

perchloride ($FeCl_3$) dissolved in alcohol (CH_4O), into each of the other three tumblers. The two remaining tumblers have nothing in them.

You are now ready to do the trick and to ask the audience to say whether they want wine or water (H_2O). If wine is called for, you fill up one of the tumblers that has tincture of iron in it; if water (H_2O) is named, fill up one of the tumblers that has nothing in it; but in any event always fill the tumbler that has the oxalic acid ($H_2C_2O_4$) in it.

The instant the water (H_2O) from the pitcher comes in contact with the tincture of iron it will turn the color of wine. When you pour back into the pitcher the contents of the three tumblers it will color the water (H_2O) you have poured in from the other two tumblers, and you can then pour out all wine.

To change this back into water (H_2O), pour the oxalic acid ($H_2C_2O_4$) solution in the last tumbler into the pitcher first and then pour in the wine; the instant the iron of the latter comes in contact with the acid, a reaction takes place which precipitates the iron, and so leaves the water (H_2O) as clear at the end as it was at the beginning. The arrangement is clearly shown in Fig. 154.

Changing Water into Ink, and Vice Versa.—The Effect. You show a decanter half full of water (H_2O), as shown in Fig. 155, and one half full of ink, then cover each of them with a borrowed handkerchief and give them to two spectators who are some little distance apart, to hold. Now with a few magic passes you command the water (H_2O) to change into ink and the ink to change into water (H_2O), and when you pull the handkerchiefs from the decanters

the audience will see that these transformations have truly taken place.

The Cause. This is a modification of the Wine and Water Trick described above, but instead of using the chemicals

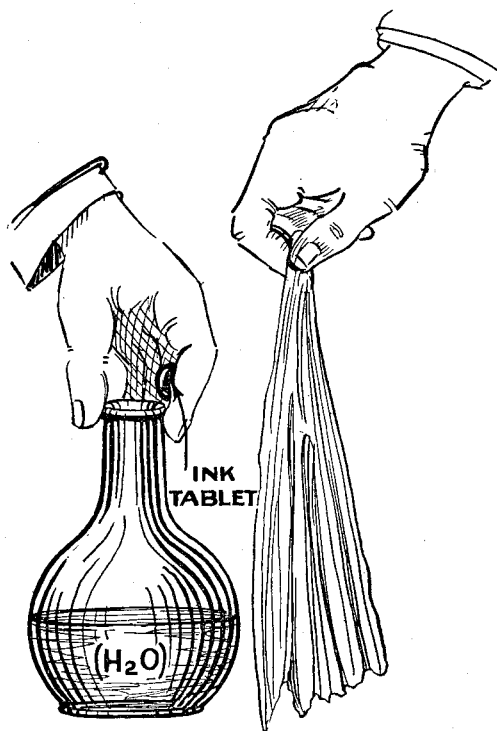


FIG. 155.—Changing Water into Ink.

in a loose state you use them in tablet form, and these you can buy of dealers in magical apparatus and supplies. To change the ink in the decanter into water (H_2O), you need only to drop in an *acid tablet*, and to change the water (H_2O)

to ink in the other decanter you simply drop an *iron tablet*, or *ink tablet*, as it is called, into it. To prevent the tablet from being seen by the audience, you clip it between your index and middle fingers, as shown in Fig. 156, and as you hold the decanter by its neck you drop the tablet in just as you throw the handkerchief over it with your other hand.

The Blushing Bride.— **The Effect.** For this trick you draw a picture of a beautiful girl — or if you can't draw

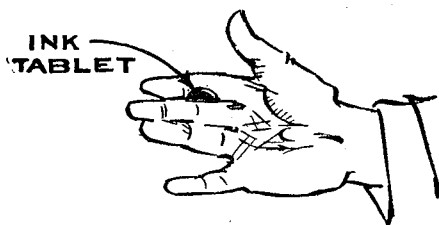


FIG. 156.—How the Ink Tablet is Held.

a beautiful girl, get an artist friend to do one for you— and this you show to the audience. Then lay it on the table and rub it gently with your finger-tip, and when you show it again, the girl will be seen to be blushing like a sweet graduate of 17, or thereabouts. In a moment or two she will recover and the blush will disappear.

The Cause. Before you show the picture, paint either the cheeks or the whole picture with a solution made by mixing 1 tablespoonful of methyl alcohol (CH_4O) or wood alcohol, as it is called, in a like amount of water (H_2O) and add just enough phenolphthalein ($C_{20}H_{14}O_4$) to color it. The color will not show on the picture until the latter is

brought into contact with the fumes of ammonia (NH_3). To do this, you dampen a sheet of blotting paper with liquid ammonia (NH_3), and it is on this that you lay the picture under the pretext of rubbing it.

The Magical Atomizer.—The Effect. You show half a dozen white feathers to your audience and then stick them into a frame or holder, as in Fig. 157. This done, you go among the spectators and spray them with *eau de Cologne*

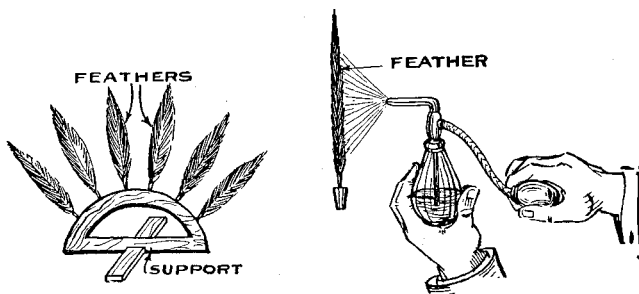


FIG. 157.—The Feathers in Their Support. FIG. 158.—Spraying a Feather.

from an ordinary atomizer, just to prove that you really have perfume in it. You can ask them now to call out the colors they want you to make the feathers. One will say red, another blue, a third green, and so on, and as each color is named, you spray a feather with the atomizer, as shown in Fig. 158, and it instantly turns the color that has been called for.

The Cause. Before beginning the trick fill the atomizer with methyl alcohol (CH_4O) and put just enough *eau de Cologne* in it to kill the odor of the latter and to make it smell like real perfume. The next thing to do is to dust

each feather with a different-colored aniline dye, or *diamond dye*, which you can get at the drug store. Shake the feathers after you dust them with the dyes, and the particles left on them cannot be seen. Now the instant the alcohol (CH_4O) strikes the dye on the feather it dissolves it, and the feather becomes beautifully colored.

The Rainbow Liquid.—The Effect. This trick is called the *rainbow liquid*, for the very simple reason that from the way it acts it is clear you must have broken off the end of the rainbow in it. First you show a tumbler perfectly empty, of course, and then you fill it with water (H_2O) from another tumbler. As soon as you pour the water (H_2O) from the second tumbler into the first one, it turns green, not necessarily from envy, then it changes slowly to blue, this is transformed into violet, next it takes on a purple color, and finally it settles down to red. The transformation of one color into another without the glass being touched in any way is very mystifying.

The Cause. To do this trick, powder 1 tablespoonful of manganese dioxide (MnO_2) and 3 tablespoonfuls of potassium nitrate (KNO_3) in your mortar, and then put them into a sand crucible. Bring this mixture to a red heat in a stove without covering the crucible, and potassium oxide will be formed.¹

When the compound is cold, put a few grains of it secretly into a tumbler, and then you are ready to do the trick. It is a good plan to experiment with different proportions of the potassium nitrate (KNO_3) and the manganese dioxide (MnO_2), and also to try warm water (H_2O) instead of cold.

¹ This you can buy already prepared.

Breathing a Picture on Glass.—The Effect. You show a perfectly clean sheet of glass, say 4 by 5 inches on the sides, to your audience and let the members examine it as closely as they wish. Now breathe on it, and a well-defined picture will appear on the surface, as shown in Fig. 159. In a moment the picture will disappear even more mysteriously than it came.

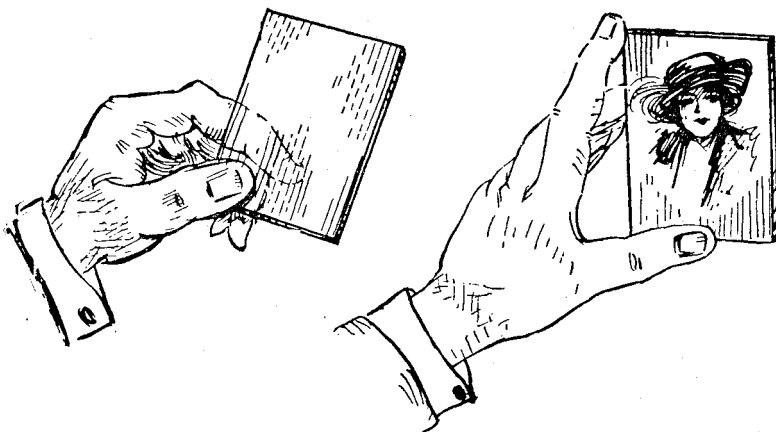


FIG. 159.—Breathing a Picture on Glass.

The Cause. This trick is simply an experiment with etched glass. To do it, get a sheet of glass that is perfectly clear and with a new steel pen draw a picture on it with hydrofluoric acid (HF), see Chapter VII. Let the acid remain on the glass for 8 or 10 minutes and then wash it off and dry the surface with clean cloth. The picture will be invisible even when the glass is examined closely, but it will be made visible the moment you breathe on it.

To get the right depth to the etching for it to be invisible when the glass is dry and yet stand out clearly when you breathe on it, you should make half a dozen of them and let the acid remain on each one a different length of time.

NOTE:— *Be very careful not to get any of the acid on your fingers.*

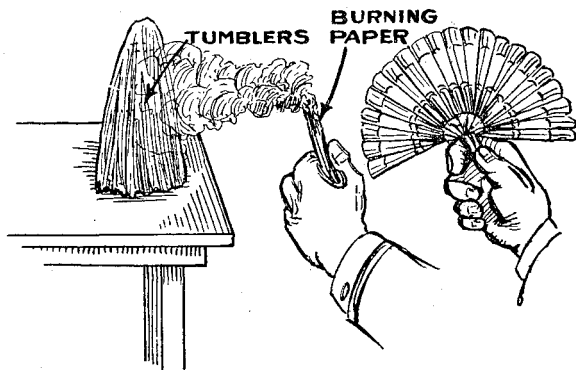


FIG. 160.—Passing Smoke Invisibly into the Glass Tumblers.

Passing Smoke Invisibly into a Tumbler.—The Effect. You show two empty glass tumblers to the audience, then place them mouth to mouth, throw a borrowed handkerchief over them and set them on a table or, better, let an assistant hold them. This done, you fold up a strip of paper and light it, and as the smoke rolls up and away from it you fan it toward the tumblers, as shown in Fig. 160, and explain as plausibly as possible how the atoms of smoke are wafted across the intervening space and on coming in contact with the tumblers pass through the pores of the glass

and so find their way inside. To prove it, you remove the handkerchief, and the tumblers will be seen to be full of smoke, and on taking the top one off, the smoke will rise in a cloud, as shown in Fig. 161.

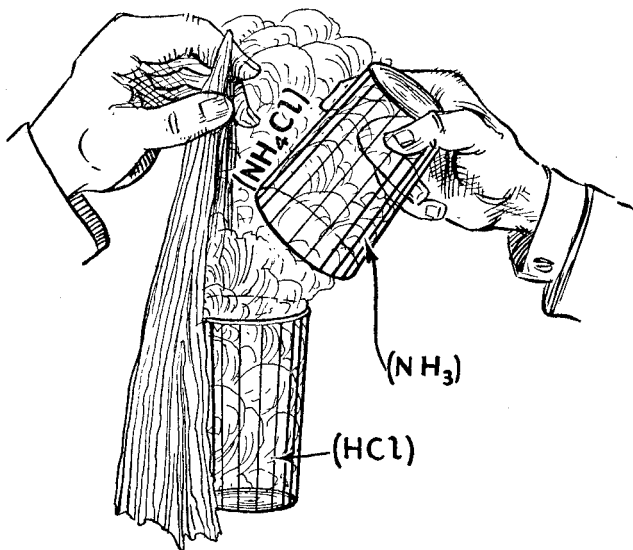


FIG. 161.—Showing the Smoke in the Tumblers.

The Cause. To do this simple but astounding trick, put a few drops of hydrochloric acid (HCl) into one of the tumblers and turn it rapidly round and round so that the acid will cover as much surface as possible. Now put a few drops of concentrated liquid ammonia (NH_3) in the other tumbler and turn it rapidly round.

In this way the acid and the ammonia will dry on the surfaces of their respective tumblers and you can show them

as being perfectly empty. Now when you put the tumblers together, the fumes of the acid and the ammonia will come together, and form ammonium chloride (NH_4Cl), which has the appearance of real smoke.

Elixir Vitae, or the Artificial Production of Life.—The Effect. You show a few grains of coarse sand and drop them into a soup-plate filled with water (H_2O). Instantly they will become to all intents alive, and will move and whirl about like some water insects, as shown in Fig. 162. Now touch the surface of the water (H_2O) with the end of

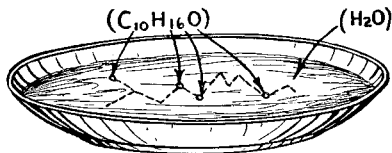


FIG. 162.—Elixir Vitae, or the Artificial Production of Life.

your wand, a lead pencil, or your finger, and they will lose their lifelike qualities and become as motionless as the bits of inert matter they were at first.

The Cause. The secret of this trick lies in the fact that the so-called grains of sand are really particles of camphor ($C_{10}H_{16}O$), and when this comes in contact with the water (H_2O) a reaction takes place in which hydrogen (H) is set free, and this makes the camphor ($C_{10}H_{16}O$) move about in a lively manner. The end of your wand, the pencil, or your finger, has a little grease on it, and when this comes in contact with the water (H_2O) it prevents it from acting on the camphor ($C_{10}H_{16}O$), and hence it gives up its false life.

How to Make Secret Writing Inks. Secret writing inks, or *sympathetic inks*, as they are generally called, are invisible when they are dry but become visible when they are acted on by light, heat, and various forms of electromagnetic disturbances.

A Heat Sympathetic Ink. Dissolve a very little cobaltous oxide (CoO) in hydrochloric acid (HCl), and deep red crystals of cobaltous chloride ($CoCl_2$) will be formed, or you can buy the latter compound already prepared, which is somewhat easier. Now dissolve these crystals in a little water (H_2O) and write with the solution just as you would with ordinary ink, but use a pink-colored paper. The cobaltous chloride ($CoCl_2$) ink will become invisible as soon as it dries, but to read what you have written it is only necessary, to warm the paper, and the ink will take on a blue color; as soon as it is cold it will take on a pink color.

How the Ink Works. The crystals of cobaltous chloride ($CoCl_2$) have a great attraction for water (H_2O). Now when the ink made of them dries on the paper, minute crystals of the compound are formed and these attract the water vapor in the air, which turns them a slightly pinkish tint, and they are practically colorless on the background of pink paper. But when they are heated, the *water of crystallization* is driven out of them and they then turn blue, and so stand out in relief on the pink paper.

A Light Sympathetic Ink. Dissolve a small crystal of silver nitrate ($AgNO_3$), or *lunar caustic*, as it used to be called, in a test tube half full of water (H_2O) and write with it on a sheet of white paper, using a sharp toothpick for a pen. When the ink is dry, the writing will be invis-