ON THE PATHOLOGY AND TREATMENT OF PUERPERAL INSANITY :

ESPECIALLY IN REFERENCE TO ITS RELATION TO ANÆMIA.

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THE pathology of Puerperal Insanity, and its relation to morbid conditions of the organism, are still involved in much obscurity, notwithstanding all that has been written upon the subject. Indeed, on referring to the writings of the most eminent obstetricians, it will be found that much diversity of opinion prevails in regard to it; and it would be as difficult to deduce from them a satisfactory theory of the disease, as a sound and efficient system of treatment. It must, however, be admitted, that many difficulties present themselves in the investigation of the subject, independently of such as are of a metaphysical nature. In many cases, the advent of the disease is so sudden, and its effects upon the sensorial functions so marked, that the patient is rapidly bereft of reason, and with it, of the power of expressing her feelings, or the causes which may have led to the attack. It frequently happens, that the obstetric attendant is called upon to attend his parturient patient without any knowledge of her previous state of health or predisposition to disease, and thus is unable to appreciate the circumstances, which may have remotely and principally led to the attack. Lastly, in regard to the malady in question, it is admitted that any individual experience must be limited, and therefore not such as to justify very sweeping conclusions, either as to its origin, pathology, or treatment.

From these and other causes which might be mentioned, there is often much difficulty in arriving at correct views respecting the nature of this disease, and the writings of even acknowledged authorities contain very contradictory doctrines in regard to it. It has been attributed, for instance, "to the suppression of the lochia"; to a "metastasis of the milk"; to a "peculiar condition of the sexual system which occurs after delivery"; to "local irritation of the mammæ, uterus, and other parts"; to the "disturbances of the vascular system occasioned by delivery"; to the "combined effects of irritation and loss of blood"; to "nervous irritability and excitement", etc. These circumstances, however, would appear to give a too partial explanation of its origin; for whilst they are almost constant and universal in their operation, the disease in question is admitted to be comparatively rare.

On the other hand, that some special predisposition must exist in those who are attacked by it, is, I think, sufficiently certain from a variety of circumstances. Its occurrence, as has been stated, is comparatively rare. The causes which ordinarily induce it, will, in many instances, fail to do so; and it is often met with, without the intervention of any applicable exciting causes. Now the circumstances in which this predisposition originates, would appear to have been but little attended to. Hereditary tendencies and a highly nervous temperament have been recognised as the most important; and most writers agree in connecting it with an adynamic state of the constitution. This view was

especially enforced by Dr. Gooch, to whom we are indebted for a most philosophical essay upon the subject, and who may be said to have been the first to delineate clearly the real character of the disease; but we have still to be informed of the causes of this adynamia. Where hæmorrhage has occurred subsequently to labour, or blood-letting has been practised, as also where long-continued suckling has preceded the attack, the causes of it are sufficiently obvious; but it is met with in many instances irrespectively of these, and, indeed, in the absence of any exciting cause whatever. To what then is it attributable? I have made many inquiries on the subject, and they lead me to believe that in these, and indeed in the majority of cases in which puerperal insanity occurs, it is mainly dependent upon the existence of anæmia antecedently to labour. In every case which I have attended, such an inference has been clearly deducible from the history; and on looking to the published cases of others, this opinion is supported, if not confirmed. I propose, therefore, to draw attention to this point in the present paper, and to inquire how far such an opinion is verifiable, and in accordance with well-ascertained facts.

It is unquestionably a fact, that anæmia, in various degrees, prevails very generally amongst females, and that its existence is often unrecognised both by the patient and her friends; whilst, at the same time, its influence is very considerable in modifying and predisposing to various secondary diseases. The great susceptibility of the nervous system in females generally, both consequent upon, and independently of, impregnation and its results, is well known; but its connexion with certain conditions of the blood does not appear to have been as fully appreciated. It has been observed, for instance, that the nervous system of the female in health is far more irritable and susceptible to impression than that of the male; but it is also the case, that the healthy constitution of the blood of the former differs materially from that of the latter, and that, with a slight exception in favour of albumen, the blood of the female contains a smaller proportion of nutritive and vivifying elements than that of the male.¹

The avocations of females in many instances, their education and modes of life, more especially of those of the upper classes of society, doubtless tend still further to diminish this proportion, and to produce a correspondingly more irritable condition of the nervous system, as well as a greater susceptibility to the operation of disturbing causes. Anæmia, however, when slowly induced, and existing even in an extreme degree, is not incompatible with a comparatively healthy performance of the bodily functions, and thus may have been of long continuance without attracting any particular notice; but persons so

¹ I subjoin the following table from Dr. Carpenter's Physiology, embodying the general results of the analysis of Denis on this point.

	Male.		Female.	
	Maximum.	Minimum.	Maximum.	Minimum.
Water	805	792	848	753
Albumen....	63	48·5	68	50
Globules....	186	110·5	167	71·4
Fibrin	4	2	3·1	2

suffering readily succumb to morbid influences; they are unequal to much fatigue, possess, for the most part, but little energy, and are often incapable of performing their allotted and ordinary duties. Should impregnation take place under these circumstances, the blood becomes still further impoverished, and the constitutional powers heavily taxed in the performance of the functions necessary for the purpose of "forming, lodging, expelling, and feeding the offspring." If secondary disease has hitherto been averted, there is now a greater probability of its supervening, and hence, during utero-gestation, various functional disorders are liable to occur. The brain and nervous system in particular become unduly excitable, and, in some cases, incapable of withstanding the shock and the consequences of labour. Hence it is, that intense cerebral disturbance, consequent upon great nervous irritability, is so liable to occur under such circumstances, with or without the supervision of some casual exciting cause.

On reviewing the symptoms which ordinarily characterise an attack of puerperal insanity, we see nothing that is inconsistent with the view which has been expressed. The progress and termination of the malady do not militate against it, nor do the *post-mortem* appearances in such cases as have terminated fatally. I shall briefly refer to each of these points, as elucidating the pathology of the disease; and commence with the symptoms, which I shall cursorily describe as they have presented themselves to me in practice.

SYMPTOMS. When mania occurs during the puerperal state, its accession is in some instances sudden, as where some violent mental emotion has been the exciting cause; but more frequently it is otherwise, and it is ushered in by certain premonitory symptoms. Of these, one of the most frequent is restlessness or sleeplessness at night, a symptom which almost invariably precedes the full development of the disease. The patient at the same time is often excitable during the day, and evinces some peculiarity or other. She may express herself as feeling unusually happy, or otherwise; there may be a degree of vivacity about her which is unaccustomed; or, on the other hand, she may be excessively reserved. One patient will be constantly talking, while another will be sullen and taciturn, and there is often some strange fancy or idea upon which she more particularly dwells. The pulse at this time is generally quick; but it is weak and easy of compression, and although the head may be hot and the countenance flushed, the extremities, and especially the feet and hands, are either cold or below the average temperature. Up to this period, the patient appears to be rather eccentric than mad; she is easily managed, and readily does what she is advised; but after a time she becomes more positive, more impatient of contradiction, and at length violent and unruly. Her nights are now passed without any sleep, her countenance is flushed and excited, her head hot, and her eyes suffused. The tongue is mostly furred and dry, but it may be clean or covered with a slimy mucus; the breath is often offensive, more especially in the morning; the bowels are torpid, the stools unhealthy, and the urine scanty. With the development of these symptoms the delirium rapidly increases, and the case, so far as the cerebral disorder is concerned, presents very little difference from that of ordinary mania. The state of the circu-

lation is, however, still peculiar; the pulse continues weak, though quick; the extremities are cold and clammy; the inner lips are pallid; and the patient, unless under the excitement of delirium, appears to suffer from extreme prostration.

These symptoms, it will be observed, do not materially differ from the cerebral disorders which are sometimes met with in anæmiated persons, when causes of sufficient intensity disturb the sensorial functions; and although such cases must have occurred in the experience of most practitioners, I will briefly quote the following illustration.

CASE. On the 23rd of November 1843, I visited Elizabeth Waugh, a girl aged 14, who, shortly after receiving a fright, had exhibited symptoms of excitement and cerebral disturbance. She had been delirious for some days before I saw her, and had been under the care of a practitioner, who, in consequence of the heat of head, flushing of the face, quick pulse, and the delirious state of the patient, had treated the case as one of mild phrenitis. The head had been shaved, cold lotions applied, and purgatives and antimonials administered. Under this treatment, however, the symptoms rather increased than lessened in severity; and on visiting her, I found her suffering from many of those which I have mentioned as occurring in puerperal mania. The pulse indeed was quick, but very weak; the head was hot, but the extremities were cold; the face was flushed, but the inner lips were pallid, and there was evidently much physical prostration, whatever might be the nature of the cerebral disorder. These circumstances, together with the effect of the past treatment, led me to consider whether the case might not be one of irritation rather than of inflammation, and her previous history left no doubt on my mind as to its being so. She had been a remarkably weakly, ailing child from infancy; had lost her father and mother at an early age, and at one time had been so destitute, and so little provided for, that she had been placed temporarily in an asylum by a clergyman; she had left this some months before the present attack commenced, but it was observed by those who had the charge of her, that she had been, previously to leaving, very weak and pale, and incapable of undergoing fatigue. With this history, looking to the patient's general symptoms, and discovering a loud venous bruit in the neck, I did not hesitate to order a nutritious diet, and a moderate allowance of wine. The bowels were attended to, and the medicine specially prescribed was the carbonate of iron in rather full doses. Upon this treatment, in a week, she was much better; by the 7th of December she was convalescent; and on the 23rd I left her, not only cured of the cerebral affection, but much better in health than she had been for some time.

This case was in no respect dissimilar to those which I have seen of puerperal mania; in the latter, there has always been great cerebral excitement conjoined with much physical exhaustion, and for this there is often no sufficient cause to be found, either in the labour itself, or the circumstances which have followed it. If, however, the history of such cases be carefully investigated, the practitioner will generally find that anæmia, often in a marked form, had existed antecedently to labour.

The progress and termination of the puerperal attack vary in different cases. It may terminate in spontaneous recovery, a result

which will be hastened by judicious treatment. It may be followed by protracted insanity of many months or years duration; and in some instances it has terminated fatally. When such has been the case, the *post-mortem* appearances have been generally of a negative character as regards the existence of any active cerebral disease. Dr. Copland observes, "that those caused by pure or true puerperal insanity, particularly where it occurs soon after delivery, or during suckling, consist chiefly of deficiency of blood in the brain and its membranes; and in some instances, of slight effusions of serum between the membranes and in the ventricles. There are no signs of inflammation, or even of congestion, excepting in such cases as have approached in their character to phrenitis, on the one hand, or to nervous fever on the other. The pure cases of the malady present little beside anæmia of the brain and its membranes, and of the system generally."¹

Dr. Gooch observed the following appearances in a case which terminated fatally. "The veins throughout the body were remarkably empty; the heart contained little blood; the lungs and liver were singularly pale; within the head there was the same deficiency of blood in the veins of the pia mater and in the sinuses; under the arachnoid there was a little serum; and, on slicing off the hemisphere, the bloody points were unusually numerous." Such appearances are probably those which would be met with in recent cases; but where the attack has been protracted or has merged into settled insanity, various organic changes will doubtless be found; indeed, the statistics of lunatic asylums show, that almost every form of organic lesion has been met with in the brain and its membranes in such protracted cases. These, however, are probably the consequence of secondary disease, or of the long continuance of great functional disorder.

But neither a fatal termination, nor evidence of congestion of the brain, with more or less serous effusion into the ventricles, or between the membranes after death, would render the opinion which has been expressed as to the origin of the disease either improbable or incorrect. Simple cases of anæmia, uncomplicated with the circumstances of the puerperal state, have terminated fatally after symptoms of great mental and cerebral excitement, and appearances similar to those stated have been found after death, when there was no evidence of the existence of inflammation during life.

Dr. C. J. B. Williams observes; "I have met with several cases more or less corresponding with the following description. A young female becomes anæmic, and after exhibiting various symptoms of feeble general circulation, with headache, drowsiness, and impaired sensorial functions, suddenly becomes worse; passes into a state of stupor, with dilated pupils, sometimes varied by slight *manifestations of delirium*, throbbing of the carotids, and partial heat of the head, and dies comatose.

"On opening the head, a small quantity of serum is found under the arachnoid, and in the ventricles, sometimes with a little lymph (in one case there was none). The vascularity of the membranes is remarkable; but the vessels most distended are the veins; and in the larger of these, and in the longitudinal sinus there is a firm coagulum. In

¹ COPLAND in Dictionary of Practical Medicine, Part vii, p. 547.

parts, especially at the torcular Herophili, this coagulum blocks the whole sinus, and exhibits a separation of fibrine; portions of which are softened down into that opaque purilaginous matter, which was long mistaken for pus, but which Mr. Gulliver has shown to be a mere disintegration of the fibrin, which mere stagnation, in a warm temperature, may effect. These have been taken for cases of meningitis. No doubt, inflammation may supervene in them occasionally; but in two cases, which have fallen under my notice, there was no adhesion of the arachnoid, nor deposit upon it, nor any other unequivocal mark of inflammatory action. Yet the fibrinous and bloody concretions in the veins and sinuses were most remarkable for their size and firmness. It appears to me most probable that these affections originate in the encephalic congestion connected with anæmia".¹

In the foregoing description of the symptoms, I have not attempted to delineate the disease in all its several phases, or to indicate more than, very generally, its leading features and symptoms as I have most frequently met with it in practice. To enter into such details would answer no useful purpose, for in no two instances would the same train of symptoms be observed. It will present differences in individual cases according to the general state of the patient, the causes which have immediately excited it, and the temperament and peculiarities of the patient. In some instances the insanity will be attended with despondency, in others with hilarity, and it may vary from a mere hallucination upon a single point, to the most complete perversion of all thought and reason.

PATHOLOGY. A far more important question is involved in the consideration of the nature and pathology of the disease, and the determination of the physical condition upon which it principally depends. I have expressed the opinion that its origin is intimately connected with a defective condition of the blood; and this view, which has been suggested by the cases which I have attended, is strengthened by the histories of those which have been published by others. I would particularly refer to the paper of Dr. Gooch, on the "Disorders of the Mind in Lying-in Women"; in corroboration, to the cases which he has reported, and the inferences which he has drawn from them. After giving a careful history of them in detail, he adds a summary of them in the following words:—"What inferences are we to draw from the foregoing cases relative to the question, for the solution of which I have related them; viz., what is the morbid condition of organisation on which puerperal insanity depends? Let the reader reflect on the leading point in these cases. In No. 1 the disease occurred in a *pale lady, without any heat of skin*, or much quickness of pulse, and was not relieved by the loss of blood. In No. 3 it occurred in one whose constitution *was drained and enfeebled by nursing*. In No. 4 it occurred in a *pale* woman, habitually hysterical, subject to bear dead children *from want of power to afford them life* for nine months. In No. 5 it occurred in one who had *been drained by flooding*. In No. 6, in one whom, for urgent reasons, the *circulation had been reduced to the lowest ebb consistent with life*. In No. 7, in one who had been *living very low for a week*, with such marked symptoms of the irritation of debility,

¹ WILLIAMS (C. J. B., M.D.) Principles of Medicine. Second Edition, pp. 167-8.

that at first sight I thought it was the close of some disease that had been overlooked. It was speedily relieved; not by cupping and purging, but by the tranquillizing and sustaining power of opium. In No. 8 the disease was treated, though with all possible prudence and moderation, as an inflammatory state of the brain, by leeches, cupping, purging, and low diet, yet the patient died; not with symptoms of oppressed brain, but with those of exhaustion; and on examining the body, the whole venous system was found *extraordinarily empty of blood*. In No. 10 the patient fell, as if shot, under the stroke of the lancet; and, on examining the head, there was found no effusion, and *empty blood-vessels*. In No. 11 the disease came on after puerperal convulsions; a disease generally, but not always, depending on cerebral congestion; and after *one of those enormous bleedings*, commonly practised in these cases, and no morbid appearances were discovered after death in the brain".

Dr. Gooch then observes: "These cases, if fair specimens of puerperal insanity, lead straight to the conclusion, that the disease is not one of congestion or inflammation, but one of excitement without power".¹ Of the correctness of this conclusion there cannot, I apprehend, be a doubt. As far as it goes, it expresses fully the fact, but it leaves the principal difficulty unexplained. It fails to inform us of the circumstances upon which this excitement without power depends, and thus to enlighten us upon the real nature of the disease. It is clear, however, that another conclusion may be drawn from these cases. In all, the patients were more or less anæmiated prior to the attack. In some, this had followed hæmorrhage or blood-letting, but in others it was irrespective of either, and had probably existed long antecedently to labour.

The cases more recently reported by Drs. McClintock and Hardy, in their valuable work on *Midwifery and the Diseases incident to the Puerperal State*, are of the same general character, and justify a similar conclusion. The cases published by them amount altogether to six; of these, the attack followed blood-letting in four; in one it occurred in a person who had been living in a state of extreme destitution previously to her labour; and in the sixth it followed diarrhœa. In the following summary the principal facts of these cases are stated, so far as they bear upon the question under consideration.

In No. 1, the patient went on well until the fifth day after her labour, when she was bled on account of cough; on the sixth day the bleeding was repeated, and at nine o'clock, P.M., of the same day, she awoke screaming, and quite maniacal. The cerebral excitement was tranquillized by tartar emetic; but she subsequently became so weak and low that stimulants were necessary. After this she was attacked with erysipelas on the side of the head and face, and eventually died. A post-mortem examination revealed vascularity of the arachnoid, and about an ounce and a half of serum at the base of the brain. In No. 2, it occurred after bleeding for pain in the uterine region. The attack commenced on the evening of the same day of the bleeding; but it readily yielded to tartar emetic treatment. In No. 3, the patient fainted twice during labour. On the third day she was bled. This occasioned

¹ GOOCH, Dr. *Diseases Peculiar to Women*, Second Edition, pp. 139, 140.

a feeling of faintness, and was followed by mental disturbance. In No. 4, the patient was bled upon the second day after delivery, mania occurred on the fifth, and on the eighth it was very intense, but it was treated successfully with tartar emetic. In No. 5, the patient was an unfortunate woman who had been abandoned by her husband, and who, when admitted, was in a state of extreme poverty and destitution. In No. 6, the attack followed diarrhoea, for which low diet was ordered; it commenced about five days subsequently; the stomach and bowels were greatly disordered, but the patient eventually did well.

As I have already observed, the general character of these cases does not materially differ from those related by Dr. Gooch. In the fifth case, the patient could not have been otherwise than anæmiated previously to her labour. In the sixth case, the patient was in a state of extreme prostration before the attack commenced; and, judging from the results of bleeding in the four first, it is scarcely likely that any of the patients could have been in ordinary health before the commencement of labour. At all events, mania is not a usual consequence of blood-letting, when properly practised; and when depletion is followed by such a result, it at least justifies this inference, that whatever may have been the symptoms for which it was performed, the patients were more or less anæmiated prior to its performance.

A case is reported by Abercrombie under the head "Meningitis", in his work on the *Diseases of the Brain and Spinal Cord*, so much to the present purpose that I subjoin the following particulars of it. "A lady, aged 38, was recovering from her eleventh accouchement, when, for some local affection, repeated topical bleeding was practised. This, with other remedies, subdued her febrile symptoms; but after three or four weeks she was still confined to her bed, and considerably reduced in strength. At this time, she became one day alarmed and agitated by some family occurrence, and immediately began to talk wildly and incoherently, and, after a restless night, was found next day in a state of the highest excitement, talking incessantly, screaming and struggling, with a wild expression of countenance, and a small rapid pulse. She was treated by topical bleeding, laxatives, cold applications to the head, etc., but with little or no benefit; and on visiting her on the following day I found her sitting up in bed, with a look of extreme wildness; both her hands in constant motion, talking incessantly and wildly; and I learnt that she had not ceased talking for one instant for the last twelve hours. Her pulse was now rapid and feeble, and her countenance expressive of exhaustion. In consultation with a highly intelligent friend, who had charge of the case, I mentioned my experience of the fatal nature of the affection, and proposed to make trial of treatment by stimulants. A glass of wine was accordingly given, with evident abatement of the symptoms, and it was ordered to be repeated every hour. At the end of the fourth hour she was perfectly composed and rational, her pulse about 90, and of good strength, and from this time there was no return of the symptoms".¹ The state of health of this patient, antecedently to labour, is not mentioned; but the fact of her having had ten children previously,

¹ ABERCROMBIE (John, M.D.) *Pathological and Practical Researches on Diseases of the Brain and Spinal Cord*, pp. 64-65.

would, I think, tend to show that her constitution and blood had been somewhat impaired; for nothing induces anæmia in females more certainly than having children very rapidly, and more especially when all are suckled by the mother. In this case anæmia had probably predisposed to the attack, in conjunction with the local blood-letting; this, however, does not appear to have been carried to any great extent, and, in a person not otherwise anæmiated, would scarcely have produced a state of constitution so favourable to the development of mental disorder.

The cases which have come under my own observation have appeared to be essentially similar to those related, and to have originated remotely, and principally, in a defective condition of the blood. In all, anæmia had existed concurrently with the attack, as well as antecedently to it. In one patient, with whose previous history I was well acquainted, it had existed during the greater part of pregnancy, and was probably the sole cause of the mania. In another it was apparent when the patient was suffering from the malady, which disappeared under treatment calculated to improve the general health. But it reappeared some months subsequently, not as the effect of child-bearing or its consequences, but as the result of a return of bad health, and an impoverished state of the blood. Many cases of this form of mania have been admitted, during the last three years, into the Paddington Infirmary, in females who had been suckling their children under circumstances of much privation; in all of them, anæmia existed in a marked manner, and the intensity of the cerebral disorder, as well as the danger, was found to be proportionate to the degree in which the blood had been impoverished. I shall subjoin the particulars of some which I have attended.

CASE. The first I shall refer to is instructive, as showing the extreme intolerance of blood-letting in these cases, and is otherwise corroborative of the views which I have expressed. In November 1845, I went to Fulham to see a lady who had become deranged a few days after her confinement; but before I saw her she had been bled rather largely, on account, as her medical attendant stated, of her extreme excitement; *this, however, instead of having been lessened by the bleeding, had been much increased by it.* I found her sitting up in bed, raving incessantly, and she had been so for many hours. Her head was very hot, and her face suffused, but her inner lips were pale, her pulse weak and quick; the feet and hands cool, and the skin moist. No cause could be assigned for the attack. She had an easy labour, and it was neither attended by hæmorrhage nor any thing unusual. She had not experienced any mental shock or uneasiness subsequently; nor did the state of the tongue, or any thing else, indicate gastro-intestinal irritation. It was, however, evident that she was very much anæmiated, and her history clearly showed that anæmia had existed prior to labour. She had a very large family. She had suckled each of her children an unusual period; and the constant strain upon her constitution, induced by pregnancy and lactation, had evidently given rise to this insufficiency of blood. Sustaining and tranquillizing treatment was recommended; but the case was considered by her husband and friends to be so bad, that she was shortly removed to an asylum. I visited her there some weeks afterwards, but she was not then materially

better, and many months elapsed before she was deemed sufficiently convalescent to return to her family. I cannot doubt that this protracted convalescence was mainly attributable to blood-letting after the accession of the maniacal symptoms.

CASE. In another case, the patient was attended by myself in labour, in Dec. 1843. This took place prematurely, and the child was still-born. No hæmorrhage occurred subsequently, or anything unusual, nor had she experienced any shock or mental emotion; and for a few days she appeared to be doing as well as it was possible. I had never attended her before this labour, and I knew nothing of her previous state of health; but she did not appear to be strong. She was pale and emaciated; and the labour appeared to have taken place prematurely as the result of bad health. Four days after her confinement she became delirious; and I found her talking very incoherently, and impressed with the idea that people were about her, endeavouring to destroy her. She had a wild unsettled look; her countenance was flushed, and her eyes suffused; her pulse was small and quick, and her extremities cool. No cause could be assigned for the attack, either mental or otherwise. Her tongue was clean, and her bowels had been regularly relieved.

The immediate treatment consisted in giving sixty drops of the tincture of henbane, applying ice to the head, and occasionally administering light nourishing food. A second dose of henbane was given, two hours after the first; and this procured some sleep, and she awoke more composed. On subsequently inquiring into the history of the case, the following particulars were elicited.

The patient had enjoyed good health, until five years previously. She then lost her mother; and, in consequence, suffered much mental distress and excitement. Nervous symptoms came on, which were supposed to arise from brain-fever; and she was in consequence very much lowered, and had a considerable quantity of blood abstracted. This treatment gave rise to increased nervous excitement, and also to mental derangement, which continued for some months; and ever since, she had been nervous and excitable. Such a history clearly pointed to the existence of anæmia, as a consequence of the lowering treatment and depletion; and I found, on examination, the indications of it in a decided form. There was a loud bruit over the veins of the neck; the inner surface of the lips was pale, as was also that of the eyelids; the pulse was weak, and her whole appearance indicated great deficiency of blood. The treatment adopted had reference to this, and to tranquillizing the nervous system. A nutritive diet was enjoined, with the moderate exhibition of steel, and occasional aperients: sedatives were given at bedtime, when restless or indisposed for sleep. Her general health improved; and in a fortnight she was convalescent.

A twelvemonth subsequently to this, I had again to see this patient, in consequence of symptoms of returning insanity; and I found her labouring under marked delusions. She was not now pregnant, neither had she been suckling; nor had any cause connected with child-bearing been in operation: nevertheless, it was evident that her intellect was disordered. She entertained strange and unfounded apprehensions, had sleepless nights, and many of the symptoms which had

characterised her previous attack of puerperal insanity. The only explanation which could be found for this, was the state of her general health, which had again become impaired. There was evidently anæmia, and with it a disordered condition of the stomach and digestive organs. These circumstances alone appeared to have given rise to the present attack; and it speedily disappeared on correcting them. Two years subsequently to this, she gave birth to a fine healthy child, which she suckled for some time, without any return of mental disorder.

For some years after this, she continued in the enjoyment of excellent health, mainly by taking great care, regular exercise, and attending rigidly to diet and regimen. Only six weeks ago, however, I was again consulted by her, on account of weakness and nervous symptoms. She passed sleepless nights, and had various odd and unnatural feelings. These I found to have been preceded, and to be attended, by anæmia and disorder of the stomach and bowels. She was speedily cured by measures suitable to these conditions.

We have, in this case, an instance of mental derangement occurring four times in one individual; and in each, chiefly as the consequence of anæmia. The first attack followed copious blood-letting and lowering treatment for nervous symptoms, which, although occasionally, do not invariably depend upon phrenitis. From this cause, she would appear to have been anæmiated at the time of her first confinement; and mania followed as the consequence of the shock of labour in a person so predisposed. In the two last attacks, the existence of anæmia was most marked, and had probably predisposed to them, whilst gastro-intestinal derangement was their immediate exciting cause.

In the following case, the point contended for was better established, inasmuch as the patient had been under my care for some time previously to labour; and the connexion between the anæmia antecedently, and puerperal mania subsequently to it, was clearly shewn.

CASE. The patient was a young lady whom I had attended prior to her marriage, and whose illness then was principally dependent upon anæmia and gastro-intestinal derangement. She recovered from this, and shortly afterwards married. This event was soon followed by pregnancy; and, during gestation, the symptoms of anæmia returned in a severe form. Her feeling of prostration at times was excessive. She often fainted on assuming the erect position; became breathless on the least exertion; and palpitation of the heart was readily induced. Her face and lips were extremely pallid; her feet and hands were for the most part cold; and a loud continuous murmur was heard over the jugular veins. So severe were these symptoms towards the end of pregnancy, that it more than once became a question, as to whether premature labour ought not to be induced. By great care, however, by the frequent administration of nourishment to the extent that her digestive powers would permit, and by the use of steel tonics, she was enabled to reach the full period of gestation. Her labour was natural; and she was delivered of a fine boy, without any particular loss of blood, or any unusual circumstance occurring. Everything went on favourably for about five days, when she appeared to be somewhat odd in her manner. From being naturally reserved, she became exceedingly

talkative; her countenance excited; and she represented herself as feeling extraordinarily happy. Her nights had been more or less sleepless; and this sleeplessness now increased. Her mind became more and more disordered; and at length she was perfectly delirious. At the commencement of her attack, morphia was given largely; but it failed to do any good. The tartrate of antimony was then had recourse to; but it proved equally inefficacious. These remedies were therefore discontinued; and it was determined that the treatment should be solely addressed to the patient's general health, and more particularly the improvement of her blood. With this view, she was at once removed from town to a more healthy and open situation. Her apartment was kept freely ventilated; and she was supplied frequently with light unstimulating food. The drain upon her system, occasioned by lactation, was checked by the application of ice and cold evaporating lotions to the mammæ. The utmost tranquillity was maintained; and all sources of excitement, such as interviews with her husband and relatives, were interdicted. Under this treatment, and with the aid of very little medicine, her health soon began to improve, as did also the condition of the blood. As this took place, she slept at night without the aid of narcotics, and her mind became rational. In the course of three weeks she was perfectly convalescent, and has continued well ever since. Two years ago she was again confined, gave birth to a fine healthy child, and recovered without the return of an unfavourable symptom.

I might add other cases of a similar nature, justifying the same conclusion, if the limits of this paper would permit; but I forbear doing so, because it appears to me that sufficient has been said to show that there is a connexion between the existence of anæmia antecedently to labour, and the occurrence of mania subsequently, and that this connexion is more than casual. It has been said that puerperal insanity will occur under very different circumstances; and that stout persons, as well as those who are spare, are equally obnoxious to it. It must be remembered, however, that a stout adipose subject is not necessarily a healthy one; and that in such the blood may be, and constantly is, either impoverished or scanty. The existence of anæmia cannot be determined by the conformation of the patient. It is rather to be sought for in the pallid complexion, the paleness of the inner surface of the lips, and of the palpebral conjunctivæ; in the frequent palpitation of the heart, the breathlessness on exertion, the abnormal murmurs heard over the heart and jugular veins, the feebleness of the pulse, and the general coldness of the feet and hands: with these symptoms, there is often languor and lassitude, and general feebleness of the bodily functions. These are the surest indications of the presence of anæmia; and when they are sufficiently attended to, it will often be found to exist where otherwise it might never have been suspected.

That this condition of the blood should favour the occurrence of puerperal insanity, would appear to be highly probable, from a variety of circumstances. In the first place, it is obvious that for the healthy performance of the functions of the brain, as of other organs, it is necessary that there should be a due supply of healthy arterial blood; and that this supply cannot be greatly diminished in quantity, or de-

terioriated in quality, without producing disorder, or a great susceptibility to it. "That the brain is an organ receiving a very great supply of blood; that its vessels are large and numerous; that an increased determination of blood to it, or, on the contrary, a diminution of the quantity conveyed to it, must have an effect upon the cerebral functions; and that the perfect or imperfect state of the intellectual and nervous powers is intimately dependent upon the condition of the circulation within the head, are facts of which no doubt can be entertained.¹ Hence, amongst the frequent consequences of anæmia, may be mentioned an extremely irritable condition of the brain and nervous system. In some cases, this amounts to actual disorder; in others, to a susceptibility, which only requires some casual circumstance to develop into positive disease. Thus, in puerperal patients, when greatly anæmiated, mania may occur as the result of the mere shock and consequences of labour. But when the blood is less impoverished, additional disturbing causes may be necessary; and those which would produce it in a puerperal patient, are similar to those which would occasion it in the non-puerperal state. Of these, mental agitation, shock, or emotion, loss of blood, and irritations of various organs reflected upon the sensorium, particularly of the stomach, liver, and intestines, are the most potential; and the cerebral disorder induced by these in anæmiated non-puerperal persons, is precisely similar to the mania of the puerperal state.

In the second place, the general symptoms attending puerperal mania, are identical with those which are met with in anæmia. The brain and nervous system, it is true, are in a state of extreme excitement; but the condition of the patient generally is one of weakness and exhaustion. The pulse is small and quick; the extremities cold; and the excitement has been truly characterised as "action without power". Moreover, in all the cases which I have seen, loud continuous murmurs were heard over the cervical veins, as well as those cardiac sounds, which are indicative of an attenuated state of the blood.

In the third place, the progress of the disease does not materially differ from various cerebral affections, which are occasionally met with in anæmiated patients; and whilst in each the tendency under favourable circumstances is to recovery, in either the reverse may happen from very similar causes. Thus, in either, congestion of the brain may occur from feebleness or irregularity of the circulation; and, consequent upon this, effusion may take place, leading to a fatal termination. When, again, the malady is protracted, various organic changes may be induced in the brain and its membranes; and these may give rise to permanent insanity, epilepsy, or paralysis.

TREATMENT. The treatment generally proper for anæmia will be found, upon the whole, to be most appropriate for puerperal insanity. Special indications will require to be fulfilled by special means; and slight forms of the disease will often yield to the unassisted efforts of nature. But when the attack is severe, and resists the natural efforts, as well as specific treatment, it will generally be found that this obstinacy is connected with an aggravated form of anæmia, and

¹ MASON GOOD. Study of Medicine. Edited by Samuel Cooper. Note by Editor. Vol. iii, p. 61.

that, in proportion as the condition of the blood is improved, will the cerebral disorder disappear.

If the foregoing observations should prove to be correct, and if it should be established as a fact that anæmiated persons are especially predisposed to puerperal insanity, it will follow that the treatment should not only be curative, but preventive. The practitioner, aware of the cases in which there exists a predisposition to the malady, will be forewarned, and prepared to take precautions against its accession. During pregnancy, he will endeavour to improve the condition of the blood and the tone of the nervous system, by attention to diet and regimen, and such auxiliary treatment as may be indicated in particular cases. During labour he will especially endeavour to diminish the shock upon the nervous system, and to prevent or lessen excessive or immoderate hæmorrhage; whilst, during the puerperal period, he will rigidly guard his patient against the influence of those occasional causes, which are known to determine the attack, such as mental alarm, agitation, or emotion, gastric, hepatic, or intestinal irritation, or any organic irritation which is capable of being reflected upon the brain. In short, the indications are twofold; on the one hand, to adopt such measures during pregnancy as are calculated to improve the blood; on the other, to guard the patient, both during and subsequently to labour, against such influences, mental and physical, as have been known to occasion the attack.

The first indication comprises the treatment of anæmia in all its several forms,—a subject which is far too comprehensive and extensive for discussion in the present paper. Its relations, moreover, to uterine and puerperal diseases generally are so important, that I propose to consider it in a separate communication. It should comprehend attention to external circumstances,—habits and modes of life; to the condition of the digestive organs, as well as that of the nervous system generally; to various remote causes of a depressing character, mental and corporeal; and thus should comprise measures both moral and physical, dietetic and medicinal.

The second indication, so far as prevention is concerned, is to protect the patient, both during and subsequently to labour, against the influence of the exciting causes of the malady. These are, for the most part, well ascertained, and comprehend two classes. The first class comprises those which directly operate upon the mind; the second, such irritative disorders of the body, or of particular organs, as are capable of affecting the brain unfavourably, whether by sympathy or otherwise. All painful states of mind should, if possible, be prevented: distress, anxiety, grief, or any emotion, have, in some instances, immediately given rise to an attack of mania; as also have fright, agitation, sudden shock, or alarm. These also should therefore be rigidly guarded against. Of bodily derangements, it may be said, that any “uncommon irritation spreading to the brain”, may be the exciting cause; but certain organs sympathise more directly with it than others, and the disorder of these is especially to be attended to. Such irritative disorders may be enumerated in the following order, as regards their frequency, in the causation of the disease: gastric, hepatic, or intestinal, either singly or combined; uterine, and mammary.

The curative treatment of puerperal insanity, should it unfortunately

have occurred, is one of extreme difficulty;—not less so from the nature of the indications to be fulfilled, than from the reluctance of the patient to acquiesce in the necessary measures of treatment. It should comprise attention to at least the following four points :

First. The removal of any exciting causes which may exist, and of any bodily derangement which may have been instrumental in the causation of the disease.

Secondly. The subduction of cerebral excitement, and the restoration of tranquillity to the nervous system generally.

Thirdly. Guarding against the occurrence of congestion, effusion, or other disease of the brain.

Fourthly. Supporting the constitutional powers, restoring the general health, and improving the condition of the blood.

I. The first indication points to the removal of such exciting causes as may have been concerned in the production of the disease. It has been remarked, that these are referrible to two heads: the one operating directly upon the mind; the other consisting, for the most part, of various kinds of irritation in remote parts of the body. When mere emotion has been the exciting cause, and no physical disturbance can be discovered, it is probable that a full opiate, together with extreme quietude, and the constant application of ice to the head, may at once overcome the cerebral excitement, and avert any further bad consequences. It must, however, be remembered that opium is contraindicated, whenever gastro-intestinal irritation exists as a consequence of the presence of crude, unhealthy, or indigested matters in the stomach or intestines. When, therefore, the tongue is furred, the breath unpleasant, the alvine discharges scanty and unhealthy, as also when the abdomen is tumid and uneasy,—evacuant medicines should precede its administration. If gastric disorder exists in a marked manner, there can be no question as to the advantage and safety of giving an emetic, for the purpose of effecting the direct removal of gastric impurities; and ipecacuanha, with squills with or without the tartrate of antimony, according to the strength or debility of the patient, answers well for this purpose. Full vomiting will generally follow its exhibition; and if solid matters, such as undigested food, be not thrown up, there will often be an evacuation of vitiated, unhealthy secretions, in large quantity, which will be productive of much relief. Having premised this step, the next should be to act upon the liver and bowels, not only for the purpose of carrying off irritating matters, but of promoting secretion from them, as well as elimination. Calomel and jalap combined, are extremely efficacious for the purpose, and should be given in full doses; but when they fail, or are otherwise objectionable, I believe that croton-oil, with the watery extract of aloes, and a little Castile soap, will be found of signal service. I have certainly found this to answer well in these cases. It also should be given in decided doses, and repeated every four or six hours, until the necessary evacuations have been obtained. These will generally consist of a number of fœtid and unhealthy stools; and, when they have been voided, the symptoms will often manifestly improve, whilst the further management of the case will be considerably simplified.

II. The second indication refers to the necessity of allaying the inordinate cerebral excitement, and of restoring tranquillity to the ner-

vous system generally. These objects will be best attained, the former by the exhibition of tartar emetic in small and frequently repeated doses; the latter by opium, morphia, henbane, or some other narcotic. The tartrate of antimony may be given to the extent of one-sixth or one-eighth of a grain every half-hour or hour, until the desired effect is produced; and it is sometimes advantageously combined with small doses of the sulphate of magnesia. Any disposition to vomiting may be obviated by the addition of the hydrocyanic acid; and some have found it useful to add a few drops of the tincture, or sedative solution of opium, to each dose.

The administration of opium, in these cases, requires much caution, and careful consideration of the circumstances. Opium, I would observe, has a twofold action upon the economy; and each is distinct and dissimilar. Upon the functions of animal life it operates as a sedative; upon those of organic life, as a stimulant; and thus, whilst on the one hand, it lowers inordinate action of the brain and spinal cord, it tends, on the other, to exalt the activity of the vascular and organic functions. Hence, its efficacy is greatest in those cases in which the sanguiferous system is most depleted, and the vital and organic functions are most depressed; and, conversely, its employment is least proper where there is a tendency to vascular fulness, whether general or local, and more especially of the encephalon. In proportion then as the pulse is rapid and weak; in proportion as organic debility prevails, and there is an absence of cerebral congestion or determination,—is its use indicated in this disease; and, whatever may be the intensity of the mental excitement, in such cases it may be given fearlessly and freely. When, however, these conditions do not exist unequivocally, as will happen in the majority of instances, it must be had recourse to more guardedly, and its action modified according to the particular circumstances of each. "Opiates have been given with two intentions," says Denman; "some have merely proposed to soothe and moderate the violence of the disturbance by the frequent repetition of small or moderate doses; others have aimed, by the more liberal use of opium, often repeated, to suppress the irritability altogether. As far as I can judge, the former method is far preferable to the latter; and I think there can be no doubt but that opiates in larger doses, instead of diminishing, add, in no small degree, to the irritability which before existed."¹ It is certainly impossible for any one to lay down a rule, applicable to all cases, for the administration of opium, or any other narcotic, in this disease. I have found full doses at bedtime, with smaller during the day, to answer well in some instances; and it is sometimes useful to alternate the use of one narcotic with that of another. Tranquillity and sleep are the great desiderata to be attained; and different medicines, and different modes of exhibiting them, will be required in order to attain this end in different cases. It is, however, most necessary to watch the effect of such remedies, and not to push them beyond certain limits, when their efficacy is questionable, merely in deference to popular custom or opinion.

As auxiliary to these measures, the pediluvium, sinapisms to the

¹ DENMAN. Introduction etc., Seventh Edition, p. 503.

calves of the legs, and revulsives to the extremities, may often be had recourse to with advantage. The use of the pediluvium was especially recommended by Dr. Robert Whytt; and he gives, in illustration of its utility, the following case, which would appear to have been one of puerperal insanity. "A lady, aged about twenty, on the fourth day after being delivered of her first child, began to be feverish, and slept none. After this she became very delirious, talked constantly, had sometimes tremors, and was so restless, that for two days she had not lain one minute in the same posture, and was with difficulty kept in bed by two or three nurses. On the tenth day after her delivery, when I first saw her, the symptoms now mentioned were all increased, only she spoke none, and seemed to understand nothing that was said to her; her pulse, which was but of moderate strength, beat above one hundred and fifty times in a minute,—nay, once, when she was more agitated than usual, it rose to one hundred and eighty strokes in that time, and became withal very small. As she had been blooded, and blistered, and used several other remedies, *without advantage*, I ordered her feet and legs to be put immediately into the warm *pediluvium*, which was done by making her sit up on the bedside. At first it required two people to keep her feet in the water; but in less than a quarter of an hour she grew calmer, and made little motion, either with her legs or any other part of her body. After using the *pediluvium* for half an hour, she was put to bed, but soon began to grow as restless as formerly; upon which account warm fomentations were applied to her legs and feet, and renewed, from time to time, for near two hours, but without any benefit. I therefore thought it best to renew the *pediluvium*, which was used, at this time, for a full hour. It soon made her sit quiet; and, after she was put to bed, although she did not sleep, yet she lay several hours without tossing as usual, and her pulse was reduced to 136. As often as she began to be any ways restless, the *pediluvium* was renewed. After using it the fourth time, she got several short sleeps, was less delirious, and her pulse only made 120 strokes in a minute. From this time (*viz.*, the eleventh day after her delivery), the *pediluvium*, which was never repeated above twice in twenty-four hours, procured her longer sleeps, and lessened all her bad symptoms; so that, in two days more, she was quite free of the delirium, and her pulse did not exceed ninety in the minute."¹

III. The next indication to be attended to, is to guard against the occurrence of congestion, effusion, or other disease of the brain. Such consequences might frequently be anticipated from the extreme cerebral disturbance going on; but, under proper treatment, they are fortunately rare. Nevertheless, the possibility of their occurring must not be lost sight of; and every precaution should be taken to avert them. The state of the circulation in these cases generally forbids the employment of active measures: general blood-letting is, for the most part, inadmissible, and hence abstraction of blood should be limited to the application of a few leeches to the temples, or behind the ears, when circumstances render local depletion necessary; but the constant application of ice to the head, the free use of purgatives, a careful diet,

¹ On the Nature, Causes, and Cure of Nervous Disorders, etc., pp. 453-54-55.

and tartar emetic in contraststimulating doses, is safer practice, and will generally obviate all danger on this score.

iv. The last indication points to the necessity of sustaining the patient, restoring her general health, and improving the condition of the blood. These are matters of the utmost importance; and, upon their due fulfilment will her recovery mainly depend. The means to be employed for these objects comprise all those measures of diet and regimen which appertain to the treatment of anæmia. The patient should be placed in a large, cool, and well-ventilated apartment; her diet should be carefully attended to, and this, in the early stages of the disease, should consist of light, unstimulating food, administered regularly and frequently, but in small quantities at a time. While there is much heat of skin, a quick pulse, and great excitement, milk, gruel, arrow-root, and sago, or other farinaceous articles, form the best diet. As the excitement and febrile disturbance subside, a little animal food, or fish, may be added; and, if the extremities should become cold, and the pulse very feeble, wine must be given in addition, and this sometimes largely. In severe cases, it will be necessary to check the drain upon the system occasioned by lactation; and for this purpose, evaporating lotions should be applied to the mammæ, whilst the bowels are kept open by saline aperients. In conjunction with these measures, the patient must be kept perfectly tranquil. All interviews with friends and relatives had better be prevented; conversation should be prohibited; and a regular nurse, accustomed to the care and management of the insane, should be in constant attendance. It is unnecessary to add, that so long as the patient is under the influence of any mental delusion, she must be strictly watched, and every thing kept out of her reach, with which she might do injury to herself or others.

Under this system of management, the progress of the case will generally be satisfactory; and, as the general health improves, the mental aberration will disappear. Should it be otherwise, additional measures for the restoration of the health will be necessary. Change of air will prove serviceable, and recourse may be had to tonics in addition to the regimen laid down. Of these, it would be advisable to commence with the mildest,—such as the mineral acids, or some light bitter; and, afterwards, to prescribe the more powerful,—such as quinine, or some of the preparations of iron.

I conclude, then, by observing, that the relations which subsist between anæmia and puerperal insanity are often of a very intimate nature; and that too much care cannot be paid to the investigation of this point. I do not contend that *all* forms of puerperal mental disorder are dependent upon anæmia; for I believe that they may arise from other causes, and be connected with other states of the blood:—but I maintain that the asthenic forms of the disease are by far the most frequent, and that of these anæmia constitutes an important pathological element. I believe, moreover, that a careful consideration of this point will often enable us to anticipate and avert the attack, or, when it has occurred, suggest the best method of treatment.

Chester Place, Hyde Park Gardens, May 1851.