

CHAPTER XXIV

EPILEPSY, APOPLEXY, HEATSTROKE AND MALINGERING

Epilepsy.—Two problems face us where epilepsy is alleged as the result of an accident:

1. Whether the epilepsy is real or feigned.
2. Whether it can be legitimately attributed to the accident or not.

The differences between real and simulated epilepsy are many and striking, and a man has to be a very clever actor, and to have had many opportunities of studying his part, if he is to deceive a competent observer.

The table on p. 401 shows the chief differences.

The well-known devices of producing froth by chewing soap, and blood by pricking the gums well, of course must not be forgotten.

It is, for very obvious reasons, seldom that one gets an opportunity of observing a case of simulated epilepsy. A lay person may very readily be deceived, but not so a medical man; hence these attacks are arranged for in the absence of medical men. As a rule, the question of whether the case is one of true or feigned epilepsy has to be very largely decided upon the evidence of eyewitnesses—a very unsatisfactory method, but often the only one possible. I once gave evidence in a case where it was suspected, with good reason, that a large number of witnesses were in league with the claimant. Unfortunately, this was not found to be the fact until some time after the action had been tried and substantial damages awarded and dispersed. It is of the utmost importance, in obtaining statements from witnesses of supposed epileptic seizures, to abstain from putting leading questions, and to encourage a spontaneous statement of what was actually observed. Each witness should be examined separately, and

COMPARISON OF TRUE AND SIMULATED EPILEPSY.

<i>Symptoms.</i>	<i>Real Epilepsy.</i>	<i>Simulated Epilepsy.</i>
Aura	Often present.	Generally absent.
Fit: time and place	Fit takes place at any time by day or night, whether onlookers present or absent.	Shammer makes sure of the presence of spectators before having a fit.
Onset	Patient turns pale, cries out, and falls anywhere, regardless of circumstances.	Fall not so abrupt, and in such a way as to avoid injury.
Colour	Marked pallor of face at first, followed by cyanosis.	Pallor absent.
Cry	At onset, but none during progress of fit.	Much crying and moaning.
Course	Breath held, followed by a deep inspiration; patient becomes livid and stiff, <i>then</i> convulsions <i>begin</i> , slight at first, rapidly increasing, and suddenly declining.	Convulsions do not follow the order characteristic of a true epileptic fit. Cyanosis and asphyxia absent; tongue not bitten.
Injuries	Tongue bitten; cuts, bruises, or burns, from falling on hard objects or into fire.	None.
Eyes	As a rule, pupils dilated, staring, insensitive to light; later fluctuating for a time. Conjunctivæ insensitive.	Pupils normal size; react to light. Conjunctivæ sensitive.
Passing of urine during fit	Frequently occurs.	Never.
Consciousness ..	Always lost.	Retained.
Passing of fæces	Occasional	Never.
After the fit ..	Patient often stupid, dull, sleepy for a time. He answers in a confused, dreamy sort of way, but is sometimes very irritable, and may be comatose.	These symptoms absent.
Duration ..	Rarely exceeds a few minutes.	Indefinite, often long.

the statements compared. Only when a full description has been given, and the witness has, as it were, exhausted his recollections, should questions be asked.

After a genuine epileptic fit, whilst unconsciousness persists, the pupils may be observed *slowly* to expand and contract, re-expand and recontract, without any reference to the light.

I have a vivid recollection of a case which gave serious trouble from the fact that the workman had been previously examined by many medical men; and critical examination of a very voluminous dossier consisting of the medical reports of many doctors, showed in the clearest way possible that suggestion after suggestion had been made, negative answers being given to the first examiner and affirmative ones to the second. For instance, the first examiner inquired whether, during the alleged fit, the patient had frothed at the mouth, to which the witness quite truthfully replied in the negative; but to the second examiner, when the same question was asked, an affirmative answer was given. The second examiner asked the witness if the patient had bitten his tongue, and, as nothing of the sort had taken place, this fact was frankly stated; but, on the question being put by a third medical examiner, it was stated that the tongue had not only been bitten but had bled profusely. Later still, he told me that his tongue was so badly bitten that he had to live on slop-food for a week or ten days. This was proved to be untrue by adopting the precaution of getting the details in the absence of the members of the patient's family, and thus finding from the man's wife (who cooked his food) that, in point of fact, at no time had he had different food from the rest of the family. It transpired that she knew nothing about the alleged swollen tongue.

Many years ago I was waiting for a train at a large Metropolitan station, when piteous sounds from an adjoining platform attracted my attention. On going over, I found a man being held down on an ordinary luggage-trolley by many bystanders, and surrounded by a sympathetic crowd. The picture was one which no medical man could mistake, and those who were holding the writhing figure were told with some assurance to desist; this they at once did. To the astonishment of the spectators, the sick man stopped his convulsions, and

deliberately rolled himself over and over across the platform in the direction of the permanent way, but not on to it. The crowd naturally expected an explanation. A significant smile sufficed for a reply. The impostor, for such he was, now turned and reproached me for my interference, evidently preferring to be left to the tender mercies of his sympathizing friends.

On passing through the station some months afterwards, inquiry revealed that the bystanders had changed their line of treatment very quickly, and suggested that the sick man should be treated by means of the engine-hose: he then suddenly recovered. He was a loafer who was being transferred from one workhouse to another, and was in the habit of having "fits" at various stations, and as soon as these were over monetary contributions were always forthcoming from sympathetic but deluded bystanders.

Apoplexy and Heatstroke.—The following case illustrates the difficulties which sometimes arise when the defendant has had no opportunity, until long after the accident, of examining the injured man.

My report of the case was as follows:

Statement of Claimant.—D. G., a painter, aged thirty-nine, stated that whilst stirring up colour, between nine and ten in the morning, he suddenly became sick and felt faint. He fell, but felt no pain anywhere. He had his cap on at the time. He then went home in a tramcar, and next day his wife sent for the doctor who had seen him the day before. The parish doctor was then called in, who attended him once, and ordered him into an infirmary, where he remained two months, and subsequently he attended a hospital for diseases of the nervous system as an out-patient.

Present Complaint.—Pain in his right knee, and some loss of all kinds of sensation in his toes; weakness in the right arm.

Preliminary Statement.—The suggestion is that this man's illness is the result of a sunstroke, that the sunstroke occurred whilst he was at work, and that therefore his employer is liable under the Workmen's Compensation Act.

The point is a very important one, and as everything depends upon the history and the physical examination of the patient, I have taken care to go thoroughly and carefully into the matter.

History.—The history is important.

1. It is to be noted that the alleged sunstroke occurred early in the morning.

2. I asked him to detail his symptoms, and he did not mention pain in his head, which is an invariable accompaniment of sunstroke.

3. He evidently became unconscious suddenly, his own statement being that he felt faint and fell.

These symptoms are characteristic of what is called apoplexy, or "a stroke," and are not the symptoms of sunstroke.

Physical Examination.—There is no wasting of the muscles of his right arm. His power of grip is normal. I asked him to close his fingers upon mine, and to resist forcibly my attempting to open his, and this he did satisfactorily. It is evident, therefore, that he had not at the time of examination lost the power of grip in his right hand.

To test the power of his right hand I asked him to suspend himself on a trapeze in my consulting-room. In case, however, he was putting most of his weight on the left hand, I took the precaution of putting a loose bar over the trapeze, and he suspended himself from the loose bar. As the bar was loose, had he been using his left hand more than the right it must inevitably have slipped, which however it did not do, thus showing that he was able to suspend at least half his weight by means of his right hand.

Vision.—His sight is defective, being with Snellen's test-types with the right eye nil, and with the left one-third. This was improved by plus lenses.

General Condition.—His tongue is normal, but he speaks with an exceedingly bad stutter, which, he says, has become much worse since his illness. His heart and urine are normal. The left leg is normal in every way, including knee-jerks. With regard to the right leg, the knee-jerk in this leg is exaggerated; Babinski sign is absent, but ankle clonus is present. There is no Rombergism, and no Argyll-Robertson pupil. Both pupils are normal. When measured, the right thigh at its middle is found to be $\frac{1}{2}$ inch less in circumference than the corresponding part of the left one. The thigh is consequently somewhat wasted.

On asking him to bend his knees in a sitting posture, and to resist my forcibly straightening them, it is quite evident there is some loss of power in the muscles of the right leg. The sensation is normal, and he can stand for some time on the toes of both feet together.

Opinion.—When blood coagulates in one of the vessels of the brain, the result is called "thrombosis"; when blood coagulates elsewhere, and the clot is washed up to a small bloodvessel in the brain and there blocks the vessel, it forms what is called an "embolus." The result of either is much the same—viz., an apoplexy, or stroke. This, and not a sunstroke, has happened to the claimant, and it took place on the date of the alleged sunstroke. The heart showed no evidence of mitral stenosis or disease of any importance. Embolism is therefore unlikely. Lead-poisoning is excluded by absence of signs. His age was only thirty-nine years, and thrombosis from constitutional disease seems the most probable cause of the block.

An apoplexy may also be produced by rise of blood-pressure in the brain and consequent rupture of a bloodvessel.

It will be remembered that this man is a painter; that he was in a

	<i>Cerebral Hæmorrhage.</i>	<i>Heatstroke.</i>
Frequency ..	Common.	Very rare except in tropics, and not common there.
Conditions under which it occurs	Anything causing a rise of blood-pressure in the brain, as in straining, especially in a stooping position; also disease of blood with increased tendency to clot and disease of vessels.	Excessive heat, more especially if the air is moist and still; a temperature of 95° under these conditions is more likely to cause it than one of 115° if air is dry and moving.
Predisposing conditions	High arterial tension, such as occurs in full-blooded people and those who suffer from kidney and heart disease. (N.B.—Painters are specially subject to these diseases.)	Prolonged and exhausting work. Soldiers after a long march, stokers, etc. Very unlikely to occur early in the morning.
Facial aspect ..	Face flushed and dark.	Face pale.
Period of insensibility	May be prolonged into days.	Usually a few minutes only.
After-effects ..	Usually paralysis down one side of the body, which takes some considerable time to clear up, and often fails to clear up completely. Paralysis may take from 24 to 48 hours to develop.	Usually none. Occasionally headache; paralysis very rare, and then not definite hemiplegia, but of a few groups of muscles only.
Headache ..	May be absent.	Very marked symptom.

stooping position at the time of the seizure ; and that he had his cap on at the time. The attack was in the early morning, between nine and ten o'clock, and the heat was unlikely to be excessive at that time. The exact temperature of the atmosphere on the day and hour of the attack is important, and can be obtained from the Meteorological Office. Sunstroke attacks those who are exhausted ; X had barely begun his day's work. I have already referred to the admission that he had no headache, which is an invariable accompaniment of sunstroke.

It is quite evident from the physical signs that the attack was followed by a one-sided paralysis, which is characteristic of a poplectic stroke, and is very rarely if ever seen in sunstroke.

From this he has to a very large extent recovered, wholly in respect of his right hand, but not completely as regards his right leg.

Although he is undoubtedly recovering, and the weakness of the right leg is his sole disability, yet, from his manner, I am satisfied that he certainly does not mean to do any work if he can help it. In his present condition it would be impossible to say that he would be safe on a ladder, and he is, therefore, wholly unfit for this particular part of his work, although he could do almost anything else.

I held a consultation with the medical superintendent of the infirmary where the claimant had been an inmate, who agreed in my conclusions.

Result.—County Court proceedings followed. The medical aspect of the case was not tried, for the Judge decided that, assuming heat-stroke, D. G. was at the time of the attack running no more risk than anyone else who happened to be at work on the particular day and hour of the alleged accident, and that the attack, whatever it was, although it arose “ in the course of,” did not “ arise out of ” the man's work. Judgment for defendants.

I give a table on p. 405 which should be useful to those who may have to give opinions in similar cases.

CHAPTER XXV

ALLEGED INCONTINENCE OF URINE AND MALINGERING

PROBABLY, of all the symptoms that a malingerer can simulate, one of the most baffling is incontinence of urine. Fortunately, this particular form of malingering is rare. When medico-legal cases are sent for examination and report, there is usually only an opportunity for a single examination (lasting perhaps a short hour), which makes it wellnigh impossible for the examiner, whatever his suspicions, to disprove allegations of this particular disability when put forward by an impostor even of moderate cunning.

The probability that the existence of so distressing a symptom would be accepted by an employer or insurance company without demur, if alleged, throws an overwhelmingly great onus of proof upon the medical man who is bold enough to make the accusation that the incontinence is feigned.

It should be remembered, however, that frequency of micturition *may* be due to nervousness in self-centred people, or, in neurasthenics to simple atony of the bladder.

On the other hand, a claimant not infrequently adds urinary incontinence as a sort of make-weight to a large number of more or less indefinite symptoms.

The improbability of such a disgusting state being willingly and desigredly brought about may very well make most of us, except those who are accustomed to dealing with fraud in all its contemptible forms, hesitate to believe that a fellow human being would deliberately subject himself to such a degrading procedure for gain.

Unfortunately, in the large number of fraudulent claims daily made, there is a percentage, probably a small one, in which such claims are made, though in my experience they are seldom persistently proceeded with. I have frequently been

able, especially in the case of soldiers, to dispose of the allegation of incontinence at a very early stage, by the simple expedient of examining the patient's pants or trousers, and pointing out that their condition clearly negatives the allegation. If successfully persisted in, such cases would inevitably lead to gross injustice, by causing the payment of large sums by employers or insurance companies. It is obvious that the only available method of detecting cases of this sort is by the supervision to be obtained at a public institution. Here a calm atmosphere of impartial yet devoted nursing throws the simulant off his guard, and an alert medical officer and a sagacious nurse may in a week prove the truth of that which one or more astute medical examiners of life assurance companies may have suspected, but failed to prove from lack of the necessary facilities. Such a problem presented itself in a case which was recently sent to me by an insurance company.

It is detailed at length to exemplify the value of a thorough examination, and the importance of detail when dealing with those who deliberately attempt to set their wits against those of the medical examiner. Moreover, the subject is a complicated one, and the task of proving by circumstantial evidence to a lay arbitrator that the centre controlling urination is *not* affected as alleged is, in practice, very difficult.

It is impossible to prove fraud in a case of this sort without having clear views of the physiology of micturition, and, in order to give as much assistance as possible to those having similar cases to deal with, I have added a short summary of the present state of our knowledge of the physiology of the subject.

History.—F. V., a fitter employed by a firm of soap manufacturers, sustained an injury on March 23, 1910. Sixteen months later the employers applied for release from their obligation to continue the payment of half-wages, on the ground that F. V. was fit, if not for full work, certainly for the light work (of lift attendant) which they had twice offered him in vain, and which they were still prepared to give him.

In the first instance he had only complained of pain in the back and *left* side, on which he had fallen. When the question of review of compensation was first raised, he alleged a number of new symptoms, including especially *incontinence of urine*.

In view of the alleged incontinence and the difference of medical

opinion brought forward, the application to the Court failed, and compensation was continued.

Three years after the accident F. V.'s troubles had greatly increased. *In addition* he complained of pain in the *right* hip and groin, vomiting, headache, and attacks of semi-unconsciousness, and *now* alleged that the incontinence began three months from the date of the injury.

He was examined by Dr. A. and watched by private detectives on behalf of the employers, and on the strength of their reports the applicants requested F. V. to submit himself to examination by me. He agreed to make the journey to London, provided he might take his own medical man with him, and be indemnified against possible hospital expenses in the event of his having to enter a hospital as the result of the journey. An agent for the company with whom the employers had insured met him and his doctor at King's Cross three months later, and brought them to my house. He was carried by porters from the train to a cab.

On arrival about 2.30 p.m. F. V. was carried by four or five bystanders into my house, where he was laid on the floor, and there remained, groaning at intervals, till 6.15 p.m., refusing to make any attempt to get up and go into my consulting-room for examination. As he asked to be sent to hospital, arrangements were made for admission to the Seamen's Hospital, Greenwich. Another doctor, who was present when he was helped to his feet, reported: "I saw F. V. leave the premises; although clinging to his crutches or anything he could lay hold of, and apparently undergoing great physical stress, he showed no signs of perspiration or quickened respiration. He drags his 'paralyzed' leg behind him, and does not swing it round in the usual way."

On admission into the Seamen's Hospital, the house surgeon noticed that the man's clothes were soaked with *fresh* urine, but that neither the skin of the scrotum nor the thighs were sore or sodden.

The additional symptoms at this time included—pain in the right testicle and thigh as far as the knee, giddiness and double vision, tenderness on examination at a spot 5 inches above the tip of the coccyx and three-quarters of an inch to the right of the middle line.

On examination, he gave confused and contradictory answers when sensory tests were applied; the muscles gave good responses to electric stimulation, and were normal on both sides, without any "reaction of degeneration."

Radiograms showed no bony change in spine or pelvis. While giving his history, which lasted nearly an hour—his attention being fully occupied—he passed no urine, though the bladder was afterwards found by catheter to contain 8 ounces. The catheter was firmly gripped by the sphincter vesicæ, which normally controls the escape of urine.

Two days later I thoroughly examined him, with a negative result. I found that by diverting his attention one could press on the alleged sacral tender spot without eliciting evidence of pain. Knee-jerks,

plantar reflexes, etc., were tested in the routine way, and all proved normal.

There was never any distension of the bladder at Greenwich Hospital, and the sphincter acted normally. He left the Seamen's Hospital of his own accord, after a twelve days' stay, and next appeared at Leeds General Infirmary, two months later, where Dr. Y. found that he resisted the application of tests, that the power of the right leg was good, and that, although careful watch was kept, there was no incontinence during his *five days'* stay in that hospital. Dr. Y. came to the conclusion that the man was malingering, and suffering from no organic disease whatever.

A month later an important re-examination took place at Leeds. Drs. B. and C. (in the presence of a doctor acting for F. V.) found that the alleged spinal lesion had remained stationary in its effects for three years, that no Babinski or other sign of cord lesion had developed, that the urine was normal, not that of a paralytic bladder, that there was no incontinence during examination, that the sphincter was efficient. The man stated that his sexual power was unimpaired. Moreover, he passed the Romberg test, and, though audibly groaning, suffered from neither perspiration nor rise of pulse-rate.

There was a suggestion of a settlement for several hundred pounds; I strongly urged this should on no account be agreed to.

Three years and nine months after the alleged injury the application to determine the compensation came on for hearing before the County Court Judge.

The house-surgeon of the Seamen's Hospital gave evidence in accordance with his report.

I gave evidence as to the results of my first interview with F. V. and my subsequent examination conducted at the Seamen's Hospital in the presence of the house-surgeon. I explained that hesitating answers to electrical and other sensory tests suggested a lack of straightforwardness on the part of the examinee, and emphasized my opinion that in cases of alleged pain in the back, when no sign of injury thereto, or of injury to the spinal nervous system, can be discovered (by exhaustive examination) after the lapse of a year, a doctor is entitled to conclude that there is nothing seriously wrong.

The evidence of one of the doctors who examined at Leeds was especially valuable, because he had at first been entirely inclined to be on the man's side and think his sufferings genuine. He detailed his findings, and suggested that a difficulty he experienced in getting one of the knee-jerks might be due to voluntary restraint.

The other doctor present at the same examination drew attention to the stationary character of the alleged lesion of the spinal cord centre for micturition. He pointed out that in spite of its close and intimate association with the centres for defaecation and the sexual act, admittedly neither of these functions was interfered with. He emphasized the importance of the healthy character of F. V.'s urine after three and a half years' alleged incontinence.

The fact of no incontinence at Leeds Infirmary was proved by the

hospital doctor (who also gave evidence in accordance with his report) and the nurse who had to change F. V.'s sheets.

The doctor who was present on F. V.'s behalf at the recent examination said that the urine was "rather foul," and stated that the man suffered from cystitis. Pressed in cross-examination, he would not swear that the alleged cystitis had anything to do with the accident, and, on being challenged by counsel as to what the man was suffering from, replied: "I am quite unable to give you a diagnosis, sir."

Another doctor said that F. V.'s complaints were never inconsistent with each other or with genuine suffering, but on cross-examination he could not account for the incontinence, and admitted that he had never examined the patient's urine.

A third doctor thought the complaints genuine, but on cross-examination said he had never examined the urine, because there were no signs of cystitis while he was under his care.

F. V., who walked with difficulty on crutches, gave evidence of the pains and weakness that he suffered from, denied the statements of the house-surgeon of the Seamen's Hospital *in toto*, and adhered to his allegation of incontinence. He further attempted to account for his suddenly leaving Leeds Infirmary, after only five days, by saying he did not like the doctor's manner at the bedside, adding that he had not resisted any tests.

Judgment was given for the applicants with costs.

Subsequent History.—Being responsible for the case coming before the Court the second time, I was interested in it, so I obtained a report from the insurance company as to the man's conduct after the Court proceedings.

It appeared that six months later he had taken a greengrocer's shop, and had been seen carrying a basket of vegetables from his cart to the shop; to do this he used both hands, and consequently discarded the aid of his stick and crutch, which he still, apparently, carried with him in his cart on his rounds.

About this time he was seen at a race meeting, where he walked about freely, and appeared to have little difficulty in making his way in the crowd; he carried his crutch, but put very little weight on it.

He seemed to have made a very good and rapid recovery, for eight months later someone kindly sent me a newspaper cutting relating to some police court proceedings, from which it appeared that, after removing his coat, he had engaged in a fight with a motorist. He was charged with drunkenness, and in attempting to make good his defence he stated that, if he had wanted to, he could have thrown the prosecutor to the opposite side of the road.

A few months after the outbreak of war he enlisted in the navy, and was engaged in mine-sweeping. Since joining the navy he had returned home on leave, and was said to be looking exceedingly smart, and except for a slight limp he bore no trace of any disability.

The difficulty of determining the reality of disabling pain in the back is well shown by the difference of medical opinion

exhibited in this case on the first application for reduction of compensation, a difference in opinion which led the Judge to dismiss the application.

Such difficulties are much enhanced when the "patient" has succeeded in persuading his own doctor to believe in his *bona fides*, as in this case.

On reviewing the case as a whole, one is much struck by the increase in the number of symptoms alleged by the patient, and by the changes in their situation—for instance, from the left to the right side.

The most noteworthy addition to the symptoms of pain in the back and left side originally complained of was, of course, the alleged incontinence of urine, and the only means of direct disproof was to place the patient in hospital under careful and intelligent scrutiny night and day.

It is not surprising, therefore, that the doctors who examined this man in the latter part of 1910 and in 1911 should have expressed their opinion very cautiously as regards this matter. One of the company's doctors in particular showed his impartiality by his favourable attitude towards F. V. in the first instance; and his gradual conversion, by the accumulation of evidence, to the view that F. V. was malingering is a noteworthy feature of the case.

The gradual increase in symptoms is characteristic both of the neurasthenic and the malingerer; but neurasthenia never *per se* leads to incontinence of urine, and *does* lead to decided increase of knee-jerks, which was, however, absent here; in fact, the knee-jerk on the side most affected in 1913 was, if anything, rather less than that on the other side.

Throughout F. V.'s conduct gave rise to suspicion. His refusal to make any sort of trial of the light work offered by his employers—probably for fear of losing a claim to lump sum compensation—in which refusal he was unfortunately supported by his own doctor; his limp on the premises and in the vicinity of his employers' works, coupled with his sprightly walk elsewhere, as witnessed by an inquiry agent and later by a doctor; and his refusal in 1911 to have the matter brought before a medical referee—all combined to throw doubt on his *bona fides*.

Later on, when examination by me was proposed, his ex-

pressed anticipation of going to hospital, his every endeavour at my house to render examination difficult or impossible, served to deepen suspicion against him.

Questioned as to past history, F. V. was voluble enough, but when it came to answering tests of sensation he was at once on his guard, and his replies became hesitating, vague, and contradictory.

Had there been a fracture of the spinal laminæ, he could hardly have walked home, even with such help as was rendered. The incontinence alleged was not mentioned till some *six months* after the injury; had an inflammation of the cord and its membranes been set up, bladder symptoms should have been observable earlier.

Moreover, the alleged incontinence itself failed to come into line with any known form of that complaint.

It could not have been retention overflow, for the bladder was never found distended; nor was it due to paralysis of both detrusor and sphincter muscles, for the amount *proved* to accumulate was quite double as much as a paralyzed sphincter can retain even in a paralyzed bladder; nor yet due to paralysis of the sphincter alone, for the sphincter was found by catheter to have no little power of grasping the instrument.

The freshness of the urine, on many examinations, was inconsistent with the theory of imperfectly emptied bladder; for where there is retained urine, after the condition has existed a few weeks, it nearly always becomes alkaline, if not actually ammoniacal, from the entry of the *Micrococcus ureæ* and the action of its intracellular ferment.

Yet all these considerations taken together would weigh but little in the mind of a Judge as compared with direct experimental proof of power of continence; hence the supreme importance of *observation in hospital* and the evidence of the doctors and nurse on this part of F. V.'s case.

Having regard to the close association of other centres in the spinal cord with that for micturition—namely, the centres for defæcation and the sexual act—their admitted freedom from disease for three long years was inexplicable, on the assumption that damage to the cord had resulted from the accident.

At the trial, the evidence tendered on behalf of the patient

was characterized all round by vagueness and an inability to account at all for the symptoms believed to be genuine, and by defective observation, such as omission of urine analysis and the like: one witness "thought there must be something in it," but "couldn't say what"; another was unable to give a diagnosis; and a third "had no idea of the cause of the incontinence," and had never troubled, during eighteen months, to test the urine.

This is the kind of thing that so favours the plausible malingerer: confiding trust in his statements, and vague supposition that there "must be something in it."

In conclusion it may be mentioned that "compromise" was seriously discussed on more than one occasion; but, being convinced that the claim was an improper one, I strongly urged the insurance company to fight it out, with the result that they were not only saved the payment of many hundreds of pounds, but they gained a success of no little value.

It transpired that F. V. informed the house-surgeon of the Seamen's Hospital that he knew I had written on the subject of Malingering; hence no doubt his unwillingness to be examined by me at my house.

Physiology of Micturition.—The act of micturition, or passing water, is in theory a reflex one—*i.e.*, an unconscious mechanical response to stimulation. The stimulus is the ever-increasing pressure of the steadily accumulating urine within the bladder.

The urine accumulates because the exit from the bladder by the urethra is closed by the *steady* contraction of a more or less circular muscle, the *sphincter vesicæ* (or sphincter of the bladder; see A in Fig. 50), which embraces the neck of the bladder.

Antagonizing the sphincter at the neck of the bladder are the fibres of the circular, the longitudinal, and the oblique muscles of the body of the bladder. The sphincter and its antagonists are so coupled together in the nervous system that nervous impulses which increase the action of the one diminish the action of the other.

When the pressure within the bladder reaches a certain height, nervous impulses pass up through certain nerves in its walls (B) to a particular group of cells forming the centre for micturition, or vesical centre (C), in the lumbar enlargement

of the spinal cord (situated on a level with the last dorsal and first lumbar vertebræ)—i.e., 3 to 4 inches above the level of the crest of the hip-bones.

These impulses so influence the centre that it sends out other impulses to the bladder, which tend to make the bladder walls contract whilst at the same time the sphincter (A) relaxes.

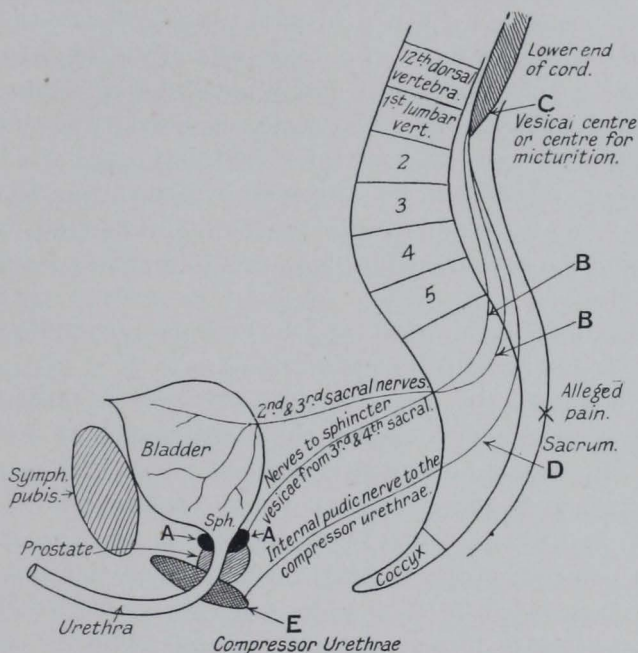


FIG. 50.—INNERVATION OF THE BLADDER.

But for the presence of another factor (so far ignored, whilst considering the mechanism as a simple reflex arc) the urine would always be voided when the pressure in the bladder reached a certain amount—as it is by the human infant. This other factor is the volitional control exercised by the cortex and other parts of the brain.

In the human race this control is lacking at birth, and is only acquired by training, sometimes with great difficulty, during the first two, or at most three, years of life.

Volitional control is exercised by the cortex and certain parts of the mid-brain through another set of nerve fibres which pass down the spinal cord as far as the vesical centre,

and reach the bladder through the sympathetic system. These act directly from the cortex, and are the physiological antagonists to the reflex arc which we have seen ends in the vesical centre.

In the adult, when sensory impulses pass freely from the bladder to the vesical centre, they are not acted upon forthwith by that centre, but are referred to the brain, and realized in consciousness as a desire to pass water. This desire calls up in association feelings of cleanliness and decency, and consideration of circumstances; and when the circumstances are recognized as favourable, the cortex responds by reinforcing the part of the vesical centre for contracting the bladder at the expense of the part for contraction of the *sphincter vesicæ*, so that while the bladder walls contract, the sphincter relaxes its grip on the neck of the bladder, and micturition takes place unimpeded.

By this direct connection with the higher centres, micturition can be started apart from the reflex act.

The brain can by direct control also prevent micturition. This is brought about through the pudic branch of the sacral plexus (D) acting on the compressor urethræ (E), a muscle which embraces the second or membranous portion of the urethra, and which when excited keeps it firmly closed. This muscle more especially comes into play when the amount of urine accumulated in the bladder exceeds (about) half a pint, and the pressure therein is unduly raised, with a feeling of more or less urgent desire to pass water, by the cognition of circumstances as unfavourable to, or prohibitive of, that action.

Once acquired, volitional control soon becomes the dominant factor in the mechanism as the healthy child develops, so that, while "reflex in theory, the act of micturition becomes volitional in practice" (Halliburton).

This power of cerebral control is lacking in some idiots, and often becomes defective at night in neurotic children of three or four years of age, occasionally in older children. Severe fright in young people, and terror in adults—*e.g.*, young soldiers in their first battle—impair cortical control, and urine often passes reflexly in these conditions. Fear also heightens, for the time being, the sensibility of the vesical centres, while

inflammation of the bladder makes its nerves unduly sensitive to a comparatively small accumulation of urine within its walls. These cause increased *frequency* of micturition, which is often miscalled, or sometimes actually mistaken for, true incontinence.

The vesical centre consists of two parts, one for the body of the bladder in the upper part of the lumbar enlargement, and the other for the neck of the bladder and its sphincter in the lower part.

When the upper part of the vesical centre alone is injured or diseased, distension occurs with intermittent overflow, due to unimpaired action of the sphincter, and paralysis of the walls of the bladder. The intermittent overflow is due to excessive pressure at last relaxing the sphincter.

If the lower part of the centre alone is injured or diseased, incontinence without distension results from paralysis of the sphincter.

Destruction, serious injury, or disease of both centres causes some retention with continuous overflow from paralysis of all the muscles concerned. In this condition 3 or 4 ounces may accumulate in the bladder, and then passive overflow begins.

When the lumbar centres are cut off from communication with the cortex by disease or injury, what generally happens is that urine is retained until the bladder is very distended; then the urine begins to overflow, and dribbles away continuously—"overflow incontinence," such as is often met with in fracture or dislocation of the spine. *True incontinence, therefore, always points to some grave disease or injury of the spinal cord, and in injury of the cord it shows itself within a few hours.*

Impairment of these spinal centres may be due to growth of a tumour or occurrence of hæmorrhage as the result of injury. The growth of a tumour would almost certainly steadily progress so as to involve neighbouring centres, such as those for defæcation and the sexual act, or to cause continuous pain by pressure on nerve roots, or other abnormalities, such as loss or perversion of sensation.

A hæmorrhage so small as only to affect the vesical centres, leaving those for defæcation, etc., unimpaired, would rapidly pass away, leaving little, if any, impairment of the control over micturition.

It should be borne in mind that the association of the various centres for micturition, defæcation, the sexual act, and for common sensation round about the hips and buttocks, in the lumbo-sacral cord, is a very close one, and that consequently, although one of these centres may be affected alone at first, in cases of many months' duration one or more of the neighbouring centres must almost certainly become affected.

New Method of Determining Amount of Irritability of Bladder.—The question whether simulation or disease is present may be best settled by a method introduced by Lieutenant-Colonel G. Holmes, R.A.M.C., in a base hospital in France, and described to me by my friend Major G. D. Gray, R.A.M.C., who found that in practice it worked very successfully.

After the man has urinated a soft rubber catheter is introduced into the bladder. The catheter is attached by a couple of feet of indiarubber tubing to an ordinary filler; into the tubing near the filler is let a piece of glass tubing for observation. The normal capacity of the bladder in ounces is measured by pouring sterile water slowly from a measured container.

When the water ceases to enter the bladder, the height of the column is read off on a tape measure stretching from the symphysis pubis to the top of the water in the filler. Then the filler is raised, and the added pressure thus obtained causes a further disappearance of the fluid. As the apparatus is raised more water is added, and another reading noted, till at length a point is reached when the bladder will hold no more, and the water is regurgitated. This is the limit of bladder tolerance. An irritable bladder will, when a very small quantity of water (say 3 or 4 ounces) is passed in, regurgitate it forcibly up the column, while an atonic bladder with defective innervation from a spinal lesion will hold a very much larger quantity, more than would be tolerated by a normal bladder.

This test may be regarded as a very useful aid to detection of malingerers, as they can in no way influence the results. The interpretations should be made with caution, and the possibility of organic disease should always be excluded.

Recently, in a case examined at one of the base hospitals in France, a soldier complained of pelvic pain and urinary incontinence. Neither the above test nor rectal palpation

revealed anything abnormal. The patient was then subjected to X-ray examination for the possibility of the presence of a calculus, with the result that in the neighbourhood of the bladder four opaque patches were seen which were calcified glands, and no doubt the chronic pain of which the man complained was due to a condition of perivesical adenitis from other glands not yet calcified, but still in an inflamed condition.

CHAPTER XXVI

GLYCOSURIA AND MALINGERING

WE occasionally come across instances where a permanent glycosuria is alleged to be the result of some trifling accident.

Transient glycosuria may be found in many nervous diseases, and may even occur as the result of mental states, such as shock, fright, and anxiety.

It has not, however, been seriously alleged, far less proven, that anything of the nature of a permanent glycosuria from accident can be induced, except by head injury or other result of serious traumatism. What generally happens is that an accident occurs, a claim for damages is preferred, a thorough medical examination of the claimant is made (perhaps the first which has taken place for many years), and sugar is found in the urine. It is, obviously, under these circumstances impossible to deny or affirm that the presence of sugar has as its sole etiological factor the occurrence of the accident, unless, indeed, the urine has been examined immediately prior to the accident. Nevertheless, the *post hoc ergo propter hoc* argument is often attempted.

The favourite theory of physiologists as to the presence of sugar in the urine is that the diabetic centre of the medulla, or the nervous arc and the glands of which it is the centre, is acted on, producing a reflex influence on the liver, rendering it unable to assimilate glucose or store glycogen in any quantity.

Cambridge states that very few cases of glycosuria are the result of cerebral changes implicating the diabetic centre alone. He believes that in most cases other causes, associated with the suprarenal capsules and other ductless glands, are likely to be the active agents in the production of glycosuria following an accident.

It has been proved that even a psychological stimulus, such as

fright, diminishes the quantity of adrenalin in the suprarenal body, which presumably is poured into the blood-stream, the overflow finding its way to the kidneys.

Cannon's experiments on the lower animals prove that a nerve impulse or stimulus in the form of artificial shock or fright is transmitted through the sympathetic system, acting as a secreto-motor nerve, to the suprarenal capsules, which are thus caused to secrete adrenalin. As a result, not only are the muscles thus toned up for any extra exertion that may be required of them, in the special emotional condition produced by fright, but the liver is caused to pour out an increased amount of sugar to meet the expected muscular exertion, often so necessary in the circumstances. If the impulse or stimulus causes more sugar to be poured out than is required by the muscles, it is drained off by the urine, causing a transitory glycosuria.

Arndt found that in eleven cases of traumatic neuro-psychoses the urine contained sugar.

It occasionally happens that a malingerer endeavours to simulate glycosuria (diabetes) by adding sugar to his urine. If this is suspected, it should be guarded against by insisting upon the urine being passed in the examiner's presence.

As a rule it is cane-sugar which is added; the laity is not aware that cane-sugar does not occur in urine. It does not reduce Fehling's solution, or, if so, very slightly, and not to the extent that might be expected from the specific gravity.

If a urine is found to be of abnormally high specific gravity, and yet does not reduce Fehling's solution, it should be boiled for half an hour with dilute hydrochloric acid, and then neutralized with a solution of sodium hydrate. If cane-sugar has been added, it will be converted into glucose—*i.e.*, grape-sugar—and copper will be reduced when Fehling's solution is added. Recently I heard of a young and irresponsible hysteric who added to her urine grape-sugar, which she bought at a chemist's shop, with the avowed intention of deceiving a well-known London physician. Cammidge reports that a urine which was sent to him for examination contained both milk and cane-sugar, the result of condensed milk having been surreptitiously added to the urine. He points out that, in a

mixture of this sort, the microscope would show an emulsion. It is well to remember that milk-sugar (lactose) is sometimes found in the urine of nursing women. Grape-sugar reduces Fehling's solution at once, but the iron fermentation test is more reliable. Milk-sugar does so more slowly. A further difference is that grape-sugar ferments with yeast within twenty-four hours. Milk-sugar does not ferment with yeast.

CHAPTER XXVII

INSANITY AND MALINGERING

THE simulation of insanity is not uncommonly found among criminals who attempt to use it as a means of escaping the penalties of their misdeeds. It is, however, occasionally made use of by ordinary malingerers, and is then, as a rule, fairly easy to unmask, for the insane state is peculiarly difficult for the layman to imitate successfully. He generally starts with ideas obtained by the study of melodrama or sensational novels, and, as a rule, he selects mania as the particular form of insanity to simulate. It is fortunate this is so, for it is about the most difficult form to feign successfully, whereas melancholia might, one would imagine, be very easily assumed; with this form, however, as a rule he has very little to do.

In considering any case of alleged insanity, great care must be taken to eliminate general paralysis of the insane, inasmuch as this disease often manifests itself in its early stages by slight alterations in the mental, moral, and social characteristics and conduct of the patient.

Generally speaking, it may be said that every type of insanity has its own *facies*, its own characteristics, its special mental picture, and to anyone who has had experience in a lunatic asylum it is often easy to decide, almost at once, the class in which a veritable lunatic should be placed. This particular atmosphere is very difficult for the layman to catch. The malingerer is very anxious to attract your attention, and to press the symptoms upon you, whereas the real madman cares but little what you think of him. The malingerer asserts vigorously that he is mad. Now, it is a well-known fact that the insane person will not admit that he is mad; on the contrary, he may assert that there was never a more sane person than himself to be found, and it is only when he begins to realize

that he has been insane—except, perhaps, in cases of systematized delusions, or what is known as “paranoia”—that recovery may be expected. Moreover, the continuous simulation of such a disease as mania entails upon the simulator a physical strain which he cannot long support; accordingly, whereas the true maniac will continue his ravings, his excitement, his delirium, whether under observation or not, until he is exhausted, the simulator, directly he believes himself unobserved, will promptly take a much-needed rest. In prisons and asylums, when the diagnosis is being made as to whether a case under observation is genuine or feigned, the condition of the patient as to sleep, etc., during the night should always be carefully watched.

A medical officer at one of His Majesty's prisons told me of a prisoner whose success in feigning insanity was remarkable in its simplicity. Whilst on remand, waiting his trial, his conduct gave rise to no suspicion of any mental symptoms. He behaved quite rationally. When at his trial he was asked formally to plead, he made no reply, but at once stood upon his head. On the face of it it was a very artless procedure, but for practical purposes was more telling, and in the end proved more successful, than all the forensic skill of King's Counsel who prosecuted. The defence made no suggestion of insanity, and there was no doctor present from the prison to give evidence as to his sanity. The jury, who knew something of the wiles of learned counsel, had never seen a man stand on his head on so momentous an occasion, and came, not unnaturally, to the conclusion that he was insane.

When a prisoner is found insane on arraignment—that is, if the jury come to the conclusion, from his conduct in the dock during the trial, that he is insane—the verdict is that he is found insane, and that he is to be detained in prison “until His Majesty's pleasure is made known.” The Secretary of State then orders his admission to an asylum.

Prisoners found “Guilty, but insane,” are detained “during His Majesty's pleasure,” which necessarily entails their internment, not in an ordinary, but in a State asylum. The prisoner in this case was, therefore, sent to a county asylum, and his arrival there satisfied the law as far as “His Majesty's pleasure” was concerned with the case. When there he behaved quite

rationally; indeed, he boasted to the medical officers how clever he had been in deluding the jury. In a few weeks he escaped from the asylum.

No one can be readmitted into an asylum from which he has escaped, without recertification, if he has been at large for fourteen days. He therefore secreted himself for that period, and was then a free man, for not being insane he was not certifiable. He was rearrested on a subsequent occasion several years after, and whilst in prison awaiting trial again attempted to feign insanity. He asked about his pictures, which he pretended were hung in the Academy, and demanded the return of money which he alleged had been taken from him, and, in short, in a clumsy way (profiting by his previous experience in the asylum) feigned delusions. The medical officers of the prison, who knew his history, were on the alert. After carefully observing him, they satisfied themselves that he was a malingerer, and were present at the trial to give evidence, but he made no attempt at feigning insanity.

The letters which insane people write are very characteristic, and can hardly be imitated; moreover, each particular type of insanity produces its peculiar variety of letter, so that, having perused the letter, one can almost always give a diagnosis. So characteristic are these letters, and so important are they in the diagnosis of insanity, that in many cases they are the best evidence obtainable, and a man who in ordinary conversation appears perfectly sane, and in whom it is very difficult to find any evidence of the insanity which you know exists, will give himself completely away in his letters. In any case where the simulation of insanity is suspected, one should be exceedingly careful to be quite sure of one's ground before coming to a diagnosis of malingering. As I have said before, it is a rare form of malingering; it is so readily discoverable that if one is in any doubt the probabilities are that the insanity is real. The family history should be gone into carefully, evidence of alcoholism and of syphilis searched for, and, if necessary, the patient should be kept under observation for a time.

The following case is interesting :

History—D. H.—Not long ago a firm of solicitors, acting on behalf of a Metropolitan Borough Council, asked me to investigate the medical aspect of an extremely interesting case,

The facts related to me were, briefly, as follows: Four months previously a board fell on the head of a man who was at work in a shaft. The man brought an action against his employers under the Employers' Liability Act. Two medical men gave evidence at the trial that the man had not quite recovered from the injury to his head, but would be well in a month. Prior to cross-examination of the plaintiff, owing to want of time, the case was adjourned.

A few days after the case was adjourned, the plaintiff was alleged to have gone out of his mind, and to have jumped out of the window whilst labouring under the delusion that he was at the bottom of a shaft, and it was stated that his insane idea was that he had to get to the top to save people's lives by means of pumps. The police obtained a three days' detention order, and took him to a Metropolitan infirmary. The medical man who gave evidence for him at the trial examined the man again, and reported *that he had delusions, and that they were due to the knock on the head*, and that it would be many years before he recovered, if, indeed, he ever did so. Upon this report being filed, the case was adjourned *sine die*.

An examining magistrate subsequently ordered the man's discharge from the insane ward of the infirmary.

The point I was specially asked to investigate was the question of the alleged insanity. In order to arrive at a just conclusion I interviewed separately the persons who had had most to do with the plaintiff during the attack.

1. The medical superintendent of the infirmary to which the claimant had been taken, informed me that he was not in any way responsible for the man's detention, and that he had only cursorily examined him.

2. The chief attendant told me D. H. admitted he had been drinking, and that his wife had become alarmed. He did not see the man till eight hours after his admission, when he "appeared to be sobered." For the first day he was sullen, spoke of fancying he heard pumps, and gave the attendant the impression that he was "not a lunatic."

3. The plaintiff himself I saw in the presence of his medical man, who had given the report to the Court that he was insane. As to the attack, the man told me he had been out with a friend for some hours, during which time he had three glasses of "four ale." At this point the doctor interrupted my examination by remarking that the man would not be able to tell me about anything further until the time when he left the infirmary some days later. I pointed out that this was an unfair remark to make in the presence of the patient. When I asked the patient what happened next, he stated he remembered nothing of what happened in the infirmary. I persisted, however, and further questioning elicited the fact that the day after his admission he knew perfectly well he was in an infirmary, that on two separate occasions he had been seen by a magistrate and a doctor, that on one occasion he had been asked to scrub floors, that he was apprehensive of being kept longer in the infirmary, that he feigned sleep, and got his discharge the second time he saw the magistrate

and the doctor. More than once he told me I should not catch him !

4. I saw also the plaintiff's wife, who told me that when her husband came home at the time of the attack he talked nonsense, did not recognize the children, had an idea that he was to save men from drowning by the use of pumps, and finally attempted to jump out of the window. She said he got on to the leads of the roof, which on examination proved to be a protected flat roof-garden.

5. I also interviewed the medical man who had been asked to certify the plaintiff to be a lunatic ; he narrated in detail the particulars of his first interview with the man, and stated that he was absolutely sane and quiet, showing no signs of drink, or anything else to account for the alleged temporary insanity. The plaintiff's wife told him that her husband persisted in talking of pumps, so she went for a policeman. This appeared to the doctor an unsatisfactory reason for such a step, but as he was not required to inquire into motives he had not pressed this point with the woman. Had the question of motive been raised at the time, the idea of simulation would have occurred to him. He refused to certify the man insane ; the magistrate adjourned the case, and a week later, as the plaintiff appeared quite sane, he was discharged. The man had had very little food during the day upon which the attack was alleged, so that the quantity of very inferior ale he had taken on a practically empty stomach might easily have affected him.

From these particulars it will be seen that, admitting strange conduct, I now had to decide : Was it due to the effect of the head injury ? was it assumed insanity ? or was the man merely tipsy ? The first proposition was untenable, for it was preposterous to suppose that a comparatively slight injury to the head four months before was the sole or main cause of an attack of acute mania—considering the known indulgence in alcohol on what was practically an empty stomach ; an attack, moreover, which passed off in a few hours when the patient was prevented from obtaining further supplies of drink.

My view was that the attack was partly simulated, and partly the result of alcohol, and for the following reasons :

1. He deliberately tried to deceive me, stating he remembered nothing of what happened in the infirmary, but upon careful examination I found he remembered the events of each day.

2. He was so mentally alert that he actually stated that whilst in the infirmary (as a lunatic) he pretended to be asleep, fearing if he admitted sleeplessness it would mean prolonged detention.

3. He admitted to the attendant that he had been drinking.

4. A magistrate and an independent medical man, after two careful examinations, declined to authorize his further detention.

5. Three days before the attack he had had the unusual experience of appearing as plaintiff in a lawsuit, and must have been aware that his cross-examination was yet to follow.

6. He was unusually alert during my examination, stating that he knew me well by name, having been at one time an employee of the

London County Council, and he was particularly careful in parrying any inquiry which might involve him in difficulty or discredit.

Result.—After hearing my evidence, the Judge decided that the plaintiff had not made out his case so far as the insanity was concerned, but awarded him £30 on another issue.

Melancholia.—Simulation of melancholia is comparatively rare, and fortunately so, inasmuch as no form of insanity can be feigned so easily. What, however, cannot be simulated are the concomitant symptoms, such as wasting, sleeplessness, altered blood-pressure, and so forth.

Delusional Insanity.—This would at first sight seem a form of insanity easy to simulate, but where the malingerer fails, is that he is unable to keep up the part he is playing. The victim of delusional insanity generally has one fixed idea. For example, a woman believes she is really the wife of a person of position; the idea being real to her, the rest follows quite logically. She demands to be clothed in a manner worthy of her supposed position; she demands sufficient respect to be shown to her, and so forth. The malingerer is much more apt to pretend a number of silly fancies; he shifts from one to another, and is not logical in his arguments.

Dementia.—This is a frequent form of pretended insanity, but should never deceive anyone; for dementia never comes on suddenly, but is always preceded by a more or less prolonged period of some other form of insanity, usually mania or melancholia. The statement, therefore, that a man, as the result of an accident, is forthwith plunged into the vegetative life of a dement would immediately arouse suspicion.

Mental Symptoms which may follow Traumatism.—It will be interesting to describe the sort of mental condition which may ensue upon, and be legitimately connected with, an accident affecting the head.

Most head injuries escape after effects, but they may be followed within a short period (a few weeks) by such symptoms as—

1. Great irritability: a man previously of a placid, equable temper, may become morose, subject to fits of temper, and is irritable even from very slight causes.

2. Headaches of a congestive type.

3. Inability to stand any excesses ; a man who could formerly stand an ordinary amount of alcoholic drink may now show signs of great excitement after drinking a single glass of beer.

4. More marked mental symptoms : delusions of persecution, auditory and visual hallucinations, or melancholia.

5. Fits ; post-traumatic epilepsy.

Between the onset of these symptoms and the accident there will usually be some prodromal symptoms.

CHAPTER XXVIII

HÆMORRHAGE AND MALINGERING

THE difficulty of disproving that blood has been coughed up, vomited, or passed by the bowel, is, of course, quite apparent, and no one knows it better than he who fraudulently alleges the hæmorrhage.

Hæmorrhage from the Mouth.—The public is obsessed with the fixed idea that blood coming from the mouth, be it hæmoptysis or hæmatemesis, or merely the result of gingivitis, is an indication of a very serious condition, and, should bleeding follow an accident, that it must necessarily be the result of the accident. There are few medical practitioners who cannot recall cases of blood appearing in the mouth, in which the most careful and prolonged examination of every possible source has proved that no accurate idea could be formed as to its source; and the sequence of events has also proved that the bleeding, wherever it came from, was of no importance. It would be overstating the case to say that hæmorrhage caused by tubercular ulceration of a small bloodvessel in the lung is necessarily accompanied by recognizable physical signs in the chest; but it should not be forgotten that hæmoptysis is, as a rule, associated with, or soon followed by, *some* other signs of pulmonary tuberculosis.

Much is often gained by the microscopical examination of the blood, and the sputum, if present. The presence, for instance, of alveolar epithelium would be very significant.

It is always unwise to draw decided conclusions from limited data; but where the data are, as in cases of this sort, necessarily few, one is compelled to form an opinion based upon one's general experience, and, judging from the examination of a considerable number of medico-legal cases—amounting in one

year alone to 844—I have formed the opinion that the bare statement of coloured expectoration following an accident may be safely ignored unless there is corroborative evidence accompanied by physical signs.

Fortunately, in most cases, before the trial of an action, time will settle the point. It is difficult to believe, as is so often alleged, that a strain or blow or fall on some part of the body remote from the lung can, at an indefinite period, varying from weeks to months, be the direct cause of blood being expectorated.

Hæmorrhage from the Bowel.—Hæmorrhoids and malignant disease should in all cases be carefully excluded. It is a common experience that a hæmorrhoid which has existed for years, and bled occasionally, is set down as the direct result of an accident. Bleeding from the bowel is one of the favourite pretences of the out-and-out malingerer, since its falsity is difficult to prove.

The following is an illustrative case :

D. I. injured his ankle, and was on the sick-list for no less than eleven months, during the last four of which he was certainly capable of doing his work. His employer showed him every possible consideration, not only paid half-wages (as compelled to do by law), but voluntarily arranged for efficient massage, offered light work, and in every way tried to encourage D. I. to return to work. At last the weekly payments were stopped, and arbitration proceedings followed, with the result that the County Court Judge made an award of a penny a week. His employer generously offered to give him not only work, but light work. This he did for three weeks, but work of any kind did not suit D. I. He had done no work for nearly a year, so he entered an infirmary, his alleged complaint being " hæmorrhage from the bowel." Soon after his admission blood was, in fact, found the first time he went to the water-closet; but the medical superintendent of the infirmary, evidently suspecting, ordered him white mixture, and gave instructions that he was to be kept absolutely in bed, and the bedpan to be used. No more hæmorrhage occurred, and upon his being suddenly confronted with me (I had seen him at intervals for a year, and given evidence against him at the trial some few weeks before) he at once left the infirmary. His employers again gave him work, and I am informed that he is at the present time doing satisfactorily the laborious work of drilling holes in iron girders, upon which he was engaged prior to the accident, and that he has been continuously at work, and has made no complaint of his foot or any other portion of his anatomy since his return.

The following letters, in large type, were found on the infirmary-card which was placed at the head of his bed: F.I.V.C.P. Upon inquiry being made as to what these letters signified, it was explained by the medical officials of the institution that they had a special significance, and indicated a malingerer, in that they were the first letters of " Finds Infirmary Very Comfortable Place " !

CHAPTER XXIX

MINER'S NYSTAGMUS AND MALINGERING

Miner's nystagmus is an occupation disease of the nervous system characterized by oscillatory movements of the eyeballs. Some authorities say that amongst miners the disease is practically confined to coal-hewers. Although one cause of nystagmus is working in mines, it is important to remember that the condition may be due to various other causes.

It may be congenital; it is often associated with intracranial disease, multiple and disseminated sclerosis, syringomyelia, tabes, third nerve paralysis, optic atrophy, and other diseases. It is often found in eyes which have been sightless for some considerable time; it is frequently seen in albinos, and is often associated with high degrees of myopia. Indeed, a very large proportion of cases of nystagmus have some refractive error.

The pathology of the disease is unknown, but it is believed to be due to some obscure disturbance of the cerebral centre which regulates the parallel movements of the eye, brought about by constant abnormal visual stimuli.

It is a nervous disease, and its incidence may be affected by the provisions of the Workmen's Compensation Act. Some cases justify the description "income neuroses."

Exciting Causes.—In all cases there is a mental factor to be reckoned with. In some few cases the immediate and exciting—though, of course, not the predisposing—cause of an attack is some nervous strain or excitement, such as a quarrel with an employer's agent, a strike, or an accident. A case is recorded of a man who was apparently perfectly well, but had a quarrel with his manager, and immediately afterwards produced a certificate to the effect that he was suffering from nystagmus, which could not be denied.

It is a common thing for patients already afflicted with the

disease to say that they can get on very well so long as nothing worries or distresses them, but directly they are excited the symptoms become more pronounced. There is no doubt that exertion of any kind acts as an exciting cause.

Latent Cases.—A large proportion of true cases of nystagmus (probably at least 20 per cent.) show no symptoms; indeed, the patient is sometimes unaware, even when the nystagmus is marked, that there is anything wrong. These are sometimes spoken of as “latent cases,” and in miners the disease is not incapacitating, but the *knowledge* of its existence is an incapacitating factor.

Accident seems sometimes to convert a latent case into a manifest one. This presumably is brought about by the shock upsetting an unstable equilibrium. It is sometimes seen to come on during convalescence from an accident, from the patient's want of tone, and the absence of regular work. It not infrequently follows injury to the head.

Sometimes the disease is associated with neurasthenia; indeed, there is strong presumptive evidence that miner's nystagmus, which is a neurosis, is closely allied to neurasthenia.

Symptoms—(1) **Objective.**—The chief symptom is a fine, rapid, oscillatory movement of the eyes, which is almost always rotatory, and is always equal in both. The head is retracted, often obliquely; the eyes are half closed, and the cap is generally drawn over the eyes.

When the trouble is associated with organic disease, the oscillations are coarse, comparatively slow, and are lateral in type.

In a certain proportion of cases of nystagmus there is, in addition to the oscillation of the eyes, a spasm of the eyelids, the eyebrows, and sometimes of the whole face and neck; occasionally there is a twitching of the muscles in different parts of the body.

Spasm of the eyelids is somewhat rare; but when genuinely present it is strong evidence of an old-standing case.

Shufflebotham points out a symptom which he considers of great diagnostic value: When a patient who is sitting has put his head between his legs for a minute or so, in the case of the true sufferer, on raising the head the eyes not only show oscil-

lation and clonic spasm (the oscillation being the more marked), but a prominent bulging of the eyes, almost bordering on exophthalmos, which is accompanied by marked injection.

(2) **Subjective.**—Amongst others, the following are complained of: Headache, giddiness, photophobia, nausea, decrease of vision, night blindness, dazzling sensations under the influence of a strong light, a feeling as if surrounding objects were constantly on the move.

Llewellyn quotes a description of a sufferer which graphically describes the condition: "The dancing of objects before the eyes somewhat resembles the quivering motion of the figures observable in a faulty cinematograph exhibition, only not so rapid, of course; and, instead of the objects moving vertically as do those of the cinematograph, they seem to be revolving."

Night blindness is often a prominent symptom. Directly twilight comes on the patient gets confused, and the nystagmus becomes more prominent. Often the patient has grave difficulty in crossing roads where there is traffic, or in moving where there is a crowd. The symptoms are temporarily increased on going from twilight into a well-lit room, or from daylight into darkness, as, for instance, when entering the coal-pit in the morning.

If oscillation and clonic spasm are associated with one or more of the classic symptoms, such as tremor, headache, giddiness, the diagnosis is not difficult.

Simulation.—It is obvious that all these subjective symptoms can be feigned. It should be remembered that because a man is a miner and has nystagmus the disease is not necessarily miner's nystagmus. It is not unnatural, considering the prevalence of miner's nystagmus, that all miners should assume, when they happen to have nystagmus, that it is due entirely to their work, for they know of no other cause. Whilst this belief is perfectly excusable in a layman, it is obvious that it is the duty of the examining medical officer to eliminate in the first instance the presence of the diseases mentioned as being associated with nystagmus. In every case, before an opinion is given, a thorough examination of the nervous system should be undertaken.

Spasm of the eyelids is *the* symptom which is imitated by

the malingerer; it is not an uncommon thing to find a man who has really recovered from nystagmus producing a rapid spasm of the eyelids during inspection by the medical examiner. The deception can, however, be readily detected; for if the patient's attention is diverted, it immediately ceases, which is not the case in genuine nystagmus. The feigned twitching of the eyelids cannot be kept up for more than a few minutes, and those accustomed to the condition will be able at once to detect the feigned nature of the attack. The genuine movement is quicker and finer than the malingerer is able to produce, who blinks his eyes and often brings other muscles into play.

At first sight miner's nystagmus does not appear to be a disease that could be easily simulated, and this is true so far as the main objective symptom, oscillation, is concerned. A few individuals can at will produce a nystagmus, but these are exceptional cases. The type of nystagmus produced when an attempt is being made at simulation is generally a lateral one, and differs from the rotatory form which is so common in true miner's disease.

Although oscillation of the eyeballs can scarcely be simulated, the symptoms which accompany it can, and often are.

It should not be forgotten that, although it may be difficult to elicit oscillation at one time, it is often comparatively easy to do so at another. Therefore cases alleged to be examples of miner's nystagmus, which do not, on repeated and thorough examination, show any oscillation of the eyeballs, must be viewed with suspicion.

In doubtful cases the following methods, suggested by Llewellyn in his book on Miner's Nystagmus, are useful:

Genuine oscillatory movements may be elicited by getting the patient either to raise his eyes gradually towards the ceiling or to converge them.

Perhaps the best way is to ask the patient to fix a small body like a pencil, held a foot in front of and on a level with his eyes. If then there is no oscillation, the object should be gradually elevated, and the patient asked, not to move his head, but to follow it only with the eyes.

If this fails, he should be asked to stoop to the ground two or three times in succession, when it will often be manifested,

or the patient's eyes may be examined, whilst he is stooping, by means of a mirror, or immediately after he has assumed the erect position.

Some cases, where the nystagmus consists merely of very fine movements, are really difficult to detect. The patient should be taken into a dark room, and a fine pencil of light focussed on the junction of the cornea and the sclerotic, when, provided the observer has good eyesight, involuntary movements can be seen which would otherwise be missed.

The real difficulty in this, as in so many cases of alleged disability where claims are made under the Workmen's Compensation Act, arises from the fact that a man suffering from a mild degree of the disease, and who is perfectly able to do his work for years, may become work-shy and simulate headache, giddiness, nausea, and other symptoms, and so deceive those who trust to subjective symptoms. In such a case the objective symptoms, the man's manner, his past history, and the reports of those who have watched him, are of much value.

Gross malingering—*i.e.*, assumption of symptoms when no disease exists, is comparatively rare in this disease; but surgeons who have much experience of miners affirm that, whilst there are but few cases of malingering without some excuse, there is a very considerable amount of exaggeration and dishonest prolongation of the symptoms of the disease, when it exists in its initial stage or in a very mild form. This impression is borne out by the fact that in 1910 there were four times the number of men receiving compensation for this disease than there were in 1908.

The influence of suggestion on the disease is well illustrated by a case reported of a man who had received an injury to his foot, and who, when he consulted his doctor, was told that he had nystagmus, and that he could get compensation for it. The man had had no symptoms of the disease previously, but from that date he suffered from all the classic symptoms of the malady.

It has been pointed out that the mere act of parading workmen, who are being paid compensation, in front of their fellows has a bad influence. It is evident that the less the collier knows about nystagmus, the better.

Prevention.—Those with commencing symptoms of nystagmus are best put to work on the surface of the pit. Many who are thus employed in the early stages of the disease ultimately become fit to resume work underground.

Some authorities think that slight cases may continue to work underground. It must, however, be remembered that the amount of incapacity does not depend upon the physical signs; some men with well-marked rotatory or oscillatory movements are able to and do work, whilst others with very little abnormal movement are really incapable of work.

Naturally, the dread of losing the eyesight has a very serious effect upon the mental condition of those who are threatened with the disease; and this is, therefore, to some extent an etiological factor in its production.

CHAPTER XXX

ACCIDENTS COMPLICATED BY PRE-EXISTING DISEASE

It is a mistake to suppose that liability is lessened because an accident has happened to a man of poor physique. The responsibility of those who are liable for an accident is not less because an injury has had an unusually severe effect upon a particular individual who happens to be of poor physique, or is the subject of pre-existing disease. For instance, a motor-car may run down two men; one may pick himself up, express his opinion about your carelessness, walk away, and be none the worse for it. The other may be a weakly individual whom the shock renders temporarily unconscious, or he may be a timorous person who is obsessed with the necessity for taking every possible precaution in view of future disabilities. He may take a cab home, go to bed, send for his doctor, consult a lawyer, and suffer from a self-induced attack of neurasthenia lasting for months. Yet the liability is not less in the latter case than the former; indeed, the damages awarded may be greater.

Again, two men are working together. One man has previously lost an eye; the other has two sound eyes. Both men are able to do the work in which they are engaged; both are earning the same wages. Suppose both meet with an accident at the same time, and each loses an eye. The liability for compensation in the case of the blind man is based upon total incapacity, and in the case of the other of partial incapacity. It is no answer to say that if the one-eyed man had not previously lost his eye he would have only been partially incapacitated.

"Drive into something cheap," said a well-known legal luminary, when his horses ran away. The difficulty is that there seems to be nothing cheap to drive into in this country.

As the law stands at present no account is taken of the influence of pre-existing disease in determining the results of an accident; and yet this is very important, because while an accident will in a healthy man have no serious effects, a similar accident may, for instance, unmask a grave disease like tabes, or rupture an aneurism in a syphilitic; in the tuberculous it may set up joint or lung disease, or in the neuro-path may induce a bad attack of neurasthenia.

Results of Accident influenced by Pre-existing Disease.—

In considering this question it is important to discriminate between those symptoms which would, in the very nature of things, have occurred whether there had been an accident or not, and those which have been determined or precipitated by it. As an example of the former, take the case of the rupture of an aneurism. It was held by the House of Lords that the widow of a man who had an aneurism which ruptured whilst he was doing his *ordinary* work was entitled to recover under the Workmen's Compensation Act, death being held to be the result of an accident. As an example of the latter take the man who has had a tuberculous hip which has completely recovered, and who subsequently sustains a severe accident to the joint followed by a recurrence of the disease. It is obvious that in the first case the decision is inequitable, whereas the second case is in a totally different category.

Latent Diseases which Injury may Aggravate.—It will be interesting to consider a few of the diseases which lie latent in the body, and which may, on the occurrence of an accident, spring into life and have very serious consequences.

Syphilis.—Amongst these I would place first of all syphilis, more especially in the later stages of the disease.

I often have sent to me, on account of trivial accidents, cases which show the early signs of tabes or general paralysis of the insane. With diseases like these common in a large population, it follows that a certain number will meet with accidents, and their subsequent troubles are invariably attributed to the accident. It is a complication in these cases that the symptoms of the disease are often unmasked and precipitated by the occurrence of traumatism. The injured man may have been genuinely ignorant that there was anything the matter with

him, and after an accident truthfully believe that his troubles are entirely due to it; and yet, when we come to examine him, from the condition of his pupils, knee-jerks, etc., we know the disease must have been present for some time prior to the accident.

In syphilis there may be, and often is, extensive damage to the bloodvessels. Anyone suffering from syphilitic endarteritis obliterans must sooner or later have a deficient circulation. This may be in a limb which is the subject of an injury, and gangrene may follow, whereas the same degree of traumatism in a healthy person would have had no serious effect.

Aneurism, again, is practically confined to syphilitics, and is regularly attributed by its victims to overstrain.

Syphilis concerns us again in yet another of its manifestations, for it is an undoubted fact that in syphilitics even a slight traumatism may set up a gummatous ulceration. The spirochæte of syphilis may be distributed by the blood and lymph to any part of the body. The effects are either immediate, as when a diffuse and localized inflammation is set up; or remote, when colonies do not at once form, and the spirochæte remains latent. It is often, however, awakened into activity if the health deteriorates either as the result of disease or accident. A blow, a fall, or, indeed, traumatism of any kind, may determine a sudden activity of a latent focus, producing a soft localized swelling—the well-known gumma.

Investigation into Incidence of Syphilis.—The amount of latent syphilis present in apparently healthy people is much larger than is generally supposed. The possibility of the disease lying dormant until traumatism or some other debilitating factor awakens it should never be forgotten. Fournier estimated that probably 15 per cent. of the people of Paris had syphilis. The Out-Patient Committee of the London Hospital estimated that 12 per cent. of the population of London is probably affected by the disease. These, however, are only estimates.

With a view to obtaining accurate data, primarily with the object of assisting the Royal Commission on Venereal Disease, I undertook an investigation to elicit the exact amount of latent syphilis which was present in apparently healthy individuals.

During a period extending over some seven months I examined 2,176 men, all of whom were referred to me for medical report. They were divided into three classes:

I.—1,119 whom accident or illness had overtaken.

II.—557 apparently healthy, who required to pass an examination before entering employment.

III.—500 of the same class as the above who were submitted to the Wassermann test.

Of all three divisions, making a total of 2,176 men, 106 were found to be suffering from venereal disease.

In Classes I. and II. clinical evidence alone was relied upon, and 60, or 3·8 per cent., were found to be infected.

In Class III. all were submitted to the Wassermann test, and 46, or 9·2 per cent., were found to have had syphilis. All were apparently in perfect health, and showed no evidence of disease, after a careful and thorough physical examination.

All cases in the three classes were taken consecutively, as they presented themselves for examination; no selection was made, except that they were all working-class men over twenty-one years of age.

It is interesting to note that the incidence of venereal disease was much greater in those who had served in the army or navy than in the case of the civil population. In order to have accurate results, I ascertained from each workman whether he had ever been in the army or navy, and classified them accordingly in the following table, which will help to make the matter clear. From this it will be seen that, of those who had been in the Services, 18·89 per cent. gave a positive reaction, as compared with 6·02 per cent. of the civilian population.

	<i>Negative Wassermann.</i>	<i>Positive Wassermann.</i>	<i>Total.</i>
Not been in navy or army - - -	343	22; i.e., 6·02 per cent.	365
Been in navy or army	103	24; i.e., 18·89 per cent.	127
Not recorded - -	8	—	8
Total - -	454	46	500

The figures probably do not represent the full extent of the existence of the disease, for the men examined were of a somewhat superior artisan class.

An interesting feature of the investigation was the fact that the Wassermann test showed a positive reaction in cases infected as many as twelve, sixteen, and nineteen years previously, and in one case as late as twenty-nine years after infection, long after all recollection of the infection had disappeared.

Opinions differ as to the significance of a Wassermann reaction, and it may very well be that more experience will prove that in old-standing cases the mere presence of a positive Wassermann reaction need not necessarily cause much anxiety. On the other hand, all cases of parenchymatous syphilis, aneurism of the aorta, etc., would, I take it, give a positive reaction during their latent period. Hence the presence of a positive Wassermann is, or may be, a matter of considerable significance.

It should be remembered that the Wassermann reaction is much less reliable in the tertiary than in the primary and secondary stages. It is estimated that at least 15 per cent. of latent cases do not give a positive reaction. Moreover, whilst a positive reaction in the tertiary stage is always significant, a negative is much less so, and a positive reaction sometimes follows two or three negative results. The cases from which my statistics were taken were only examined once.

It will be seen, therefore, that the figures above quoted perhaps considerably understate the true proportion of unrecognized syphilis in the community.

No one who has any experience of human nature credits anything said by anyone about sexual affairs, and it is somewhat significant that, out of 248 who denied the presence of syphilis, 33 were found to have a positive reaction; and practically all of these admitted knowledge of the possible existence of the disease when confronted with the positive result of the test.

My experience is that it is a futile proceeding to ask anyone whether he has had venereal disease, because no credence can be given to a *denial*; yet it is my invariable practice to ask the question, because if an admission is made it saves a great deal of trouble.

The examination of the blood by means of the Wassermann test is the only reliable way of eliciting the fact, although much is gained by a careful search for the cicatrix of a former chancre.

In the course of an examination, the careful, systematic investigation of the nervous system occasionally reveals the presence of grave nerve disease.

It is estimated that about one in thirty-three of those suffering from syphilis ultimately have general paralysis of the insane. It is well to remember that patients suffering from this form of syphilis often show mental symptoms long before physical signs are detected.

It is now admitted that syphilis is the cause of general paralysis of the insane, but the question how far traumatism may have acted in accelerating it is one of much importance. No mistake is likely to be made in either the placid or demented stage, but in the warning stage (where there may be nothing but an Argyll-Robertson pupil, slight tremor in the facial muscles when the mouth is opened, with perhaps some defect of self-control) the disease may not yet have interfered with occupation, and often escapes attention.

Sir George Savage aptly compares such a condition to a ripe growing pear almost at maturity, which shows no sign of decay. "Give it a knock," he says, "or handle it roughly, and it rots as it hangs." So it is with the syphilized brain. A working-man may be slowly incubating cerebral syphilis, with symptoms undiscernible except to a trained observer, when he meets with an accident, preferably a head injury, and an impetus is given to the pre-existing condition which renders it unmistakable. Judging from my experience, syphilis is undoubtedly the cause of general paralysis, and traumatism has a potent accelerating influence on its course.

Alcoholism.—Alcoholism is a powerful factor in influencing the effects of accidents. An accident may precipitate an attack of delirium tremens which may end fatally. The degenerative changes which take place in practically every organ of the body in alcoholism are likely to render more severe and permanent what would otherwise have been but slight and transient results of traumatism.

Hereditary Neuroses.—The importance of a neuropathic inheritance in determining the occurrence of post-traumatic neuroses is considered in the chapter devoted to those diseases, but it may here be said that it is doubtful if these diseases ever occur in people of absolutely sound stock and constitution. In the degenerate children of degenerate parents the slightest of shocks may cause the most severe nervous disorders, which have very important and far-reaching results. How often, for instance, has a comparatively slight traumatism been the forerunner of true epilepsy?

Gonorrhœa.—The secondary effects of gonorrhœa, such as gonorrhœal arthritis, are likely to be attributed to traumatism alone.

Rheumatoid Conditions.—It has already been pointed out that in osteo-arthritis exacerbations of the disease occur, if the affected joint or joints suffer injury.

Tuberculosis.—Tubercle is one of the commonest diseases; post-mortem examinations of persons dying from diseases other than tuberculosis show that there are very few of us who have not at one time or another been affected by it. Any individual may therefore have a tuberculous focus lying latent and unknown to him. Interference with such a focus is liable to set up a generalized form of the disease. Take the case of a man who has, for example, a tuberculous testicle, and who has the misfortune to receive a blow on it; such a blow under ordinary circumstances, if he were healthy, would probably have no ill effect, but in him it may set up a general tuberculosis. Such a case has recently come under my observation.

In almost every case of tuberculous bone and joint disease there is a history of an accident, usually of a trivial nature, and in a certain proportion of these cases the traumatism has been sufficient in predisposed persons to set up a severe form of the disease.

Cases have been recorded even of pulmonary tuberculosis following directly upon an accident involving the chest.

Verruca Necrogenica.—This is a chronic tuberculous affection of the skin, differing from other affections of this nature in being warty and papillomatous. It is found in pathologists, post-mortem attendants, butchers, and in people who habitually

handle dead bodies. It is rare, and occasionally occurs independently of the conditions under which those mentioned work.

In its typical form it is an indurated, indolent, warty growth, varying in size from a split pea to a bean, occurring usually on either the thumb, the forefinger, the knuckles, or the back of the hand. It is usually single, but it may be multiple. Its tuberculous nature has been demonstrated by the presence in it of giant cells and tubercle bacilli. The affection is a very chronic one, and may go on for years without any great alteration in the growth; but in rare cases the deeper structures become involved, and erysipelas, pyæmia, and occasionally a general tuberculous infection, is set up. Radium acts as a rapid cure.

Superimposed Disability : Legal Considerations.—The question of a disability superimposed upon a pre-existing accident is one of considerable interest, and has been the subject of several important decisions. This is a point the importance of which many medical men fail to appreciate. I purpose, therefore, to state shortly the effect of the decisions upon the question, for when these cases present themselves it is well for the medical practitioner to have a clear understanding of the claimant's position.

It will be remembered that the measure of compensation under the Workmen's Compensation Act is half the amount of the weekly earnings, if totally incapacitated; and as a rule, in the case of partial incapacity, half the difference between the former earnings and the weekly sum subsequently able to be earned. And this compensation is payable during the whole period of incapacity or partial incapacity as the case may be, unless the employer elects to commute the weekly payment by a lump sum, which after a time he is entitled to do. It will therefore be seen that, if the incapacity continues during the whole of the man's lifetime, although he may live to an age when he would, apart from any accident, be past work, and consequently unable to earn anything, compensation is still payable.

It sometimes happens that a man meets with an accident, in the course of his employment, which totally incapacitates him from work, and he therefore receives compensation in

accordance with the Act. Some time after he may be so unfortunate as to meet with another accident *in no way connected with his employment*, which apart from the former accident would render him unable to earn anything. What then is the position of the employer who is paying compensation? Is he entitled to say, "Liability is at an end, inasmuch as the man has sustained another accident which renders him incapable of earning anything apart from the injury he sustained in my employ"? The answer is: No, he is not freed from liability; but so long as the injury resulting from the first accident would have prevented the man from working he must continue to pay compensation to him. Suppose a workman has an injured right arm as the result of the first accident, and in consequence is not able to earn as much as he did before the accident happened, and subsequently loses the use of his left arm owing to a later accident *not connected with his employment* (we shall assume that the second accident renders him unable to earn anything at all), the employer is still liable to pay compensation on the basis of the loss of the man's earning capacity in consequence of the injury to the *right arm*. The employer's liability is neither diminished nor increased by reason of the second accident, although the result of the two accidents is permanent and total incapacity. This principle would apply even though the second accident might have resulted in total incapacity, as, for instance, total blindness or other serious injury. The result as far as the workman's right to compensation is concerned is the same in regard to the first accident.

It will be seen that this depends upon the important fact that the man had *not* recovered from the effects of the first accident when the second one occurred. Assume now that the circumstances are the same as those above detailed, *except that the effects of the injury to the arm disappeared before the second accident*, or even after; then, when the disability *arising from the first accident* ceases, there is no liability to pay further compensation, although the man may, as a result of the second accident, be unable to earn the same amount as he did before it happened. The result in both cases, from the point of view of the workman, seems to be fair, because in the first case the employer will only continue to pay compensation in respect

of the injury for which he was originally liable; whilst in the second case, his liability having ceased when the man had recovered, there is no ground for putting a further liability upon him because the man may have been unfortunate enough to sustain a further injury for which the employer never would have been liable.

Let us now suppose that the circumstances are the same as in the first case, except that the second accident arose in the course of the man's employment under the same employer *for whom he was working* when the first accident occurred, and that in consequence of the first accident his earning capacity was reduced from £2 to £1 a week. As he was worse off after the first accident to the extent of £1, his employer would (besides the £1 he was earning) be paying him 10s. a week, being half the amount of wages he was unable to earn after the first accident. He was therefore, at the time of the second accident, receiving 30s. a week although only *earning* £1. As the result of the second accident, assuming that he was totally incapacitated, the employer would have to pay him half of the £1 he was earning—namely, 10s.—in addition to the 10s. which was being paid in respect of his compensation for the first accident. He is therefore entitled to two sums of 10s. each, so that the man would be receiving the full compensation allowed by the Act, just as though he had been totally incapacitated at the beginning.

If, however, whilst he was receiving compensation from the employer he was serving when the first accident happened, he entered the service of *another* employer at £1 a week (that being all he was able to earn in consequence of the first accident), and the second accident happened whilst in the second employer's service, the second employer is only liable to pay compensation at the rate of 10s. a week, being half the amount the man was earning in his employ.