

the only one that may underlie a phobia of falling (nor was it by any means the only one in this case, though it was the chief one); and secondly, that the object of the present communication is not so much to produce any convincing evidence as to illustrate the contrast between two views by reference to a given case.

AN UNUSUAL TYPE OF SYNESTHESIA

BY ISADOR H. CORIAT, M.D., BOSTON

THIS unusual case of synesthesia is reported for the purpose of calling attention to a rare type of the condition and thus, perhaps, being the means of placing other similar cases on record. The synesthesia occurred in an intelligent woman forty years of age. For years she had suffered with an hysterical hemicrania combined with neurasthenic symptoms and in addition there had been attacks of somnambulism and, on one occasion, a transitory paralysis of the legs. A right hemihypæsthesia could be demonstrated, while the field of vision was normal for form and color.

The type of synesthesia from which this subject suffered may be called "colored pain." As far back as she can remember, pain had produced in her a sensation of color. When a young girl, attacks of severe abdominal pain from which she suffered, were referred to as "long blue-black." The colors produced by pain were distinct and clear and various kinds of pain always produced the same invariable color. The color sensations were distinctly visualized as a mass of color, of no particular shape. If the pain, however, involved a jagged, longitudinal or round area, the color stimulated by this particular type of pain had a corresponding geometrical figure. Colors were produced only when the pain was severe and persistent. Slight pain usually failed to produce colors. When, however, the pain was at first slight and gradually became more intense, this increase in intensity gradually produced a sensation of color which increased in vividness parallel with the increase in the intensity of the pain. This parallelism between color sensations and intense pain is probably a kind of summation of stimuli from the peripheral pain points.

Certain emotional associations were likewise present in these color phenomena, since the pains which produced color sensations were usually those which frightened her and were associated with fear. Conversely, certain colors

like yellow and green produced a depressing effect in the subject, while other colors like red and blue were referred to as soothing. In the synesthesia, the duration of the color sensation was the same as that of the pain which produced it, but it varied in its intensity and disappeared simultaneously with the disappearance of the pain.

Each type of pain produced its individual and invariable color, for instance: Hollow pain, blue color; sore pain, red color; deep headache, vivid scarlet; superficial headache, white color; shooting neuralgic pain, white color.

The hemicrania attacks always produced at first a feeling of "blueness" localized on the same side as the headache, and finally, as the intensity of the headache increased, a distinct blue color was produced.

Bearing in mind the physiological theory which had previously formulated to explain these synesthetic phenomena,¹ namely, an irradiation of peripheral nervous impulses, some experiments were carried out by means of Von Frey's hair aesthesiometer. Careful testing with this instrument could demonstrate a hemihypæsthesia, always corresponding to the side of the body on which the last attack of headache occurred. In the testing of both sides of the body with the aesthesiometer and attempting to stimulate the pain points rather than the pressure points, there could be demonstrated an unusually prolonged persistence of the pain sensation after the cessation of the stimulus. The duration of this persistence varied with the length of the testing hair in millimeters and was the same for both sides of the body. During this abnormal persistence of the sensation, there was a subjective feeling of fluctuation of the stimulus, that is, a periodic increase and decrease in the intensity of the pain perception which suddenly ceased, resembling somewhat the fluctuating fatigue of the field of vision in hysteria and neurasthenia. The condition was somewhat analogous to the prolonged persistence of a visual after-image.

¹Isador H. Coriat. A Case of Synesthesia. JOURNAL ABNORMAL PSYCHOLOGY.

The exact figures were as follows:—

Hair length of aesthesiometer	Persistence of sensation.
40 mm.	17.2 secs.
30 mm.	43.8 secs.
20 mm.	66.6 secs.
10 mm.	84.8 secs.

The hair length could be easily measured on the scale of the instrument, while the time was accurately taken with a stop-watch.

Comparative tests in a normal individual, with the same varying hair lengths (40 mm. to 10 mm.), showed a persistence of sensation varying from 2.4 secs. to 3.8 secs. on the palms of the hands, and from 5.4 secs. to 7.2 secs. on the face. These figures were thus markedly smaller than in the synesthetic subject and probably represented the normal persistence of an after-sensation on stimulating the pain points. Furthermore, in the normal individual, there was no fluctuation of the sensation, but it gradually decreased in intensity.

In the subject, too, it was possible to actually produce an artificial pain synesthesia, with varying degrees of hair length of the aesthesiometer, a rather convincing proof that the condition was produced by a physiological irradiation of peripheral pain sensations. The figures and results were as follows:—

Hair length (mm.)	R. side (hypæsthetic)	L. side (normal)
40	no color sensation.	no color sensation.
30	" " "	" " "
20	" " "	" " "
10	" " "	slight redness.
9	" " "	" "
8	" " "	more redness.
7	" " "	" "
6	" " "	distinct red sensation
5	slight redness	strong " "
4	" "	" " "
3	more "	" " "
2	" "	" " "

It will be noted that the beginning of the redness on the normal side was simultaneous with the time of greatest persistence of sensation (10 mm. hair = 84.8 secs. per-

sistence). Furthermore, the synesthesia, on the normal side, could be artificially produced sooner and with a greater hair length than on the hypæsthetic side.

In this case we seem to be dealing with a peculiar and unusual type of synesthesia, in that an abnormal (or artificial) stimulation of the peripheral pain neurons stimulates at the same time, possibly through a physiological irradiation or a derailment of the pain-impulses, a sensation of color, a theory in harmony with the one I devised for the explanation of colored hearing. The fact that the synesthesia could be artificially produced by peripheral stimuli does not militate against the condition being a central phenomenon.

A PERVERSION NOT COMMONLY NOTED

BY MARGARET OTIS, PH.D.

A FORM of perversion that is well known among workers in reform schools and institutions for delinquent girls, is that of love-making between the white and colored girls. This particular form of the homosexual relation has perhaps not been brought to the attention of scientists. The ordinary form that is found among girls even in high-class boarding-schools is well known, and this feature of school life is one of the many difficulties that presents itself to those in charge of educational affairs. The difference in color, in this case, takes the place of difference in sex, and ardent love-affairs arise between white and colored girls in schools where both races are housed together.

In one institution in particular the difficulty seemed so great and the disadvantage of the intimacy between the girls so apparent that segregation was resorted to. The colored girls were transferred to a separate cottage a short distance from the other buildings. The girls were kept apart both when at work and when at play. The girls were given to understand that it was a serious breach of rules for them to get together, and the white girls were absolutely forbidden to have anything to do with the colored. Yet this separation did not have wholly the desired effect. The motive of "the forbidden fruit" was added. The separation seemed to enhance the value of the loved one, and that she was to a degree inaccessible, added to her charms.

In this particular institution the love of "niggers" seemed to be one of the traditions of the place, many of the girls saying that they had never seen anything of the kind outside; but that on coming here, when they saw the other girls doing it, they started doing the same thing themselves, acting from their suggestion. A white girl on arriving would receive a lock of hair and a note from a colored girl asking her to be her love. The girl sending the note would be pointed out, and if her appearance was satisfactory, a note would be sent in reply and the love accepted. Many