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ORIGINAL ARTICLES.

LEGAL ASPECTS OF SPINAL CONCUSSION.

Read in the Section of Medical Jurisprudence, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY S. V. CLEVENGER, M.D.,
OF CHICAGO.

My paper was announced with the above heading through inadvertance, but it does not matter, as there can be but one scientific consideration of the subject, and whatsoever pertains to the medical features of this derangement necessarily concerns the legal, as a broken head or leg should be nothing else in law than what they are in medicine. There are, however, artificial matters not properly involved in the question of the real existence of injuries of any kind, that burden law books and works on medical jurisprudence.

The fact that there may be a preponderance of subjective symptoms in alleged concussion cases does not make such accidents peculiar in a medico-legal sense, for several forms of insanity and many physical ailments, at times, discussed in courts possess this same disadvantage. But turning from those rather hackneyed matters let me present a fresh aspect of the subject in a paper on

ERICHSEN'S DISEASE, AS A FORM OF THE TRAUMATIC NEUROSES.

"What's in a name?" says Shakespeare. Instead of being distinctive, names are too often sources of confusion, as botanists, zoölogists and anatomists are aware. Plants in the system of Linneus were specifically named "montana" when they were not exclusively mountainous; animals called "fluvatile" were, later, found oftener in lakes; the "pituitary gland" is neither pituitary nor a gland, the arteries were named as air receptacles, and so we might multiply misnomers indefinitely because of the attempts of our ancestors to make names superficially descriptive. About twenty-five years ago Erichsen described a variety of derangements following upon concussion of the spine. Now nothing could be simpler, apparently, than the expression "spinal concussion," and nearly everyone fancies that no misunderstanding could arise in the use

of such a term. Nevertheless that very title has in itself occasioned great misunderstanding, because it had a restricted as well as a general meaning.

The cause of this confusion dates from Erichsen's description of the different kinds of ailments that may arise from blows to the back, such as severe direct injury to the spine causing demonstrable cord lesions, slight indirect or remotely occasioned back injuries, sprains, strains, wrenches and twists of the spine, wherein occurred cord compression by extravasation or inflammatory exudations, nutritive cord alterations, and a "functional disorder" to which he gave no name, but which came to be known as the disease "spinal concussion," caused by a spinal concussion. In the interests of scientific medicine I named that so-called functional disorder "Erichsen's disease" because John Eric Erichsen was the first to describe a particular group of symptoms that often follow upon concussions.

That distinguished London surgeon wrote to me as follows:

I assure you that I feel much gratified and very highly flattered by having my name appended by you to the group of symptoms so very characteristic and remarkable, when taken in the concrete, which I believe that I was the first to describe, which result from that peculiar form of spinal injury now recognized under the term of "spinal concussion."

Had Erichsen given any sort of a name to this disorder, however arbitrary that name might have been, there would have been less occasion for the wrangling that has occurred in court rooms all these years.

Instead of entangling ourselves in the endeavor to explain that spinal concussion symptoms may sometimes be induced by a spinal concussion, misunderstanding is impossible when we say that a concussion of the spine may originate a vast range of troubles, such as dislocation of the vertebræ, cord injuries, etc., and it may also cause Erichsen's disease.

What then is Erichsen's disease? It is a serious disturbance of the functions of the spinal cord without there being demonstrable cord lesions. Such disturbance can be best accounted for by supposing that the spinal sympathetic system has been deranged, secondarily interfering with the blood supply of the cord and its membranes, con-

joined with other vaso-motor phenomena such as emotionalism, flushings, cardiac rapidity, hyperidrosis, sleeplessness, headache; directly due to the original sympathetic system derangement. The fact that the group of subjective symptoms and objective signs are distinct from other disorders sufficiently set it apart from other ailments or traumatic neuroses, and justify its special title. The claim is sometimes made that naming diseases after individuals is unscientific and burdens our nomenclature unjustifiably. This is true only in a certain sense and it is easy enough to formulate a law when such christening would be proper. The golden mean can be observed in this as in other respects, and the matter is one of such great importance that I do not hesitate to take up time in its elucidation. No trivial reason should justify such naming, but when there is an eminently proper cause for so doing, such as in this instance, the medical profession would profit by having the discoverer's name forever associated with the disorder.

If a disease *can be accurately* named descriptively, then the descriptive name should be preferred, but the risk is run that with the advance of knowledge the name ceases to be descriptive and too often is absolutely erroneous and misleading. At one time the sacrum was dubbed sacred as the seat of the soul, because supposed to be imperishable.

A formidable disease became universally prevalent after the return of Columbus from America and we were threatened with its perpetuation as the American disease, just as at one time its companion was known as *Französische-Krankheit*; but as attention was called to the fact that the greatest pretenders to piety were the most numerous sufferers a diversion was made in favor of the title "holy sickness." The etymology of the word "syphilis" is obscure, and hence the name is arbitrary and becomes as much of a *nomen proprium*, as had it been called Smith's or Jones' disease. Gonorrhœa is a misnomer, because it means a flow of sperm.

Huxley opposes descriptive names, in the main, in zoölogy, and holds that it is far better that we should forget the etymology of any animal name, and use it merely as a title without regard to its origin.

Descriptive naming is carried to extremes by savages in such appellations as "Sitting Bull," "Red Jacket," "Man-Afraid-of-his-Horses," and the tough element in our cities describe one another as "Shorty," "The Bruiser," etc. I merely mention this as an offset to the radical claim that diseases should in no case be named after those who first described them. Purely arbitrary names that convey no descriptive meaning often have decided advantages, the foremost advantage being that an arbitrary name such as Bright's, Addison's, Grave's disease cannot pos-

sibly mislead. You receive the history of the disorder in the name and are compelled to learn what it was that Bright, Addison and Graves discovered.

I was disposed to the belief that this sort of thing could be overdone, through naming of such obscure complaints as Thomsen's disease, infrequently occurring disorders such as the Cheynes-Stokes breathing, Argyll-Robertson pupil, but as the law of survival of the fittest would overtake inappropriateness in this regard, I now incline to thus honor discoverers, and we all realize that little enough honor is accorded by any delver in our profession, however conscientious and gifted.

Let me tell you of an instance where immense advantage would have been gained by avoidance of attempts to describe a disease in a name: The terrible form of insanity now called "paretic dementia" by alienists was first described by Bayle in 1822-26. Later Calmeil missed the opportunity of his life, because, while he clearly recognized the differences it presented from other forms of insanity, he did not attach his predecessor's name to the malady as he should have done. So doing would have saved thousands of insane from the gallows, the guillotine, the prison. Could we have had Bayle's disease, instead of the present abominable array of misnomers, every physician would have known something about it, and recognized it as an entity, instead of to-day having to learn that there is a disorder that suddenly attacks some overwrought business men, oftener the rich than the poor, the ambitious rather than the drone, the intellectual rather than the thoughtless; the trouble that killed Sir Walter Scott, and other historical personages, a trouble whose pathology has been worked out even better than has been that of pneumonia; a mental ailment that presents distressing problems mainly because so few know what is absolutely known concerning it. It is too late to call it Bayle's disease, it is with the utmost difficulty that the recent designation "paretic dementia" is favored. I speak to you of the affection that has been called in our books "general paralysis of the insane," "progressive general paralysis," "general paralysis," "general paresis," "paralytic dementia or dementia paralytica," "progressive paresis," and their equivalents in French and German. Not one of these descriptive names really described the disorder, and excellently educated physicians, not versed in this particular matter, have been led into deriding the very existence of the complaint, *through taking the name as descriptive*. Fordyce Barker, of New York, who was a specialist in everything, aroused the applause of the court room mob in the Guiteau trial by swearing that there was no such thing as "general paralysis" except in death. Yet doubtless not one in that court room but would have thought he understood precisely what was meant

had the atrociously lying name "softening of the brain" been used instead.

A volume could be written upon the accursed influence of that word grouping: "softening of the brain." It has been used in a metaphorical sense for a century. In the ignorant mind satisfactorily descriptive of what to the pathologist is complex, and often involves sclerosis, atrophy, or putting it popularly, "hardening of the brain."

While pathologist of the Chicago County Asylum the certificates I filed from the thousand city practitioners included in "softening of the brain" at least fifty dissimilar insanities, such as melancholia, paranoia, atheromatous insanity, hebephrenia, mania, katatonia, circular insanity, confusional, stuporous insanity, and even terminal dementia. Every insanity almost was "softening of the brain."

Every physician in the world should remember that from the standpoint of the alienist there is no such disease as "softening of the brain." The pathologist can tell you of numerous kinds of brain softening; red, yellow and white, that are merely degenerative processes more often associated with paralytic than mental phenomena, subsequent to extravasations, embolisms, thromboses. Whosoever speaks of "softening of the brain" as a mental derangement either caters to ignorance or is himself ignorant of alienistic science.

Turning again to scientific nomenclature we find precision in electrical science in the naming of measurements: farads, volts, ampères, ohms; and in currents: the faradic, galvanic and franklinic, after Faraday, Watts, Ampère, Ohm and Franklin. Very true the names themselves convey no meaning to the uninstructed in electrical science, just as the term Erichsen's disease would compel some attention as to what was meant, though every ass would suppose he knew what was included in "concussion of the spine" and "softening of the brain."

Oppenheim, of the Berlin University, carefully studied the effects of concussion accidents and incidentally some nerve injuries, and included all under the title "Traumatic Neuroses," and forthwith that name has been adopted by several writers in lieu of spinal concussion. The impropriety of this is evident when we reflect that while Erichsen's disease may be a traumatic neurosis, sciatica, paralysis agitans, chorea, myelitis, epilepsy, and myriad diseases may also be traumatic neuroses, so that term is too generic, and the fact that Erichsen's disease is one of medico-legal importance does not warrant so sweeping a designation in which can be included thousands of other ailments.

S. Weir Mitchell, during the late war, made extensive researches with regard to direct injuries to nerves, and the traumatic neuroses described in his book differ widely from those investigated by Oppenheim.

Sperling and Kronthal, in the *Neurologisches Centralblatt*, June 1-15, 1889, report a case that died from cardiac and pulmonary disease, the autopsy revealed arterial sclerosis to a marked degree with occasional hyaline and fatty degenerative spots in the entire arterial system, particularly in the cerebro-spinal vessels. The trunk of the sympathetic was peculiarly degenerated. There were scattered degenerative spots in the white part of the cord and in the gray of the lower dorsal region and a small hæmorrhage in the mid-dorsal region. This sympathetic and arterial degeneration lends great plausibility to the theory I advanced that the spinal sympathetic was the main seat of the disorder.

Meynert, in the *Wiener Klin. Woch.*, 24, 26, 1889, locates the seat of the "traumatic neuroses" in the forebrain. Now no one can have a greater regard for the opinion of this famous cerebriologist, but occasionally Meynert can be as wrong as Charcot or Pasteur, and much of this fallability comes from the impossibility of a single mind, however trained, to grasp all aspects of the limitless field of human knowledge. In these days it is the ignorant alone who claims to be instructed in *all* departments of medicine and surgery.

The depths of our attainments are inversely as their breadth, and the specialist is narrow whose career was not begun as a general practitioner. To be a pathologist and nothing else, a neurologist and nothing else, may confer ability in some few particulars but breadth of thought can only be brought to bear upon a special line through previous observation in many fields.

Meynert has studied the minute anatomy of the brain but he has not studied spinal concussion in its entirety, and his immense knowledge of the cerebrum is misapplied in endeavoring to locate the vast range of general vaso-motor phenomena in a simple lesion of a restricted part of the brain.

Instead of a wrangle over the threadbare legal attitudes this matter can assume I should be glad to have the views of my confrères upon the pathology of the neurosis and the advisability of naming it after the great London surgeon Erichsen.

DR. HERBERT JUDD, of Galesburg, Ill.: In connection with the discussion of the "Legal Aspect of Spinal Concussion" I beg to say that during the past twenty years I have known of twenty-six cases, all in the State of Illinois, of so-called concussion of the spine, that have been brought to my notice, and which I have watched with some interest, while the cases were under consideration by attorneys for corporations, against which claims for damages had been preferred.

I have known of many other cases of this disorder, in which there existed grave doubts of the

patient having sustained any injury, but the twenty-six cases referred to can be verified by the files of papers in the office of the attorney of the Chicago, Burlington and Quincy railroad company, at Galesburg, Ill., and the affidavits and evidence there preserved. When the liability of the railroad company for whatever damages the claimant had sustained was conceded, there were but few of the cases litigated, but were settled prior to suit in some cases and prior to trial in others. In all the cases I especially allude to the genuineness of the claim, that of permanent injury from shock or concussion of spinal cord, was denied by the railroad attorney, upon the candid opinions of surgeons and physicians obtained by the company. In every case, however, the railroad attorney negotiated the best settlement possible, and usually regarded it as good policy to pay liberal sums rather than to submit to a trial when courts could not give protection against perjured, prejudiced and ignorant testimony.

Some of these cases had "litigation symptoms" for a long time prior to settlement. Several of them were so serious as to render the patient bed-ridden and helpless, but in all of them thorough and complete recovery resulted. In most of them recovery was rapid and rather astounding, and it was noted that improvement followed swiftly after the "damages were paid."

Understand that in all these cases, the only question in controversy was that of actual injury. They were cases in which the symptoms were subjective, and the condition of the patient could be determined alone upon his statement, to which too much credence is often given by physicians. These were cases where it was deemed the best financial policy to submit to black-mail to avoid legalized robbery, the amount of which depended upon the sympathies of a jury with a claimant, and their unreasonable prejudice against corporations, all of which they assume to believe are immensely wealthy and able to stand the assessment.

I know of no case of actual patent injury, caused under such circumstances as to create a legal liability, where there was any serious trouble in arriving at a fair and just sum to be paid as damages, satisfactory to both parties; nor do I ever expect to see such a case of actual permanent injury, in court and on trial where the question of liability has been conceded.

All such honest, just claims can be and ordinarily are settled out of court. I have little faith in book cases of spinal concussion.

These special cases I have referred to had their origin in the hints, and suggestions and help of Erichsen. The study of Erichsen began, with date of accident to train; the patients were crammed with directions for fraud. The cases I have in mind were carefully watched and traced up after settlements were made. This was done

as a source of information and to verify if possible the views of fraud entertained; and, as I have already stated, every one of them recovered, and in several of them the fraud became so apparent as to cause some notoriety to the patient, and some unenviable notoriety to the advising physician, especially in a few cases of complete recovery after a long and no doubt laborious siege of "total disability."

I believe there is a maxim of the criminal law that every person is to be regarded as innocent of crime till proven to be guilty. It seems about time that surgery should have and act upon a maxim, that every person claiming disability from concussion of the spinal cord, where no objective symptoms are to be discovered, is to be considered as planning for your aid in enabling him to rob some employer; until you can by your own knowledge of the case discover that injury actually exists.

If physicians would or could consider and treat all cases of alleged spinal concussion without regard to, or any consideration of the desires of the patient to reap a money compensation, there would be less difficulty in effecting cures. If the physician would confine his services strictly to his own duty to effect a cure, and refuse to consider or meddle with the financial or pecuniary plans of his patient, he would attain much more brilliant success in his treatment. If he in good faith endeavors to effect a cure, and not to establish a case of permanent injury for the pecuniary benefit of the patient, or to gratify his avarice, he would find few cases of the disease under consideration.

How many cases of concussion of the spinal cord can any of you recall in your own practice, where the patient fell from a load of hay, or was thrown from his own wagon, or fell from a barn loft, or received injuries or met with an accident for which no one but himself or his own family were blamable? If you would consider these cases as you consider and treat spasms in children during the first and second dentition, or fits resulting from worms, you might be led to better means of improving the physical condition of the patient. If you would refuse to minister for the benefit of the patient's estate, and apply your skill to his person, you might acquire more success. If you would exert your proper influence to keep your patient out of the hands of the "calamity lawyer," and to shut out from his mind all present consideration of the possible pecuniary gain, you would have taken a giant step towards his cure.

Is it not our duty as physicians to benefit the physical man, even at the expense of property?

Is not health worth more than riches, even honestly gained? I have said this much with the sincere desire for the good of the profession. Facts are "brutal things" to deal with.

DR. CLARK GAPEN, of Omaha, agreed with Dr. Clevenger that the disease described by Erichsen under the name "spinal concussion" should be named "Erichsen's disease," not only to fix it more accurately, but because a large amount of obloquy attends the subject which Erichsen ought to bear. His book is said to have cost English railways fifty million dollars, and American railroads as much more. Dr. Gapen had taken Erichsen's cases and classified the symptoms under objective and subjective heads, and was amazed to find how few were the objective. His experience had in the main agreed with that of Dr. Judd in that most of the cases were either hysterical or malingering; moreover, many of the symptoms, as flushing, increased temperature, emotionalisms, were in fact cerebral symptoms rather than spinal. Page has shown how difficult it is to injure the cord owing to its looseness in the bony canal and the fact that it is surrounded by fluid. Actual injury is very rare and usually well marked from the outset.

DR. HAROLD N. MOYER, of Chicago, stated that he was rather astonished at Dr. Judd's statement that concussion cases did not occur unassociated with damage claims. Dr. Judd's experience must be limited indeed to allow him to make a remark of that kind, for in the past five years Dr. Moyer had seen a large number of concussion cases in which there was no suspicion of a damage suit, and these did not differ at all in course, symptoms, duration or termination from those that had been the subject of legal contention. Dr. Moyer heartily agreed with Dr. Clevenger in suggesting the propriety of the term "Erichsen's disease;" while it is not all that one could desire, yet it is such a great improvement upon that of "spinal concussion" that it should be adopted, at least until the pathology and morbid anatomy of these conditions shall be better understood.

In reply to Dr. Moyer; DR. JUDD said he had been in active practice twenty-two years, that he had seen concussion cases in which there was no suspicion of a damage suit, but that all such cases recovered; that litigation cases did not recover until paid for.

DR. ORPHEUS EVERTS, of Cincinnati, said: I approve the suggestions of the paper, and think the adoption of the term "Erichsen's disease" proper and useful. If a definite term is used by a medical man referring to disease, such as "Bright's disease," "Basedow's disease;" as to surgical operations, such as "Battey's operation," etc., it is generally, or presumably, because he has definite ideas respecting conditions thus named after original investigators, while more general terms, such as "spinal concussion," "kidney disease," etc., do not convey such definite ideas, or other than vague notions of some disorder of organs named, however slight or severe, or however caused.

It is convenient, however, for practitioners who are not scientific to have these general terms for use in emergencies—they sound well, and if delivered with proper expression go a great way in confirmation of one's reputation for wisdom. For example, the term "softening of the brain." If one meets with obscure but serious cerebral symptoms all that is necessary is to say, with becoming gravity and a look of significance, "softening," and the whole business is settled.

"Congestion" used to be the favorite term by which to account for failure in treatment of various forms of disease, terminated often unexpectedly by death. All the baffled practitioner had to do was to shake his head, and say "congestion." Such terms are convenient—for the concealment of ignorance. The name of Erichsen is worthy of commemoration, and may well be associated with a form of disease which he has so well described.

DR. KIERNAN, of Chicago, had the clinical experience of Dr. Moyer. That railroads were not always of the type described by Dr. Judd was shown by the Chicago railroad "jury fixing" cases. That spinal concussion existed, the case reported by Dr. McIlvaine, of Peoria, would alone demonstrate. A female victim of a railroad accident had been suspected by Dr. McIlvaine of being a malingerer. She had secured damages, but the spinal disease had gradually progressed into helplessness and death. Dr. Kiernan had himself seen similar cases.

DR. G. FRANK LYDSTON, of Chicago, said: I consider the work which Dr. Clevenger has been doing upon the subject of so-called "spinal concussion" a most important advance in medicine. His adoption of the term "Erichsen's disease," while open to some objections, is on the whole a wise and useful plan. The laity have already learned that spinal concussion is an omnibus which may be made to cover much malingering. By the adoption of the term "Erichsen's disease" we will at least compel the humbug to learn his lesson over again. The term will certainly convey to the malingerer the idea of a distinct and definite affection which he must substantiate by plain and positive proofs. I am aware that it is not easy to evolve order out of the chaos of symptoms which characterize the results of concussion of the spine, but as far as may be I believe that Dr. Clevenger has accomplished it. His explanation of the pathology of the varying phenomena of Erichsen's disease, is thus far the only rational and intelligible one in medical literature. I regret that he has not said more of his theory to-day. Personally I would advise those who are not familiar with his views, to read his book. If others derive the same benefit from its perusal that I have done, they will feel amply repaid.

DR. CLEVINGER, in closing the discussion, stated that he had been astonished at the im-

provement of some patients after the settlement of damage claims, but this seemed to be due to the relief from worry which the conclusion of the suit afforded; but it would be presumption to affirm that such cases were *entirely* cured until years had elapsed and unprejudiced opinion been engaged. This "quick cure by settlement" savored too much of the unscientific assertion of Herbert Page, who was the most ordinary special pleader for railways.

While both Dr. Gapen and Dr. Judd had been opposed to Dr. Clevenger in recent suits against corporations, and seemed to look at the matter from one standpoint, the latter had frequently been called as expert for either side, and sometimes for both sides at the same time.

The statement that there were no vaso-motor centres in the spinal cord, and hence the symptoms were cerebral, was rather surprising, when the sympathetic system is so intimately united to the spinal all the way down the cord length, and such ordinary matters as constipation and hæmorrhoids producing brain troubles show that such "vaso-motor" difficulty as emotionalism need not have its origin necessarily in the head.

The intimation that subjective symptoms were always false, when made the basis of claims against railways, is on its face absurd. Physicians have to judge from the consistency of symptoms whether they were real or not.

Contrary to Dr. Gapen's findings, Dr. Clevenger had devoted all his spare time for three months in analyzing Erichsen's cases, and found an abundance of objective signs in all. But it depends upon what is meant by "objective." To the uneducated the galvanometer and electrical indications convey no meaning. Paralysis and insanity of the gravest kinds would present nothing "objective" to the biased witness. There are cases in which no honest opinion can be reached, and in such it is best to allow the mind to remain a "scientific blank," as Huxley advises. Only the untrained imagine they must have a positive opinion upon everything under the sun. Sometimes a little waiting will determine matters.

A case examined a year ago presented nothing but purely subjective symptoms, and to-day there is atrophy of an arm. In another instance a laborer fell partly into a coal hole, with one leg in and the other out, and after a year is unable to do any work, but there was such an utter absence of anything in the way of electrical or other findings, and so many of the ordinary symptoms of Erichsen's disease were missing, that Dr. Clevenger told the lawyers that everything depended upon the credibility of the witness, and he preferred having nothing to do with the case as it stood at present.

We find many instances, in and out of the books, of fatal issues among patients accused of malingering. We occasionally find a conscien-

tious railway surgeon who acknowledges that railway accidents do not always improve health, and that a few dollars' settlement will not resurrect the dead.

A NEW METHOD OF LARYNGEAL AND BRONCHIAL MEDICATION BY MEANS OF A SPRAY AND TUBE DURING THE ACT OF DEEP INSPIRATION.

Read in the Section of Laryngology and Otology at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY J. MOUNT BLEYER, M.D.,
OF NEW YORK.

I bring before you a novel method and use of the ordinary cold spray. By the extra aid of a hard rubber tube six inches in length and three-quarters of an inch in diameter on both sides of its openings, through which a cold spray with tip pointing downwards is passed and held in the mouth between the lips which are clasped over the tube. With this tube, spray, and position of the lips and deep inspirations any desired medicated fluid amounting from a half to one ounce may be forcibly inhaled during the act of ten deep inspirations, and thus reach the deeper portions of the respiratory tract, without coughing, gagging, or immediately expectorating the fluid thus inhaled. The time occupied for re-expectorating the fluid medicament thus inhaled varies in different individuals. Some begin lightly within from five to ten minutes after the inhalation, others again half to three-quarters of an hour later. The sputa which is expectorated for several hours after contains a certain amount of the medicated inhalent used, showing thereby that the desired medicament used remains in contact with the diseased parts long enough to have its therapeutic effect.

The Method of Making an Application.—The patient is placed in an upright position, or, better, standing. The collar or tight dress about the neck is removed so that nothing interferes with taking deep and slow inspirations. The position of the head is an important point to be observed. It must be inclined backwards during the act of each inspiration so as to destroy as much as possible the rectangular curve that the windpipe makes with the oral cavity. The patient before being made to use these two instruments, must be shown how to take deep inspirations and slow expirations without exerting himself. He must also be taught how to hold in the breath for a few seconds after each inspiration. Those are some of the cardinal points to be looked after in order to get the results from each inspiration. These points are easily acquired by patients. When once understood how to make use