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THE OPHTHALMOSCOPE IN RELATION TO DISEASES OF THE NERVOUS SYSTEM.*

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A recent writer¹ has said, "It seems to me the best and most useful feature of ophthalmology that it has closer or more remote relations with every branch of medicine and surgery—indeed with almost every branch of science." With Mr. Tweedy² I would emphasize the correspondence between the development and functions of the brain and those of the optic nerve, since these last are genetically direct and early outgrowths of the brain. It is also notable, that the eye and its appendages receive the whole or parts of six, out of the twelve pairs of cranial nerves. These things point to the intimate relationship existing between the eye and the rest of the body. No other organ of the body contains so many different kinds of histological elements or textures of so high a quality as the eye. Hence the immediate participation of the eye in general and constitutional diseases. It is thus seen that there is a histological and physiological relationship between the epiblastic elements of the eye and the epiblastic tissues of the body, and between the meso-blastic elements of the eye and all the other meso-blastic elements.

The pathological relationship is no less intimate and exact; the cutaneous eruptions of strumous children, eczema, etc., are concomitants of the phlyctenulæ of the epithelial layers of the cornea.

*Read before Ontario Medical Association, June, 1890.

1. Dr. Jas. Anderson, *Ophthalmic Review*, April, 1889.
2. Bulletin de la Société Anatomique (*Annual Univ. of Science*).

Syphilis, on the other hand, is a disease of meso-blastic textures, and ocular syphilitic affections are found to be of meso-blastic origin. The defective teeth of hereditary syphilitics are not faults of epiblastic enamel, but of the meso-blastic dental papillæ. I would also remind you that the optic nerve sheath is directly continuous with and almost identical in structure with the dura mater; whereas the optic nerve and its expansion the retina are direct offshoots from the brain itself, and Schwabe in 1869, showed that the cavity of the sheath was a prolongation of the arachnoid cavity. It is not surprising, therefore, to find that diseases of the brain are generally attended by eye symptoms and with lesions which are recognizable either with the ophthalmoscope or by an examination of the pupil and the extrinsic ocular muscles. These symptoms sometimes precede the general symptoms and become of great diagnostic importance. I would draw attention to the fact, that among the first observers to point out the importance of examining the eye ophthalmoscopically in cases of brain disease or suspected organic disease of the nervous system, was Bouchut, in 1866, who somewhat later suggested and used intubation, since revived by O'Dwyer, of New York. (he was preceded by Coccins³). Like most pioneers in medicine, he fared badly; was refused admission to the Academy of Paris and was treated with contumely. I had the advantage of attending his lectures at the Paris Sick Children's Hospital, in 1875. He called the ophthalmoscope as applied to diseases of the nervous system—the *cerebroscope*. The writers who have done the best work in medical ophthalmoscopy in England are Hughlings Jackson, Clifford Allbutt, and Stephen Mackenzie. Ophthalmoscopic examination in nervous diseases has become so established a custom that no neurologist would consider his examination of a case complete without an examination of the eyes.

I will briefly pass in review a few of the diseases of the brain in which the ophthalmoscope may be of especial use in diagnosis. Miliary aneurism of the brain is by no means easy of diagnosis. Yet a series of cases have been reported in which these aneurisms were also found in the retina, and were confirmed by Lionville⁴ at the *post mortem*. But

3. Anwendung des Augenspiegels, 1852.

4. Graefe u. Sæmisch, *Handbook*.