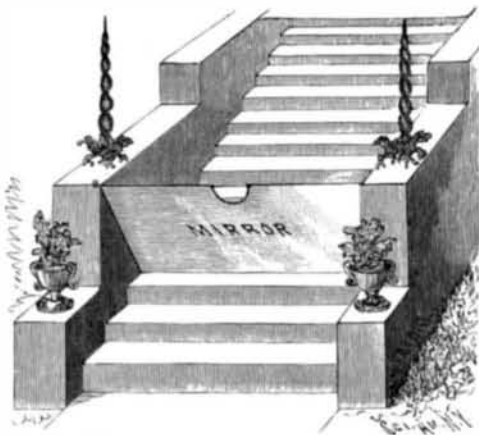


THE SPIDER AND THE FLY.*

This is one of the most interesting of the series of tricks which depend upon mirrors, and of which the "Decapitated Princess" is a type. When the curtain rises, the scene shows a gentleman's country house set upon the embankment and surrounded by grass plots and shrubbery. This is painted scenery such as is usually used in theaters. The house is approached by a set of stone steps which are built out from the scene proper, or, in other words, the drop. These are what is known in theatrical parlance as "practical" steps; that is, they may be ascended. The steps are incased by side walls, and these walls are surmounted



THE ILLUSION EXPLAINED.

by vases of flowers and handsome lamp posts. The steps lead to the doorway of the house; the door is also "practical," and can be opened and shut. The story runs that the house was deserted for such a long time that the steps were covered by a gigantic spider's web, and the spectator is surprised to see this web, which extends from post to post and to the side walls of the steps.

In the center of this gigantic web is seen a spider's body with a woman's head. The steps leading to the doorway of the house are open, and a person starts to descend, but stops on seeing the spider, and retreats after taking three or four steps down the stairs. This adds greatly to the illusion, as it looks as if it could not be produced by a mirror. You can see both above and below the head, and the steps may be seen at any angle you choose. The puzzling part of the trick is the question of the whereabouts of the lady's body.

Reference to our second and third engravings will give the secret of the trick. The mirror lies at an angle of 45° and runs from the base of the posts to the rear of one of the treads of the lower steps. The mirror extends the full width of the steps. A semicircular hole is cut out of the center of the mirror, at the top edge; this is to receive the lady's head.

The spider's body is fastened to the network of rope; the lady has simply to affix this body to her head, and the illusion is complete, as the body of the lady is concealed behind the glass. The mirror reflects the lower steps, so that this reflection really appears to be a continuation of the steps, and the entire flight seems unbroken. When the person appears at the door and descends the steps, he must be careful not to come below the line of reflection, as his legs will not be visible. The top edge of the glass is concealed by a rope of the web, as it is directly in front of it, and for safety is usually cemented to the glass.

In our diagram, No. 1 represents the steps; 2, the mirror; 3, the web; and 4, the lady. This trick requires the most careful preparation and adjustment, but when this is accomplished, the results are extremely satisfactory.

MONT ST. MICHEL, on the Breton coast, is likely to be spoiled from an artistic standpoint, as the department authorities are planning to build a railroad to the mount from Pontorson, the road running over the dike and on the ramparts, and the station being at the foot of the mount.

* Copyrighted, 1897, by Munn & Company. From "Magic: Stage Illusions and Scientific Diversions, including Trick Photography."

Willow Culture in Europe.

Europeans cultivate willow alongside of wheat. France leads, and Germany and Holland stand high in willow culture. In Germany there are 40,000 persons engaged in making willow baskets, and 50,000 acres of land are used in growing the willow for them. The culture of the willow is the simplest thing in the way of cropping. A twig stuck into the moist ground is all that is required. Nature does the rest. For fine basket work *Salix amygdalina* is the queen of willows, although *Salix purpurea* and *viminialis* are also extensively used. In France the willow grower does not hesitate to plant good wheat lands in willow. In regions where lumber is scarce baskets replace cases, boxes and trunks. In the region of La Tremblade and Arcachon there are large plantations of willows and factories for the manufacture of rough baskets in which to ship their famous oysters. It is in the Low Countries the willow is used most. It serves for baskets of all kinds, fences, cattle racks, wagon tops, trunks, boxes, and even the signals along the river are painted willow wickerwork. From its wood they make their indispensable sabots, or wooden shoes. It serves still another purpose; when planted alongside their many dikes, it holds them in place and it constantly catches the sediment, increasing the depth and fertility of the soil. The beneficial effects of willows along the banks of streams and rivers cannot be overestimated. The fertile soils washed down from the farm lands, instead of flowing into the sea, are caught by the willows along the shore. In that way streams are narrowed and consequently deepened. Away up in the mountains in France, where, owing to deforestation, the streams rush with much destructiveness down the steep mountain sides, they wind willow twigs in the shape of a hammock and throw it across the stream. These twigs soon sprout, take hold of the soil and force the stream to move in a zigzag way.

Odor Mixture.

The relation of elementary sensations to the sensation of their compound has given rise to much theoretical discussion. In the senses of sight and hearing it has also been the subject of considerable experimental work. The laws of color mixture have long since been formulated, and the sequence of the color series, like that of the tone series, is well known. In the domain of smell, owing to practical difficulties that attend the investigation, little progress has been made. Certain odors stand marked as qualitatively distinct, but their relations to one another and the arrangement of their "shades" into a single graduated series has never yet been satisfactorily demonstrated. On the other hand, it has been shown that odor mixtures (of many odors, at least) give rise to new and qualitatively

gether give rise to a blended sensation, each element of which may be sensed separately at will. In some compounds, again, one element predominates so strongly that the other is wholly indistinguishable.

Nagel has lately taken up the investigation by a different method—that of simply sensing the various compounds without fatiguing the organ of smell. As a result of his investigations he concludes that odor mixtures without exception follow the law of color mixture. When one element of a compound extinguishes the other, it is because the former is of far greater intensity; but by reducing this intensity sufficiently a

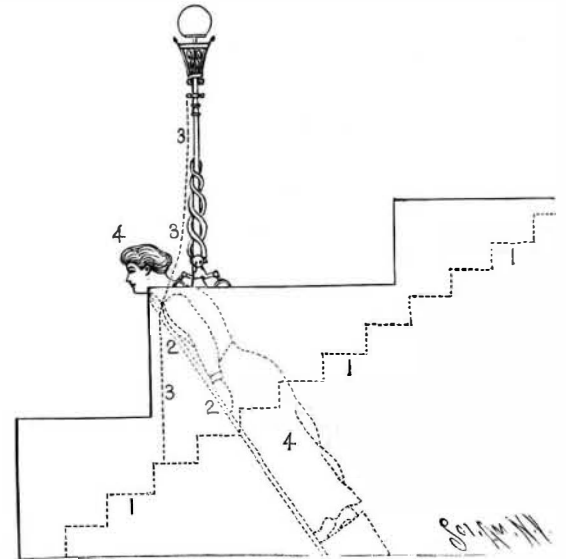


DIAGRAM SHOWING ARRANGEMENT OF MIRROR.

combination is at length reached in which the two unite to form a true mixture. He therefore takes exception to the earlier view, and believes that any two odors can be mixed in such proportions as to produce, at least momentarily, the sensation of a simple odor, of a quality distinct from the components. Whether the new odor is sensed as such permanently, or not, depends on the condition of the sense organ; if the latter is less fatigued for some of the elements than for others, the former will gradually tend to predominate. The true color mixture—that in which none of the elements predominate—"resembles each of its components, without, however, being like them." Thus the principles of odor mixing, according to Dr. Nagel, are similar to those of color mixing; and the correspondence extends, as far as the author's observation goes, to the law of intensity; the intensity of an odor mixture is never stronger than that of its components. The author has found several pairs of odors that are more or less complementary and produce an almost odorless mixture, though he has never succeeded in reaching this limit. As regards the arrangement of simple odors into a series, Dr. Nagel's experiments do not tend to verify the classifications hitherto proposed; but he does not venture upon a classification of his own, since he has been unable to discover any odors which can be regarded as really "elementary." —American Naturalist.



THE SPIDER AND THE FLY TRICK.

simple odors, thus resembling the color mixtures rather than the accords of tone combinations. Zwaardemaker, in a recent work, gives a series of nine distinct classes of odors, into one or the other of which he thinks any particular odor can be placed. He resolves compound odors into elements belonging to two or more of these classes. When the organ of smell is fatigued for one class of odors, the remaining elements in the compound are sensed, and if the compound consists of but two elements, they may readily be distinguished by this means. Both this author and Aronsohn, an earlier writer, speak of certain odors which do not combine to form a mixture, but when placed to-

es its bristles or wires momentarily, and when these are released they dash the colors on to the fabric. In practice troughs are employed containing the colors, to each trough being fitted a brush in conjunction with a bar or roller. The fabric or material to be ornamented is so guided as to travel over or in front of the brushes, these being mounted so that their bristles come in contact with the color and carry some of it forward until they momentarily catch against the stationary bar or roller, and as soon as released spray the colors on to the fabric in the form of a colored rain. The fabric may be printed in an ordinary printing machine, either after or before the spraying operation, and with any suitable pattern.