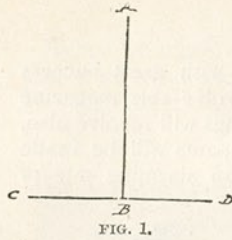
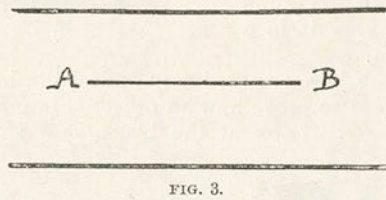


SOME OPTICAL ILLUSIONS.

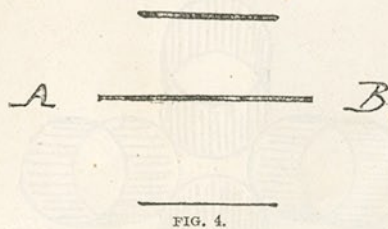
BY WALTER DEXTER.



THAT seeing is *not* believing we will endeavour to show you by means of a few of the many optical illusions which are to be found around us every day. The eye, that most wonderful portion of our anatomy, though at the majority of times most exact, is yet ever leading us astray, and causing us to believe the things which are not. There is, perhaps, nothing more deceptive than a straight line. Look at Fig. 1. Here we have a vertical and a



horizontal line, both of the same length. "No, surely not!" you will say. "A B is certainly longer than C D." You are deceived; just measure them. The same it is with our next illustration—A C and C B are equal, yet A C, being divided into many smaller parts, appears to the eye to be the longer. We have several more instances of deception in straight lines. Take Figs. 3 and 4, for example. A B is in each case the same length, yet in Fig. 3 the two long lines above and below it dwarf our line A B,

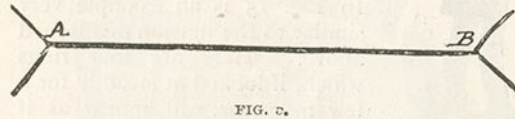


and make it appear much shorter than in Fig. 4, where it is bounded by two lines much shorter than itself.

A very similar illusion to this is shown by Figs. 5 and 6, where again A B in each case are equal; but whereas in the former the arrowheads are stretching out the line and making it appear longer, yet where the arrowheads are

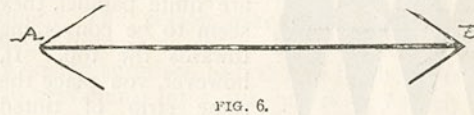
compressing the line in Fig. 6 it makes it appear shorter.

A thin man always appears to be much taller than a stout man, and in Figs. 9 and 10 we have an illustration of this, but in reality the thin man



is only as tall as the fat man, as you will see if you measure them both. The same it is with a thick and a thin line, as shown by Figs. 7 and 8, both of which are the same length.

We will leave straight lines for the present to examine Fig. 11, which, like the thin man, appears to be longer, because it is more elongated, than it is broad; but it is made in



an exact square. If the drawing be turned round—that is, with the four points to the right and left—it still has the same appearance of being broader than it is high.

Euclid tells us that parallel lines, if prolonged in any direction, will never meet. The three parallel lines in Fig. 12 appear to be going in the right direction to directly contradict this universally accepted statement. But as a ruler will prove, they are parallel, being at directly opposite angles, are the sole cause of this further optical illusion with reference to straight lines.

The cross bars with a further illusion, which upon in Fig. 13. The block A does not appear to be continued in B; yet it is, for the line *ab* is a perfectly straight one. Our eye is turned, as it were, by the block in the centre. Fig. 14 gives us another example of this. Here is a block with a line (A B)



passing through it. A B appears to be a straight line, but it is not, as can be proved by passing a ruler along it, when the straight line will be found to be A b.



FIG. 9.

I suppose many of you know what an ærometer is; you will very often see one on top of a flagstaff, consisting of four cups which revolve with the wind. If you gaze steadily at them for a few moments they will appear to turn and revolve in the opposite direction. This is a very remarkable illusion, and should be tried by all who read this article. In Fig. 15 is an example very similar to the illusion mentioned above. Here are four rings which, if looked at steadily for a few moments, will appear as if they have changed, and turned inside out.

No doubt many of you have seen Fig. 16 before, but it is worth repeating here. No. 1 is a strip of paper tinted from black down to white. When placed at a distance of about 3yds. it will be seen that, although the longer sides of the strip are quite parallel, they seem to be converging towards the top. If, however, you place the same strip of tinted paper at the same distance from you on a sheet of paper tinted



FIG. 11.

dark at top and light at bottom, as in Fig. 2, the strip will resume its shape, that of a perfect rectangle.

Fig. 17 is not the only optical illusion which has been used for advertising purposes. The

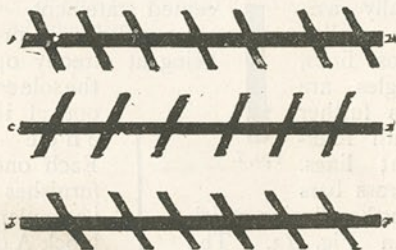


FIG. 12.

question asked is, "Which is the larger of the two pictures?" Cut them out, and you will be surprised. Messrs. Pears, of soap fame, have

used the rings in Fig. 18 with great success for advertising. If you revolve this magazine in your hand, the two big rings will revolve also, and the truck and its occupants will be made to appear as if moving at an alarming rate of speed. An excellent optical illusion picture, but which owing to lack of space I am unable to illustrate, was drawn by an Italian artist to represent two different subjects — one, two children playing with a puppy; the other a death's head, which will appear if you hold the picture a yard or so from you, or view it in a dull light.



FIG. 10.

Another is not an ordinary optical illusion, it rather goes to prove how an object is imprinted on the eye. Look at the black spot in the

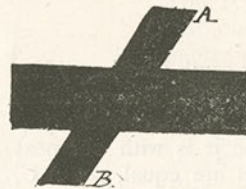


FIG. 13.

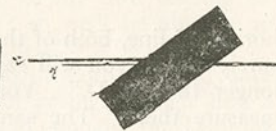


FIG. 14.

centre of a circle until your eyes are rather tired; then look to the ceiling, and after a second or two you will see the black figure on

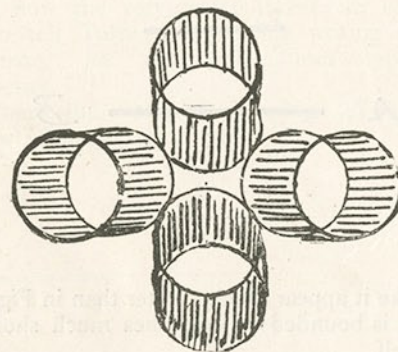


FIG. 15.

a white ground. This is certainly an extraordinary optical illusion, since you see on the ceiling an object which is not there

When you are reading, are you aware that you only read the top half of the printing? In the letter S, for instance, you would

it upside down and you will see that you have always been mistaken.

An old trick to prove how deceptive is the size of anything is to show somebody a silk or "top hat," and ask him to indicate on the

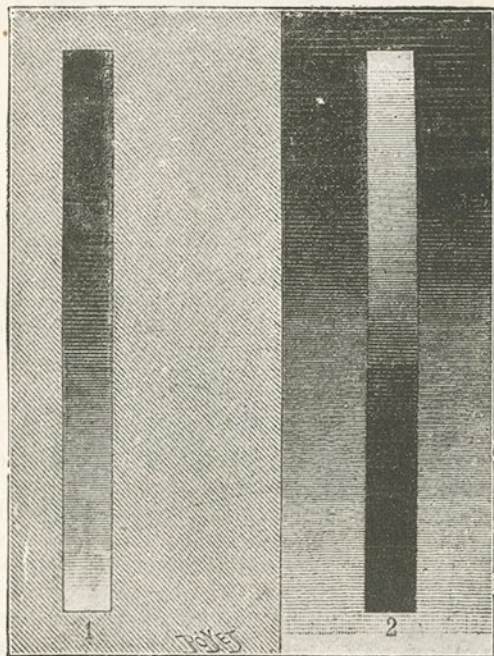


FIG. 16.

generally say that the top half was as large as the bottom half of the letter. But turn

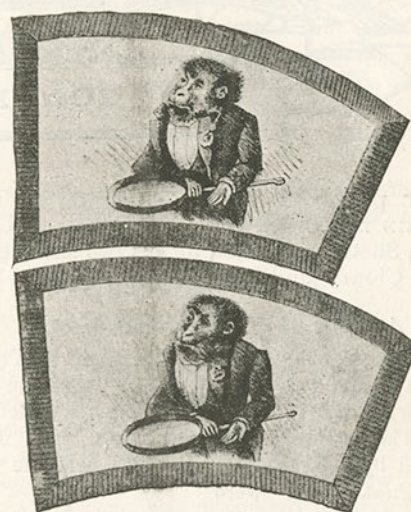


FIG. 17.

wooden skirting round the room the height to which the hat would reach if placed on the floor. The person asked generally puts his finger from 12 ins. to 18 ins. above the floor, and is greatly surprised to find how far he is out in his reckoning, for a silk hat is very rarely any higher than 6 ins!



FIG. 18.