Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On Insanity caused by Injuries to the Head and by Sunstroke.* By FRANCIS SKAE, M.D. Edin.

(Read before the Medico-Chirurgical Society, 3d January 1866.)

THE following cases and the remarks which accompany them are intended to illustrate the characteristic features, and to describe the usual course and termination of insanity caused by sunstroke, and by injuries to the head.

From personal observation of a considerable number of such cases in the Royal Edinburgh Asylum, and from a careful study of the records of many more in the case books of the institution, I am led to the conclusion, that insanity caused by sunstroke, and insanity caused by a fall or blow on the head, closely resemble each other, and possess some important features in common.

There are also some important points common to both of them which cause them to differ from the forms of insanity resulting from other physical causes.

The pathology of insanity resulting from severe injury to the head is the same, probably, as the pathology of insanity from sunstroke,—to wit, chronic hyperæmia of the brain and its membranes.

I will therefore consider and describe them together as forming a *natural class* or *group*, to which, for the sake of convenience, I will apply the term used by Dr Skae in his classification, *Traumatic Insanity*.

It will be seen from the following cases, that insanity is sometimes the *immediate* result of a severe injury to the head, but that more frequently it is a remote consequence: *months*, or in some cases *years*, elapsing between the receipt of the injury and the appearance of the insanity. In such cases, the connexion between the injury and the insanity is generally indicated by the fact, that a slight change in the character, habits, or disposition is observed immediately after the injury,—this change becoming more and more marked until it culminates in insanity. Injuries to the head have long been universally recognised as a cause of insanity; with the exception, however, of Esquirol and Prichard, no authors seem to have made more than passing allusion to this physical cause of insanity.

Esquirol, in his tables, gives 710 cases of insanity due to physical causes, of which 18 resulted from blows or falls on the head;¹ he also relates² 2 cases illustrative of the time which may elapse between the receipt of the injury and the development of insanity; the interval in 1 case was some months, in the other, fourteen years.

Prichard,³ in his treatise on insanity, states that in his experience he has met with similar cases. He also mentions cases where change of character, not amounting to insanity, has followed severe injury to the head, and continued through life.

With the exception of the above somewhat meagre description, no author with whose writings I am acquainted has given any account of the symptoms or general character of such cases.

I trust, therefore, that the history of the following cases of insanity from injury may be of interest.

I have selected such as will best illustrate the peculiar features which I think are possessed in *common* by insanity caused by injury to the head and insanity caused by sunstroke.

CASE 1.—R. H., æt. 39, a carpenter, married, of sober and industrious habits. Three months previous to admission he fell from a scaffolding; he fell upon his back, the hinder part of his head sustaining a severe contusion, without fracture. Phrenitis supervened soon after the fall, and during his convalescence from the phrenitis, his present malady developed itself, and has now continued for nearly a month. His insanity, therefore, was first apparent two months after the fall. The symptoms of his insanity are monomania of pride, extreme optimism, and delusions of exaltation, such as "that he is a master-joiner, that he is so successful at his trade that he expects he will soon earn upwards of £150 a-week." His bodily condition is weak; he has a slight unsteadiness in his gait, noticed ever since the fall. Such was his state on admission. It was further stated by his friends that no hereditary predisposition existed, and that he was neither epileptic, suicidal, nor dangerous.

For three weeks after admission no change for the better took place; he then began slowly to improve, first in bodily health, then mentally; he became stronger, the unsteadiness in his gait was much less apparent, and he worked daily in the carpenter's shop; at the same time he ceased to express his delusions, and conversed pretty rationally. He continued in the same condition a fortnight longer, and was then *removed as relieved*, in so far that he had ceased to express extravagant delusions, although his manner and speech indicated a mind much weakened.

I regret that his subsequent history cannot be traced, and his case is, therefore, very imperfect; but I think it probable, that as the improvement in his mental state was but slight,—as it did not seem to be progressive, as it seemed indeed almost at a standstill,—

¹ *Maladies Mentales*, tome i. p. 64.

³ *Treatise on Insanity*, p. 202.

² *Ibid.*, p. 68.

that it went but little further, and that this man would always be weakminded, indolent, incapable of doing much for himself.

Remarks.—This case, although by no means a typical traumatic one, affords an illustration of insanity following immediately on acute inflammation of the brain: it is also an illustration of a case of traumatic insanity simulating general paralysis,—the unsteady gait, the optimism, and the extravagant delusions; but differing from it in the absence of other physical signs, in the fact, that the unsteady gait was due to injury of the spine, and was seen immediately after the fall, and was apparently unconnected with the insanity. This man differed from the majority of traumatic cases I have seen, in never showing the slightest irritation or violence of manner; he seemed perfectly harmless, and his case, in this respect, is somewhat exceptional.

The following case is in some respects a contrast to the above.

CASE 2.—J. E., æt. 15, the son of a farmer. His father's statement was as follows:—He was a very intelligent boy until he was five years of age, and at that time he was struck immediately behind the ear by his schoolmaster with a ruler. The blow caused swelling and ecchymosis—no fracture. The same night he screamed out in his sleep; in the morning a change in his manner and appearance was noticed; he seemed stupid and silent; in the course of a few days he ceased to speak entirely, and he remained silent for six weeks; when he began to speak again he talked nonsense; he has never spoken sensibly since, and it is now ten years since he received the blow; he is often very noisy at nights, and he swears a great deal.

His father managed him at home till he brought him to this asylum on account of his violence and his dirty habits. He never had any fits nor any symptom of paralysis. It was also stated that the lad's grandmother, on the father's side, had been insane for several years. On admission, 3d of March, he was a tall delicately-formed lad, of very fair complexion. Mentally, he seemed perfectly imbecile, and his bodily condition was weak. He was very noisy at night, swearing profusely, and he was very dirty in his habits; he was quite harmless, and appeared incapable of understanding anything that was said to him, or of answering any question, however simple.

He was put among the noisy patients, and continued in that ward; little mental improvement ever showed itself in his case; his bodily health rapidly improved, and he became much stouter. For a year and three months after his admission he continued unchanged. On the 16th of May, he had a succession of very severe epileptic fits for the first time since the infliction of the blow which had caused his disease. On the 19th, the fits became more frequent, until they were almost continuous, and he died comatose on the evening of that day. The post-mortem examination was made fifty-six hours after death, and the following appearances were seen:—

Post-mortem Examination.—1. The scalp, calvarium, and dura mater appeared healthy.

2. There was slight opacity of the arachnoid over the superior part of the cerebrum. There was a small quantity of serum in the sac of the arachnoid.

3. The lateral ventricles contained 3iv. of serum.

No morbid appearances were discovered in the brain or cerebellum.

The entire encephalon weighed $46\frac{1}{2}$ oz.

Remarks.—The peculiarities of this case are, the immediate appearance of insanity characterized by almost total fatuity immediately after the infliction of the injury.

The accession, without any premonitory symptoms, and after a lapse of ten years since the injury, of epilepsy proving rapidly fatal.¹

The comparatively slight nature of the injury which was followed by such grave results.

CASE 3.—Mr D. The following is an instance of epilepsy with maniacal paroxysms, the result of severe injury to the head.

D. was brought to the asylum in a very violent paroxysm of acute mania, which had lasted two days, and had commenced immediately after a series of very severe epileptic fits.

History.—He is 24 years of age, single, an officer in the army, a young man of strictly temperate habits. Seven years ago, while in India, he was thrown from a carriage-palanquin, and fell with violence on the left side of his head; there is no account of his condition then, nor is it quite certain whether he had any epileptic fits in India, but it is not likely that he had, as he remained with his regiment for five and a-half years after the accident; he then came home on leave. When he came home, he appeared quite well, and continued so for a year; he then had his first attack, consisting of many severe epileptic fits, followed by a paroxysm of excitement. This was exactly six months before his admission into the asylum. During the six months between his first attack and his admission, he had regular monthly attacks, consisting of a series of fits, followed by great excitement, lasting three or four days.

On admission, he was so violent that two attendants could not restrain him, and he was sent to a padded room to prevent his injuring himself by the furious manner in which he dashed himself about.

His face was puffed, conjunctivæ congested, pupils moderately dilated, pulse full and rapid, skin hot, bowels obstinately confined.

For some days after admission he continued in almost incessant *rotatory motion* from left to right, this he did whether sitting or lying; his eyes were usually open, fixed in a glassy stare; his

¹ The constitutional changes associated with the period of puberty may partly account for the appearance of the epilepsy at this time.

movements were all automatic; the hand of another was grasped if placed in his; he moved away if one stood in front of him; every night at ten o'clock he took some food, but he manifested no consciousness whatever; he continued for ten days in exactly the same condition, and then slowly and gradually recovered consciousness; the regular rotatory movements ceased; for some days he was unable to get up owing to the severe bruises he had sustained in the course of his violent movements; in a few days he was to all appearance perfectly well; he complained a good deal of uneasiness on the left side of the head, at the *site of the injury*. Two months after this, having continued quite well in the interval, he had *seven* severe epileptic fits, followed by a maniacal paroxysm, less violent than the former one, but again necessitating his being placed in a padded room to prevent injury to himself; the attack subsided in a week, when he was again apparently quite well.

It was noticed that pressure on a certain part of the left side of the head gave pain, and induced involuntary contraction of the muscles of the arm of the opposite side. The history of an injury whose position was indicated by a cicatrix, the pain or at least uneasiness *constantly* felt and aggravated before a paroxysm, the peculiarity of the movements in the maniacal state, the pain and twitching in the right arm produced by pressure on the site of the injury, pointed to the existence of some local structural change, probably seated in the bone or subjacent membranes, and to the *possibility* of relieving a probably hopeless case by trephining over the site of the injury. At the request of the patient's friends and medical attendants, Mr Syme performed the operation; he trephined on the spot indicated by the patient himself; the operation was performed without chloroform, and the patient bore it with great courage; he was at the time quite free from excitement, and perfectly rational. On removing a portion of the bone, a very questionable alteration was noticeable. One half of the circular portion removed seemed slightly thicker than the other, and the vascular grooves on its under surface shallower. No alteration was detected on microscopic examination. For four days after the operation, the patient continued to do well; he then became furiously excited, struggling violently, shouting at the top of his voice, and requiring to be restrained by means of sheets to prevent his injuring the wound; his pulse at this time was 110, full and strong; he became a little quieter every evening, and took some food. The excitement continued for twelve days, and then gradually subsided; he soon went about again, apparently quite well in mind, with his bodily health and strength little if at all impaired by what he had undergone.

He continued well for three months, during which time he had no fits, and was perfectly sane. At this time his friends removed him on trial.

Thirteen months afterwards this patient was readmitted, showing all the symptoms of his previous attacks. During the year of his

residence at home, he had suffered from occasional slight attacks of excitement, and from epileptic fits, at regular intervals. As the detailed history of his case would be mere repetition, I may say, briefly, that since the time of his second admission, in July 1858, just described, he has remained voluntarily in the asylum.

For four years after his readmission he took on an average four epileptic fits a-month; but during these four years he had only five attacks of excitement, the two last of them being of a comparatively slight character.

For the last three years he has suffered less frequently from epileptic fits, and has had *no maniacal* attacks at all. On one or two occasions, when exposed to annoyance or excitement, he showed an uncontrollable impulse to *strike* or commit some violent act, and this excited condition, during which he was apparently only semi-conscious, lasted but a few minutes. With these exceptions, he is perfectly *sane*.

During the last four months he has been taking bromide of potassium (in ten-grain doses, thrice daily), with the effect of reducing the number and the severity of the fits in a very marked degree, and in lengthening the interval between their occurrence to such an extent, that from having two and three fits every month, their number has been reduced to five within the four months; otherwise, he is decidedly improved, his bodily health is excellent, and he shows no indication whatever of insanity.

Remarks.—Notwithstanding the very long time which elapsed between the occurrence of the injury and the development of the insanity and epilepsy in this case, there are several considerations which lead me to believe that both the insanity and the epilepsy were the result of morbid action established by the injury, and to describe the case as a traumatic one. These are, 1st, the *uneasiness* felt at the site of the injury immediately before a paroxysm; 2d, the *pain* which pressure on that part occasioned, the *involuntary contractions* of the muscles of the arm of the *opposite* side produced by pressure on the part, and the *giddiness* produced by pressure on the part; and, 3d, the fact that one half of the circular piece of bone removed by the trephine was thicker than the other, and the grooves on its under surface shallower.

The prospect of the surgical operation being successful was greatly lessened by the difficulty of exactly localizing the spot where thickening was likely to have taken place. The operation, however, was so far successful, that a piece of thickened bone was removed, and pressure on the subjacent parts consequently lessened.

The result of the operation may shortly be stated thus,—that while at the time it was performed, the patient was subject to a regular monthly recurrence of a series of severe epileptic fits, accompanied by a maniacal attack of great violence, since that time, although the epilepsy still continues, the maniacal attacks have

become less frequent and less violent every succeeding year, and during the last three years there has been no maniacal attack at all.

CASE 4.—The following case has peculiar features :—A Russian officer, who had commanded a battery at Sebastopol, and who there received eleven wounds, one of which, a very severe one, was on the back of the head and neck, arrived in Leith, commissioned by his government to purchase some vessels there. While in Edinburgh, he one day, in the Exhibition of Paintings, exposed his person to some ladies; for this offence he was imprisoned, but liberated in consequence of a medical representation as to his mental state. On the day after his liberation, he went about Leith in his dressing-gown, trying to purchase pistols, and was in consequence sent into Morningside Asylum. He stated himself, that after the wound in his head and neck he had suffered from *tetanus*, and subsequently from *epilepsy*, and that since that time he had been irritable and easily excited.

On admission he was confused, alarmed, and suspicious; the morning after admission he asserted that his milk was poisoned. The scars of his wounds were all visible, the principal one being the cicatrix of a rocket wound, which extended over the occipital bone, and a considerable way down the back of the neck. In the course of the next ten days he became composed and reconciled to his stay in the asylum; he seemed rational and agreeable, but irritable and touchy; he was permitted to walk about the grounds on his parole, and his bodily health and appearance rapidly improved. Three months after admission, he displayed a repetition of the habit for which he had been imprisoned, and which he very much deplored himself, although he appeared unable to resist it.

For a month after this he remained in the asylum, perfectly well conducted, and apparently rational; he had no epileptic fits during the four months of his residence in the asylum. He complained at times very much of his head. Although quiet and agreeable, he had the appearance of a man apt to be very easily dangerously excited. In this condition he was removed to his own country, and with his subsequent history I am unacquainted.

Remarks.—The peculiar feature of this case is the curious sequence of effects produced by his wounds. First tetanus, then epilepsy, from which he also recovered; and then this peculiar phase of insanity, liability to dangerous excitement, liability probably to homicidal impulse, as was evinced after his liberation from prison, by his attempting to procure pistols, and liability to a sudden and uncontrollable desire to expose his person to females.

The traumatic *tetanus* was probably the result of one or more of the other ten wounds which he received on different parts of the *trunk* and *limbs*; but the *epilepsy*, from which he recovered, and the subsequent insanity, from which he did not entirely recover,

appear, like the *tetanus*, to have been *traumatic*, and to have been both caused by the same injury, viz., the wound on the back part of the head.

CASE 5.—The following is the case of a man who was also wounded before Sebastopol. I relate it very briefly:—He was admitted in 1857; his skull had been fractured by a stone from a blast at the siege. He was discharged from the army three months afterwards. The first unmistakable evidence which he gave of his insanity was four weeks previous to his admission here. While making hay, he threatened to stick the hay-fork into his father, “as the war had begun.” At this time he was described as a good deal excited, and in the habit of wandering about at night. Four days after this, he again attacked his father, knocking him off his chair; he had a knife in his hand at the time. On this occasion he was taken into custody; he was very excited that night. On admission the next day, he was very quiet, courteous, and polite, and described the way in which he received his wound; he did not appear to have any delusions. The wound was situated near the middle of the left parietal bone. It consisted in the scar of a scalp wound, three inches long; in the centre of the scar a depression half an inch deep, and large enough to receive easily the top of the thumb.

The man himself says that no bone was removed from the wound, and that no operation, besides probing the wound, was performed. He continued in Morningside Asylum for five months; during that time he was *quiet*, and expressed no delusions; his mind appeared weakened, and he seemed to be lapsing gradually into dementia. He was very sullen and obstinate, slovenly and dirty in his manner of eating, and during the latter part of his stay he refused to work at all. He was removed unimproved to another asylum.

CASE 6.—F., a seafaring man, æt. 32, single. Three years previous to admission had received a violent blow on the head, followed by several attacks of insanity, both at sea and on shore.

A few days previous to his admission here he had followed a gentleman about the streets with a knife, and threatened to stab him.

He expressed the following delusions: that he was a descendant of the royal family; that another man’s wife was his wife; that the souls of other men took possession of him, and his soul possessed them.

He was brought to the asylum with difficulty, but on admission he was quiet and contented, only expressing a suspicion that some toddy, which was given him, was poisoned; his bodily health was good. For three or four months after admission he continued contented and perfectly tranquil, lounging about smoking, talking now and then very mysteriously of friends in America; he said he was a

Yankee, and commenced to speak like one; he had persistent hallucinations of hearing. Subsequently he became much more incoherent, using unintelligible metaphors in his conversation and letters,—writing long letters, almost quite incoherent, with the words, “No connexion with Kossuth,” on the envelope.

He never made any progress towards recovery, but became even more demented and taciturn. He was eventually removed to an English asylum.

Remarks.—The earlier history of his case affords an illustration of two not uncommon features in insanity, resulting from injury and from sunstroke.

One is homicidal impulse, and the other is the fixed delusion of the possession of high rank.

The incurable, hopelessly, non-progressive nature of the case is also characteristic of *traumatic* insanity, whether resulting from *injury* or *sunstroke*.

The foregoing cases illustrate some of the most prominent features of traumatic insanity resulting from blows or falls on the head. It is needless to read cases of general paralysis of the insane, or of simple dementia following such injuries, as they are not of such general interest as to justify my occupying your time. I will content myself by alluding to the occurrence of such cases, and will now consider *insanity* from *sunstroke*.

Like injury to the head, sunstroke has always been recognised as a physical cause of insanity, and as such is alluded to in most psychological works. Some have given this cause more than a passing notice, and of these I may mention Battie, who, in his treatise on madness, 1758, relates the case of a sailor who became, according to Dr Battie, “raving mad in a moment, while the sunbeams darted perpendicularly on his head.”¹ Arnold (1786) also particularly refers to it (vol. ii. p. 66). Esquirol hardly alludes to it; but of his 710 cases due to physical causes, sunstroke is the assigned cause in 16.² Prichard considers that insanity from this cause is due to inflammation or a state bordering on inflammation in the encephalon, and observes that cooks and others exposed to great heat, are liable to attacks of mania.³ Feuchtersleben (1845) mentions sunstroke as one of the causes of furious mania.⁴ Sir A. Morrison, in his lectures, states that the periodic mania of Charles VI. of France was due to *coup de soleil*.

From the reports of Bethlehem Hospital it is seen that from 1846 to 1860, inclusive, there were admitted 13 cases of insanity caused by sunstroke, 7 of which are said to have recovered. In speaking of these cases, Dr Hood takes the same view of the manner in which sunstroke acts as does Prichard, viz., that it excites “inflammation or a state akin to inflammation, in the encephalon.” He confirms

¹ Battie on Madness, p. 47.

² Op. cit., p. 64.

³ Op. cit., p. 203.

⁴ Med. Psychology, p. 265.

the observation of Prichard as to the liability of cooks and persons exposed to great heat from fires or furnaces to insanity.¹

The latest observations in connexion with the subject are those of M. Brunet, published in the November number of the *Annales Medico-Psychologiques*, on the effects of insolation on the insane.² His paper is a description of the *pellagra* of Italian authors, as observed by him in the patients of the Niort Lunatic Asylum, and has no direct bearing on the subject of this paper.

The above references are the only ones of importance with which I am acquainted.

It is not necessary that I should here describe the various immediate effects of sunstroke, as I could only do so by reproducing the remarks of others. From the rarity of the accident in this country, its immediate results are seldom seen; and the patients admitted into our asylums have generally, if not always, been insane for some months. The accounts which they bring along with them from abroad of the manner in which they were first affected by sunstroke are invariably imperfect. I will confine myself entirely, therefore, to the description of their insanity.

The following cases are intended to illustrate the most prominent characteristics of insanity due to sunstroke, and the similarity which exists between it and insanity due to injury of the head.

CASE 1.—The following case was admitted some years ago. Mr F., æt. 29, single, an officer in the Indian Army, stated to have been of rather unsteady habits. His mother had a sunstroke followed by temporary insanity.

Two years before coming to this country he suffered from sunstroke; the manner in which the sunstroke affected him at the time of its occurrence is not stated. Shortly after the sunstroke he lost the power of his legs (which were still weak on admission); he was sent home in charge of a sergeant, who left him on landing in this country.

He made his way to the house of a relative; he then appears to have been drinking a good deal,—to have been excited and violent, sleepless at night, sometimes sleeping all day. He declared that he was the Earl of Dalhousie, and talked much of his wealth and importance, his exalted rank, etc.

On being admitted he was very impatient, moody, and discontented; talked with imbecility about his rank in the army and the cruelty of his family. His gait was slightly affected.

He is subject to hallucinations of hearing, especially at night.

He declares his name is John, which is the name of his half-brother, whom he denounces and curses in no measured terms.

He remained some years in the asylum, little or no change taking place in his mental condition; he was occasionally cheerful and

¹ Statistics of Insanity, p. 67.

² Des Effets de l'Insolation chez les Alienés (pellagre).

agreeable, but more generally moody, suspicious, and irritable. He was continually writing letters to his agent and his friends; some of these he signed "Dalhousie," all the others he signed with the name of his half-brother. His bodily health rapidly improved, and the weakness in his legs entirely disappeared.

He is still in the asylum. For the last two years he has been demented, his bodily health continuing excellent.

His case is perfectly hopeless, and its progress has nothing in it requiring further remark.

Remarks.—His case illustrates the similarity which insanity caused by sunstroke, at its *first development*, bears to general paralysis. I allude to the *unsteady gait*, the *optimism*, and the *delusions of exaltation*.

His case is also an example of the remarkably *chronic non-progressive* insanity which often follows injury or sunstroke, characterized by sudden suspicions, reserve, one or two *fixed* delusions, and irritability of temper.

CASE 2.—R. L., æt. 42; admitted February 20, 1864; single; a coach-builder.

History.—Nineteen years ago, when 23 years of age, he was resident in Calcutta; he suffered from sunstroke at that time, and is stated to have been continuously insane ever since. There is no hereditary predisposition. He is not epileptic nor suicidal, but is dangerous, and is subject to paroxysms of violence at irregular intervals.

On account of his having lately become more violent than usual, he was sent to this asylum. He seems to have been kept at home as long as possible, until his outbreaks and his dirty habits rendered his removal necessary.

On admission he was taciturn, expressed no delusions, and showed no tendency to violence or excitement. He appeared to be demented; his bodily health was very feeble. For one month after admission he improved in bodily health, but continued unchanged mentally. Four months after admission, his bodily health having gradually failed, and his mental state being quite unchanged, he sunk and *died*.

The following was observed at the post-mortem, thirty-four hours after death:—

1. The calvarium was nearly eaten through by one or two pacchionian bodies.

2. The dura mater was firmly adherent in one small patch to the posterior part of the longitudinal sinus.

3. There was a mass of calcareous deposit the size of a sixpence, and of irregular shape, on the anterior part of the dura mater, causing a corresponding depression on the under surface of the calvarium.

4. The brain substance throughout was much softened; the septum lucidum was thickened; the *pineal* body was twice its normal size.

5. The grey matter of the *cerebellum* was markedly divided into two layers.

The encephalon weighed 58 oz. The cerebellum and pons, 6½ oz.

Remarks.—I have given this case more as an instance of the manner in which those very chronic non-progressive cases, often seen in traumatic insanity, terminate, than for any particular feature of interest the case itself possesses.

CASE 3.—J. B., æt. 21; admitted in 1857. Served in the army two years. In the Crimea he suffered from sunstroke; after which, he was four months in hospital, and was discharged and went home. For the twelve months preceding his admission, with the exception of his becoming very easily and very strongly excited by drink, he remained well enough.

The attack for which he was sent to Morningside is described by his friends as follows:—"This is the first attack of insanity; it has lasted four weeks, but he has never been quite right since he left the army. The first symptoms were his *jumping* on the floor and *tearing* his *clothes*, going out of doors and running for miles, refusing to work, and being very insolent to his parents; he is also restless, night and day."

It was stated that there was no hereditary predisposition, and that the patient was not suicidal.

On admission he was quiet and sullen, and for a few days he conducted himself pretty well, and his bodily health was good. He then became restless, noisy at night, and obstinately mischievous through the day, annoying the other patients. His condition after this, for some months, was very variable; at times he was quiet and civil, at others, surly and noisy, and again sullen and silent.

He gradually became more demented in the course of the next four years. He was dangerous in his temporary attacks of excitement, and struck on the slightest provocation; and on one occasion he effectually cowed one of the most violent men in the house, by the unexpected and entirely successful manner in which he returned an assault.

In the course of another year he became rather more demented, and was rarely excited; he worked daily in the garden, his bodily health continuing good. Last year he was removed unchanged and incurable to the lunatic wards of his parish.

The following case, although an uncommon one, is more typical of traumatic insanity than any of the foregoing.

CASE 4.—Mr G., æt. 23, lately an officer in the army, had served in India; while there he had a sunstroke.

History.—At the time of his admission (in 1863), he had been insane for eighteen months, and his insanity is believed to date from the time he received his sunstroke.

He is stated to be homicidal.

On the voyage home from India he *felled* the mate of the vessel with a large mallet, and was in consequence kept a close prisoner till his arrival in London; he was then detained in Newgate three weeks, was *liberated* on the intercession of his friends, and placed in lodgings in London, living in charge of an attendant. After travelling about for a little with this attendant, he was placed under Dr Skae's care, in the village of Morningside, and was sent into the asylum in consequence of a violent attack upon his attendant.

On admission he appeared very restless and suspicious.

His first request was that he might have a female instead of a male attendant.

For a week after admission he behaved quietly, but frequently expressed a wish for a knife or a dagger, and he repeatedly said he must have a life; he attempted to break his attendant's head with a poker. After this he was at times suspicious and silent, at other times talkative and agreeable; he was fond of violent exercise, saying his health required very long and regular walks.

His delusions, which he frequently expressed, were most extraordinary. Such as: he showed a mark on his finger which, he said, proved that he was either the Duke of Gordon or the Earl of Fife. He saw a sword and two daggers pass across the wall when in London, and the sword is now preserved in Duff House; a naked man stood over him at night, holding over him a drawn sword, and this only happened to members of the Gordon family. The delusion on which his homicidal impulse seemed to depend was, "that he possessed the sword of justice, and that he must have a life to satisfy justice." Under this delusion, when travelling in the North, and staying at the house of a farmer, he walked very quietly up to his attendant, who had just entered the room, holding the poker concealed behind his back, and if the lady of the house, who fortunately happened to be in the room, had not warned the man in time, Mr G. would no doubt have carried out his design for satisfying justice.

Mr G. had various other delusions on a variety of subjects; but he could converse rationally at times and make himself very agreeable. He spent much of his time playing at cricket and taking country walks with his attendant.

No change ever took place in his case.

In his conversation he passed with abrupt rapidity from one idea to another. He generally talked about himself,—his rank, his prospects, his origin, destination; on these subjects he expressed freely his startling delusions.

He would frequently, in the course of the day, make very extraordinary proposals, the most common of which was to "take a man's life."

The following instance will illustrate his distorted perception of the proper relations of things. He was living at a cottage in the country at the time, with several other patients and attendants.

He had conducted himself quite well and quietly until one morning he appeared at breakfast fully dressed, with the exception of his *trousers*. When he declared his intention of going out and walking about in this state, his attendant remonstrated with him and asked why he wished to go out without trousers; he said, "O, somehow I look so *bloody conspicuous* in my trousers that I thought I'd be best without them!" A short time before his removal this patient again exhibited his homicidal propensity in a savage and murderous attack upon his attendant, who had interfered to prevent his escape.

Soon after this he was removed by his friends to be boarded with a medical man in the Highlands.

This, I need hardly say, was done in the face of warning and advice. I have been informed that he has made several violent assaults on his attendant since he left the asylum.

He had been one year and a-half in the house, and no change for the better had taken place.

Remarks.—The most prominent feature in this case is the persistent homicidal tendency shown throughout, in connexion with a fixed delusion that to take a life would be a meritorious action.

In his case, also, the characteristic fixed delusion of the possession of exalted rank is well marked.

The relative frequency of the symptoms of the entire number of cases occurring in the Asylum, from 1848 to 1864, from injuries to the head and from sunstroke, I have endeavoured to tabulate as follows:—

Traumatic Insanity.

TABLE I.—*Relative Frequency of the Symptoms in 38 Cases of Traumatic Insanity, due to Injury of the Head.*

Epilepsy,	4
Mania,	30
Delusions of Exaltation,	5
" of Pride and Self-esteem,	13
" of Suspicion,	11
Melancholia,	1
Dementia,	3
Hallucinations of Hearing,	2
" of Vision,	1
" of both senses,	2
Suicidal,	8
Dangerous,	27
Homicidal,	7

TABLE II.—*Relative Frequency of the Symptoms in 16 Cases of Traumatic Insanity from Sunstroke.*

Mania,	9
Delusions of Exaltation,	5
" of Pride and Self-esteem,	7
" of Suspicion,	6
Kleptomania,	1
Dipsomania,	2
Dementia,	4

Hallucinations of Hearing,	.	.	.	.	4
" of Vision,	.	.	.	.	5
Suicidal,	.	.	.	.	2
Dangerous,	.	.	.	.	11
Homicidal,	.	.	.	.	2

These Tables show that, in traumatic insanity, the most *constant* symptoms are, *excitement* more or less acute, fixed delusions of pride and self-esteem, delusions of suspicion.

They show also that most patients labouring under this form of insanity are dangerous, and that the so-called homicidal impulse is comparatively frequently met with in this class of cases.

The remaining symptoms require little comment.

Dementia.—Three cases from injury and four from sunstroke were admitted in a state of dementia. *Melancholia*.—It is seen at once that in traumatic cases melancholia is rarely met with, none of the sunstroke cases being so affected, and only one of those where insanity was caused by injury.

Hallucinations of the senses, in such cases, are generally persistent to a somewhat remarkable degree, and they appear to give rise to delusions of suspicion and to dangerous impulses in those who are liable to them.

Of the *ten* cases marked in the Tables as *suicidal*, one only was melancholic. In the remaining *nine* the impulse was transient, and displayed only during a paroxysm of maniacal excitement.

The results of these cases are as follow:—

TABLE III.—*Results in the 38 Cases due to Injury.*

Recovered,	.	.	.	.	4
Removed improved,	.	.	.	.	7
Removed not improved,	.	.	.	.	9
Became demented,	.	.	.	.	8
Died,	.	.	.	.	9
Under treatment still,	.	.	.	.	1
Total,					38

TABLE IV.—*Results in 16 Cases due to Sunstroke.*

Recovered,	.	.	.	.	1
Removed improved,	.	.	.	.	2
Removed unimproved,	.	.	.	.	4
Remain unimproved,	.	.	.	.	4
Became demented,	.	.	.	.	1
Died,	.	.	.	.	4
Total,					16

TABLE V.—*Causes of Death in the Cases due to Injury to the Head.*

Epilepsy,	.	.	.	.	1
General Paralysis,	.	.	.	.	3
Meningitis,	.	.	.	.	1
Hyperæmia of the Brain,	.	.	.	.	3
Exhaustion,	.	.	.	.	1
					9

TABLE VI.—*Causes of Death in the Cases due to Sunstroke.*

Phthisis,	2
General Paralysis,	2
	<hr/>
	4

The Tables show at once the incurable nature of this form of insanity. Of the whole fifty-four cases only five recovered. Of these five, two had suffered from *previous* attacks, which render it highly improbable that their recovery in *this instance* would be permanent.

The *majority*, it is seen, were either removed *unimproved*, remain unimproved, or became hopelessly demented.

It is seen that thirteen of the fifty-four cases died.

The limits of this paper will not permit me to enter into the pathology of these cases, as it is quite impossible to do justice by condensed remarks to the importance of this part of the subject. I will confine myself at present to pointing out, that in this form of insanity a comparatively large proportion of deaths are due to brain disease.

Of the thirteen deaths ten were due to brain disease, and in this traumatic insanity differs in a marked way from other forms. Like general paralysis, it has a tendency to a fatal termination.

The pathological condition on which traumatic insanity appears to depend is *hyperæmia* of the brain and its membranes, the evidences of which are pretty constantly seen in the post-mortem examinations made in these cases.

From a careful consideration of the history of all the cases whose symptoms and results are given above, from observations of the characters and progress of many such cases, and from a review of the most constant pathological appearances, I am led to the following conclusions:—

1st, That traumatic insanity is generally characterized at its commencement by maniacal excitement, varying in intensity and duration.

2d, That the excitement is succeeded by a chronic condition, often lasting many years, during which the patient is *irritable*, *suspicious*, and *dangerous* to others.

3d, That in many such cases distinct homicidal impulse exists.

4th, That the characteristic delusions of this form of insanity are those of *pride*, *self-esteem*, and *suspicion*, melancholia being very rarely present.

5th, That this form of insanity is rarely recovered from, but has a tendency to pass into *dementia*, and to terminate fatally by brain disease.

6th, That the symptoms, progress, and termination of insanity, resulting from traumatic causes, are sufficiently distinctive and characteristic to entitle it to be considered a distinct form of insanity.