these syphon tubes, in adding my testimony to their great superiority over those in general use. They are much easier of application, give less pain in their administration, than the jerking action of the pump; they percolate, I believe, further into the bowel; and, whether it be necessary to procure an evacuation, or to administer food for absorption, I think they are equally valuable. They cost, moreover, but a few shillings, are very durable, and will therefore bear comparison with the old clyster-pipe in an economic as in any other consideration.

GULSTONIAN LECTURES

ON

CERTAIN POINTS IN THE STUDY AND CLASSIFICATION OF DISEASES OF THE NERVOUS SYSTEM.

Delivered at the Royal College of Physicians.

By J. HUGHLINGS JACKSON, M.D., F.R.C.P.,

Physician to the Hospital for the Paralysed and Epileptic; Assistant-Physician to and Lecturer on Physiology the London Hospital.

LECTURE II.—ABSTRACT.

CONTINUING the subject of the Medical Physiology of the Cerebral Hemisphere, the Lecturer gave a condensed account of some of the innumerable varieties of defects of speech which attend disease of, and of the hemisphere near to, the corpus striatum of one side, usually the left.

He pointed out that the phenomena of hemi-spasm show that muscles acting bilaterally are practically *equally* connected with each of the corpora striata—a conclusion at which Dr. Broadbent had some years ago arrived deductively. The phenomena of the severest cases of hemi-spasm, from disease of *one* hemisphere, however, in which both sides of the body are convulsed, led him to a modification of Broadbent's hypothesis. Thus, taking one side of the brain, the right, the Lecturer thinks that the muscles acting unilaterally, both of the left and of the right side of the body, are represented in the right side of the brain, but that the muscles of the left side of the body are especially represented there: 1. More in quantity, for they are more affected when the hemisphere discharges; and 2. First in Time (instability), for they are affected before those of the right side. He thinks that, having from the study of the effects of want of action and of "over-action" of the corpus striatum, arrived at a better knowledge of the plan of composition of one nervous organ, we may fairly use this knowledge as a means of further investigation. He thinks that Broadbent's hypothesis, and the facts which so strikingly confirm it, help us to a better understanding of the action of *two* hemispheres in mental processes. From a consideration of the phenomena of such cases as that of a man (the left side of whose brain was damaged) who could not speak, but could understand what was said to him; who could not write, but could copy writing, and who might ejaculate—from the consideration of such a case, the Lecturer was led to believe that the fundamental defect in loss of speech from disease in one hemisphere, is inability to reproduce words voluntarily, because the leading motor part of one side (the left) of the brain is damaged. Involuntary reproduction (understanding words) remains possible, because the automatic side (right) is intact. Thus, reduced to its simplest form, loss of speech corresponds to hemiplegia, in which form of palsy the voluntary movements are lost, the involuntary preserved. In other words, it seems that the "Unit of Action" of the nervous system is—as we might expect from the organism being a two-sided one—double the unit of composition. There is this difference, however, betwixt damage to the corpus striatum and damage to the hemisphere just above it; viz., that whilst damage to *either* of the corpora striata produces practically the same effect—loss of the most voluntary movements of the limbs on *but one side* of the body, damage to *but one side* of the brain—usually the left—will destroy voluntary speech altogether. This, however, is not the objection it at first glance appears to be; for in the highest sensori-motor processes we cannot expect that there will be *two sides* for the "cessation of automatic action and the dawn of volition," which is, Spencer says, one and the same thing. The two brains cannot be mere duplicates, if damage to one will only make a man speechless. For those processes, than which there are none higher, there must surely be *one side* which is leading. The Lecturer supposes that the processes for judging distance, for walking, for talking, and for thinking, are fundamentally alike, and that, unless the patient, who is rendered speechless by damage to one motor side of his brain, had (in addition to right and left *sensory* sides) processes for the movements of words remaining, he would not be able to receive, certainly not to understand, a proposition;

i.e., he would not be able to give relations of coexistence (coexistence is, according to Spencer, alternate sequence) to images developed by its two terms, which terms are presented to him in simple sequence, any more than he can estimate the relations of two external objects by impressions on two sense surfaces without movement.

He urged that the special study of those nervous diseases distinguished as mental should be approached from the basis supplied by grosser symptoms, such as defects of speech already spoken of. In this connection he spoke of the importance of studying defects of sight, from the physician's point of view. He said that *lack* of no part of the cerebral hemisphere *produces loss of sight*, although the *presence* of coarse disease, for instance, a tumour, in many parts (in any part?) leads to inflammation of both optic nerves. Nor does disease in the hemisphere lead in any way to deafness of both sides. He does not think it, *a priori*, likely that the optic nerve, any more than the radial nerve, would be represented in any one part of either or of both the cerebral hemispheres, but in every part of each of them; and, excepting to an inconsiderable extent, only indirectly. Taking illustrations from disease, the kind of "sensation disorder," we should expect from disease of the cerebral hemisphere would be spectral illusions—a disorderly reproduction of *very complex impressions*, which differ from defects of sight as a mistake in a word does from a cramp in the tongue. On this higher level, however, there will, doubtless, be some kind of localisation, and its most general character may be inferred. Since—as Lockhart Clarke has pointed out—the structure of the anterior convolutions does differ from that of the posterior, they must serve differently in mind. Facts seem to show that the forepart of the brain serves in the motor aspect of mind, and we may fairly speculate that the posterior serves in the sensory.

PROFESSOR HUXLEY'S HUNTERIAN LECTURES ON THE ANATOMY OF THE VERTEBRATA.

Delivered at the Royal College of Surgeons of England.

LECTURE II.

PROFESSOR HUXLEY's second lecture was devoted to an exposition of the early condition of the Vertebrate Ovum, which presents two very distinct types of structure. One of these types may be exemplified by a Mammalian ovum, the other by the egg of one of the Sauropsida; *e.g.*, the common Fowl.

The Mammalian ovum is exceedingly small, and is enveloped by the vitelline membrane, or *zona pellucida*. Within this is a mass of granular, viscid, fatty, substance—the vitellus—enclosing the germinal vesicle (lined by a membrane), which again contains a more thickly walled body—the germinal spot.

The monotremes differ from all other mammals by the much larger size of the ova; but these are not known to deviate from the mammalian type as to their essential structure.

The second, or Sauropsidan type (as exemplified in a laid Hen's egg), differs from the mammalian ovum by its enormously greater size, and more complex structure. Disregarding the accessory parts (the shell and the albumen), and confining attention to the yolk, it will be seen that the latter is enclosed by a membrane, which may or may not answer to the vitelline membrane of the mammalian ovum. Immediately within this membrane is a layer of cells (termed the white yolk) which surrounds the vitellus, except at one spot, where a much more transparent structure appears, in the shape of a small oval space, or disc, which is the cicatrula, or "tread;" and immediately beneath this disc is placed a network of large cells, which latter become the mucous layer of the embryo. This disc is the potential Fowl, and, of course, such a laid egg does not answer to the unimpregnated mammalian ovum already described. If another and unimpregnated ovum, from high up the oviduct, be taken, there is even in it an appearance of a cicatrula; but this is produced by the germinal vesicle, which contains, not one, but several, germinal spots, and which germinal vesicle, together with the granular substance which invests it, answers to the whole, or to part, of the mammalian ovum.

The Hen's egg differs, then, from the Mammal's: 1, in size—the unimpregnated egg being millions of times larger than the mammalian ovum; 2, in the plurality of germinal spots; 3, in the presence of ready-formed elements (the white yolk, etc.) before fecundation.

Fishes, speaking generally—certainly osseous Fishes—agree with mammals in the structure of the ovum, except that each germinal vesicle contains several or many germinal spots.

The mammalian ovum becomes enclosed in a Graafian follicle, and then presents a close resemblance to the very early state of the Fowl's