

REVIEW VII.

On Railway and other Injuries of the Nervous System. By JOHN E. ERICHSEN, &c.

THIS book is but a small one; but its importance is, in our opinion, great, both in consequence of the author's position, and of the great interest which it possesses for all medical men who have to treat severe accidents, or who are called upon to give evidence about them in courts of justice. We shall, therefore, allot to Mr. Erichsen's book rather more than the amount of space which might seem proportionate to its size.

In considering Mr. Erichsen's subject, we shall approach it successively on the two aspects indicated above, viz., first as a medical, and next as a medico-legal subject. Let us, however, first define what Mr. Erichsen's subject is. From the lettering on the binding of the book, which runs thus—"Erichsen on Railway Injuries," the author has been misunderstood as intending to make a new speciality of railway injuries, and, by consequence, of "railway surgery." This misunderstanding is the more remarkable, and the less justifiable, as Mr. Erichsen has in the plainest possible terms guarded himself against such a misconstruction. To take one only out of several similar passages which occur in these lectures, the author says (on p. 9)—

"I will not confine my illustrations to cases drawn from railway accidents only, but will show you that precisely the same effects may result from other and more ordinary injuries of civil life. It must, however, be obvious to you all, that in no ordinary accident can the shock be so great as in those which occur on railways. The rapidity of the movement, the momentum of the person injured, the suddenness of its arrest, the helplessness of the sufferers, and the natural perturbation of mind that must disturb the bravest, are all circumstances that of a necessity greatly increase the severity of the resulting injury to the nervous system, and that justly cause these cases to be considered as somewhat exceptional from ordinary accidents. This has actually led some surgeons to designate that peculiar affection of the spine that is met with in these cases 'the railway spine.' But yet, though the intense shock to the system that results from these accidents naturally and necessarily gives to them a terrible interest and importance, do not for a moment suppose that these injuries are peculiar to and are solely occasioned by accidents that may occur on railways. There never was a greater error. . . . In the writings of Sir A. Cooper himself—in those of his predecessors and contemporaries, especially of Boyer, of Sir

C. Bell, and at a later period of Ollivier and Abercrombie, you will find many cases recorded that prove incontestably that precisely the same train of phenomena that of late years have led to the absurd appellation of the 'railway spine' had arisen from accidents, and had been described by surgeons of the first rank in this country and France, a quarter of a century or more before the first railway was opened."

In fact, Mr. Erichsen's subject treats of the immediate and remote effects of extensive injury to the nervous system, mainly to the spine, but incidentally and secondarily to the brain and the nerves. Such injuries have become out of all proportion more common, more extensive and perplexing, and of far greater public interest and importance, since the invention of travelling by railway. Previous to this, though it is true, as Mr. Erichsen has said, that they were occasionally seen, yet it was so rarely that they were rather looked upon as curiosities; and a medical man who did not profess a special surgical experience might easily afford to admit that he was not familiar with the subject, and saw no reason why he should be. Now, however, they have been brought literally to every man's door; and no one who practises surgery at all can tell but that to-morrow he may be called on to diagnose and treat such a case, with the attendant responsibility of explaining his views on its pathology and prognosis under the ordeal of cross-examination in a court of justice. Yet nobody would assert that either the pathology or the prognosis of such cases is at all clearly understood by practitioners in general. Hence we cannot but think that Mr. Erichsen is doing a great benefit to the profession in writing on the subject, provided he writes clearly and well.

Having said so much about the motive of the work, we will proceed to discuss its subject in the medical point of view. That subject, as we have shown above, is mainly concerned with the extensive and lasting injury to the contents of the spinal canal usually contemplated under the vague term "concussion of the spine," though it is not limited to such injury. Under this term Mr. Erichsen believes four distinct pathological conditions to be included, viz. :

"1. A jar or shake of the cord, disordering, to a greater or less degree, its functions, without any obvious lesion cognisable to the unaided eye; 2. Compression of the cord from extravasated blood; 3. Compression of the cord from inflammatory exudation within the spinal canal, whether of serum, lymph, or pus; and, 4. Chronic alterations of the structure of the cord itself, as the result of impairment of nutrition consequent on the occurrence of one or the other of the preceding pathological states, but chiefly of the third."

And the causes he divides into—slight and apparently trivial injuries inflicted upon the spine; injuries of distant parts of the body, or shocks of the system, unattended by any direct blow on the back; and, finally, wrenches and twists of the spine (pp. 18, 19). Examples of all these causes and of all these post-mortem conditions of the cord will be found detailed or referred to—some in Mr. Erichsen's own practice, and others from well-known writers; Mr. Erichsen having wisely avoided the silly affectation of only giving the results of his own observation, and thus magnifying his experience at the expense of leaving his subject incomplete.

This account of the causes and pathological changes in spinal concussion is followed by an unusually clear and interesting description of its symptoms and progress, which is certainly the most original and the most valuable part of Mr. Erichsen's work, and bears unmistakable evidence of being the production of a practitioner of large experience, not a compilation from the writings of others. It is hardly possible to present a useful abstract or abbreviation of this description; but we may, perhaps, advantageously notice some of the main points of it.

In the first place, Mr. Erichsen brings out prominently this fact—that in these cases of lesion of the spinal cord, the force has sometimes been considerable, and applied directly to the spinal region; in others, slight, and not apparently affecting the back; further, that the symptoms have sometimes come on instantaneously, at others shortly after the accident, and at others, again, not until after an interval of health: but that in all cases they have this feature in common—that the symptoms, when once established, although they may show remissions, never admit of any complete and perfect intermission; that there is never an interval of complete restoration to health (p. 111). The essence of the disease being, according to Mr. Erichsen, inflammatory, and depending on the development of chronic inflammation with its sequelæ, either in the medulla spinalis or its membranes, or both, Mr. Erichsen shows, by references to the works of Abercrombie and Ollivier, that the symptoms which he sketches from the history of cases of "railway concussion" under his own care are exactly the same in kind as those which they have described as accompanying chronic myelitis or spinal meningitis from other causes (pp. 118 *et seqq.*). Had Mr. Erichsen wished to answer by anticipation the captious objection that his book led to the "specialisation" of railway surgery, he could hardly have done so more completely than in these pages, which contain besides a most useful *résumé* of the lengthened account which precedes them, tracing clearly to their pathological origin—(1) The

cerebral symptoms, headache, confusion of thought, loss of memory, disturbance of the organs of sense, irritability of the eyes and ears, &c., which are referable to cerebral arachnitis, developed by continuity from the inflamed spinal membranes; (2) The pain at one or more points of the spine, greatly increased on pressure, and on movements of any kind, so as to occasion extreme rigidity of the vertebral column, and usually accompanied by muscular rigidity, which Mr. Erichsen seems disposed to regard, with Ollivier, as indicative rather of inflammation of the membranes of the cord than of the medulla itself; and (3) The painful sensations along the course of the nerves, followed by more or less numbness, tingling, and creeping—some loss of power, affecting one or more of the limbs, and giving rise to peculiarity and unsteadiness of gait, but unaccompanied by paralysis of the sphincters, which prove, according to their degree, that the membranes and more or less of the substance of the cord is undergoing degeneration.

“If,” says Mr. Erichsen, “we take any one symptom that enters into the composition of these various groups, we shall find that it is more or less common to various forms of disease of the nervous system. But if we compare the groups of symptoms that have just been detailed, their progressive development and indefinite continuance, with those which are described by Ollivier and other writers of acknowledged authority on diseases of the nervous system as characteristic of spinal meningitis and myelitis, we shall find that they closely correspond with one another in every particular—so closely, indeed, as to leave no doubt that the whole train of nervous phenomena arising from shakes and jars of or blows on the body, and described at pp. 96 to 110 as characteristic of so-called ‘concussion of the spine,’ are in reality due to chronic inflammation of the spinal membranes and cord.”—P. 122.

It is to be regretted that Mr. Erichsen’s opportunities have not allowed him to bring forward more ample proof of his views of the pathology of this affection from recent and full post-mortem examinations. With the exception of a short, and we must say an imperfect, reference to a post-mortem examination in a case of concussion of the spine by railway accident, published by Mr. L. Clarke in the *Pathological Society’s ‘Transactions,’* there is not, as far as we can see, any account of the minute anatomy of the cord in these cases. This is the more to be regretted, as there can be little doubt that the term “concussion” of the spine, as of the brain, is really a veil for ignorance—that there is no such thing as a simple shaking-up of the nervous matter, but that mechanical injury followed by mechanical alteration of structure is at the root of the symptoms

in both cases. With respect to the treatment also, Mr. Erichsen's volume is a little disappointing. He recommends absolute rest both of the spine and of the brain, the prone position, counter-irritation, and the administration of the bichloride of mercury during the early period of the disease. Later on, the preparations of nux vomica or strychnia and of iron will, he says, be advisable in appropriate cases; and he tries to distinguish those in which strychnia may be expected to be of service. But it is obvious that he does not expect much permanent benefit from treatment in cases where the symptoms are at all severe and confirmed.

The questions of diagnosis and prognosis are so intimately associated with the medico-legal aspect of these cases, that we have left them for the second branch of the subject, which refers to the conduct of medical men in courts of justice in railway and other such cases. It would be idle to deny that much scandal has arisen, and much blame has been cast upon surgeons, from the discrepancy of their opinions in such cases. Mr. Erichsen attempts to get us out of this trouble by a defence, which will be found on pp. 4 *et seqq.*, and which amounts to this—that these cases differ from those of obvious external injury, such as fracture, which are questions of fact, and partake more or less of the nature of matters of opinion—that “the symptoms come on slowly and gradually, and may possibly be referable to other constitutional states, quite irrespective of the alleged injury—that the result is necessarily more doubtful, being dependent on many modifying circumstances,” and that, therefore, discrepancies of professional opinion must necessarily exist. He then goes on to instance, and to urge in extenuation of the differences of the doctors, the discrepancy of opinion which is found in all other professions—among lawyers, divines, engineers, chemists, &c. But, with all submission to Mr. Erichsen, we cannot help thinking that he has mixed up two different matters in the above passage—the one referring to diagnosis, the other to prognosis. Questions of prognosis must always be doubtful, and no reasonable man would consider it worthy of surprise or blame to hear two men of equal professional ability and experience expressing different views as to the probability of future events; but this does not apply to matters of diagnosis. Whether the patient is suffering from concussion (so-called) of the spine, and whether there is any probable cause for the affection in the patient's history (detailed in court) beyond the injury which he is sworn to have suffered, are questions on which we cannot help thinking that constant and irreconcilable difference of opinion is discreditable to the members of our profession. Similar discrepancy in matters relating

to other professions involves, in our view, similar discredit to them, but does not relieve us from any of ours. We trust the publication of Mr. Erichsen's work will go, at any rate, some way to obviate this state of things in future. In forming a judgment on this subject, the question divides itself naturally into the two topics just stated, viz., Is the patient suffering from spinal concussion, and is that state the consequence of the alleged injury? To the former question Mr. Erichsen supplies, we think, very full and satisfactory means of reply. The diagnosis is to be made, according to Mr. Erichsen, from cerebral concussion, from rheumatism, and from hysteria. But ought it not to be added, from imposture? We pass over the first, because it is of little moment in an action for damages whether the head or the back is believed to be the part most injured, so long as it is agreed that the plaintiff is suffering from injury inflicted by the defendant. From rheumatism and from hysteria such cases may be distinguished, the diagnosis from the former being made by "the slow but gradually progressive character of the symptoms of spinal concussion, the absence of all fixed pain except at one or more points in the back, the cerebral complication—the gradual occurrence of loss of sensibility, of tinglings and formication—the slow supervention of impairment or loss of motor power in certain sets of muscles," and by observing that "in spinal concussion there is never any concomitant articular inflammation, and that although the urine may continue acid, it does not usually present evidence of a superabundance of lithates" (p. 125). As to hysteria, it appears extraordinary, as Mr. Erichsen observes, that any confusion can be made between a disease so fitful and irregular as hysteria and one so unvarying as spinal concussion; but the real fact, as it seems to us, is, that the surgeons who use the word "hysteria" in these cases really mean "imposture." At any rate, the question which so often occupies the court, and which medical men are so often divided about, is whether the plaintiff has really suffered a grave and probably life-long injury in the accident in question, or is making a pretext of the accident to obtain compensation for injuries which have no real existence. Mr. Erichsen ought, we think, to have discussed this question more explicitly than he has done, though we are ready to allow that his book contains by implication all that is necessary for its decision in his description of the symptoms of real concussion. It seems, then, from Mr. Erichsen's description, that not only ought the patient who is to be pronounced as suffering from real spinal mischief to exhibit a change from his former active habits to an alleged incapacity for business, and from the ordinary mental condition to one which presents more or less analogy to that of hysteria;

not only ought he to describe to his medical attendants various subjective phenomena, referable to the special senses, and allege certain deteriorations in the power of motion, or of bearing fatigue, or of sensation, or of the sexual appetite—for all of which the medical man must trust to his unsupported assertion—but there ought also to be certain objective symptoms caused by the paralysis of separate groups of muscles, and by the affection of the parts within the spine—perceptible stiffness of the back, unequal response of the different muscles to the galvanic stimulus, loss of bulk of the affected muscles, loss of weight of the whole body. Above all, these symptoms should be continuous and progressive. We are convinced that a careful study of Mr. Erichsen's volume would go far to preserve medical witnesses from the discredit of swearing to their belief in the permanent crippling of plaintiffs who, in a few days after pocketing their damages, are found running foot-races or scrambling over dizzy cliff-walks. As to prognosis, we have less to say; Mr. Erichsen gives several valuable hints about it, but our limits have been already exceeded, and we must not indulge in further quotations. Prognosis is a matter which must always remain doubtful, and on which, as we said before, a difference of opinion will always be regarded as natural.

The other question, which is also one of diagnosis, is as to the connection between the injury and the symptoms. On this point Mr. Erichsen might perhaps have been more explicit. We should have been glad to know, especially, what is the longest period of health which he has ever known to intervene, in an undoubted case of spinal affection from injury, between the receipt of the injury and the first occurrence of symptoms which attracted attention, and whether even during this period careful inquiry could not elicit some slighter symptoms that might serve as a connecting link.

But we must draw this notice to a conclusion. We hope Mr. Erichsen's book will reach a second edition, and that he may then be in a condition to give us still more ample information on this very interesting and important subject. The future progress of the cases, after the trial is over, when no further motive exists for imposture or exaggeration, is a point of great importance, on which more extended experience might throw light; and this, with the other desiderata which we have specified, may be added in a new edition. But the book as it stands seems to us of great value, and its careful perusal would be highly advisable to any gentleman who finds himself engaged in any case of the kind treated of by the author. Clear ideas of diagnosis and careful investigation of symptoms would save us from many, though perhaps not all, of the exhibitions of

divergent opinion in court, which, for all that Mr. Erichsen can say, will be looked upon by the public as disgraceful to the medical profession, and, in our opinion, are justly so regarded.

REVIEW VIII.

Clinical Memoirs on the Diseases of Women. By M. GUSTAVE BERNUTZ, and M. ERNEST GOUPIL. In Two Volumes. Translated and Edited by ALFRED MEADOWS, M.D.

THE Sydenham Society has now added to its translations of the works of foreign authors an abridgment, in two volumes, of the 'Clinical Memoirs on the Diseases of Women' published by MM. Bernutz and Goupil.

The original work has hitherto been but cursorily noticed by English systematic writers on these subjects: it may, therefore, be worth while to examine more closely the opinions put forward therein. On the present occasion we propose to notice the first volume only, leaving our review of the second one until our October number.

The first volume contains separate clinical essays on Menstrual Retention, Peri-uterine Hæmatocele, Intra-pelvic Hæmorrhages occurring in extra-uterine pregnancies. The second volume contains essays on Pelvi-peritonitis and Uterine Deviations.

The authors declare themselves separately responsible for their own essays. Nos. I and II in the first volume, and No. I in the second, are written by M. Bernutz, and the others by M. Goupil.

The same plan is adopted by both. A case is related in full detail; the past history, present symptoms, and the appearances at the autopsy are carefully noted, and conclusions as to pathology and therapeutics drawn from a comparison of the ante- and post-mortem observations.

This mode may seem somewhat prolix, and to involve repetition; but it has the immense advantage of putting facts before the student in the place of the dogmatic assertion of the text-book.

In the original, the cases are most elaborately taken, and will serve as models; and we regret that the translator, who has very ably performed his task of abridging and condensing the diffuse style of the text, especially that of M. Bernutz, has cut down the cases within a somewhat small compass.

M. Bernutz commences his essay on "Menstrual Retention"