

ART. XXVII.—*Observations on Cerebral and Spinal Apoplexy, Paralysis, and Convulsions of New-born Infants.*
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APOPLEXY OF NEW-BORN INFANTS.

SINCE the attention of the profession was called to the subject by Stahl and Bichat, and the matter investigated by Ranque and Halle, the predominance of cerebro-spinal susceptibility in the new-born infant has been fully established. Much still remains to be done in elucidating the morbid states and influences of the cerebro-spinal organs. Whether we consider them in regard to the frequency of their occurrence, or their fatality, no class of diseases demands our attention more than the apoplexy, paralysis, and convulsions of new born-infants. The difficulty attending the investigation of these affections, and tracing their connexion with the cerebro-spinal system in the adult, is but too well known to the practical physician; how much is this increased when we come to examine the being incapable of communicating its symptoms? It is quite in our recollection its having been asserted that infantile diseases are more easily detected and diagnosed, from their being arrived at merely through the natural expression of pain, and the sensible features of disease, unaltered and unimpressed by the peculiar fancies or warpings of the rational individual; but this appears as a very questionable proposition. It is certainly a fact, that a few great and palpable features of disease are naturally expressed by the infant; but, when we come to search out nice shades of distinction, and to discriminate between types bearing strong resemblances, we shall find often a great want in the absence of reason, and the power of communicating ideas; a want that cannot be supplied

without so close, discriminating, protracted, and frequently-repeated observation on the part of the physician, that few men possess either patience or sufficiently extensive opportunity to be competent to supply it. Whilst we admit that there are many circumstances productive of difficulty in investigating infantile diseases, some of these even beyond our control, we cannot conceal from ourselves the fact, that medical practitioners do not avail themselves of the most effectual means of overcoming these, by devoting that strict attention to symptomatic and pathological investigation which infantile diseases so preeminently demand.

The most elaborate and accurate inquiries into cerebro-spinal pathology at the present day, have arrived at little more than the threshold of this subject, as far as establishing a fixed relation between diagnosis and disease.

A more accurate knowledge can only be obtained by repeated and candid relation of what has been absolutely observed. It were much to be wished, that those who treat on subjects of this obscure nature, rested satisfied with affording facts, and avoiding embarrassing the mind of the inquirer by putting forward crude hypotheses, however ingenious, which but too often, like the "*ignis fatuus*," seduce him from the straight paths of scientific investigation. A conviction of the necessity of attending as closely as possible to this rule, induces us to do little more than afford a detail of actual observations made upon cases of these obscure diseases falling under our notice ; in the hope that they may not prove totally devoid of interest or utility to the practitioner anxious to extend his investigations upon this particular class of affections in infancy.

The causes of the predominance of apoplexy in the new-born infant may be ascribed, first, to the so suddenly altered circulation, by which the influence of the maternal circulating system upon the fœtus is done away with, whilst the nice adjustment necessary in the permanent

establishment of respiration an independent circulation, and the right performance of the cerebro-spinal functions, but more especially of their mutual relations and dependencies, is still scarcely completed. The balance that time afterwards fixes so accurately between these important vital organs, as essential to the very existence of the individual, is still unsettled; and, from this circumstance, very slight causes will produce excessive derangement. The lungs, also, at this period are expanded but in part, and a very important change is effected in the circulation of the blood in the heart and great vessels by the closure of the foramen ovale, and the current passing from the ductus arteriosus. From these several causes, then, the blood is frequently thrown in excess upon the brain and lungs, or retarded in its transmission through them. The coats of the arteries are thin and yielding, and, from deranged vital energy in the still imperfectly established functions of the ganglionic system supplying them, the due transmission of the blood may be further interfered with. These considerations, with a recollection of the structure of the brain in the fœtus, which is so soft and vascular, of the compression in the dependent position to which it is liable in birth; and the difficulty and delay often attendant on the first establishment of respiration, will tend rather to excite our astonishment, that cerebral affections in the infant should not be more numerous than they are.

CEREBRAL APOPLEXY OF NEW-BORN INFANTS.

The apoplectic attack in new-born infants may be a simple primary affection, exhibiting, as we see in the following case, all the symptoms of an apoplectic seizure, as observed in the adult.

CASE I.—*Primary or Simple Apoplexy.*

October 14th.—The child of C. W. enjoyed perfect health up to the sixth day from birth, when it refused the

breast, and suddenly fell into a state of stupor, with laboured stertorous breathing. The pulse 60; face tumid and livid; bowels, &c. perfectly natural. One leech was immediately applied over the fontanelle, and another at the lower part of occiput; the spine was rubbed with volatic liniment, and the body immersed in a warm bath, whilst the head was kept cool. The respiration became natural, and pulse rose to 120; shortly after the leeches fell off.

15th. Much better, in every respect; its sensibilities are sufficiently acute; but still cannot suck, not grasping or holding the nipple when introduced into the mouth. To be supplied with breast milk and a small quantity of wine whey through the day. This child continued improving, and was quite well on the 16th.

This case may be looked on in every respect as one of simple apoplexy; and it may be fairly inferred, that the train of symptoms depended upon mere congestion.

Apoplexy may be combined with inordinate or spastic action of the muscles of the face, trunk, or extremities, more or less complete or partial, a striking instance of which we have in the following case.

CASE II.—*Apoplexy combined with Tonic Spasm.*

This child exhibited a tumour on the occiput, the effect of a twenty-nine hours' pressure in labour. A few hours after its birth it became insensible, its respiration laboured, and the muscles of the neck and lower extremities were spastically fixed, producing complete opisthotonos. The mæconium had been freely evacuated by castor oil; a leech was applied to the fontanelle, and two to the spine, and the child placed in the warm bath; calomel exhibited in small and repeated doses, the spine rubbed with volatile liniment, and a turpentine injection administered. The sensibility gradually returned, the spasm subsided, and the child recovered.

The cerebral symptoms in the child are, in a large proportion of cases, merely secondary, and symptomatic of disease, or obstructed function in remote organs, as the annexed cases will illustrate.

CASE III.—*Secondary Apoplexy.*

The child of B. C., a boy, had been suffering from its birth under biliary derangement, attended with yellow discoloration of skin, dark, unhealthy evacuations, and abdominal uneasiness, particularly in region of liver, for which he had been treated with mercury, purgatives, and turpentine enemata, the bowels acting freely. On the fifth day he fell into a state of stupor, attended with slow laboured respiration and suffused countenance; pulse eighty; pupils contracted and insensible. After lying in this state for about six hours, a fit of general convulsions ensued, when a leech was applied to the back of the head, and the spine and abdomen were rubbed with stimulating liniment; under this treatment he amended immediately, and left the hospital perfectly well on the eighth day.

This appeared to be a case of secondary cerebral disease, the apoplexy being consequent upon the biliary derangement. It was not, however, the less serious in its nature, from this circumstance, and required the same treatment to remove it as if it had been the original morbid state.

CASE IV.—*Apoplexy from obstructed Respiration.*

A male child, seven days old, was found lying on his face; in which position he had been for some time, his mother thinking he was asleep. When taken up, he was in a state of stupor, countenance livid, respiration irregular; each inspiration was performed with a convulsive motion, the expiration was tary and prolonged; heart beating slowly and faintly. Frictions, stimulating applications, ammonia, &c. were had recourse to, and after a short time respiration became gradually more frequent and regular, though still

convulsive. A foetid enema with turpentine was thrown up. He now seemed much improved, the countenance becoming less livid, and he cried frequently. In an hour after, the respiration was observed again irregular and laboured; a similar mode of treatment was adopted, but not with the same success; dilute wine whey was administered by the mouth and rectum, with but partial good effect, as he never completely rallied, and he died in six hours.

Post Mortem Examination, sixteen Hours after Death.—Body stiffened, lips livid, there was not much blood in the vessels or scalp, but on raising the bones a considerable quantity escaped. The veins on the surface of the brain were turgid, there was some transparent subarachnoid effusion. On making a section of the brain, a marked oozing of dark blood was observed on the incised surface, increased by making pressure. There was about half an ounce of fluid in the ventricles. The cerebellum presented a similarly congested appearance. The veins of the spinal marrow were also turgid. The lungs did not crepitate freely under the finger, and when cut into a quantity of black blood was poured out. The larynx was filled with reddish mucus. There was a small quantity of serum in the pericardium. The right side of the heart was filled with blood in a coagulated state; abdomen healthy.

CASE V.—*Apoplexy from Interference with the Functions of the Thoracic Viscera.*

The child of M. F. was large but weakly on birth, when it was immersed in a warm bath and the respiration established. In the course of four hours, however, it fell into a state of stupor, at first apparently sleeping, but at length it could not be roused; the surface of the body and nails becoming blue. The heart's action was not to be detected at the left side, but was perceptible at the right. It gradually became comatose, in which state it continued for some hours, and expired.

Post Mortem Examination.—On opening the thorax, the entire of the abdominal viscera, except the liver and right kidney, were found in the left thoracic cavity, having passed through an enlarged œsophageal opening. The heart and lungs were contained in the right thoracic cavity. The vessels of the brain and membranes were generally much congested, and there was a considerable quantity of serous fluid effused between the arachnoid and pia mater.

Even in those cases where the symptoms present leave us no reason to doubt that the cerebro-spinal system is markedly engaged, we rarely find lesions of the same nature, or to the same extent, in the new-born infant as in the adult, who exhibits a corresponding train of symptoms. Thus we have never met with blood effused into the corpus striatum or optic thalamis in the apoplexy of new-born infants. Where extravasation does occur, it is generally at the base or surface of the brain, and proves immediately fatal. In the majority even of fatal cases of this disease, the morbid appearances observed are merely turgescence of the veins and sinuses, with sanguineous oozing from the structure of the organ itself, and perhaps serous effusion underneath the arachnoid, at the base of the skull, in the ventricles or spinal cord. Little can be said on the treatment of these cases, further than that the success attending them will be found to depend upon combating the cerebral symptoms promptly, whether they constitute the original disease, or merely occur as consequent upon other morbid states.

Depletion to the extent practised would by some be objected to, whilst others would esteem it as not carried far enough to afford the necessary relief. This discrepancy to us appears (problematic as it may seem) to establish the accuracy of the plan adopted. It cannot be doubted that the objection of many practitioners to depletion, in these and similar cases, has arisen from its having been carried

too far,* and been used too indiscriminately. A new-born infant will bear the application of one or two leeches with the happiest effect, in cases of congestion or inflammation, when three or four would prove fatal from the debility induced. In some cases the application of two leeches or even of one, is attended with palor of the countenance, quick pulse, and exhaustion almost approaching to syncope, and requiring the administration of stimulants, as wine whey, to restore the natural tone and energy of the vital powers.

Leeching is both the safest, easiest, and most effectual means of abstracting blood in new-born infants, after it becomes impossible to obtain it from the funis; and whatever some persons may assert to the reverse, experience has quite satisfied us, that without its assistance in the cases above treated of, the fatality would have been much increased. Case No. IV. is one in proof of this assertion; here depletion was withheld, and other means, as stimulants, &c., relied upon, under the impression that too much debility existed to admit of it, and yet this debility, as the result proved, was the effect of the congestion which would have been removed by depletion. In similar cases we have depleted, and followed the depletion with the administration of stimulants with the most marked benefit, nay, it has even been necessary in some to alternate the depletion and stimulation again and again, before the oppression and fictitious debility were removed, and the proper balance between the vital organs established.

SPINAL APOPLEXY OF NEW-BORN INFANTS.

Spinal diseases, the obscurity attending the diagnosis and investigation of which is so proverbial, have of late years attracted much attention. It is to be hoped that this impetus will be productive of satisfactory results in their

* See North on Convulsions, and Davis's Obstetric Medicine.

elucidation, an attainment only to be arrived at by those who possess an opportunity of observing and tracing these cases, recording them accurately. We shall now give a few cases of these affections falling under our notice in the new-born infant; one of the most interesting of them is spinal apoplexy. That dependent on extravasation of blood into the spinal canal is a rare disease; several such, the result of injury, are on record; but its occurrence is not confined to these.*

Dr. Abercrombie records an interesting instance of this lesion, in which the blood was effused into the canal without the theca, in an infant six days old. The most striking symptoms in this case were the fixed state of the jaw, and difficulty of deglutition. Only one case has occurred to us in which this lesion was observable on dissection.

CASE VI.—This was one of trismus nascentium, and ran the usual course of that malady, proving fatal in about thirty hours from the commencement of the attack.

The following were the Post Mortem Appearances.—In the spinal canal, without the theca, a considerable quantity of blood was effused; and the veins along the medulla spinalis were very turgid, and filled with dark blood.

A remarkable coincidence then is observable between the case recorded by Dr. Abercrombie, and the one here reported, not merely in the morbid appearances observed, but in the symptoms occurring during life; indeed, so much so, that were we not aware of the extreme accuracy of observation with which that acute and talented physician and author is endowed, we might, upon the reading, have pronounced his case as one of trismus nascentium. On this subject, however, we shall not at present dwell, as trismus

* See Cases reported by Drs. Bright, Chevalier, and Olivier.

must demand from us a distinct consideration, in recording at some future period the results of certain treatment at present under investigation in this hitherto fatal malady.

As is the case in cerebral, so in spinal apoplexy the train of symptoms strictly apoplectic may occur without actual lesion of vessels, or effusion of blood. This may, with every propriety, be termed congestive apoplexy of the spine. The following are cases of this form of disease.

CASE VII.—*Congestive Apoplexy of Spine.*

On the fifth day from birth, this child was suddenly attacked with screaming, which continued for an hour; it afterwards fell into a sound and protracted sleep, bordering on stupor; and, on awakening the next morning, its face was livid, eyes shut, mouth drawn down at each side, and frothing; and its arms were fixed firmly against its sides. In the course of the morning the breathing became hurried; and abdomen very tense; and it died within twenty hours from the commencement of the attack.

Dissection a few Hours afterwards.—The brain, abdomen, and thoracic viscera, perfectly healthy, but a remarkable vascularity and turgescence of the spinal and medullary vessels was observable throughout their course.

This case would be described as the plethora spinalis* of continental writers, and affords a good specimen of this disease devoid of all other morbid complication.

CASE VIII.—*Congestive Apoplexy of Spine.*

The child of C. G., a healthy boy, was attacked on the third day from birth with a general convulsive paroxysm, after which the arms remained fixed, and face livid. The back of the neck was leeches; and several dark evacuations were procured by aperient medicine. However it gradually

* See Esquirol *Bul de la Faculte de Med. Portal Cours d'Anat. Med.* tome iii. Frank. de Verteb.

sunk, and expired within twenty-eight hours from the commencement of its illness.

Dissection.—The cellular membrane was found generally very vascular; and the intestines spasmodically constricted in several places. The brain was very much congested, and the vessels of the medulla spinalis, the thecal vessels, and those at the origins of the spinal nerves, were extremely distended and turgid.

In the last case the disease was complicated with derangement of the child's bowels, and the intestines exhibited spastic constrictions, in several parts of their course; these spasms of the intestines may, however, have been referrible to the same irritative or morbid state of the spinal marrow, that produced the inordinate or convulsive action of the voluntary muscles.

The congested state of the spinal vessels, or inflammatory action in the membranes, may, if unchecked, terminate by effusion into the canal, and this effusion will produce such interruption in the functions of the medullary mass and its nerves, as may prove incompatible with the life of the individual.

The following case is illustrative of this fact.

CASE IX.—*Effusion into the Spinal Canal.*

The child of A. E. (a girl) had experienced difficulty in the establishment of its respiration after a protracted birth. The day afterwards it was attacked with general convulsions and violent screaming; the hands remained firmly clenched; the abdominal muscles tense; respiration diaphragmatic, short, and frequent. In despite of leeching and aperients, the convulsions returned, and were repeated at half hour intervals throughout the following day; the child expired comatose in the evening.

The vessels on the hemispheres were much loaded, and the brain, on being divided, exhibited numerous bloody points. A quantity of serous fluid flowed from the sheath

of the medulla spinalis. The medulla oblongata was very firm, whilst the vessels of its membranes, and the venous vessels at the roots of the nerves, were excessively turgid and congested.

Morgagni* gives a case of effusion into the spinal canal, attended with pain and paralysis: it proved suddenly fatal: Chevalier,† one of a child twelve months old, in which paralysis and great pain also were present: it proved fatal in three days. Dr. Abercrombie‡ relates a case in which there was effusion of a gelatinous fluid within the canal, but outside of the theca: in this case, coma appeared to be present from the commencement of the attack.

PARALYSIS OF NEW-BORN INFANTS.

Paralysis in the new-born infant is not a very unfrequent disease; it may occur as the effect of injury to the nerve in the part paralyzed; or in its course, after its transmission through the cranial or spinal aperture. Examples of this we have in injury to the portio dura, as in face presentations; or where the head has been long pressed in the pelvis against the projecting ischiatic spines; several cases of this kind have occurred to us, in which the disease was quite local, the paralysis being removed on the subsidence of the tumefaction produced by the protracted pressure.

To some it may appear that the following case was more than a mere local paralysis of the nerve, yet, on a closer examination, it will be found quite possible that no cerebral or spinal derangement may have existed.

CASE X.—*Case of Paralysis of the Seventh Pair of Nerves.*

G. B. had a tedious labour, the head of the child remaining low in the pelvis for many hours. On birth there was a considerable tumour observed on the scalp, and a

* Epist. 10, sect. 13.

† Med. Chirurg. Journal, vol. iii.

‡ Abercrombie on the Brain, p. 356.

sloughing spot the size of a shilling on the left parietal bone. The delivery took place early on Sunday morning; and about three o'clock on Monday a remarkable alteration was observable in the appearance of the countenance. The angle of mouth was drawn slightly to the right side, while the child remained quiet; on its crying, which it did almost without intermission, the whole face became distorted, the angle of the mouth being then drawn very much backwards and upwards to the right side; the *ala nasi* of the left side not being so much expanded as that of the right, gave the nose a deformed appearance. The eye on the left side remained permanently open, although the one of the opposite side closed in sleeping and crying. The mouth but partly resumed its natural appearance on the child becoming quiet. The brow of the affected side was not corrugated. The child, in other respects healthy, was removed from the hospital in this state.

In most cases, however, the paralysis is markedly combined with cerebral or spinal derangement; in some preceded by a distinct apoplectic seizure; in others it is preceded by a convulsive paroxysm. It often co-exists with convulsions, which generally occur in the side opposite to that paralyzed, as in the following.

CASE XI.—*Paralysis of Portio Dura of right Side, and third Nerve of left.*

June 15th. This child, when expelled, was very feeble; the mother had been fifteen hours in labour; after some time, by stimulation, &c., a convulsive respiration was established. There were two scars noticed, one on the left parietal, the other on the anterior portion of the left temporal bone. This latter was deep, and seemed as if it had been inflicted by some sharp instrument; lower down on the cheek there were one or two scratches; on the opposite side a depression was evident, but without any injury to the surface; the respiration throughout the day was laboured,

with occasional sighing; the left side of the face became somewhat tumid; the right eye was kept constantly open, the pupil dilated and insensible to light; the left eye was kept closed, the pupil also dilated and insensible; an aperient was given, followed by healthy evacuations; some wine whey was administered.

At 5 P. M. The muscles of the left side of the face and body were thrown into convulsions; those of the arm and head were remarkably affected, while the whole of the right side maintained a state of perfect quietude. A bath was administered, followed by an enema.

16th. The infant has remained in a state of almost coma ever since; the left side of the face is more swollen; left eye still closed, the right remaining open; had a number of convulsive paroxysms, brought on by touching or in any way disturbing him, not very violent; experiences some difficulty in swallowing; bowels regular.

17th. Much the same; heart's action 120, laboured; respiration 40. A leech to the neck; wine whey.

18th. Improved by the leeching; towards evening opened for the first time his left eye; expression of countenance more natural; left side of face less swollen; drank more frequently; still some tendency to convulsive motions of the left side, but much less active; pulse 120; bowels free; was put to a healthy, free breast, but could not be induced to suck; took wine whey; a leech was applied, after which he slept quietly. On separating the eyelids at 2 P. M., the eyes were observed turned upwards, so that the pupils could not be seen; pulse now 114, small.

19th. Had a slight convulsive paroxysm yesterday evening; expression of countenance more natural; left side and arm still rigid; pupils less upturned.

20th. Spasms of left side occasionally; bowels not free. To have castor oil.

21st. Looks much better ; is willing to suck, but seemingly cannot satisfy himself owing to weakness of the muscles. Head has regained its natural shape ; still some rigidity of left side.

Left hospital on the 22nd, and was brought back on the 25th, the mother stating that he had a number of twitchings the day before. He now seems to make more use of his right side.

Occasionally, in these cases, convulsive twitchings occur in the paralyzed extremity, the limb, in the intervals, remaining perfectly palsied. In such, however, we generally find that the sensibility in the paralyzed limb is unimpaired, the functions of the motor tract being alone deranged. The following case affords us an example of this form.

CASE XII.—*Paralysis of the Portio Dura, and Spinal Nerves of right Side.*

The head on birth was slightly compressed ; the child soon rallied.

Second day. There is paralysis of the right side of the face, as also of the right arm : on being excited, a slight convulsive motion is induced. A leech was applied to the nape of the neck, and a grain of calomel, followed by castor oil, administered.

Third day. Much the same as to the paralysis. Convulsive twitchings not so frequent.

Fourth day. Has been uneasy through the night. Convulsive startings more frequent ; paralysis as before. Repeat the leech.

Fifth day. Much relieved ; more quiet ; is rather pale seems weak. To have wine whey with breast milk.

Thirteenth day. Has been gradually improving. Paralysis of face less apparent, but has not entirely passed away ; wrist still pendulous ; in other respects quite well.

Dismissed : the mother wishing to go home.

We occasionally meet with a variety in which a more or less complete paralysis of one side will occur, along with a partial paralysis of the other; perhaps merely one nerve evincing any interference with its functions, as in the following instance.

CASE XIII.—*Hemiplegia of left Side, with Ptosis and Paralysis of Portio Dura of right Side.*

Immediately after birth a large, soft tumour was observed on the right side of the head, principally on the vertex, with two or three small excoriations on the left side. The left eye closed; the mouth drawn to left side; and when the child cries, the *ala nasi* and angle of the mouth at the same side are drawn up; the right eye open; right side of the face unaffected during crying. The left side of the body is completely paralyzed; the extremities are of less bulk than those of the right, and are rough to the touch; the muscles very flabby; both pupils are insensible to light.

On the third day after birth, it had three or four slight convulsions confined to the upper half of the body. It was unable to suck, but deglutition did not seem to be affected, as it swallowed with facility. A leech was applied to the vertex, followed by the warm bath; stimulating liniments were rubbed over the spine; the child recovered and was dismissed cured on the eighth day.

Here then what a capricious selection is made as to the nerves engaged: we have the spinal nerves of the left side generally paralyzed, the functions of the portio dura of the left remaining unimpaired, whilst those of the reverse side are interfered with, and this anomalous state increased by the paralysis of the third nerve on the left. Ascribing the paralysis of the portia dura here to injury, inflicted by pressure, after its passage out of the stylo-mastoid foramen, would do little in simplifying the matter, as it may be inferred that the same cause, whether it were congestion (or whatever else) of the brain or spinal marrow, that

produced the paralysis in the spinal and third nerve, also acted upon the portio dura. In this case, as well as in No. 10, we have a good illustration of that form of paralysis of the motor nerves of the face, which has so much occupied the attention of Bell, Magendie, and Mayo, the portio dura of the right side here being alone paralyzed, whilst that of the left remained unimpaired, the reverse of what occurred in No. 10. However we have an additional interest imparted to the case by the paralysis of the levator palpebræ muscle, supplied by the third nerve, as evidenced in the ptosis with which the left eye was affected, whilst the right remained permanently open from the paralyzation of the orbicularis muscle, which is supplied with its motor nerve by the portio dura.

In cases of paralysis, as in apoplexy, we look upon it, that although they may depend on organic derangements, yet actual lesion, such as ruptured vessel, disruption of the intimate texture of the brain, or even serous effusion, is unnecessary, and rarely (much more so than in the adult) met with, as producing this disease. In the cases which we have had an opportunity of examining, we have seldom found more than a congested state of the vessels of the brain and spinal column, of the meninges* and roots of the spinal nerves. If lesions in the texture of the brain occurred in these cases, as they do in the adult, we should have permanent paralysis remaining also in the infant, a circumstance very rarely met with, if we admit the accuracy of the opinion advocated by some, that when disruption of cerebral texture has occurred, there is never reunion by cerebral matter, nor capability of transmitting nervous influence.

CONVULSIONS OF NEW-BORN INFANTS.

The universal liability of infants to convulsions, is but too well known ; and although no climate or latitude ap-

* See Cazanvieuilh, Archives Gen. for May, 1827.

pears to afford a protection against these attacks, it would seem that certain localities and states of atmosphere predispose to them.

Those forms depending upon atmosphere or climate, such as prevail in the West Indies, or amongst ourselves in crowded hospitals, or ill-ventilated suburban districts, exhibit peculiar characters, stamping them as what we might term specific diseases; like all diseases owing their existence in a great measure to atmospheric causes, assuming peculiar types and characteristics, and proving generally more fatal in their tendencies. Under this head may be classed the epidemic convulsions described as occurring in Paris, by Gaultier Claubry; the epilepsy recorded by Dr. Longe as occurring at Copenhagen, from which nearly thirteen thousand children perished in thirteen years; the *trismus nascentium*, at present so prevalent in the West Indies amongst the children of the negroes, and formerly so fatal in this hospital, (although now comparatively but seldom* met with here,) every sixth† child having been destroyed by it, according to the report of the late Dr. Joseph Clarke, made in 1792.

Dr. John Clarke‡ is of opinion that in every case of convulsions, the brain is at the time organically affected either directly or indirectly; and Brachet§ states, that every case of convulsions, partial or general, must be dependent upon cerebral irritation. These statements are with equal confidence denied by North and others. It is difficult, we

* See Collins's Midwifery.

† Mr. North, in his allusion to Dr. Clarke's Report, omits to mention that it was from *trismus nascentium* this large proportion of infants was lost. See North on Convulsions, p. 1.,

‡ Commentaries on Diseases of Children, p. 90.

§ Brachet sur les Convulsions.

might say impossible, to arrive at an accurate knowledge of the truth of either opinion. This much, however, may be said, that whether the cerebrum or spinal cord be previously engaged or not, when convulsions are present, there is every reason to apprehend their becoming so, and we should direct our treatment with the recollection of this fact strongly impressed upon our mind.

The frequent occurrence of convulsions as symptomatic of disease, and their rarity as an original morbid condition, are facts now universally admitted. It is perhaps more important than any abstract recognition of the nature of the normal state, that a rational and successful practice is generally established in consequence of the admission of this principle. The profession owes much to Mr. North for the clear and lucid manner in which he has placed this subject before them.

The primary cause of paralysis and convulsions may be described as to a certain extent identical; namely, such an interruption of or interference with the functions of either the brain or spinal marrow, as causes a variation from the uniform balance which regulates the antagonizing muscles, and retains them in a state of neutralization.

Whatever be the actual state of disease or lesion in the cerebro-spinal system in these cases, in paralysis there would appear to extend from it a defective stimulation to the muscle or muscles paralyzed; on the contrary, in convulsions this stimulation would appear to be in excess.

This neutrality of the muscles may however be disturbed in two ways; either by the diminished contraction of one muscle or class of muscles, leaving the antagonizing muscles in excess of action from want of neutralization; or, from excess of contraction in one class, rendering the ordinary contractions of their antagonists unavailing in neutralizing their action. This latter is the state generally met

with in convulsions, the former in paralysis. The excess of contraction may again be either permanent, as we see in tetanic fixture of the limbs, trismus, &c.; or it may be temporary, producing, by the alternating excess and diminution of its contractions, those sudden spastic motions called convulsions. Not unfrequently these very different states of paralysis, and permanent spastic or convulsive action, are confounded, from the fact of the limb occasionally remaining fixed and motionless in both; this difficulty in diagnosis is further increased, by the fact of paralysis of one class of muscles in a limb, say the extensors, occurring whilst the natural contractions of the antagonizing muscles, the flexors, fix it, and cause it to exhibit the appearance we would expect in a limb fixed from excess of muscular stimulation.

The following case is illustrative of that form of excess of muscular contraction, in which there is combined with occasional increases of muscular stimulation, a permanent excess, producing a fixed state of certain limbs, which in this instance exhibited all the characters of catalepsy.

CASE XIV.—*Convulsive Action of Muscles of Deglutition followed by State of Catalepsy.*

This child, a girl, small sized, was very weak when born, the labour had been tedious, and she was with difficulty brought round. The cuticle of the hands, feet, and body was observed to peel off in scales. Cerebral oppression; face deep coloured; lips livid; and a heavy smell from person. Ordered wine whey, and a warm bath, castor oil, and an enema if necessary. Next day, 27th, lies heavy and stupid; rarely cries; respiration abdominal, slow, and irregular; each ordinary respiration followed by two half respirations; bowels freed. Leech to the nape; warm bath. Evening:—Leech did not fasten; child cold, restless; surface dark-coloured; occasionally uttered a bleating scream. On offering drink she became convulsed; the spasmodic action

commencing with the diaphragm ; the muscles of the pharynx became next engaged ; when swallowing was attempted, the whole muscular system became convulsed. The lower jaw was spasmodically elevated and depressed in the attempt to swallow : the mucous membrane of the pharynx of a deep red colour. Two leeches were applied to the sternum, and calomel and chalk administered : a bath.

28th. Leeches bled well ; quieter through the night ; deglutition more easy, but still attended with a convulsive movement. Mucous membrane not so red : bowels free. Evening:—Twice during the day uttered three or four bleating screams as if in pain, followed by complete opisthotonos. The eyes became fixed ; pupils dilated, not contracting under the stimulus of light ; arms firmly flexed ; hands clenched ; respiration momentarily suspended. In this state she remained for a minute, the heart meantime acting violently. A convulsive sob, occurring irregularly, was the first evidence of returning respiration. Pulse 160. Pupils, after the paroxysm, obeyed the light ; but the surface continues dark ; lies, in the intervals, with the arms and legs firmly flexed ; bowels freely moved ; discharge offensive ; deglutition improved ; has been for some hours comparatively at ease : bath ; continue powders.

29th. Convulsions returned in the night ; swallows freely ; seems weaker ; respiration and pulse as yesterday. Continue powders.

30th. No decided convulsions since ; but lies with extremities in a state of tonic contraction.

September 3rd. Has for the last three days remained in a state of seeming catalepsy ; swallowed whatever was given to her ; bowels acted regularly ; by degrees she aroused and became more lively ; the contraction of the extremities was not so continued. In this state her mother insisted on taking her out of hospital.

The following case is an instance of convulsions occur-

ring as consequent upon retention of the meconium, and deranged bowels—one of the most frequent causes of secondary convulsive attacks observed in new-born infants.

CASE XV.—Convulsions symptomatic of retained Meconium, and Deranged Bowels.

This child, a boy, the day after birth refused the breast, and seemed to suffer abdominal pain. A grain of calomel and some castor oil were administered, which appearing to produce griping, the child was put into a bath. Next day, it was stated that the medicine did not act well; the evacuations were scanty, at first blackish, and latterly like dry moss, with a discharge of a considerable quantity of flatus. Towards evening he showed a tendency to convulsions; the eyelids were firmly closed, on separating them, the pupils were contracted; hands strongly clenched; lips compressed; tongue tremulous; respiration laborious; there was some difficulty of swallowing. A slight rash was observed on the upper part of the thorax; the abdomen was tumid; the mucous membrane of the pharynx high-coloured. Ordered an enema, with a few drops of spirits of turpentine, to be followed by a bath. A leech to be applied to the nape of the neck: some wine whey. Next day, 13th, he was improved; bowels acted freely; discharge green and pasty; urine scanty; rash more general; sucks more willingly; seems still to suffer pain; pupils more natural. Calomel, half a grain twice in the day. Evening:—Paroxysms of pain recurred frequently, with convulsive twitches, increased by the discharge of fæces or urine, which is now more abundant: Had a leech applied to the neck at two P. M., followed by a bath, with relief.

14th. Slightly uneasy through the night; convulsive motions not so frequent; bowels once freed; discharge lighter coloured; funis separated. To have some castor oil.

The further treatment of this disease consisted in small doses of calomel at long intervals, with aperients inter-

posed. The secretions gradually became more healthy, and the tendency to convulsive movements decreased in the same proportion; the rash also disappeared. He was attacked on the 16th with ophthalmia, first of one eye, then of the other; and was dismissed on the 26th, cured.

Tissot ascribes cases of this kind to a spastic constriction of the spincter ani preventing the escape of the meconium.

As in more advanced childhood, convulsive attacks not unfrequently occur precursory to the coming out of the eruption in exanthemata, so in the eruptive diseases of new-born infants, the cerebro-spinal system appears to be affected in a marked manner about the same period. The following cases are exemplary of this.

CASE XVI.—*Convulsions preceding Miliary Eruption.*

The child of F. M., a boy, when born was very weakly and discoloured, the extremities became quite blue. The mother was at the time labouring under typhous fever. Warmth was applied, and a little wine whey given. In eight or nine hours he was observed to be seized with convulsive twitches, the arms being occasionally flexed with a sudden spasmodic motion; the fingers firmly bent, the thumbs drawn in to the palm of the hand; the muscles of the face were slightly convulsed; bowels confined. One grain of calomel to be given, followed by castor oil. Next day, 21st, convulsive startings have continued ever since with scarcely any interval; bowels relieved; discharge green. The skin is of a yellow colour, and feels exceedingly rough and harsh; there is a most disagreeable fœtor from this child. A leech to the nape; breast milk.

22nd. Convulsive motions as before, particularly of the arms and hands. An eruption, consisting of a number of minute vesicles, is apparent over the head and chest, and in patches on the face. This commenced by a red patch, which on being examined under a microscope, was found to be

made up of a congregation of very minute vesicles with vascular interspaces; the vesicles gradually enlarging, the vascular interspaces disappeared, and it now presents the appearance of a vesicular miliary eruption. Bowels free; discharge black and green. Heart's action 104; respiration 66. To have one-third of a grain of calomel three times in the day: a bath and wine whey.

23rd. Convulsive twitchings continued through yesterday, but towards evening became less frequent; was pretty quiet all night, and had but one slight convulsive paroxysm this morning. Pulse 120; respiration 36.

24th. Attempted yesterday to suck; was given some breast milk, and lay very quietly dozing before the fire; had slight twitches twice in the night; sucked more freely; evacuations more healthy. Eruption has disappeared; skin still rough and harsh; yellow tinge remains.

27th. The cuticle of those places which had been the seat of the eruption is now desquamating. No return of convulsive movements; bowels acting healthily; is lively and sucks well.

CASE XVII.—*Partial Convulsions symptomatic of Strophulous Eruption.*

The child of M. R., a healthy boy, was attacked on the sixth night after its birth with screaming and convulsions, which at first commenced in one arm, and then extended over the whole of one side of the body; recurring at intervals of an hour for several fits.

In the course of a few hours, a profuse strophulous eruption appeared all over the body, forming large blotches over the joints. After the eruption had come freely out, the convulsive fits diminished in frequency and duration, and soon ceased entirely. The child recovered.

In the progress of inflammatory attacks of the viscera or cavities, convulsions occasionally occur, either as sympto-

matic of the serious state of disease under which the child labours, or as the result of the extension of the disease to the cerebrum, spinal cord, or their coverings. The following case exhibits an instance of the latter form of convulsion, and appears to depend upon general inflammatory action in the serous tissues, extending to the serous membrane of the brain and medulla oblongata.

CASE XVIII.—*Convulsions, with serous Effusion into Cranium and Spinal Canal.*

The child of A. L., a girl, was attacked with labouring, panting inspiration on the 26th July, when twenty-four hours' old. Fæcal discharges still dark, treated with leeching, calomel, and aperients, but without relief. On the 27th it had several convulsive twitchings of the upper and lower extremities, the bowels acted freely, panting respiration continued. It remained with little change, the convulsive twitchings occurring occasionally, until the morning of the 28th, when it expired.

Post Mortem Examination.—In addition to copious sero-purulent effusion into the cavities of the thorax, and solidification of the lungs, the vessels of the brain were found very turgid, with its substance of a pink colour; a table-spoonful of fluid was found in the ventricles, and a much larger quantity at the base of the brain, and within the theca vertebralis.

We have already seen, in treating of apoplexy and paralysis, that convulsions not unfrequently occur as the effect of these. On the other hand, convulsions occasionally precede an apoplectic or paralytic seizure. They thus either stand in the relation of cause and effect towards each other, or the same state of sympathy or the same derangement of the sentient and motive centre that produced the one form of disease may give rise to the other. In the following case, a well marked apoplectic seizure succeeded to the convulsions, and a retarded action, bordering on paralysis of the respiratory muscles, attended them. This case is further

interesting from showing the necessity that exists for depletion when the head becomes engaged after convulsions ; as we feel no hesitation in stating that the chances of this child's recovery were very much lessened by abstaining from this plan of practice.

CASE XIX.—*Convulsions followed by Apoplexy and Death.*

The child of A. B., a male, was in perfect health until the fifth day, when it got a convulsive fit, after which it became of a dark livid hue ; pulse fifty, breathing scarcely perceptible ; its bowels had been acting naturally. It was put into a warm bath, and spirit of ammonia liniment applied to the chest, when its breathing gradually became perceptible, but slow. It remained for twenty-four hours in a state of stupor, and insensible to stimulants, an interval sometimes of forty seconds occurring between each respiration ; ammoniacal injections were thrown into rectum, the strongest stimulating liniments rubbed upon the surface of the body, and the warm bath used, but it expired about thirty hours from the commencement of the attack. Unfortunately no post mortem examination could be obtained.

ART. XXVIII.—*On the Hydriodate of Potash as an Emmenagogue, in a Letter from DOCTOR PINCHING.*

“ TO THE EDITORS OF THE DUBLIN JOURNAL OF MEDICAL
SCIENCE.

“ Collon Dispensary, September 6th, 1836.

“ GENTLEMEN,

“ According to your request, I beg leave to furnish you with a few observations on the action of the hydriodate of potash as an emmenagogue ; whether in exciting the uterus to healthy action, or as a general tonic, giving strength and vigour to the constitution, is difficult to determine, I shall merely state what I have observed. The