

# **TWO INTERESTING CASES OF ILLUSION OF PERCEPTION**

GEORGE F. ARPS



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THE first case here reported came to the notice of the writer through the attending physician; the second case was reported by the father of the child after the attending physician had failed of satisfactory treatment. The second case is especially interesting and serviceable in connection with the phenomenon of visual space perception.

The first case is that of a boy, nine years of age, healthy, vigorous, who in his play ground and street reactions parallels that of any normal boy of his age. Aside from measles and an occasional disturbance of digestion he has been singularly free from childhood's common diseases. The father and mother are strong Hanoverian Germans holding with puritanic strictness to the dogmas of the Lutheran religious faith. So far as is ascertainable there can be no question of faulty inheritance, at least not so far as the immediate parents and grandparents enter into the problem.

The child upon retiring and usually while still wide awake uttered wild screams of terror. Upon inquiry the child complained of falling and clutched vigorously to the bed clothes and the arms of the parents. Usually the phenomenon disappeared when he was taken out of bed and walked about but reappeared when he lay down. He complained of pain in his eyes, neck and fore- and after-parts of his head. No amount of persuasion dispelled the illusion. It should be emphasized that the illusion occurred in full waking state and rarely as a dream.

An attempt was made to correlate the illusion with the momentum of the day's activity. According to the parents the illusion appeared in aggravated form when the neighborhood boys congregated in a cluster of trees at the edge of the village and when playing "train" in which case the barn-top functioned as the locomotive while a high board fence and an adjoining neighbor's barn functioned as the cars and caboose respectively.

The village physician offered no explanation. He prescribed a hot bath and a "closer supervision of the evening meal." The dilatation of the cutaneous capillaries consequent to the bath lowered the cerebral circulation and to some extent reduced the intensity of the illusion.

The cue to the cure appeared when the child, in expressing his fear, complained because he could not see the parent who sat beside him on the bed. Upon lighting the room the child seemed pacified but still held tightly to anything within reach. As a rule the illusion disappeared within thirty minutes after illumination. It was then suggested that the child be put to bed in a well lighted room. This was done but the phenomenon reappeared although in a less aggravated form. Degree of illumination and intensity of the illusion appeared related. The phenomenon failed to appear at all when a coal oil lamp was placed beside the bed not over two feet from the child's head. For six months the boy went to sleep facing the full glare of the lamp. Gradually the lamp was removed until it occupied a position in the hall. Whenever the illusion recurred the lamp was replaced in its original position.

It is quite probable that the intensity of the visual stimulus (the lamp) deflected the nervous current from the neural processes underlying the illusion and thus changed the direction of attention. Any intense distraction, other than the one employed, would probably have served the same purpose. At the end of a year and a half the phenomenon entirely disappeared.

The second case is that of a six-year-old girl, the daughter of highly educated parents. With reference to this case two interesting phenomena were observed: (a) that of mirror-writing of the common variety and (b) that of ambiguous interpretation of the retinal impressions.

The phenomenon of mirror-writing here observed parallels that of many other cases in which the left-right

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direction is reversed. These commoner cases take on an added interest when considered in connection with a case of double space inversion. Such a case is on record.[1] The double inversion consists in writing all verbal symbols and digits up side down and backward. In this case the boy had perfect pseudoscopic vision at the beginning of his school work. Stratton, by a system of lenses, artificially produces the same distortions and throws some light on the phenomenon.[2]

[1] G. F. Arps, a Note on a Case of Double Space Inversion. *Annals of Ophthalmology*, July, 1914, Vol. XXIII, p. 482.

[2] *Psychological Review*, Vol. IV, pp. 341–360 and 463–481.

It is in the phenomenon of ambiguity in the interpretation of the retinal eye processes that this case finds its value. At the dinner table the child complained of the decrease in size of a number of objects in the room, especially was this true of the apparent size of the father's head. The frequency of the complaint led the father to seek the advice of an oculist who pronounced the child's vision perfect in every way. Over and over again while seated at the dinner table the child would exclaim, "O father how small your head is!"

The explanation of this phenomenon is found in the method employed to dispell the illusion. It was suggested that, at the moment of the appearance of the phenomenon, the child be requested to fixate the end of the father's index finger which was revolved, in the air, to form various geometrical figures. This had the desired effect. Clearly we have here a case of the object altering its apparent size without altering its distance. Under normal conditions a change in size is followed by a corresponding change in the distance. It is probable that we have here inadequate convergence and that the optic axes do not intersect at the object but beyond, so that the axes are more or less parallel. Thus the feeling of convergence is less intense than experience teaches is necessary to perceive the object as such a size and at such a distance. If degree of convergence is a criterion for distance and if distance is a measure for the apparent size of an object then we have the conditions necessary for the appearance of the illusion.

Here we have the retinal image constant for the apparent and the real size of the object (head). Obviously the retinal processes are constant for the two interpretations of magnitude and the ambiguity is due to the concomitant factor of convergence.

The conditions necessary to decrease the real size of an object while still maintaining an unaltered image are produced without artificial means. Wheatstone, a long time ago, arranged his stereoscope so that a negative correlation obtained between the degree of convergence and size of the retinal image.[3]

[3] *Philosophical Transactions*, 1852.

Very interesting is the fact that Stratton demonstrated by artificial means what was naturally the case in that of the boy reported in the *Annals* referred to above. Wheatstone demonstrated by artificial means what was naturally the case in that of the girl here reported.