and chloroform, writes: "Ether is undoubtedly safer; that is to say, life is not so quickly destroyed by it." ("Remarks on the Production of Sleep during Surgical Operations." By J. T. Clover, F.R.C.S. BRITISH MEDICAL JOURNAL, February 14th, 1874.) In Dr. Neligan's well known work on *Medicine*, edited by Mr. Macnamara, I find it stated that "the great recommendations (of ether) are the complete state of anaesthesia it produces, and the safety attending its employment—a safety so remarkable that its exclusive use has become a law in the Massachusetts Hospital".

But we may ask some further questions before we decide to give up chloroform for ether. Are the more remote ill-effects arising from ether-inhalation greater than those which spring from the use of chloroform? So far as I have seen, vomiting, the chief troublesome after-effect of anaesthetics, is met with as often after one agent as after the other. Speaking of the remoter consequences of breathing ether, Mr. Clover says: "Sickness is about as frequent as after a moderate use of chloroform." Dr. Neligan mentioned, as one of the disadvantages of ether, "the subsequent persistent taste and odour of ether experienced even for days by those to whom it had been administered". There is, perhaps, a little truth in this: but, with the liberal admission of fresh air, the taste and smell of ether, which are not unpleasant to most people, soon pass away. It has been said that bronchitis may arise as a consequence of ether-inhalation. I have never met with such a result, nor with anything approaching to it. The condition which has probably been mistaken for bronchitis is one which I have observed, and one to which Mr. Clover has drawn attention in the following words. "The flow of saliva is considerable; and the larger air-tubes are often obstructed by fluid, which makes a loud moist rhonchus; but it does not appear to be of much consequence, as it passes off afterwards." Patients who have taken ether usually complain of nothing more than a slight feeling as of recovery from drunkenness. Are there any other inconveniences attending the administration of ether as compared with that of chloroform? It takes a very few minutes longer, as a rule, to produce anaesthesia with ether than with chloroform. But I have induced perfect surgical anaesthesia with ether, so as to permit the painless performance of the operation for squint, in three minutes. Ether is not quite so pleasant to breathe as chloroform, and it is more apt to cause a feeling of suffocation during the first few inhalations. But no inconveniences of such a trivial and temporary kind as those I have mentioned—inconveniences involving time, or taste, or trouble—ought to deter us from using the safest anaesthetic we possess. If our patients were able to decide the question, safety would be the paramount consideration with them.

I have generally found it best to give a little chloroform at first. One drachm is usually sufficient. I give a drachm as a dose, poured upon a thickly folded towel, held about two inches from the patient's mouth. After this quantity of chloroform has been inhaled, ether can be borne, in most cases, without giving rise to any choking. There is rarely more effect from this quantity of chloroform than a little mental obscurity. I then give the ether, in doses of an ounce at a time, poured upon a sponge, fixed at the top of a cap-shaped inhaler, made from an ordinary bedroom towel. The inhaler I use has been devised and described by my friend Mr. Lloyd Owen. It must be applied closely around the nose and mouth; I like it to be large enough to include the nose and the chin. But little air must be admitted. The dose of ether must be renewed about every two minutes, removing the inhaler completely from the face, and allowing one or two inspirations of air, until anaesthesia be induced. When the insensibility is perfect, it may be maintained by giving smaller doses of the ether, half an ounce, at less frequent intervals. We can only judge whether to stop or continue the administration by the condition of the patient. We must give enough ether to produce anaesthesia, and we must continue to give it so as to maintain anaesthesia, so long as the operation may last. But it must never be forgotten that even ether is not absolutely safe when given to full anaesthesia. The administrator must never cease to watch the patient closely, observing, with undistracted attention, the breathing, the pulse, and the colour of the face; he must have nothing whatever to do with the operation or the operator, not even to look at it or him; he must be wholly occupied with his own most important and responsible work. Whether chloroform or ether be given, it must be given with carefulness, but yet with confidence; "we must get rid of fear, we cannot act at all till then"; we must avoid alike timidity and temerity.

And now, gentlemen, I have done. I have been obliged, from a regard to time, to leave unsaid much that I should like to have said concerning anaesthetics, concerning more especially the relative values of the various methods of administration. I have been obliged to omit all mention of many little practical details which I have acquired in a somewhat lengthened experience of the employment of chloroform

and ether. But I have striven to confine myself to the question before me, and to discuss it fairly, which is the better anaesthetic, ether or chloroform? I have endeavoured to justify my conclusion that ether must have the preference. I hope I shall not be misunderstood when I say that, on giving up chloroform, I had to overcome that kind of prejudice which springs from habit. We ought to have no prejudices in such matters as those before us; we can none of us advance in scientific or in any other kind of truth until we can more or less completely get rid of prejudice. Its "rotten pales" should never confine us. But I was insensibly and not unnaturally biased towards chloroform, because I had given it largely for several years, because I had given it safely more than a thousand times. But I have had a growing sense of the danger of chloroform; and the results of my reading and of my experience, and my sense of duty towards those who have been placed in my hands, have led me to give up its use for that of ether.

RAILWAY PATHOLOGY:

CASE OF HARRIS *versus* THE MIDLAND RAILWAY COMPANY.

By JOHN CHARLES HALL, M.D.,

Senior Physician to the Sheffield Public Hospital; Lecturer on Medicine at the Sheffield Medical School; Physician to the Midland Railway Company; etc.

IN a leading article, the BRITISH MEDICAL JOURNAL of November 27th directs attention to the case of Harris *v.* the Midland Railway Company, recently tried at Westminster Hall before Baron Pollock and a special jury; the case being one in which the plaintiff claimed compensation for personal injuries said to have been sustained on the defendants' line, through the negligence of their servants. As the consulting physician to a large portion of the line over which the trains of this company run, as it was in my district that the accident happened, as I saw Harris the day after the accident, and as, owing to the case being settled out of court, the defendants are as yet medically unheard, I venture to supply some pathological particulars which cannot fail to be of interest to our profession.

It is said in the article referred to, "We should very much like to see a *verbatim* report of a dozen or two of railway cases in print". I have already supplied a good many to the JOURNAL,* and promise ere long to send more. In this case, the medical men called in by Mr. Harris were Dr. Sterling, Mr. Maunder, Mr. Erichsen, Dr. Hardwicke, Dr. Ramskill; by the Midland Company, Mr. Saville, Mr. Skelding, Mr. Gay, Mr. Jonathan Hutchinson, Dr. Radcliffe, Dr. J. C. Hall. It must be remembered that part of the attendance was at The Holmes, near Rotherham; part in London. Hence the number of medical men engaged.

We may have had to deal with what my lord was pleased to term "*questions of the highest physiological and scientific refinement, concerning which there might be difference of opinion amongst the most distinguished members of the profession*"—questions which I deeply regret an opportunity was not afforded of discussing before Baron Pollock and the jury; but, in a *£ s. d.* point of view, it doubtless saved the Midland Company money to get rid of the enormous costs of another day's trial, as the very able counsel and solicitors of the company, on the suggestion of the judge, at once perceived. No one denied for a moment that the man was entitled to some compensation; the points in dispute being the nature, amount, permanence or otherwise, of the injuries alleged to have been sustained; and was there, or was there not, great exaggeration? I think all the medical men engaged were of opinion that the man would recover. In how short a time—the case settled, the trial over, the verdict of the jury given, and the damages paid—was a question about which there would have been, no doubt, a difference of opinion. For my own part, I thought, and, for the sake of Mr. Harris, most sincerely hoped, he would very soon be restored to his usual health. The evidence of his own witness, Dr. Ramskill, as reported in the *Times*, is well worthy perusal.

The accident happened near The Holmes Station, on the night of Thursday, December 10th, 1874. (This date will be found of importance in considering the length of time the patient's symptoms lasted.) Plaintiff was in a third-class carriage; he had come that day all the way from Exeter, a distance of about two hundred and seventy-five miles. The weather was very cold, and there was a deep snow on the ground. I may say that, at the time of the accident, the train was "pulling up"; and, so far as my experience goes—and few men living have seen more of these cases than myself—in estimating the probable severity or otherwise of the injuries sustained, it is most important to

* Now published separately, "Medical Evidence in Railway Accidents".

ascertain the speed at which the train was moving at the time of the accident, the nature and weight of the opposing obstacle, and whether it was fixed or moving. These are all questions affecting the probable severity or otherwise of the injuries sustained; for, like any other kind of accidents, those occurring on railways may be serious or the reverse. The presence or absence of cuts, bruises, or fractures, will also assist us materially in estimating the force of the collision.

I may remark, with regard to this accident, that, in addition to Harris, I saw, in consultation with different surgeons, many of them living long distances from Sheffield, thirty-nine other cases, which I attended in consultation until they had all recovered. Every case was *settled by the Company, through its authorities, without trial*, save that of Harris. Of course, I never attempt to settle any case, that being no part of my duty. Had I gone into the witness-box, I should have proved that all the cases in this accident had recovered; that they were comparatively slight. They were all third-class passengers. The most severe cases were, a publican who had a slight fracture of one rib, and a lady who miscarried. She had previously done so, and possibly this accounts for it. So far as I know—and in this opinion I am confirmed by the late Dr. J. Ogden Fletcher, of the Manchester, Sheffield, and Lincolnshire Railway Company—this is not a very frequent result of collisions on railways.

At the time of the accident, neither his own surgeon, Dr. Hardwicke, Mr. Saville, nor myself, regarded this case as a serious one. It is only right to say that Dr. Hardwicke subsequently, at the trial, modified this opinion; but then my old friend had been up to London; had seen, and had conferences with, some of the most distinguished consulting surgeons of the age; and possibly this may have been only another instance, in which we northern lights have paled before metropolitan luminaries.

At the trial, the plaintiff, who was carried into the court on a couch, swore he could not move his legs, walk, or stand. (During the first part of the examination, the right leg, like the left, had been straight. As the examination continued, it was drawn up, and described a half-circle. To this I drew the attention of the junior counsel, Mr. Gould; Mr. Waddy, Q.C., being at the moment out of court.) He knew nothing of what took place at the time of the accident. For some days afterwards, his mind was a blank. He said "he did not pass water for several days after the accident". Dr. Hardwicke said at the trial that this statement "excited his suspicions". He was at times sensible; at others, not so. What does intermittent sensibility mean? He said: "I recollected nothing of the accident until the Sunday morning." (The accident was on a Thursday night.) "I then found myself in a strange room. I saw my mother; felt pain in my feet and shoulders." The memory of Mr. Harris in the witness-box as to the accident appeared to be gone; not so as to his earnings and calling at Exeter. He did not remember that he had a conversation with the station-master at The Holmes, as to the cause of the accident, the night it occurred; nor his conversation, as sworn to by Dr. Hardwicke, with Mr. Saville and himself, when they gave him, as he sat by the fire, brandy and water; nor the visit of Dr. Hall the following morning, when he came to consult with Mr. Saville. No person from The Holmes Inn was called to say what was his condition during the time he resided there. All the witnesses were members of his own family, save the Jewish rabbi resident in Sheffield.

Extract from my Note-book, made at the time.—The Holmes accident, December 10th, 1874. The Rev. Mr. Harris, seen at The Holmes Inn, Rotherham, December 11th, 1874. I first saw Mr. Harris, aged 22, December 11th, 1874, the day after the accident, in consultation with Mr. Saville. I found him in bed. He appeared feeble, very badly nourished, pale, and looked more like a man suffering from long exposure to cold and want of food than anything I could discover. He was nervous, and, I thought, hysterical. He said "he had travelled all the way from Exeter the day before, and had been in the railway collision at The Holmes last night". He was perfectly clear and collected, and answered every question I put to him at once. He had a very slight abrasion over the eyebrow, and one on the toe, so slight as not even to require a bit of plaster. He said "he had pain in the head". He did not complain of any pain in the back or spine; nor did pressure produce any. He said he was unconscious, he thought, when the collision took place, for a short time. When he came round, he felt sick, but did not vomit. He could turn over in bed, and had perfect power over his arms and legs. The pupils contracted freely on the light of a candle being brought before them. Examined with the ophthalmoscope, both eyes were found natural. The urine was passed freely, as was the case during the whole of my visits in consultation with Mr. Saville, occupying a period of eighteen days. I saw it at each visit. The respirations were natural; pulse 74; temperature 98.5 deg. There was the most perfect command over the

sphincters. The whole of my attendance—I may say from the time of the accident to the day of the trial—whenever I saw him, this was so. There was never a complaint made to me of dribbling of urine—of suppression of urine—of retention of urine. In truth, when I saw him after the accident, there was no single symptom indicative of injury to the *brain or chord*. He walked, on leaving The Holmes—so he stated at the trial—from the hotel at The Holmes to a cab, leaning on the arm of a friend, and came on by railway to London. In London, he was seen in January, 1875, by Mr. J. Skelding of Easton Square, on behalf of the company. I have Mr. Skelding's report before me, who says: "He made the remarkable statement, that he did not pass water for several days after the accident—that is, four days—from Thursday to Sunday." Here I can only repeat that the memory of Mr. Harris failed him. Mr. Saville saw the copious pale-coloured urine which he passed daily. I saw it at each of my visits so long as he remained at The Holmes. There never was the slightest distension of the bladder, nor one symptom leading me to suspect suppression of urine; and I think that, after a failure to secrete, or, if secreted, to pass urine for so long a period, the symptoms would have been marked indeed. I carefully examined the abdomen at each visit, and especially so for this reason, Mr. Harris feared he had been ruptured by the accident. My frequent and careful examinations convinced him such was not the case.

I did not see Mr. Harris again until June 12th, 1875; Mr. Maunders, Mr. Erichsen, Mr. Jonathan Hutchinson, Mr. Skelding, Mr. Gay, myself, and others, being present. Mr. Hutchinson, at my request, attended for the Midland Railway Company. Compared with his appearance when I saw him at the Holmes, Mr. Harris was much improved. There was no expression of pain or distress in his countenance, nor was there a trace upon it indicative of pain or serious disease. His pulse was 98; his breathing natural; temperature 98.2 deg. His tongue was moist and fairly clean. His pupils were natural, and acted well; said he "could see and read well", but was "soon tired". There was nothing in his muscular system to call for remark. A slim-made man naturally, his thighs and calves were as large as could be expected, taken in proportion to the rest of his development. There was no difference in the size of his calves (carefully measured); nor could any difference of temperature be detected on the one side or the other. He could move the upper part of the body well. Asked by Mr. Hutchinson to grasp his hand, he did so very feebly; but, on Mr. Hutchinson assisting him to raise himself, he was seen to grasp his hand and pull with force. He sat on the couch with much apparent difficulty. When the support was taken away, he fell back helplessly. Afterwards he sat on the edge of the couch without any material support.

He did not raise his lower limbs at first; then he raised his knees, but never lifted his heels. When they were lifted, he complained of pain in the ankles, knees, and hips, but when it was tried to bend these joints, there was considerable resistance. It appeared to me during this examination, that the muscular resistance was much greater at one time than another. He was next tested as to the loss of sensation in the two limbs. He asserted that he could not feel even when the soles of his feet were tickled. Mr. Hutchinson then took hold of the hairs on the front of his legs, and, by them, he lifted the skin. Harris said, "I cannot feel in the least; I cannot tell my leg is touched". This, if so, looked to me like an almost perfect loss of sensation, and yet he again and again detected at once a light touch from the blunt end of a gold pencilcase, which I handed to Mr. Hutchinson.

Asked as to the pain in his back, he pointed to the middle of the lumbar region. At this part, he flinched on a touch light as a feather. But the same touch caused flinching over the crest of the ilium, or over any of the bones of the spine; or, in fact, over any part of the back.

He said he only passed his urine once in twenty-four hours, and that he did not pass much at a time. He stated to Mr. Hutchinson, that "he was unconscious for several days after the accident, and that when he came to himself he was in bed at an inn". It is matter of great professional interest to inquire how far it is consistent—although doubtless there may be exceptions to every rule—with the experience of physicians and surgeons, that inability to move the lower limbs for months, can exist with muscles seen to be in a perfectly healthy condition. He stated, June 1875, that he could not move his limbs, and yet, he could exert the muscles with no little power to resist the bending of the limbs. Sensation was said to be lost. Is such a state of things consistent with the amount of muscular resistance and power undoubtedly retained? This is a case of such importance in every way, that I should be glad indeed if my remarks may induce my friend Mr. Jonathan Hutchinson to publish in this JOURNAL his opinions of the many interesting phenomena we discussed as to this patient again and again.

The next time I visited Mr. Harris was a day or two before the trial. I saw him at the residence of a friend of his in Whitechapel, November 8th, 1875. Mr. Erichsen, Dr. Sterling, and Mr. Maunder, met Dr. Radcliffe, Mr. Skelding, Mr. Jonathan Hutchinson, myself, and others at the house. The plaintiff said, "I am better in health, but not so well in the use of my legs and feeling". He appeared to me looking better than when I saw him in June. The bladder was distended, and I suggested to Mr. Erichsen that a catheter should be sent for. This was placed on the table. He said, "I will try". He was placed upon the edge of the couch. He passed a large quantity of pale-coloured urine freely, and with force. He said he had no sensation down to a certain part of each thigh, which was marked by him with a pen and ink. The battery brought by Dr. Radcliffe having been broken in removing it from his carriage to the house, we agreed to meet again in consultation the next day.

November 9th. Mr. Erichsen was not present with us to-day, but Dr. Ramskill attended on the part of Mr. Harris for the first time. The power of motion and sensation was tested by Dr. Radcliffe; the continuous and induced current (Faradic) being employed. The test fully proved that the muscles had not lost the power of moving, nor had he lost sensation, whatever amount of spinal anæmia may or may not have been present. The battery applied, the feet, which had been everted, were drawn together, and the heels raised from the couch; the current removed, one would naturally have supposed, with such an asserted loss of muscular power, that the feet would again have fallen outward. They did not do so. The experiment repeated, a sharp cry indicative of pain proved the existence of sensation—I ought to say, the current applied was very weak. May we take it for granted that the excitation of contractions, when the induced magneto-electric current (Faradic) is passed through healthy muscle, as was the case here, proves that at any rate, to some degree, it was susceptible to the electric current, and possessed electro-muscular contractility, or irritability; and that the cry of pain indicated electro-muscular sensibility?

There are many other points in this case that it is to be regretted for the present, from want of time, I must pass over. But to me, in any man it does appear in the highest possible degree unaccountable, that with an alleged paralytic condition of the lower extremities, there should continue to be enjoyed perfect control over the bladder and rectum. The absence of all objective symptoms in all such cases is matter for the most grave and serious consideration before forming an opinion. When, therefore, I am called to see a patient who has been in a collision on a railway, and who is seeking compensation, who has remained in bed for months apparently without the power of turning over or moving his lower limbs, in which it is stated he has lost sensation, who has a healthy aspect, no difference of temperature between the parts said to be paralysed and the rest of the body, perfect command over the rectum and bladder, pulse natural, temperature normal, no bed-sores, no marked lesion of nutrition, no flattening of the nates, no wasting of the calves of the legs; I venture to say, and that, too, without wishing in any way to dogmatise, that there is the total absence of those objective symptoms which we expect to find, and do find, in injuries to the spine of a severe nature, in patients who have not recovered months after accidents of this nature.

Let us hope, however, that the railway spine, if not already so, will soon become a thing of the past, and that the views I expressed in this JOURNAL so long ago as in the year 1867, will be now generally held to be correct by the profession, confirmed as I am again by Mr. Erichsen, in his work *On Concussion of the Spine and Nervous Shock*.

MR. ERICHSEN, 1875.

"Injuries to the spine and spinal chord occur not unfrequently in the ordinary accidents of civil life. If, in these lectures, I speak more frequently of the injuries of the spine arising from this" (railway collisions) "than from any other class of accidents, it is not because I wish to make a distinction of injuries of the spine according to their causes, and still less to establish anything like a speciality of railway surgery" (p. 2). Again, he says, "I do not consider that these injuries stand in a different category from accidents occurring from other causes in civil life" (p. 5). He speaks of "railway injuries as peculiar, not different."

DR. J. C. HALL, 1867.

"The railway spine, as it is termed, I confidently submit, has no right to the peculiar place assigned to it. An injury to the spine, whether occasioned by a collision on a railway, or by a fall from a scaffold, can only be dangerous in proportion to the extent in which, at the time of the accident, or subsequently, the spinal chord or its membranes are affected."

It is quite impossible for a moment to associate the case of Mr. Harris with one of permanent injury to the brain or chord. At the time of the accident, there was no evidence of concussion, and, to use a homely proverb, at the worst, he was far more frightened than hurt. At the most, his could be, this November, but a case of hysterical paralysis, the traces of which must rapidly pass away. I find, after many railway accidents—which hardly deserve the name—patients give themselves up to despair, they lie in bed or on the sofa, take no exercise, and voluntarily resign themselves to an emotional condition, painful alike to themselves and to their friends.

Speaking of those who suffer from hysterical manifestations after comparatively slight injuries, in his recent very able work, to which attention is directed in the article in the JOURNAL, Mr. Erichsen writes, p. 203, "My experience of these cases leads me to consider the prognosis as much more favourable than might have been anticipated; or, than I was at one time disposed to consider it".

That they recover—rapidly recover—is certain; but, without a wish in any way to insinuate deception or feigning on the part of any who have been in a railway collision, every-day experience goes to prove that in such cases—and I have such a one under my care now—there is no modification of symptoms, no entire restoration to health and peace of mind, until the trial is over, and all the bitter fears and miseries of impending litigation have passed away. So far as I know, railway companies are ever ready to deal with all who may have suffered, fairly and most liberally. How much, then, of pain, sorrow, and anxiety would be saved, if the claimants would at once grasp the friendly hand held out to them, instead of enduring for months the anguish inseparable from the anticipation of the day on which they will have to appear as witnesses in a court of law: the trial over, then only to discover beyond doubt that, had they accepted the offer made to them, in every sense, pecuniary included, they would indeed have been gainers.

THE WHITECHAPEL TRAGEDY:

REPORT OF THE POST MORTEM EXAMINATION OF THE REMAINS.

By F. G. LARKIN, M.R.C.S.Eng.

ON Saturday, September 11th, 1875, I was called to the Stones End Police Station, about 5.30 P.M., where I was shown two parcels wrapped in American cloth. On opening them, I found one parcel to contain the trunk, and the other bundle the remaining portions, which collectively were the remains, beyond doubt, of a human female about five feet high, and about twenty-five years of age, and those of a thin person. The body had been very recently and most unscientifically dissected. It was in a very stinking and decomposed condition; some parts were more or less "mummified", whilst other portions were in a state tending to "adipocere". I have examined the remains several times, at first by myself, and subsequently assisted by Mr. Bond of Westminster Hospital. The body was, roughly speaking, divided into ten parts, as follows: two hands; two arms; two legs and feet connected (the left leg included part of the patella); two thighs, including portions of the pelvis (the right thigh included the patella, the left thigh included part of the patella); one trunk, excepting the front of the pelvis; one head and neck.

Hands.—The left hand (or rather the bone) had been broken off just above the wrist-joint; the right hand had been removed more carefully *through* the same joint; otherwise, both hands were entire. There were no signs of a ring having been worn, the decomposition having advanced so far as to prevent the possibility of such evidence (moreover, it is a known fact that these rings had been in pawn some months before death). The nails were easily removed.

Arms.—The head of the left humerus had been cut through. The limb was entire, excepting a small portion which was attached to the hand. The right arm was broken off just above the middle of the humerus, the upper part of which was still connected with the trunk; the remainder of the limb was entire down to the wrist-joint.

Legs and Feet.—The knees were smashed about, especially the right. A wedge-shaped piece had been cut out of the back of the left knee-joint. The left great toe was broken at the extreme joint. The nails were easily removed. A pair of boots proved to have been worn by the missing woman, I found to correspond to, and they could have been worn by the feet of the deceased. The length of the feet was 8½ inches, and that of the boot 9 inches. There was an oblique scar from a burn, about one inch long, and three-quarters of an inch wide, very