggestions made again. He said that his brain was clear, and he now acts and speaks like a man who is

in perfect possession of his senses. For at least six months after that time he had suffered no relapse.

Dr. Bramwell, in a paper before the English Society of Psychical Research, in speaking of the inquiry of one writer as to what has become

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of the drunkards who are said to have been cured by hypnotism, says: "As regards my own cases I can give a very satisfactory reply. Some are actively engaged in business or in successfully conducting medical practice. One has since been elected a member of Parliament, while others are happy wives and mothers. In most of them the disease has been of long duration, varying from about five to fifteen years, and in some presented all its worst symptoms. For example, the patient who is now a member of Parliament had formerly suffered attacks of delirium tremens and apoplexy. The duration of the cures has lasted from two to over six years."

Wetterstrand reports thirty-eight cases of morphinism. Of these he says twenty-eight were cured, three relapsed, and in seven he obtained no result. Many of the cases were exceedingly grave and of long standing. One of his patients had taken morphine for eighteen years and cocaine for four, and his case was a complete cure. Other methods, including residence in a retreat, etc., had failed.

There are a number of institutions in this country where hypnotism is used in the treatment of disease. It has been used as an anesthetic in operations. Many dentists have used it in their practice in place of gas.

Some prominent physicians abroad have experimented with suggestive therapeutics, as it is called, to a considerable extent. The theory is that with many classes of disease the mind influences the body to a very great extent. This we know to be true from the many remarkable cures brought about by Christian science and

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faith cures. The mind is more susceptible to suggestion when the patient is hypnotised than when he is not. The method in treating these diseases is to get the patient into as deep a sleep as possible and then make the necessary suggestions. We have a mass of testimony from men whose statements cannot be doubted as to the success of hypnosis or suggestive therapeutics in treating diseases.

Every physician knows that the mind has a great influence upon the body. There is no question but what an intelligent use of suggestion, with or without the use of other medicines, will in many cases assist in the cure of disease. It is not true that the nervous diseases are the only ones that can be treated, although they are, of course, the most easily influenced by suggestion.

Drs. Bernheim, Tuckey, Burkhardt, Voisin, Van Eeden, Burot, Velander, Osgood and Kingsbury have all successfully treated by means of hypnosis. In a table given by Dr. Felkin there is a list of 496 cases, of which 224 were absolutely cured and 200 improved, making 424 cases of success and benefit to only 72 failures. In this table Dr. Felkin has included cases by Bernheim, Van Renterghem and Van Eeden, Tuckey and Wagner. The cases treated included hysterical diseases, organic diseases of the nervous system and rheumatic affections.

We shall attempt to give a few cases of treatment of disease by suggestion. Let us take first the simple case of habitual headache. We all of us know people who have suffered from headaches continually, and the claim has been

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made that there is no other pain which is equal to it. Dr. Wetterstrand, of Stockholm, has treated a number of cases of this description, and nearly all of them successfully. Dr. Wetterstrand states that he first endeavors to ascertain the cause of the headache. If the cause can be discovered, that, of course, is treated first. If it cannot, and the probability is that the headache is what is known as a nervous headache, he treats it hypnotically.

One case from his note book will serve to illustrate his results. A married woman, 46 years old, had suffered from headaches ever since she was a child. No disease could be discovered, yet her appearance was pale and suffering. She came to him on the 8th of February, '88, and after twenty treatments returned to her home cured. He saw her again in January, '90, and in the course of the two years she had not had the least symptom of headache, and her previous sickly appearance had greatly changed in her favor.

Many cases of neuralgia have been treated, and nearly always with success. In speaking of his treatment of neuralgias one doctor says: "The remedy has, of course, now and then disappointed me, but it was generally due to the patient's own lack of susceptibility to hypnotism. The method has seldom been a failure when the patient slept soundly. Neuralgias

are just the kind of diseases over which hypnotic suggestion gains its triumphs, as beyond all comparison it acts more surely, and especially more pleasantly, than the usual methods of cure—massage and electricity."

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Hypnosis has been used in cases of partial paralysis frequently with success.

There have been some remarkable cures in cases of chorea. We will give in detail one of the cases treated by Dr. Wetterstrand, and which, he says, was the severest case of chorea he had ever seen. The patient had been eight months in a hospital, and, as there was no improvement in that time, she was reported incurable. She was 23 years old, and when Dr. Wetterstrand first saw her, in '88, she had been suffering for two years. She was in bed; could not walk. She threw her arms violently about and her feet were in constant motion. The expression of the face changed incessantly. She wept frequently. She was depressed, could not sleep well. At first it was impossible to hypnotise her, but on the fourth trial she was placed in a light slumber, and after four more attempts became somnambulistic. Suggestions were, of course, given on each trial, and in two weeks she was so much better that she could come to the doctor's office, instead of his going to her. In less than two months there were but slight occasional twitchings in the arms, and in a little over two months she was perfectly normal. At the latest reports she still continued in good health.

Hypnosis has been tried in the treatment of stutterers. These experiments have not been successful in all cases, but in many they have. In fifty patients treated by one physician fifteen were completely cured, many of the others were improved, and those which were not improved depended in many cases upon the lack of perseverance on the part of the patient. Of course,

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the younger the child the greater the chance of success.

Hysteria is one of the diseases we have always with us, and it is one which can be treated successfully by suggestion. In all these cases care must be taken that the suggestions are made firmly and are never contradictory. You must not tell the subject at one time to do one thing and at another time to do another. Remember the impression you have made fixes itself deep in the patient's brain. If you contradict it you cause confusion.

Braid, Bernheim and others have used suggestion successfully in treating chronic rheumatism.

Suggestion may be used in consumption. By this we do not for a moment mean to imply that consumption may be cured by suggestion. We simply mean that by hypnotic suggestion it is possible to remove, or at least mitigate certain painful symptoms. For instance, if the consumptive has no appetite, suggestion can be used to advantage. The pain may be relieved and sleep may be induced.

Asthma has been treated by suggestion, and in some cases at least successfully. One case relieved by Wetterstrand is that of a girl about twelve years old, who, on the 20th of March, '88, was sitting up in her bed. She could not lie down without being in danger of suffocation. She had no appetite, and had lost much sleep and consequently was much exhausted. She was given the vapor of stramonium leaves every night to make her comfortable, but this frequently did not help her. The family physician had advised hypnotism which was induced

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by Dr. Wetterstrand. She was easier after the first treatment. In eight days she was able to leave her bed and go to his office. In twenty treatments she was freed entirely from the asthma, and for a period of two years, which is the latest information we have in this case, she had not had another attack of the disease.

It seems to be true that hypnotism can remove many diseased conditions of the stomach and intestines. Drs. Bernheim and Wetterstrand have treated what is known as chronic catarrh of the stomach. This condition is due probably to an abnormal condition of the nerves which preside over these functions. It may be called nervous dyspepsia. These conditions may frequently be dispelled in a single treatment.

It would be possible to continue this list of diseases which may be treated successfully by suggestion almost indefinitely, but we have given enough to show how it has been and can be used.

A word now as to the permanency of these cures. Of course, real knowledge on this subject can be gained only with experience. Liebault has employed hypnosis for more than forty years, and Bernheim for nearly seventeen, and both of them say that the cures are in many cases permanent. Forel has used it for thirteen years and says that he knows of many of his patients who have remained cured from the time he treated them.

Dr. R. Osgood Mason claims that he knows of one hundred and fifty children who have been successfully treated by means of sugges-

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tion for nervous insomnia, somnambulism and kleptomania. He relates the story of a case of a girl of fifteen, who was exceedingly inattentive at school, and who did not seem to be able to remember well. She was hypnotised several times and the suggestion was made that she would be more attentive and that her memory was improving. She did improve very much, and has continued to be an attentive scholar, with a fairly good memory. Dr. Mason also relates the case of a somnambulist who was cured by one suggestion and had no relapse during a period of two years.

An incident is related of a boy of seven, who was a great coward. He was hypnotised and suggestions were made to the effect that there was no reason why he should be so afraid, and that he would have more courage. These suggestions were repeated several times, and he was greatly benefited by them.

A young man of nineteen was afflicted with a very strong desire to commit suicide. He was treated several times by means of suggestion, and the inclination seemed to be entirely removed, and has not reappeared up to the present time, a period of little over a year.

In the Salpetriere, in Paris, there was a criminal lunatic, a woman who had reached the lowest depths of degradation. She was hypnotised several times, and under the influence of hypnotic suggestion was changed utterly in character and action. The result in her case has been permanent, and she has since been a very useful hospital nurse.

Dr. Voison tells of a boy of sixteen, who was exceedingly cruel and malicious. He was

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turned away from several institutions because he was too bad to be managed. He was also a liar, and stole from his mother. Dr. Voison was not successful in his attempts to hypnotise him until the third trial, and then hypnotised him every day for five weeks, and gave him suggestions every day. After this time the young man seemed to be completely changed. He then had no desire to do evil and was obedient and kind to his mother. Later investigation shows that the boy's character is good and that no relapse has occurred.

Hypnotism is of value in the hands of the right people. A man when hypnotised can be made to do many things it would be impossible to cause him to do in his normal condition. Some diseases may be cured. Pain can be relieved. Many habits may be broken off, and the child may be put in the right position to obtain the proper education. To do these things requires, first, a knowledge of how to hypnotise; second, a knowledge of human nature; third, common sense enough to give the right suggestion at the right time. It is impossible to give instruction as to what suggestions to give, because the conditions differ with each individual, and each case requires its own treatment. The man with intelligence the man with a knowledge of the peculiarities of the patient, can tell better than anyone else what is the proper suggestion to be made.

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CHAPTER VIII.

HOW TO HYPNOTISE.

In commencing your experiments in hypnotism the first thing to be done is to secure a suitable subject. It is rather difficult to give advice on this point, as it is practically impossible to tell without trial whether a person is easily hypnotisable or not. When you have secured your subject endeavor to convince or persuade him that you know what you intend to do. Inspire confidence. Remove from him any apprehensions he may have, or his belief that hypnotism implies the influence of a strong mind over a weak one. A man who sits down with a hypnotise-me-if-you-can expression is not a good subject

HOW TO MAKE A SUBJECT FALL BACKWARD.

After you have secured the confidence and willingness of the person upon whom you are about to experiment, request him to stand in front of you with his eyes closed and his feet together. Tell him to try to think what it would feel like if he were falling over backward. Try to put his entire mind on the sensation of falling; ask him not to try to fall and not to resist falling.

When you are sure he understands just what you mean, take your position in back of him and, using both hands, gently stroke his fore-

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head from the centre back toward the sides. Continue that for a short time, suggesting in a low monotonous tone, "Now you are beginning to fall, you find you are coming over backward, back, back, back." Vary the stroking of the forehead by running the finger down the back of the head until you reach the hollow part of the neck. Press a little on this and gradually

pull the finger away and downward.

By this time in most patients there will be a tendency to sway over backward. Some will fall suddenly, others will simply sway and will resist. Do not give up. Repeat the experiment several times and you will find that many will tend to fall.

If when they fall backward they keep their eyes closed and seem to be asleep, as sometimes happens, simply clap the hands together or snap your fingers and say in a decided tone of voice, "All right." Very few of the subjects, however, will go to sleep in this experiment. They are not hypnotised in the sense in which the word is sometimes used, but they are unconsciously acting out a suggestion which has been made to them.

HOW TO CAUSE A SUBJECT TO FALL FORWARD.

In the next experiment ask the subject to stand with his eyes open, his feet together, and you stand in front of him. Have him look directly into your eyes, or at a small, bright object which you hold in front of his eyes. Ask him to think what it would feel like to fall towards you. Stare at him steadily for a few moments, and then gradually draw backward

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and downward. Don't move too rapidly, and stop if you see there is not a tendency on his part to follow you.

If you go back slowly enough and watch carefully enough the movements of the subject, you will find in many cases he will follow you and will fall frontward. There is less probability in this case than even in the preceding that the subject will go to sleep, but in case he does, the same method of awakening him may be used as that given in the preceding experiment.

HOW TO CLASP THE HANDS TOGETHER.

Place your subject on a chair in a comfortable position. Have him clasp his hands together with the fingers interlocked and the arms straight. Place yourself in front of the subject and request him to stare into your eyes.

While he is staring at you slowly stroke his arms downward, and say to him, "You will find your arms are getting stiff. The muscles are growing more and more rigid. The elbow is becoming so you cannot bend it, and your fingers are getting stuck fast together. Your arms are stiff, you cannot bend them. Your hands are getting stuck tighter and tighter together." Continue staring at him and repeating in a convincing and decided tone some such words as these.

There will come a time, providing you have convinced the subject of your earnestness and ability, when the expression in his eye will change, and his hands will become stuck fast together. When you think he has reached this

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condition (and it is possible to talk to him so long that he will reach and pass it) say to him, "Now your hands are stuck fast, fast, fast; it is impossible for you to get them apart; they are stuck fast together. Try to get them apart. Yon can't do it. Try again. Try."

In many cases the subject will be utterly unable to unclasp his hands. In some cases they will stick a little, but he will be able to open them, and possibly in a few cases there will be no feeling at all. Don't permit the hands to be stuck together too long, but when you are convinced he cannot take them apart clap your hands together or snap your fingers and say to him: "Right, all right," and you will find that he can take his hands apart without any difficulty.

Let me specially guard you against losing control of yourself. Don't forget that the subject will act as you suggest. If by any possibility you should become hysterical in case he did not take his hands apart the first time you told him to, the likelihood is that he would become hysterical in imitation. Tell him decidedly that it is all right, that now he can take his hands apart, and you will find no difficulty.

HOW TO CAUSE A SUBJECT TO FORGET HIS NAME.

Have a young man stand up in front of you and look you directly in the eyes. Stare at him intently for a few minutes and when you notice a change in the appearance of his pupils begin stroking down the side of his face and

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around the mouth, slowly, carefully, and without too much pressure.

Say to him: "The muscles about your mouth are becoming stiff. Your lips are becoming stuck fast together. The muscles are so stiff you can't open your mouth; it is stuck fast, fast. You can't open your mouth. It is impossible for you to open it. You can't tell me what your name is. Tell me if you can. You can't do it, but try."

If you have continued to gaze at him steadily

and have been very careful that he did not take his attention away from you for a moment, and will continue to talk to him in some such strain as this, in many cases he will find it impossible to open his mouth, and in some cases he will absolutely forget his name. If you tell him emphatically that his name is Mr. Smith, and repeat it a few times, you may so convince him of the fact that he will nod yes when you ask him if that is not true. Arouse him in the same method as before. Suddenly take your eyes away from his and snap your fingers, or clap your hands, and say "All right."

HOW TO MAKE THE LEG STIFF.

A great deal of amusement may sometimes be caused by the following experiment. Have a young man stand up before you and look in his eyes as in the previous cases. Run your hands down the side of one leg, letting it dwell a moment at the knee joint.

Say to him as you make these passes: "Your right leg is getting stiff. The knee joint is getting so you cannot bend it. You can feel your muscles getting more and more rigid all

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the time. It is impossible for you to bend your leg; it is stiff, stiff, stiff. Try to bend it. You can't do it. Try. Try hard."

When you are convinced that his leg is perfectly stiff, say to him: "Now, let us see you walk." You move backward in front of him, still keeping your eyes on his. His endeavors to walk with one stiff leg and one that is not stiff will probably be productive of considerable merriment. There will be no difficulty in arousing him if you employ the same method which we have previously given.

You will notice that in none of the preceding experiments has the subject been put to sleep. It is possible to cause these muscular contractions without sleep. We have given above a few experiments. They may, of course, be varied in very many ways.

Let me warn you again to be very careful to convince your subject before you begin that you know what you are talking about. Dissuade him from the belief that you have some uncanny influence over him. Try to explain to him that it is not the weak-minded who are the best hypnotic subjects, and that the question of being hypnotised does not depend at all upon the strength of will.

Never for a moment lose control of yourself or your subject. If he does not arouse the first time you tell him to don't become frightened. The subject will very quickly observe any excitement on your part, and is very apt to be influenced by it. If he sees you are nervous he grows nervous, and the result may be a severe case of hysterics, which, although it is not likely to do any special harm, is not pleas-

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ant, and will probably influence people, and justly so, against permitting you to experiment with them. If you cannot absolutely control your own feelings don't try to hypnotise.

HOW TO PRODUCE SLEEP.

There are several methods which may be used in putting a person into a hypnotic sleep. The first is that which was employed by Braid, and consists simply in the tiring of some one of the sense organs.

The most common way of operating is to place the subject in a comfortable position, hold a bright object like a silver lead pencil holder, a small coin, or something of this nature, in front and a little above the eyes. Have him stare at this object steadily until there is a perceptible drooping of the eyelids and dilatation of the pupils. When the subject has reached this stage, tell him to go to sleep. Repeat several times, the suggestion that he is going to sleep, and in many cases sleep will come.

Sometimes this method of staring causes a headache, which is probably produced by the strain on the optic nerve. For this reason many experimenters prefer to use a method which does not necessitate the prolonged strain upon the eyes. An example of this method may be given as follows:

Have the subject place himself in a chair, leaning his head back, in as comfortable a position as possible. Ask him to look you in the eyes intently as you stand in front of him, and move your hands slowly across his forehead from the centre to the outside, saying to him in

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a rather monotonous tone: "Your eyelids are getting heavy, and your eyes are becoming watery. Your eyes are getting heavier and heavier and you cannot keep them open any longer. You are getting more and more sleepy, sleepy, sleepy. You are going to sleep, fast asleep, asleep, asleep." You will generally find this talking sleep and the smoothing of the forehead sufficient.

When the eyes close and the subject appears to be asleep suggest to him: "Now you are

asleep, your head is getting heavy; it will fall over on one side," slightly pressing the forehead on the side opposite to that which you wish it to fall. "Your head is getting heavier, heavier all the time. You cannot hold it up. you are fast asleep, asleep, asleep." If the head falls over, you may be reasonably sure that the subject has gone to sleep.

As we discovered in our study of the theory of hypnotism, nearly all persons can be hypnotised to some extent. A very large proportion can be put to sleep, but the proportion who can be made to follow suggestions while sleeping is very much smaller. After you are sure the subject is asleep you can suggest numerous delusions to him. Be careful, however, not to suggest more than one at a time, and remove the first suggestion before you give him a second.

FLOWER'S METHOD FOR PRODUCING SLEEP.

Another method which may be used to great advantage in many cases in putting the subject to sleep is one suggested by Sydney Flower,

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the editor of Suggestive Therapeutics, formerly known as the Hypnotic Magazine.

The essential thing about Mr. Flower's method is that while the operator counts the subject opens and closes his eyes, keeping time with the counting. Two or three modifications of this method have been used. Probably the simplest, and one that will answer as well as any other in most cases is this: Place the subject in as comfortable a position as possible and stand in front of him, looking into his eyes and having him look into yours. Tell him that you are going to count to him slowly and that as you say each number you wish him to close his eyes, then to open them and be ready to close them again by the time you say the next number. For instance, you slowly count 1, 2, 3, 4. At each count the subject is to close nis eyes, and open them in between. You will find as you continue the counting that the period during which the eyes remain open becomes shorter and shorter, and finally instead of the eyes opening there will probably be only a movement of the eyebrows.

Many subjects will go to sleep under this method by the time you have counted fifteen or twenty, and it is rarely necessary to count over one hundred. When you find the eyes are closed and the subject does not seem able to open them, instead of continuing with the counting begin to say (and be sure you don't change the rythm of your previous tone): "Sleepy, sleepy, you are going to sleep, fast, fast asleep, asleep, asleep." With most subjects I have found this very much quicker than either the staring at an object or the sim-

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ple talking about sleep. The method of arousing in this case is the same as those of which we have before spoken.

OTHER METHODS OF INDUCING SLEEP.

There are two or three other methods which may be used in inducing hypnosis, namely, that of the passes over the body, tapping on the head, pressing at the root of the nails; but the methods which have been given above will be found to be sufficient. Remember, the thing to be done is to tire one set of nerves, and to suggest to the subject the idea of sleep.

HYPNOTISING INSTANTANEOUSLY.

Dr. Sage says that it is quite possible to hypnotise almost instantaneously people who have been influenced before, and sometimes in new cases. Have the subject take a seat in a chair and start to pass by him. When near him look quickly into his eyes and tap him with the first two fingers of the right hand on his jaw, stating very decidedly that he has the toothache. Don't hold your fingers still, but keep on tapping the jaw firmly, without, however, removing the fingers. Continue to tell him that he has the toothache and that it hurts him badly, all the time looking him directly in the eyes. The probability is that very soon he will jump up with a howl. Now tell him to look straight at you, then suggest to him that his toothache has gone, but that if he will close his eyes he will be sleepy. Then a few suggestions of "sleepy, sleepy, you are going to sleep" are all that are necessary to place him in a deep hypnotic sleep.

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CHAPTER IX.

HOW TO AWAKEN A SUBJECT.

In the last chapter we told in a brief way how to awaken a subject who had been hypnotised. Of course the essential thing is to convince the subject that you understand what you are doing, and to do this you must retain control of yourself. In nearly all cases a slight shock, such as the snapping of the fingers, or the clapping of the hands, repeated a few times, together with the assurance, "You are all right, right, wake up!" will be found all that is

necessary.

If the subject does not arouse immediately upon your suggestion, remember there is no danger in hypnotic sleep. The subject will awaken of his own accord if left alone; or, rather, he will pass from the hypnotic into a natural sleep, and will arouse from it at the proper time.

It is wise before arousing the subject to suggest to him: "Now, I am going to awaken you and you will feel all right. Your head will be clear, and you will feel just as though you had been asleep." A suggestion of this kind frequently saves a slight headache, which some subjects are liable to, especially when hypnosis has been induced by means of staring.

Sometimes we come across a subject who is not aroused by the simple command to wake

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up and the snapping of the fingers. Fanning is sometimes of assistance in such a case, and blowing on the eyes will frequently arouse the subject when a simple command will not.

Sometimes, though rarely, the subject will not awaken even with the fanning and the blowing on the eyes. The difficulty appears to be that he is so deeply asleep that it does not seem possible to him that he can awaken so quickly. In this case it may be wise to say to him: "Now, I want you to wake up, and I am going to count five. Will you promise to wake up when I reach that number?" After getting his promise count the numbers slowly, and as you say the five clap the hands together suddenly and say sharply: "Now you are all right, wake up." Repeat this two or three times and the subject will probably awaken. It may be necessary to watch him for a few moments afterwards to see that he does not fall back again into a hypnotic sleep.

It may be necessary to give the patient even more time than this. If he does not awaken after you have counted tell him that he must wake up, that you won't permit him to sleep any longer, that he is simply making a fool of himself and that he must wake up. Tell him that you will give him five minutes more and then he must awaken. Go away from him and return at the end of the five minutes and say to him: "Now you are all right, and this time you are going to awaken. You understand?" Make him answer you if possible, and then tell him: "Now, when I count five you will be wide awake and feel all right." Count five. Strike the hands together as before.

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Don't hurry the subject too much. The patient feels very sleepy, and it seems to him impossible to arouse so quickly. Don't lose confidence in your own ability. Your nervousness will impress the subject and cause him to become hysterical. Sometimes you will find that the subject will awaken and then go to sleep again. In cases of this kind it is wise to give th suggestion before you arouse him that when he wakes up he will be all right and will not be sleepy, but will stay awake. Impress this on him and then arouse him.

There is one other matter that needs to be considered. Sometimes it is desirable to waken a patient who has been hypnotised by someone else. Generally there is no difficulty in this, but if there should be the best thing to do is to go through the same operations as you would if you were hypnotising him, and when you have obtained sufficient influence over him that he will obey your suggestions tell him: "Now I am going to have you wake up, and I want you to do it at once. Then arouse him in the same way you would your own subjects.

In rare cases it has been found necessary to beat the soles of the shoes with a book, or to rub upward from the root of the nose to awaken the subject. But remember this one thing, there is no danger to the subject if he does not awaken immediately. He will simply go into an ordinary and natural sleep.

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CHAPTER X.

ILLUSIONS AND HALLUCINATIONS.

After the patient has been put to sleep many things can be done with him. Hypnotism, as most of us are probably familiar with it, is in the form presented by the traveling experimenter, who comes upon the platform with a number of subjects and, after putting them to sleep, suggests all kinds of unlikely things for them to see, and requests them to perform acts which they would refuse to do in their normal condition. Let us consider this phase of hypnosis and see how these illusions and hallucinations are induced.

A few words in explanation of the meaning of the terms illusion and hallucination may be necessary. By illusion the psychologist means the false interpretation of a perception. For instance, the individual looks at an object and for some reason he believes the object at which he is looking to be something else. He may be looking at a checker board made to imitate a book, and he says: "This is a book." His reason for making this mistake is that he has seen more books look like that than he has checkerboards. Or his mind may be so filled with one

idea that he thinks the object he sees is the thing about which he is thinking. An illusion, then, is a false perception. By hallucination we mean seeing or hearing or feeling an object which is not there. In an illusion the object is

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present, and is misinterpreted; in an hallucination the object is not present, but we think it is.

It is easier to create an illusion than a hallucination; that is, it is easier to give a man a cane or umbrella and tell him it is a fishing rod and make him believe it than it is to convince him that he holds a fishing rod in his hand when really there is nothing there.

Suppose we desire to make a man go fishing. After putting him to sleep by one of the methods already described we would say to him: "Now when you open your eyes you will see in front of you a beautiful stream. I will hand you a fishing rod and you will go fishing in this stream." Say this to him slowly, decidedly, convincingly. Repeat it. Not necessarily in the very same form, but repeat the idea to him several times; then, putting a cane or an umbrella in his hand, tell him: "Now open your eyes and look at the water in front of you."

He will open his eyes and at first will probably appear somewhat dazed. You point to the carpet in front of him and say: "Don't you see that stream? Is not that a beautiful stream of water? Why don't you go fishing?" In many cases the subject will accept the suggestion, and if he does he can be made to do almost anything while in that condition.

In some cases, however, upon opening the eyes the subject will be awakened by noticing the people around. Remember that although it is possible to put nearly everyone to sleep by the methods we have spoken of, and that good experimenters say that between eighty and ninety per cent. of all sane people can be hypnotised, the percentage of those who are

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somnambulists, that is, those who will act out suggestions that you give them, is very much smaller.

Be very careful not to give your hypnotised subject two ideas at once. Don't start to tell him he is fishing and then tell him to do some other operation without giving him the chance to go fishing, and change from one to the other in a natural way. Don't try to make the hypnotic subject act out two ideas at once. When one idea has full possession of his mind he will act out and live that, but if two are introduced he is apt to become confused and may awaken.

Suggestion is, as we have said, the keynote to hypnotism. Hypnosis is simply a condition in which a man is more ready to follow suggestion than in his normal life. The thing to be done first is always to put the subject into a deep sleep, then tell him just what you want him to do. Make your instructions brief, clear and emphatic. Tell him that when he opens his eyes he will see a certain thing or perform a certain action. Almost any illusion, or even hallucination, may be produced by simply suggesting it to the subject when he is deeply asleep. Of course the suggestions which can be made are limited only upon the ingenuity of the operator.

In many cases if a man be given a glass of water after he has been hypnotised, and told that here is a glass of whiskey and that you want him to drink it, he will take it and in a short time become intoxicated. Some subjects, although deeply hypnotised, will decline to take the whiskey, as their natural opposition to intoxicating liquors forms a sort of self-sugges-

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tion which cannot be overcome without great effort on the part of the experimenter. This element of self-suggestion is one which must be considered in all our experiments. Often there is no necessity of overcoming this, but when the necessity does arise you will find it very much more difficult to make the subject do as you wish. His self-suggestion must be overcome before he will comply with your requests.

I have had difficulty in persuading a diffident man when hypnotised to make a speech. It was quite easy to make this man believe he was some prominent orator by simply telling him so, but when I said to him: "Mr. Bryan, you see this great audience waiting for you, I want you to make an address to them," it was exceedingly difficult to persuade him to do so. His natural dislike of speaking in public formed an auto, or self-suggestion in opposition to the suggestion which I had made. These auto-suggestions may sometimes be overcome by repeated suggestions, but in one or two cases I have been utterly unable to persuade a man to do what he strongly disliked.

Professor William James, the head professor in psychology at Harvard University, in his chapter on hypnotism in his psychology, suggests a number of hallucinations which may be produced in a hypnotic subject. He says:

"Hallucinations of all the senses and delusions of every conceivable kind can be easily suggested to good subjects. You can make the subject think that he is freezing or burning, itching or covered with dirt, or wet; you can make him eat a potato for a peach, or drink a

cup of vinegar for a glass of champagne; am-

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monia will smell to him like cologne water; a chair will be a lion, a broom-stick a beautiful woman, a noise in the street will be orchestral music, etc., etc., with no limit except your powers of invention and the patience of the lookers on. Illusions and hallucinations form the pieces de resistance at public exhibitions.

The comic effect is at its climax, when it is successfully suggested to the subject that his personality is changed into that of a baby, of a street boy, of a young lady dressing for a party, of a stump orator, or of Napoleon the Great. He may even be transformed into a beast, or an inanimate thing like a chair or a carpet, and in every case will act out all the details of the part with a sincerity and intensity seldom seen at the theatre. The excellence of the performance is in these cases the best reply to the suspicion that the subject may be shamming—so skillful a shammer must long since have found his true function in life upon the stage."



▲ Stage Seance.

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CHAPTER XI.

HOW TO USE HYPNOTISM IN DISEASE.

In an earlier chapter we have told of diseases and of habits which have been cured by means of suggestion. Let us endeavor by a few illustrations to show how these cures are effected.

Supposing it is desired to cure a headache. First hypnotise the subject, get him into a deep sleep, and then slowly rub the forehead from the centre outward, pressing slightly on that portion where the pain is most acute. Say to the patient: "You will now find that your head is feeling easier. The pain is not so great as it was. The blood is flowing more freely and your pain is leaving you. Now you don't feel any pain, it is gone, gone completely." Repeat these suggestions to him several times, and then insist that when he awakens he will feel no pain whatever, he will have no headache. Tell him he will be all right. Then arouse him and you will find in nearly every case that the headache has completely disappeared.

Many habits may be cured by means of hypnosis. It is probably one of the most effective cures for cigarette smoking. Take a young man who is a slave to this habit and, after putting him to sleep, tell him that smoking is injurious to him, that it is doing him harm and he must stop it. If you expect to have an opportunity to hypnotise him several times this will prob-

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ably be enough to suggest the first day. When you hypnotise him the second time suggest to him that he cannot smoke, that the smoke of a cigarette will make him deathly sick, that he will no longer have the desire to smoke. Insist on these things and repeat them over and over again. In many cases the cigarette habit can be cured by the first suggestion, and it can almost invariably be cured after two or three.

The method to be employed in treating all these habits is the same. Simple suggestion. Build up the man's will power by suggestion and help him in his efforts to reform by making distasteful to him the thing which before was so pleasing. The illustration we have given of how to cure the cigarette habit will give a sufficient hint of how to succeed in treating drunkenness.

Suggestion may be of value in many diseases, as we have tried to show in a previous chapter. In simple cases, like nervous headaches, neuralgia, insomnia and some cases of hysteria, there is no reason why a hypnotist may not endeavor to relieve. In general it is safe to relieve pain of any kind by means of suggestion. It will not always be successful, but if it fails it will do no harm.

Hypnotism does not take the place of medicine. It goes with it. Just as the good physician uses suggestion with his patients so the hypnotist uses suggestion in a stronger form.

Hypnotism should not be used in treating any diseases but those of this common, simple nature, except upon the advice or with the consent of a physician. We must remember that the physician has spent years in studying the

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bodily make-up, although he probably knows no more, if as much, about the mental make-up as does the psychologist. There are so many complications which may enter into various diseases that it is unwise for one who has not had

special training to fit him to treat these diseases to attempt to do so.

Use hypnotism if you will in curing habits, and use it to relieve pain. Use it for nervous headaches. Use it in mild cases of hysteria. Use it to give your friend a comfortable night's sleep. But don't try to make it cure everything. It has a wide and ever growing field before it, and it can be used in every case where the mind influences the body, and these cases are much more numerous than you would suppose. But the man who would try to cure a broken leg by hypnotic suggestion is like the man who would try to set it by faith cure, and there is no better way to express our idea of his mental calibre than to say that he is lacking in ordinary common sense.

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CHAPTER XII.

HYPNOTISING ANIMALS.

It is possible to hypnotise animals to some extent. Possibly it would be better to say that it is possible to charm and fascinate animals, because in this condition suggestibility, which is the chief phenomenon in hypnosis, does not seem to be present. All that we are able to obtain in the case of animals is a certain stiffness or rigidity or catalepsy, somewhat similar to the cataleptic condition of a hypnotised subject. Most of us have heard of the experiments conducted by Fr. Kircher, a Jesuit priest, who in 1846 made a number of experiments upon cocks and hens. The discovery of these phenomena was made ten years earlier by Daniel Schwenter.

Fr. Kircher took fowls, tied their legs together, placed them on the ground and drew a chalk line from their beaks. If he did this and held them there a moment, after he released them the birds remained perfectly motionless.

It is a well-known fact that if the head of a hen is placed under its wing and the bird gently rocked to and fro, it apparently goes to sleep. This method is sometimes employed in causing the hen to sit, or in transferring her nest. It is claimed that after the hen is put to sleep in this way she will remain contentedly in the nest on which she has been placed.

It is said that snakes can be hypnotised, and that they can be fascinated by the means of music, and sometimes it is possible to induce the snake to imitate in a way the movements of the charmer.

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Mr. Vincent says: "It is not easy to catch a pigeon by going straight up to the bird, but it can be quickly taken by walking round and round it. The pigeon turns upon itself, so as not to lose sight of the person who is trying to catch it, and can soon be seized. This has been quoted as hypnosis. The obvious explanation seems to be that the bird was rendered giddy and dazed."

Romanes is responsible for the statement that many insects, spiders and cray fish will, the moment they are alarmed, fall into a state of insensibility, but they recover as soon as the exciting cause is removed.

Some think that animals can be hypnotised in a direct ratio to their ability to concentrate their attention, and as a rule this is more marked in the domestic than in the wild animals.

This cataleptic state in animals may be induced by constant pressure or by the excitation of particular nerves. It is very difficult in many cases, and with the larger animals almost impossible on account of the resistance which they make at the beginning.

Mr. Vincent claims that by means of nerve inhibition he has been able to make cataleptic cats (rarely), dogs (less rarely, but not often), pigeons, canaries, fowls, starlings, cray fish, frogs, snakes, toads and lizards.

This hypnotism of animals, if it can rightly be called hypnotism, has in it very little of scientific value. The experiments are interesting, as showing what effects can be produced in the lower animals by the tiring of the nerves, but that is about all the value it has to us.

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CHAPTER XIII.

PERSONAL MAGNETISM.

We have shown that it is quite possible to produce all the ordinary hypnotic phenomena without the necessity of belief in any influence of the operator over the subject, and yet many writers to-day still believe that there does exist in some cases what may be termed animal magnetism.

We know that some men have more influence than others. We know that some attract and some repel. We know that one orator seemingly exercises a strange and subtle influence over his audience, while another who is just as bright, uses just as eloquent language, makes fully as good an appearance on the platform, has a voice just as pleasing, cannot move the people; there is an indescribable lack of something. What is it? Some writers tell us it is animal magnetism. What do we mean by animal magnetism? We do not know. The old

theory that there was a magnetic fluid in each individual, and that some possessed more of this than others, is certainly exploded.

Why is one man more successful in business than another? Why does one man influence us more than another? Is it because he possesses some subtle power, or is it because he knows what to do and does it at the right time? There is certainly a something in which men differ, that enables one man to be successful where another fails.

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Let us not quarrel about terms. If animal magnetism expresses to you a subtle something which gives one man an influence which another has not, I am satisfied to have you use the term. If I believe it is telepathy, if I think it is a transference of thought directly from my mind to the minds of those about me, don't dispute with me as to my use of terms. There is something; we all know that. What it is does not concern us nearly so much as does the other more practical query—can we acquire it.

Let me make a few suggestions. Do you wish to be successful? Do you wish to acquire this power of influencing others? It will be easier for some of you than for others, there is no doubt of that, and yet, let us see if we cannot suggest one way in which we can help ourselves to gain this power.

When you talk to a man look at him; don't blink your eyes. It isn't necessary to stare. You may look at his forehead, or at the tip of his nose, or directly into his eyes; but if you are endeavoring to get him to accept some proposition you are making don't look away. It may not be necessary to look at the man during the whole of a long conversation, but before you reach the point you wish to make, and while you are making it, keep your eyes on his. You will be surprised to find what a result this has upon the decision of the party with whom you are talking. Compel the other man to look at you if you can. If he turns his eyes away, you may sometimes, by turning yours to one side, cause him to look back at you again, then you may catch his eyes and make your point before he turns away the second time.

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If someone is talking to you and trying to convince you, or persuade you, it is better that you should not look at him all the time. When you are looking at him you don't have the opportunity to consider, to think, to pause, to weigh, that you do when your attention is not so intently fixed upon him. When you take your eyes from his don't look down, but to one side. You will probably be surprised to find how much can be accomplished by the proper use of the eyes in persuading and convincing those with whom we talk.

CHAPTER XIV.

THOUGHT TRANSFERENCE.

Is there such a thing as thought transference? By this we mean, is it possible for impressions to be conveyed from one mind to another without language or any other form of expression? Can mind communicate directly with mind?

Many experiments have been conducted, and many incidents have been related, tending to prove that such communication is possible. For some years the Society of Psychical Research has been conducting a series of carefully arranged experiments, the general result of which would seem to show the probability of some direct mode of communication between mind and mind. It is certainly too much to assert that the transfer of thought from one mind to another has been proven; but, on the other hand, it is unwise for scientists at the

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present time to contend that such communication cannot or does not take place.

We have all read, and possibly have experienced in our own life, circumstances where one individual hundreds of miles away seemed to learn of the trouble which at that moment threatened another. There is a great mass of testimony of people who have been mentally disturbed at the time of a death of some close friend who was absent from them, and of whose sickness they knew nothing. Whether these occurrences may all be explained as "coincidences" is a matter for consideration, but there seems to be such a mass of facts that this explanation will not answer for them all.

The claim has been made that if one of the parties is hypnotised the transfer of thought from one to another is easier than if the hypnosis is not present. This may be true; it certainly has not been proven. The entire field is open. Investigations of many kinds should be conducted. Without expressing any opi ion as to the truth or falsity of the claim that one mind does directly influence another we will try to give some explanation of "mind reading," as

it is generally termed; what has been attempted and what has been accomplished.

The "mind reading" with which we are most familiar is probably that in which the performer or operator asks someone in the party to think of some object in the room they wish him to find. He then asks them to take hold of his hand or wrist, to think intently of where they wish him to go. In a moment he will dart off and probably go directly to the object and

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hold it up to the gaze of the astonished audience. Is this mind reading?

The principle is precisely the same when a committee of prominent citizens appointed by a professional mind reader go through a town and hide some small object in a room in some hotel. They then return by a different way to the house where the mind reader is staying. He is blindfolded, gets into a carriage with the committee, one of whom holds his wrist, and drives through the crowded streets over the exact route the committee took to the hotel, and then goes to the room, finds the object, and drives back to the starting point over the course which the committee originally took. The committee certainly did not assist him voluntarily. They simply did as they were told; thought of where he should go. Does this seem like mind reading?

One other incident will be enough to completely illustrate these phenomena. The mind reader goes to a combination safe which is locked. He asks someone who knows the combination, which may be known to one or two people only, to take hold of his left hand and then with his right he proceeds to open the safe. By a proficient operator this can be done in nearly every case.

To the mind untrained in these matters there certainly seems to be some communication here between mind and mind, or some trickery. The statement is without doubt true that there is no intentional deception on the part of those who know the location of the objects. It is equally true that it is not in any sense of the term an example of genuine thought transfer-

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ence. It is the method that was used by Bishop and other noted mind readers, and is an art which anyone can acquire with a little practice. It depends on the principle that it is easier to go toward a thing about which we are thinking than to go away from it. The subject unconsciously acts differently when the mind reader is doing the right thing, or going in the right direction, than when he is making a mistake.

All so-called "mind reading" where there is physical contact of any kind is probably nothing more or less than muscle reading. There may be no intentional deceit on the part of either the operator or the one who does the thinking; but it is nothing but muscle reading pure and simple, and, with practice, can be acquired by anyone.

Another class of experiments with which many of us are familiar are those generally seen in public exhibitions, in which the operator walks about through the audience, and the subject, blindfolded, remains upon the stage. Any person in the audience has the privilege of handing the operator an object, which may be a watch, or a coin, or a glove or a penknife. No matter what it is, the operator looks at it intently for a moment and then asks the subject what it is. The subject replies, and almost invariably replies correctly.

Is not this mind reading? Most decidedly not. There is an ingeniously constructed code by means of which the operator by his question is enabled to tell the subject exactly what the object is.

Supposing, for an illustration, the object should be a watch. The operator would say:

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"Please tell me what this is." The subject would reply, "A watch," and from the question asked could not reply anything else.

The operator says: "Look and see if you can tell me the metal." "Silver," replies the subject.

"Yes," says the operator, "see if yo can tell to whom it belongs." "To a gentleman, and it has a double case."

Yes" says the operator, "and can you tell me the name of the maker." "Certainly," replies the subject; "it is a Waltham watch and it is also stem-winding."

"Do you know the number," says the operator. "Look and see. Well? Are you going to tell me?" Almost instantly the subject replies, "42,118."

Each of these questions means one thing and one thing only. There is no possible way to make a mistake. It is simply a code, and a code which it is practically impossible to detect.

One other method has been employed with a great deal of success. The assistants go through the audience and distribute pieces of paper to any who wish them, and also hand

them little pieces of heavy cardboard, which may be used as a support for the paper. The people in the audience write on the paper any question they wish, fold it up and put it in their pocket. After this has been completed the assistants collect what paper remains with the cordboard rests and return them to the stage. In the meantime another portion of the performance is going on.

Shortly afterwards the lady who is to per-

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form the test is brought up on the platform and blindfolded. Her husband, in the case to which I refer, pretended to hypnotise her. She then said "so and so asked such and such a question. To him I would reply in such and such a manner." In this way she would give correctly, with the initials of the party making the query, possibly fifty or one hundred questions. In every case where she gave the initials the party asking the question would stand up and invariably acknowledge that what she said was just what they asked.

This created a remarkable sensation. Here were questions written on pieces of paper and kept in possession of the writer, and yet the lady on the platform seemed to know exactly what had been written.

The secret is a simple one. The fact of the case is that the pieces of cardboard passed around and used for rests were double, and had inserted in them a piece of carbon paper. Every word that was written on the paper which was put in the writer's pocket was also written on the inside of the cardboard rest. These were seemingly put on the platform, but in reality were taken to the lady in her room back of the stage, and the questions were committed to memory by her. Instead of being what it seemed to be, a feat of thought transference, it was nothing more or less than an exhibition of accurate memory.

In searching for genuine thought transference, then, we must be careful we are not deceived. The subject must be so arranged that there is no possibility of physical contact; care must be taken that the subject does not detect

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the answer through gestures or slight noises which may be inaudible to the other observers. Without doubt many hypnotised subjects can be made to see and hear things while hypnotised that they did not seem to be able to perceive in their ordinary existence. The senses in a hypnotic subject can be made more acute, and this is a danger which needs to be guarded against in all our experiments.

The claim has been made by some writers that it is possible to develop this power of thought transference, but the entire subject is one in which as yet there have been no definite or positive results. There may be elements of truth in the claim, but it is by no means certain that we can experimentally produce any such communication between mind and mind. But in these days of the Roentgen rays and wireless telegraphy it would be a foolhardy man who would say that there is no possibility of communication between mind and mind without the aid of physical forces.

Let us search for thought transference if we will. It is an interesting field, and may in the near future bring rich rewards to the patient student, but let us be careful to eliminate all possible sources of error from our experiments, remembering never to accept an abnormal or unusual explanation for any phenomena until we have disproven the normal or usual ones.

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CONCLUSION.

In the preceding pages we have endeavored to tell what hypnotism is, what it can accomplish, and how you could learn to hypnotise. The author would be glad to enter into communication with any who are interested in the subject and who have any questions which they have not found answered in the book.

Remember in your experiments one thing—hypnotising is simply placing the subject in a condition where he is more willing to accept suggestion than in his normal life. After you have placed him in that condition, and that in most cases is very simple, the matter is in your own hands. You must use your own judgment, your own common sense, as to what suggestions are best to make. One man will succeed and another one fail as a hypnotist because one man knows what to suggest and the other man does not. This is a subject upon which it is impossible to give advice. Cases differ, and suggestions which would be proper for one case would be highly improper in another.

In conclusion let us make one suggestion. Hypnotise to do good, not harm. Men can be influenced to be better, to feel better, by means of hypnosis. There is no harm in inducing illusions and hallucinations in order to show the working of hypnotism, but do not stop there. If you use it, employ it to better the condition of other people.

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Granddad's Wonderful Book of Magic

By Kurt Saxon

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