

across a new symptom of epilepsy. This consists of a considerable lowering of the normal temperature, which may at any period of the day or night sink to 36, 35 or even 34° C., and may so remain for a half hour or an hour. This transient hypothermia, which the author detected in 12 out of 20 cases, appeared to be an epileptic equivalent. Sometimes this sinking of temperature occurred three or four times in one day. Usually several days or even weeks intervened. In some patients the attacks were very irregular, while in others they assumed a periodical character. There appeared to be no relationship between these attacks and the course of the epilepsy proper, and especially none with the epileptic attacks. Sometimes the fall of temperature preceded the convulsion but by an hour or two, but this was probably a coincidence. The author believes the occurrence of hypothermia in epilepsy furnishes a strong argument for the autotoxic theory of the disease. Hypothermia has been produced in animals by injection of epileptic blood. CLARK.

ZUR FRAGE VON ZUSAMMENHANG DER MIGRÄNE MIT DER EPILEPSIE  
(Connection between Migraine and Epilepsy). Bernhardt (Deutsche  
Aerzte Zeitung, July 15, 1900).

Bernhardt reports a case of this association in detail, the patient being a man of much intelligence. As far back as the patient can recall he has had at times before his eyes a parti-colored spectral appearance composed of rays of primary colors, chiefly red and yellow. It exhibits a sort of rhythmical jerking, as if due possibly to the arterial pulse, and appears to grow, swell, and finally burst. In its stead remains a colorless expanse which slowly vanishes. He has seen the same object on many hundred occasions, at intervals of one or two weeks. Other spectra have been seen at very much longer intervals, perhaps once a year; in this latter, colors are but sparingly present. The spectra persists, whether the eyes are open or closed. The colored spectrum usually appeared at about noon, and while the sun was shining. Anger, excitement, etc., seem to be sufficient to provoke the phenomenon at times. At the age of two years patient had one attack of teething convulsions; when 5½ years old a prolonged convulsive attack was followed by a period of confusion. This attack may have been caused by sitting long in the sun, or by drinking strong coffee. When 15 years old, the spectral phenomenon appeared on one occasion with great intensity, and led up to a convulsion, constituting a sort of visual aura. In fact, we may have migraine without headache, and "ophthalmic migraine" frequently constitutes an epileptic aura. The patient had convulsions at very long intervals only; and several times he went five years without an attack. The spectra persisted throughout. During the few epileptic attacks the spectral appearance always constituted the aura. Bernhardt adds to the foregoing statement of the patient that the scotoma seen by him was either a visual aura or an abortive attack of migraine. Möbius has stated that the great majority of cases of migraine are incomplete. CLARK.

DIE URSACHE DER MIGRÄNE (Cause of Migraine). J. Deyl (Klin.-therapeut. Woch., Sept. 2, 1900).

From the examination of a number of cadavers of patients suffering from migraine, with the view of finding some anatomical peculiarity to explain the symptoms of disturbed function of the ophthalmic nerve in this affection, Deyl advances the following explanation, which tends

to disprove the presence of a true paralysis: The ophthalmic nerve stands in close relation with the carotid artery in the cavernous sinus, while between the sinuses of both sides is placed the hypophysis, the lateral borders of which are in close contact with cavernous tissue. In case of cerebral congestion from intense mental activity or other cause, the cavernous tissue will tend to swell, with consequent compression of the afferent vessels of the hypophysis. This will, in turn, lead to enlargement of this organ, and, in case the space between the two cavernous sinuses should be narrow, compression of the ophthalmic nerve between the artery and the dura. Anything thus depleting the brain of blood, such as sleep, will diminish the pressure, and hence relieve the migraine. The author has found an abnormally narrow intercavernous space in a certain percentage, coinciding with the proportion of patients with migraine found.

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## PATHOLOGY.

ON THE ACTION OF DIPHTHERIA TOXIN ON THE SPINAL STICHOCHROME CELLS. H. RAINY (Journal Pathology and Bacteriology. Vol. VI, No. 4. July, 1900).

This paper is the report of a pathologic research made to determine whether the paralysis which is known to follow poisoning by various toxic substances of bacterial origin, and especially that which results from the action of the bacillus of diphtheria, is associated with alterations in the motor cells of the anterior cornua of the spinal cord; and, if such alterations were found to exist, of determining their nature and the relation which they hold to the changes found in the motor nerves.

The author has confined himself more or less directly to the subject in hand. As a fixing agent he tried mercuric chloride, dissolved in normal salt solution. Hermann's fluid was used as an adjunct, Tolouidin blue, thionin, Unna's polychrome, Kernschwarz, Heidenhain's iron-hematoxylin and Held's methylene blue and erythrocin were employed as staining agents. In the experimental research groups of rabbits were exposed to the action of (1) emulsions of the diphtheria bacilli; no lesions were obtainable in the one rabbit that died. (2) Toxin below the lethal dose; these did not bring about paralytic phenomena and no pathologic cell changes were obtainable. (3) Large doses of toxin. Paralytic phenomena could not with certainty be demonstrated and characteristic cell changes were not observed. (4) Subacute maximal doses of toxin. In these the rabbits developed paralytic symptoms at the end of the first week and soon died. The hind limbs were most affected. In sections of the spinal cord cell lesions were constant, thus showing that alterations are found here as well as in the peripheral nerves. Associated vascular changes may also occur. The cell changes in the anterior horns are definite and consist of moderate degrees of chromatolysis, an increased staining capacity of the achromatic substance for acid stains and vacuolation of the cell protoplasm. Rainy is inclined to believe that there are differences which are somewhat specific for this particular toxic agent. He thus upholds Nissl's idea of toxic specificity and constant pathologic alteration. The author also says that in diphtheritic paralysis the cell changes probably antedate the changes in the nerve fibres, although further confirmation is necessary to prove this definitely. A bibliography and interesting illustrations accompany the study.

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