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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Why are the Great Motor and Sensory Tracts of the Central Nervous System crossed?* By A. FRANCIS DIXON, M.B., Sc.D.

I AM not sure if the following facts are usually taken into consideration in viewing the disposition of the great motor and sensory tracts of the central nervous system. They appear to me to throw considerable light on the meaning of the crossing of the great motor and sensory nerve tracts.

In man we know that the right half of each retina is connected with the right occipital lobe of the cerebrum, and similarly the left half of each retina is connected with the left hemisphere of the cerebrum. The right half of each retina is, however, associated with the left half of the field of vision, and similarly the left half of each retina is associated with the right half of the field of vision. It is, naturally, important that the right hand and the right side of the body generally should be associated with the right half of the field of vision—*i.e.*, that the motor and sensory centres for the right half of the body and the centre for the right half of the field of

vision should be close together and on the same side of the cerebrum.

Thus the crossing of the great tracts appears to be associated with, or perhaps dependent on, the crossing of the field of vision, due to the employment of a lens in producing an image of external objects on the retina. This lens necessarily inverts the field of vision, and projects the images of objects to the right of the observer on to the left portions of his retina. The crossed condition is retained by the disposition of the fibres at the optic commissure. What has been said above would appear to hold for animals with binocular vision. In animals with monocular vision, and in those whose eyes move independently and possess different outlooks, the connections of the optic nerve fibres with the brain are different, and the crossing of the great motor and sensory tracts is less complete or less sharply defined.

I have found the accompanying diagram useful in enabling students to see at a glance the significance of the crossing of the motor and sensory nerve tracts. Although I have been unable to find such significance of the crossing of the nerve-tracts emphasised in text-books of anatomy or physiology I am not sure that the idea, which was first suggested to me by a conversation with Professor G. D. Thane some years ago, is not quite familiar to, and taught by, physiologists.

The diagram illustrates the manner in which the right half of the field of vision, the right hand, and the right side of the body are brought into connection with the left cerebral hemisphere; and similarly the left half of the field of vision, the left hand, and the left half of the body with the right cerebral hemisphere.

The crossing of the great nerve tracts is seen to bring each side of the body into relationship with the corresponding half of the field of vision.

The recent observations of Elliot Smith on the relative size of the visual area of the cortex on the right and left sides of the brain are of extreme interest. He has shown

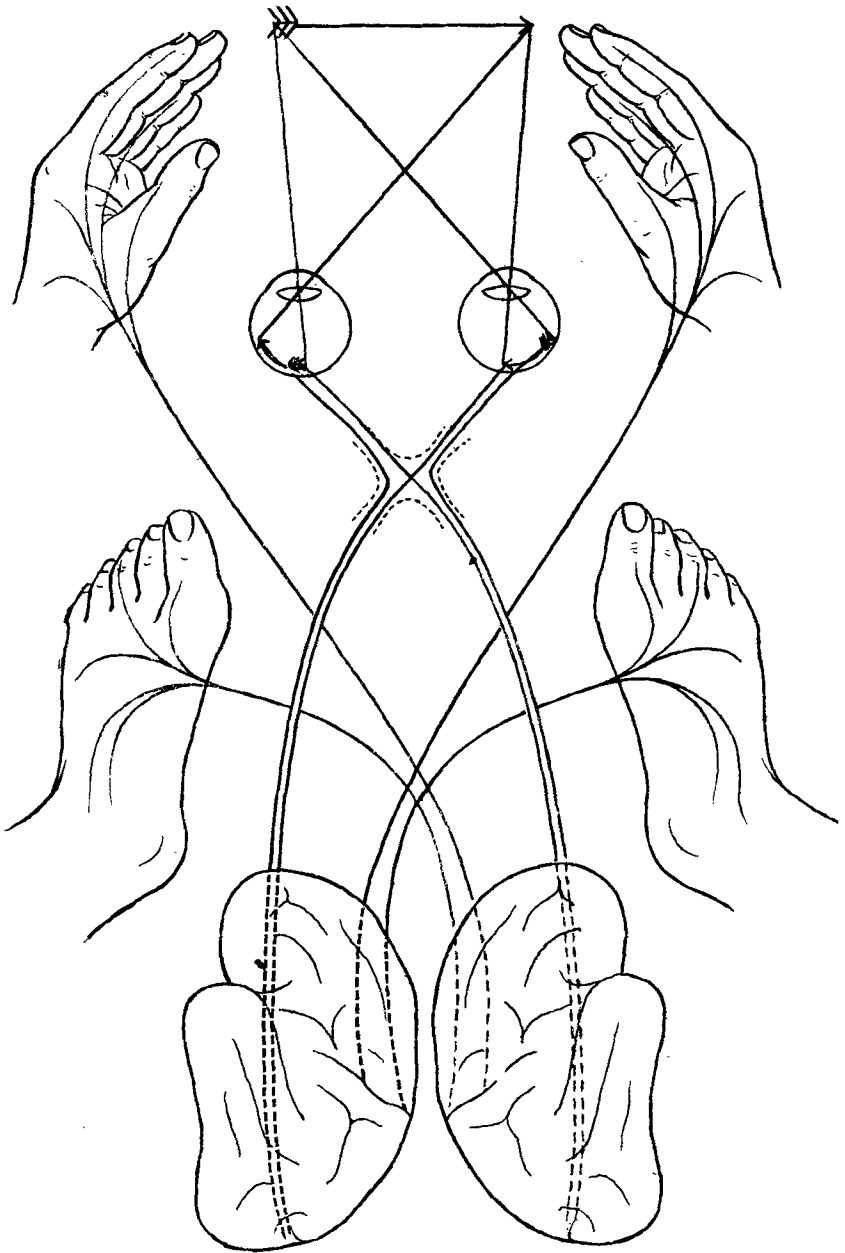


Diagram to illustrate the crossing of the Great Motor and Sensory Nerve Tracts.

4 *Splenic Enlargement and its Influence on the Blood.*

that, in white races, the left visual area—*i.e.*, the one connected with the right side of the field of vision, and, as the diagram shows, most closely associated with the right hand and right side of the body generally, is distinctly larger than the corresponding area on the right side of the brain. [*Anatomischer Anzeiger*, June 10, 1907. Page 574.]

ART. II.—*Splenic Enlargement and its Influence on the Blood.*^a

By T. LOUIS DE COURCY, M.D., Univ. Dub. ; The Infirmary, Southport.

IN the treatment of this subject—a subject which plays a much more important part in Medicine than is generally supposed—only those diseases which cause marked enlargement of the spleen will be dealt with in detail, those causing slight and temporary enlargement being passed over with only brief reference.

A short account of the general anatomy and functions of the spleen will be necessary in order to make it fully understood how an organ of such small size is capable of enlargement to a degree proportionally much more marked than that of any other organ in the body, with the possible exception of the thyroid and some lymphatic glands.

The spleen is situated in the left hypochondrium, its external surface being related to the under surface of the diaphragm, which separates it from the ninth, tenth and eleventh ribs of the left side, and from the lower border of the left lung and pleura. Its internal surface is related to the posterior wall of the great end of the stomach, the tail of the pancreas, and the outer surface of the left kidney. The lower end lies on the splenic flexure of the colon, and the whole organ is held in position by folds of peritoneum. It will thus be seen that excessive enlargement may by pressure on these structures to which it is related cause such symptoms in the patient as dyspnoea, gastric disturbance, diarrhoea or constipation, and

^a Being a Thesis read for the Degree of Doctor of Medicine of Dublin University, February, 1907.