ARTICLE II.—*Case of Puerperal Tetanus, coming on Nine Days after Parturition, and terminating fatally in Forty Hours.* By WILLIAM CRAIG, M.B., C.M., L.R.C.S.E.

(Read before the Edinburgh Obstetrical Society, 23d February 1870.)

IN the "Edinburgh Monthly Journal of Medical Science" for February 1854, Sir James Y. Simpson drew the attention of the profession to the fact that tetanus, though a rare occurrence in midwifery practice, was nevertheless a much more common malady than was generally supposed. In that article Sir James makes this remarkable statement:—"In none of our modern obstetrical works, nor in any of the various essays or works devoted to the consideration of abortion or puerperal diseases, is any allusion made, as far as I know, to the possible supervention of tetanus after miscarriage." After making the above statement, Sir James shows that it may occur after injury of the unimpregnated uterus, after abortion, and after labour at the full time. He there records 27 cases of tetanus occurring in women after delivery, or after injury to the uterus, but of these only about 20 occurred in Britain; and when we bear in mind that this malady was altogether unnoticed in obstetrical works, we can easily believe that "this fearful complication is fortunately a rare occurrence in midwifery practice." Since the publication of Sir James Y. Simpson's paper in 1854, several cases of puerperal tetanus have occurred in this country, and have been duly recorded. It is now my painful duty to record a fatal case of puerperal tetanus, which happened in my own practice in November last.

Mrs S., aged 37 years, native of Ireland. Had previously seven children, all of whom were born in South Australia. Her "labours" were always speedy and her recoveries good. She mentioned to me that on her seventh confinement she had retention of the placenta, but notwithstanding she made a good and speedy recovery.

The veins of her right leg were varicose, and on several occasions before her confinements one of these veins (a little above the internal malleolus) burst and caused considerable hæmorrhage. This had occurred before several of her confinements in Australia.

On the 4th of September last, I was called in to arrest the hæmorrhage which had occurred from this old wound. This I accomplished easily by means of a pad and bandage. On the 30th of September I was again sent for, to arrest the hæmorrhage from this same wound.

The next time I saw the patient was on the evening of her confinement.

On the evening of Wednesday, 27th October, shortly before midnight, I was requested to come immediately to see her, and in five minutes afterwards I was at her bedside.

On entering her bedroom, I learned that several hours previously

she had been delivered of a strong healthy boy, a woman having acted as accoucheur. The placenta was still retained, although the nurse had made several unsuccessful attempts to remove it. This midwife was very averse to a medical man being called in, and only consented after repeated attempts to remove the placenta had failed.

I found the patient very weak, chiefly from hæmorrhage. The uterus was flabby and uncontracted. Having caused the uterus to contract by external manipulation over the abdomen, I very soon was enabled to remove the placenta, being careful at the same time to remove all clots from the vagina. I found, however, a large amount of coagulated blood in the bed beside the patient.

By the time the placenta was removed the patient was very faint, and I accordingly administered a little stimulant, and she soon revived. The patient passed a good night, and told me next day that she had slept well, and never was better after any previous confinement. For more than a week she appeared to be making a fair recovery. The secretion of milk was very copious; and on Thursday, 4th November, eight days after her confinement, the patient was so well that she insisted on getting up out of bed, but as her pulse was fully 80 per minute I refused to allow her. Her pulse since her confinement had generally kept above 80, and sometimes was as high as 100 per minute.

The high pulse was suggestive of mischief, but as her appetite was good, and the secretion of milk abundant, I hoped that no bad results would follow.

On the morning of Friday, 5th November, whilst she was at breakfast, she suddenly felt something wrong with her throat when swallowing some tea. She told me of this when I saw her in the course of the forenoon, but I thought she had caught cold, and told her to wrap her neck in flannel, and at the same time gave her ten grains of the compound powder of ipecacuanha.

On the afternoon of the same day, I was sent for, as she was worse; but being professionally engaged elsewhere at the time, it was several hours before I could see the patient. Meanwhile, another medical man was called in to see her, who ordered a mustard poultice to be applied to the throat. I saw her in the course of the evening, and found that the mustard ordered by my brother practitioner had produced no benefit. I found, moreover, that now she had great pain and difficulty both in opening her mouth and in swallowing. Her own idea was that the "pap of her throat" (uvula) had fallen down, and that if I could only lift it up she would be all right. Of course I knew she was mistaken, but I mention the fact to describe the patient's own feelings at the time. She could not open her mouth sufficiently to allow me to see as far back as the uvula, and she had very great difficulty in swallowing. On external manipulation, however, no pain was elicited, showing the absence of inflammatory action; in fact, she experienced pain only when trying to open her mouth or when swallowing.

Although at this time there was a certain amount of trismus, I could not bring my mind to the conclusion that it was a case of tetanus. Her bowels being somewhat constipated, I ordered her some opening medicine. Hoping it was only a spasm of the muscles produced by cold, I ordered hot poultices of bran and chamomile flowers, along with hot fomentations of the same. All these were applied most faithfully and effectually during the whole night.

Next morning (Saturday, 6th), between 6 and 7 o'clock A.M., I was sent for, as she was no better but worse, the poultices and hot fomentations, although constantly applied all night, having produced no change for the better.

I may here mention, that the patient was fully convinced that something was sticking in her throat, and she wished me to cut in and see what was wrong and rectify matters. Such was her feeling.

It was agreed by the husband and myself to call in another doctor in consultation. I accordingly went direct to Dr Patrick Heron Watson, who kindly came and saw the patient with me. She could still swallow, but with very great difficulty, and Dr Watson was unable to see the back part of her mouth, owing to the rigidity of the masseter and temporal muscles. The pulse was about 130 or 140 per minute.

After a careful examination of the patient, Dr Watson gave it as his opinion that it was a true case of tetanus. At his suggestion I ordered tincture of Indian hemp, 25 minims to begin with, and 10 minims every hour afterwards; also to continue the poultices and hot fomentations. The medicine I gave the previous evening not having acted sufficiently, I ordered a turpentine enema to be given. This had the desired effect of thoroughly clearing out the bowels. The fæces had a most offensive smell.

Notwithstanding all our treatment, the patient got rapidly worse; and after she was unable to swallow, I ordered nutrient injections per rectum, and even gave the tincture of Indian hemp in the same way.

About mid-day on Saturday, in addition to well-marked trismus, there was added opisthotonos, the longitudinal muscles at the back of the neck being the muscles chiefly affected. They were in a state of tonic spasm. I ordered the hot fomentations and poultices to be applied to the back of the neck also. All our treatment, however, proved unavailing, for the disease, which was now well marked, made rapid progress. The patient was perfectly conscious, and described her feeling as if a "ton weight was dragging her head backwards." What added greatly to the patient's sufferings was an accumulation of mucus in the throat which could not be got rid of, and which produced a sense of constant suffocation and impending death.

I will not soon forget her pitiable expression and her truly pathetic appeal to me to give her something to mend her throat.

It is indeed a sad sight to witness a patient in the midst of terrible agony and impending suffocation making an earnest and *confident* appeal to her medical attendant for relief, when the physician knows too well that "vain is the help of man" in such a case.

At this stage of the disease I witnessed an interesting but painful phenomenon. Every five or ten minutes her head was observed to jerk a little backwards, then remain stationary for other five or ten minutes, and then suddenly to jerk again backwards. This interesting phenomenon was well marked, and continued as long as I saw the patient. It had all the appearance of a screw gradually but surely drawing the occiput backwards towards the shoulders. Jerk after jerk reminded one of another turn of the screw. In short, opisthotonos was now well marked. The expression of the countenance was characteristic of the disease. The teeth were quite exposed, the angles of the mouth drawn much backwards, giving a very ghastly appearance to the patient. The "*risus sardonicus*," so characteristic of this disease, was in this case very distinct.

I saw her for the last time about 1 A.M. on Sabbath morning, and in two hours afterwards death terminated her sufferings, the disease having lasted forty hours. From the symptoms described to me, I believe the immediate cause of death was asphyxia.

There can be no doubt but this was a case of tetanus. In this opinion I am fully confirmed by Dr Patrick Heron Watson. The trismus, opisthotonos, exposure of the teeth, and ghastly grin (*risus sardonicus*), were all well marked. It was, moreover, a case of tetanus coming on nine days after parturition at the full time. Of this latter fact there can be no doubt. The deceased expected her confinement in the beginning of September, at least six weeks before it took place; and the child was much above the average in size—in fact, it was the largest new-born child I have ever seen.

There was no appearance of either peritonitis or metritis. The lochial discharge still continued to flow. It threatened to stop, but I ordered hot fomentations, and by this means it readily continued discharging. The secretion of milk continued till the day of her death. Let it also be borne in mind that it happened in Edinburgh during the cold weather of November. The patient, however, was only a few months returned from Geelong, South Australia, where the greater part of her married life had been spent, and where her other seven children were all born. It is necessary to bear these things in mind, since tetanus is a disease much more frequent in warm countries than in cold ones; but I am far from asserting that the fact of her having spent many years in the warm climate of Geelong had anything to do with bringing on tetanus in this case.

The connexion between tetanus and parturition is still involved in much obscurity. Whether or not tetanus could have been avoided had I been present at the delivery of the deceased, I am

not prepared to say, although in that case I would most certainly have removed the placenta much sooner, and would have thereby saved the woman much loss of blood; or whether, had a more experienced accoucheur been called in instead of me, the result would have been otherwise, I am equally unable to state; for this must always be borne in mind, that the frequency of traumatic tetanus, of which puerperal tetanus must be regarded as a variety, bears no proportion to the extent of the injury.

Puerperal tetanus is fortunately, in this country at least, one of the rarest complications in midwifery practice, and I believe is relatively less frequent after parturition at the full time. This is just what one would expect, for in the case of abortion nature has not completed her preparations for the expulsion of the ovum. In surgical practice, tetanus is supposed to occur most frequently after lacerated wounds; and reasoning *a priori*, it is in cases of abortion where we would expect tetanus in obstetrical practice.

In regard to the causes of tetanus we know very little. Cold is often said to produce idiopathic tetanus, but how a cold comes to produce this fearful malady no man knows. We all know that tetanus sometimes follows a wound, but the connexion between the wound and that morbid state called tetanus is still an unsolved problem. We are equally ignorant regarding the causes of puerperal tetanus. In some of the cases hæmorrhage has been assigned as the cause, and in the case I have described there was much hæmorrhage, and possibly also cold; but it is very difficult to say whether these were causes or only coincidences. Certain it is that tetanus is by no means a common result of hæmorrhage. Similar observations might be made regarding most of the assigned causes of puerperal tetanus. No matter how difficult the task, we must always endeavour to distinguish between *post hoc* and *propter hoc*.

Facts are still wanting to prove the influence of temperature on tetanus in this country. The disease is much more frequent in certain warm climates than in Britain, but it has yet to be proved that in this country it is more frequent in summer than in winter. Of twenty-seven cases recorded by Sir James Y. Simpson, only one is mentioned as occurring in June, whilst several are mentioned as occurring in the depth of winter; and the case under my care happened in the cold frosty weather of November last.

There is one fact well ascertained regarding puerperal tetanus, namely, that it is exceedingly fatal. Of the twenty-seven cases recorded by Sir James Y. Simpson, twenty-two died, and five recovered. Of the five recoveries three were Continental cases, two of which at least were ascribed to cold, and thus resembled to a certain extent idiopathic tetanus, which is not nearly so fatal as the traumatic form of the disease. The other two recoveries were in England; but it has been doubted, and not without good reason, if these were true cases of tetanus. It would thus appear, that up to 1854 there was no well-authenticated case of recovery from puer-

peral tetanus in Britain. Whether or not there has been any case of recovery since, I have no means of ascertaining, but this I know, there have been several fatal cases since that time.

Much needs yet to be investigated regarding the pathology of tetanus. The probability is that it is essentially a disease of the nervous system, the principal seat of which is the spinal cord. It has been ascertained that the bloodvessels of the cord are often congested, and that extensive lesion exists in the substance of the cord. The gray matter is sometimes found softened and disintegrated. But the strange fact still remains, that similar lesions of the spinal cord have been observed in other diseases where there were none of the spasms of tetanus. It will be very interesting to learn whether or not any lesions exist in the nerve or nerves leading from the seat of injury to the gray matter of the cord, and what is the nature of these lesions, if any exist. It will be also important to know the nature of the influence transmitted from the periphery to the centre. Till once we know exactly what is the morbid anatomy of this disease, we can never arrive at its true etiology.

In regard to the treatment of this disease, I have not much to say. I believe our only chance of success lies in an early diagnosis of the disease, and so cutting it short by what may be called an "abortive treatment." We must endeavour to check the malady before organic lesion takes place; for, after extensive lesion and disintegration of the gray matter of the spinal cord, I believe no remedy will be of the slightest avail. Unless we can check the disease when it is chiefly functional, there is little hope for our patient. Few indeed are the cases where medicines rectify great organic lesions.

ARTICLE III.—*The Death-rate and the Diseases of Prisoners in the Prisons of Scotland.* By J. BRUCE THOMSON, L.R.C.S.Ed., Resident Surgeon to the General Prison for Scotland.

THE history of the prisons of this country forms a valuable chapter not only in the progress of medical and sanitary science, but in civilisation. The means and appliances for the promotion of health and the prevention of diseases, have been nowhere more successfully employed than in the prisons of this country during the present century. Having collected, therefore, some valuable statistics on this subject, I have thought they could not be too well known for the benefit of the public as well as the profession.

It is well, by way of contrast with our present state, to glance back at the state of matters, at the character of prisons, and the condition of prisoners, about a century ago; before the benevolent genius of John Howard, the milder legislation of Romilly, Blackstone, and others, with the influence of the Society of Friends among our Transatlantic brethren, had softened and ameliorated