

and her mental condition grew no worse. At the same age her brother developed similar symptoms, mental deterioration and epileptic attacks, and in his case, too, the patellar and Achilles reflexes were found to be absent. The author thinks it probable that the disturbances in this brother and sister were due to a familial anomalous tendency leading to a glia degeneration which, in the brain, was the foundation of the epileptic attacks, and, in the spine, the foundation for the absence of the reflexes.

Best, Dr. DISTURBANCES IN THE OPTICAL SENSE OF LOCALIZATION DUE TO WOUNDS OR TO DISEASES SITUATED IN THE OCCIPITAL LOBE. [Neurol. Centralbl., July 1, 1919, No. 13, Vol. 38.]

In a recent article Mann describes a perceptive disturbance of the optical sense of locality which he calls paropsia, stating that in the literature he had found no express mention of this symptom form. Best claims that Mann has overlooked the work done by the author and Pappelreuter on the injuries of the visual sphere from wounds received in war, and further that Mann has failed to show the relations in which the disturbances of localization stand to other disturbances of the optical sense of locality, as, for example, to the loss of the estimate of distance, to hemianopsia, to disturbances of the perception of depth (which Mann erroneously regards as an associative act), to micropsia, to macropsia, etc. He thinks the attention given in the literature generally to visual disturbances is not in keeping with the importance of the eye and its paths as the main organ for perception of all that is not in immediate contact with the body. In referring to experiences from the war particular stress is laid on the frequency of optical disturbance of the sense of locality. Kleist, for instance, states that "optical agnosia for objects" is considerably less frequent than "optical agnosia for space." The term agnosia, however, is misleading, seeming to imply defects of association rather than those of sense. The author notes the great importance of distinguishing these latter disturbances (perceptive) from those of thought and ideas that only have reference secondarily to the sense organ. If the patient sees an object in a false position and for that reason grasps past it, there can be no doubt that this is a disturbance of visual sensation with the erroneous motor action depending thereon, and it is quite different from the loss of power to describe the position of familiar streets and to form ideas of the places of familiar objects, *i.e.*, from disturbances of association. It is to perceptive disturbances that the author refers in his present article. Such symptoms are relatively frequent as result of injuries to the eye region. There may be good central acuteness of vision and a wide visual field with total loss of optical localization; so that patients grasp past objects in a most fumbling manner. When they are questioned about objects they see they cannot indicate the directions of the same, or acknowledge their inability to

locate things familiar to them. They cannot count objects by the eye, although they enumerate readily by touch and their ability to count is intact as well as their tactile sense of position and their stereognostic sense. The author gives a description of the methods he used in measuring the degree and character of these disturbances of the sense of space and his observations are summed up as follows: in the periphery of the visual field, to a degree corresponding to the apparent curtailing of the plane objective field, the patient grasps past objects in a direction toward the center of the visual field. Every deficiency in the visual field is connected with an error in localization. This error is dependent on the position of the eye in the field, that is, on the degree of deflection of the eyes from the primary position. In hemiamblyopic regions, too, there may be an apparent curtailment in the plane objective field. These errors of localization are soon corrected by a process of adjustment so that they are only noticeable when the correction fails or is not made promptly. The disturbances of localization which are independent of the hemianopsia and those which occur where there is no hemianopsia have the character of a disturbance of the relations of the visual space to the position of the eyes and the head. Even when the relations of the things seen to each other are rightly preserved and the field of vision is intact the visual world seems "floating in the air," as it were, unless at least the primary position of the eye is given. The slighter degrees of this class of visual disturbances of the sense of locality manifest themselves by uncertainty in visual estimates, in errors in counting objects seen, and in difficulties in finding objects with the eye. These slight disorders, however, are usually found in connection with more or less severe unilateral weakness of vision, with hemianopsia, etc., being present in about 38 per cent. of disturbances of this nature from recent wounds. Mann considers these disturbances of visual localization to be symptoms of a disease of the optic radiations and not of the cortex. The author disagrees with him and assumes special cortical areas, lesions of which are responsible for the disturbances offering in proof the fact that while they are rare in localized diseases, they are very frequently encountered as the result of wounds. In cases of this sort the cortex is naturally the part that is first injured, the deeper fibers being only secondarily involved, if at all. Besides, the author has seen the symptom of disturbance in counting where there was only a very superficial wound of the cortex. He concedes, however, that such wounds might lead to injuries of the deeper parts, through commotion or bleeding. He gives a sketch of his understanding of the relation of the optical sense of location to the organization of the visual sphere as a whole, and does not think the visual sense depends on the stimulus of the calcarine fissure solely, but on a stimulation of the occipital lobes, generally, together with the peripheral organ. Physiological components may be discovered making up sensation which, psychologically considered, that is, from the

point of view of self-observation, cannot be analyzed into parts. These complexes may be called "processes of perception" following Poppelreuter, and include the sense of direction, of motion, of depth, of size, of color, of form, and the capacity of complemental reproduction. The subject is not able to distinguish these complexes from pure or crude sensations because no unformed or spatially indefinite visual sensation is ever given in consciousness. Accordingly the author assumes that the calcarine fissure is only the place of the joining of the binocular images, and, that in the cortex of the occipital lobes, in separate localizations, are situated the regions upon which depend the sense of locality and those which give rise to optical form. Lesion of the calcarine fissure cause only defects of fusion (and the disturbances of localization due thereto—reduction of fusion). All of the components belonging to the sensation complexes may be disturbed independently of these fusional defects. Those motor reactions which are controlled optically are (up to a certain exceptional position of the fusional movements) produced also by the visual sphere as a whole, the particular reaction being decided by the component which is most strongly emphasized. Beyond the optical phenomena due to disturbances of components belonging to the sphere of sensation are optical disturbances of thought and association which, the author states, are beyond the scope of his article.

Goldstein, Kurt, and Adhemar Gelb. THE "TUBE-FORMED VISUAL FIELD," TOGETHER WITH A MECHANISM FOR EXAMINING THE FIELD OF VISION AT DIFFERENT DISTANCES. (Preliminary communication.) [Neurol. Centralbl., November 16, 1918, No. 22, Vol. 37.]

Leaving all theoretical discussion for a future article, the authors simply give results. Where there is suspicion of so-called "tube-formed" vision or of similar disturbances in patients, the campimeter is used for measuring the periphery of the field of vision at various distances from the eye. This method is chosen because of its simplicity, and it is assumed that, taken all in all, it makes little difference whether the campimeter or perimeter is used. The linear measures gained by the campimeter method are computed in the corresponding angle values under the belief that the values thus obtained must conform nearly to those which would be obtained, if, under similar conditions, the field of vision were examined by the perimeter. It is well known, however, that the two methods do not agree in every respect, the most important variation being the essentially different psychological conditions arising in the examination—a fact which has hardly been taken into consideration. Indeed, in respect to the psychological conditions, the two methods differ so greatly that it is questionable if the results can be compared. Yet, while the examination of the periphery of the field of vision by these two methods leads to such different results qualitatively, it is,