

## SIDE SHOW SCIENCE.

Those talking decapitated persons that are so often seen in various kinds of shows are one of the sights that always prove equally successful. They have already astonished a number of generations past, and will probably prove just as attractive to those that shall succeed our own.

These decapitated persons are seen under different aspects according to the tricks employed to produce the illusion, and which all have the same aim in view, that is, to cause the appearance, on a table or tray, of a living head with no visible body. This illusion may be produced in several ways. At the Foire aux Pains d'Epices of 1880, one of the side shows exhibited a decapitated person as follows: The small stage, which was draped with a black fabric covered with silver spangles, was feebly lighted by a sort of night lamp attached to the ceiling. To the right and left were seen panoplies of skulls and cross-bones. The spectators were in darkness. In the middle of this grim place a tray was suspended by three small chains at about three feet from the floor, and upon this tray there was a living head—that of a young man who an instant before had shown himself to the public. His body lay extended out under the tray, and his head talked, drank, and smoked, while his arms and legs moved. Both, although quite distinct, were perfectly alive.

The trick by which the illusion was obtained consisted in this: The body belonging to the apparently decapitated head was hidden behind, under the tray, and was completely invisible owing to the shadow of the latter, and the partial darkness of the stage. The apparent body was that of another person of exactly the same height, size, and dress, whose head was in the dark and further hidden by black cloth.

At present there is being exhibited at Paris, in what is called the "Théâtre des Merveilles," another example of a decapitated person. A young girl first appears before the audience, accompanied by an executioner clad in red and armed with the traditional ax. Then the curtain drops, but rises in a few moments, and shows the stage a little darkened. Near the executioner, however, can be perfectly distinguished the girl's head lying on a round table at the back of the stage; her body is seen lying on a bed at a few feet from her head, and at her side is the fatal block that has served for the execution. The effect is dramatic. The trick employed is the same as the preceding, in that it requires two persons of the same size wearing the same costume. One of these—the one who showed herself to the public—makes the head, her body being hidden behind the cloth in the rear of the stage. The other, who makes the body, has her head bent far back and hidden in a sort of box, a false cardboard neck contributing to increase the illusion. Other processes, which in our opinion are more interesting, are those obtained by the aid of mirrors. We shall now speak of an example that may frequently be seen at fetes in the suburbs.

Upon entering the little booth we perceive a black wooden table having four legs. Over one of its angles there is thrown a piece of red fabric whose other end may be perfectly seen hanging from the opposite side. The floor, which is strewn with straw, is continuous to the back of the stage. There is nothing under the table, then—there can be no doubt of it. Still, upon this table there lies on a tray the head of a young girl which smiles and answers questions that are asked it. The ingenuous spectators are almost persuaded that the girl has no body; others ask themselves where it is hidden; and very peculiar suppositions are indulged in on all sides. In a word, the illusion is perfect.

When, through favor or money, we enter the side scene and look at the table sideways (Fig. 1), we are almost ashamed of having allowed ourselves to be deceived by so simple a trick; for the apparatus consists, in fact, only of a mirror fixed to the two side legs of the table. This mirror hides the body of the girl, who is on her knees or seated on a small stool, and reflects the straw which covers the floor so as to make it appear continuous under the table, and likewise reflects the front leg of the table so as to make it appear at an equal distance from the other side and thus produce the illusion of a fourth leg. It also reflects the end of the red fabric hanging in front of the table, and thus makes it appear to hang down also from be-

hind. It should be remarked that during the exhibition the spectator stands only a few inches away from the table and head, being separated therefrom by a wooden railing from which hangs a curtain reaching to the ground. Such proximity of the spectator and actor would seem to favor a discovery of the trick; but, on the contrary, it is indispensable to its success.

Were the spectator placed at a distance, and did the curtain not exist, he might by stooping see his legs reflected in the mirror. The curtain, then, prevents any one from looking under the railing, and the rays that might reach him from the curtain, by being reflected in the glass, are lost beneath the table, owing to the proximity of the latter.

As may be seen, the trick is easily understood, and, more-

and announces at the end of each representation that those who desire to know the secret of the half-woman may remain at a private seance for a trifling additional sum. It should be remarked that a very small number of the ordinary patrons of fairs will consent to give a franc or fifty centimes to satisfy their curiosity; and the majority of them are content to make more or less strange suppositions. The private seance, however, is very interesting. The showman first descants on the accumulation of difficulties that had to be conquered to produce the illusion, and then, at a sign from him, the girl raises the stool and shows that it is formed only of a hollowed out disk whose supports are connected by two mirrors, that make with each other an angle of 45 degrees. These mirrors rest on the top of the table,

which is decorated with regular designs in mosaic, and reflect the latter in such a way that they seem to continue uninterruptedly under the stool. The table presents an analogous arrangement, its side legs being connected with the middle one by two mirrors (Fig. 2). These mirrors reflect not only the designs of the carpet, which by their continuity produce the illusion of a vacancy, but also two table legs located on each side behind the railings. The mirror to the left transmits to the spectators on that side the image of the leg placed on the left, and this image seems to them to be the fourth leg of the table. The mirror to the right plays the same role with regard to the spectators on that side. These mirrors, in addition, hide the lower portion of the girl's body.

Such is the secret of the living half-woman as represented in the accompanying Fig. 3. The principle upon which the effects above described are based has been utilized in several fairy scenes. Thus there may have been recently seen in *Madame le Diable*, at the Renaissance, an analogous trick, and, as with those just explained, the means by which it was performed greatly puzzled the majority of the spectators.—*La Nature*.

## Gas for Nothing.

Scientific prophets have foretold that a day will come when the "residual products" resulting from distilling coal will be so valuable as to reduce the price of gas to a mere nothing. That good time has not arrived, it must be confessed, but if we may believe the confident assertions of a gentleman at Chester, there is already in existence an appliance which goes a long way toward fulfilling these predictions. He claims to know a peculiar description of oven for making coke which, without the help of a high chimney, enables those who use it to drive steam engines without any expense for fuel. Every ton of coal consumed in the oven yields coke worth 7s., and tar and ammonia worth 4s., in addition to 14,000 feet of gas. If, therefore, says the *London Globe*, the first two products are sold, the price—11s.—more than pays for the slack coal from which they were derived, as well as for labor, wear and tear, and interest on the capital sunk in plant.

The manufacturer consequently gets 14,000 feet of gas for nothing from every ton of coal subjected to the process, and this he can use instead of fuel to generate steam. It is certainly a bold claim to put forward, but it may, perhaps, be justified by the present prices of coke, ammonia, and tar. If, however, these ovens come into general use, the market value of such products will assuredly fall heavily in proportion to the immense enhancement of supply, and in that case the prices fetched would not cover the cost of materials and labor.

## Rapid Formation of Mineral Veins.

Dr. Fleitmann has lately remarked that the formation of mineral veins is far from requiring the length of time generally supposed to be necessary. About two years ago he filled up a trench with common clay containing iron, and having occasion to again clear this trench he found, to his great surprise, that the clay had entirely changed its character and had become white; while at the same time it was traversed in several directions by fissures one-twenty-fifth to one-sixteenth of an inch thick, which were filled with compact iron pyrites. Dr. Fleitmann supposes that the oxide of iron contained in the clay, coming in contact with water impregnated with sulphate of ammonia, became transformed into sulphate of iron.



Fig. 1.—EXPLANATORY OF THE TALKING HEAD.



Fig. 2.—EXPLANATORY OF THE HALF-WOMAN.

over, it is one of those that gives the best results, since it deceives the public the best. Besides, it has the merit of age, for it may almost be said that it has existed from all times. In the seventeenth and eighteenth centuries it was one of the successes of the St. Germain Fair. It is one of those side show curiosities that may almost be qualified, without contradiction, as *classic*.

*The Living Half-Woman.*—The living half-woman is a very ingenious improvement on the decapitated individual, and exhibits the peculiarity of being unique, for there is but one example of the kind in France. This mode of illusion is carried on by its inventor, who is making all the capital possible out of it. The booth in which it is exhibited is of small dimensions, and its front is covered by a canvas representing a woman possessing only the upper portion of a body, placed on a table and surrounded apparently by physicians who are examining her with interest.

If we allow ourselves to be persuaded to enter, we perceive, when the curtain is drawn aside, an elegant little room decorated with flowers and lights and hung with curtains and tapestry. In front there are two railings, and the floor



SCIENTIFIC ILLUSIONS.—THE LIVING HALF OF A WOMAN.

is covered with a carpet. In the center is seen a small table, on which rests a sort of three-legged stool supporting a cushion and the half body. The latter is the body of a young woman apparently cut in two just beneath the thighs. Naturally, this young person shows that she is alive by moving her arms and head, and speaking and singing. Now, as we can see the four legs of the table and can perfectly distinguish the space under the stool, and that too in full light, we naturally ask by what means the lower part of the girl's body is hidden. The showman comes to the rescue,

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