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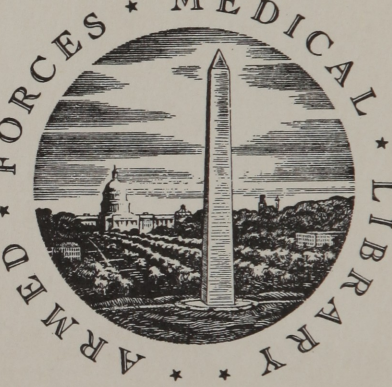

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ESSAYS

ON

THE DISEASES OF CHILDREN,

WITH

CASES AND DISSECTIONS.

VOLUME SECOND,

CONTAINING

ESSAY III.....ON HYDROCEPHALUS ACUTUS, OR DROPSY IN THE BRAIN.

BY JOHN CHEYNE, M. D.
Fellow of the Royal College of Surgeons of Edinburgh.

PHILADELPHIA:

PUBLISHED BY ANTHONY FINLEY,
AT HIS MEDICAL BOOKSTORE.
Merritt, Printer.
1814.

AN ESSAY

ON

HYDROCEPHALUS ACUTUS,

OR

DROPSY IN THE BRAIN.

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TO

MR. CHARLES BELL,

SURGEON IN LONDON,

FELLOW OF THE ROYAL COLLEGE OF SURGEONS
OF EDINDURGH, &c. &c. &c.

IN TESTIMONY

OF RESPECT FOR HIS HIGH PROFESSIONAL TALENTS;

OF ESTEEM FOR HIS CHARACTER;

AND

OF GRATITUDE FOR MANY OBLIGATIONS;

THIS VOLUME IS INSCRIBED

BY HIS SINCERE FRIEND,

JOHN CHEYNE.

PREFACE.

I have now, in separate Essays, considered all the diseases peculiar to the stage of life between weaning and puberty; with the exception of Chorea Sti. Viti. That disease I have not ventured to discuss, because never in my own practice have I witnessed a fatal case of it, and from the first, I resolved not to enter upon the pathology of any disease, in which I could not compare the observations of others with my own.

It is not my design, to propose this as a work for general use; but to call the attention of the profession, whom alone I address, to a subject of great difficulty. What I have attempted, has been with a full consciousness that our knowledge of this disease is very imperfect; that it has not yet been sufficiently investigated; that many of the facts are not yet ascertained; and that it is the duty of a physician, no less than of a sound philosopher, to be cautious in the admission of hypotheses, industrious and careful in the collection of materials.

As we are thus only in the stage of collection, and not advanced as yet to that of theory, my chief hope of being useful rests on the cases

which I have been enabled to lay before the profession; and on the results, neither rash I hope nor unimportant, which I have ventured to draw from them. These cases are not recollections; nor were they ever in danger of being altered, or even coloured by any prevailing or favourite doctrine. They were invariably drawn up in the bed-chamber of the patient, and present a faithful account of every symptom and circumstance that attended the disease. They may, perhaps, appear to others to authorize conclusions different from what I have drawn: my reasoning may be wrong, but my facts may be implicitly relied on.

These cases were drawn up at first with no view to publication; but with the design only of establishing, for my own guidance in practice, the symptoms that distinguish this disease from the febrile attacks which it so frequently resembles. With this intention, I suffered no case to pass without the most minute consideration. And in the progress of several years, my notes seemed to me to suggest several circumstances incident to Hydrocephalus, which were worthy of being more distinctly marked than they had been hitherto, and in this view, not undeserving of public attention. But perhaps the best lesson that I have learnt, certainly that which I would most seriously impress on the profession, is the strict attention with which the earliest symptoms of the disease should be observed.

ESSAY III.

ON

HYDROCEPHALUS ACUTUS.

HYDROCEPHALUS ACUTUS,* the disease which is the object of the following pages far-

* With Burserius I denominate this disease Acute Hydrocephalus, and I recommend in preference a term by which all vague theories of the disease are avoided, one too which conveys a practical distinction, which, it would seem, is required. Nothing is to be neglected which can assist us in attaining greater accuracy and simplicity in distinguishing and treating this disease. I have no hesitation in saying that, in general, no cases are more loosely reported than those of Hydrocephalus. Cases are produced, as examples of this disease, which had lasted many months. Instances of successful treatment are given, where the history of the symptoms leaves us altogether in doubt as to the existence of the disease. Instances which (where a point of practice is to be established) ought to have no admission as evidence are brought forward. For example, it is merely said that the patient had most of the symptoms of the inflammatory stage of dropsy of the brain. Symptoms not pathognomonic are often trusted to as indicating the nature of the disease, such as the size of the head, &c. Gaping of the sutures, fluctuation, and other symptoms of chronic Hydrocephalus, are mixed with the essential symptoms of acute Hydrocephalus.

ther to illustrate, occurs chiefly in childhood. It is attended with pyrexia, and with symptoms

It would appear almost unnecessary to distinguish this disease, the apoplexia Hydrocephalica of Cullen, from the Hydrocephalus (G. LXXVI.) with the gaping sutures, as it is already done by medical writers, particularly by Dr. D. Monro, Quin, &c. but the following quotation from the last manual of practice published by a respectable physician in London in 1805, a book adopting the arrangement, and for the most part the definitions of Cullen, will enable me to apologize to the reader for the interruption. We find Cullen's definition of apoplexia Hydrocephalica, viz. Apoplexia *Hydrocephalica* paulatim adoriens; "infantes et impuberes, primum lassitudine, febricula, et "dolore capitis, dein pulsu tardiore, pupillae dilatatione, "et somnolentia afficiens," with the compiler's addition, "Hiantibus plerumque cranii suturis;" and after delivering the history and cure, he observes, "The progress "of this disease is sometimes very gradual, and the head "enlarges progressively; in the acute state, I have at- "tended several cases, in which the sutures have been "perfectly closed, the bones of the cranium perfectly "ossified, and the head not larger than natural, and, upon "examination after death, several ounces of a watery fluid "have been found in the ventricles of the brain; there- "fore it would appear, that the character of the disease, "as given in the Nosologia of the III. Cullen, is not suited "to all cases." It is unnecessary to comment on this. Cullen properly separates the two diseases; but the confusion is revived by this endeavour to identify them. I have not a doubt that this gentleman will excuse the liberty which I have taken, and in a future edition of his work correct this error.

indicating a diseased state of the sensorium. It generally terminates in death, when, along with other morbid appearances, the ventricles of the brain are found enlarged and full of lymph.

Hydrocephalus was not known as a distinct disease before the year 1768, when a full and accurate history was published by our celebrated countryman Dr. Whytt. Since the publication of Dr. Whytt's treatise, the disease has engaged the attention of many eminent physicians, both in Britain and on the continent; yet the subject is so far from being exhausted, that the disease is universally admitted, both in pathology and in practice, to be still involved in great obscurity.

Authors have acknowledged the extreme difficulty of drawing up a distinct account of Hydrocephalus. They have been unable to fix what ought to be considered as the leading symptoms, and have warned us to expect, in practice, great deviations from the histories which they have delivered. After much experience and long consideration, although I felt these difficulties, I began to entertain hopes that they might in a great measure be removed by arranging, under distinct classes, the various forms which the disease assumes. This I have attempted, and I am convinced that the following classification is not

artificial nor arbitrary, but that it has a foundation in the nature of the disease.*

I. In that class of the disease which I am first to describe, we find, that before any characteristic signs of the disease appear, the child for some days, or even weeks, has complained of pains in his head or belly, while at the same time he has been slightly feverish, dull, ill-complexioned, without appetite, or perhaps with an increased appetite, and with considerable disorder in all the functions of the abdominal viscera. These complaints arise gradually, but are seldom alarming; and the child's friends are not awakened to a sense of his danger, until, advancing a step farther, the commencement of a peculiar disease has more dis-

* In No. IX. of the Edinburgh Medical Journal, I find a great coincidence in observation. A Continental physician, whose work I have not had the good fortune to procure, has divided this disease into three species, in many respects resembling those forms of the disease which I have described. To avoid the charge of plagiarism, while the Journal was wet from the printing-office, I carried my notes, which in this part were complete (the Essay copied fairly for publication being then in the hands of a friend in England) to one of the ingenious editors, and read to him verbatim the history which is subjoined. The candid reader, even without this explanation, when he views my cases, the selection from many years practice, would, I think, admit that my observations are from an original source.

tinctly shown itself. The dullness and severe pains in his head are now accompanied, perhaps, upon getting up in the morning, or after he has begun to stir about, with vomiting. Yet even this symptom is often disregarded until the second or third day of its recurrence, and the disease has made considerable progress before the illness of the patient is suspected to arise from a disordered condition of the brain.

When the attention is more particularly excited by these symptoms, the headach (chiefly in the forehead) will be found to return at shorter intervals. The child often affectingly complains of his head. He sighs frequently, is dull, his head requires to be supported; he complains of weariness in his eyes; the pupils sometimes appear unusually contracted, and he has an aversion to light. His tongue is white, and his belly generally costive; the stools are at first clayey; as the disease advances they become of a gelatinous consistence, dark green, of a sickly smell, sometimes as dark as tar. The pulse becomes quick, and at particular times of the day these symptoms are attended with febrile heat and irritability, and the child complains not only of headach, but of pains in different parts of the body, sometimes astonishingly acute. At one time he complains of pains in his limbs, at another of pains in his

breast, or in the nape of the neck, very often in his bowels; and before the anxiety of his friends can make any preparations to relieve him, the pain is gone, or fled to some other part; at another time he for a long time lies on his mother's knee, restless and whining, as from dull rheumatic pain. These disorders cannot continue without impairing the child's strength; and accordingly in ten days or a fortnight, the period usually occupied by the first stage of this attack, he is altered in appearance; in his manner he has become peevish and undecided; his hand tremulous; and his gait tottering.

II. In the second form of the attack the disease runs a more rapid course. This does not occur so frequently, yet it is well entitled to the attention of every one wishing to gain a clear conception of Hydrocephalus. After the child has been drooping for a short time, which, although it sometimes escapes observation, is generally recollected, there is a sudden change to a fever, attended, even from the first, with a great degree of pyrexia, with frequent, but short, and irregular remissions, flushing, severe headach, tenderness all over the abdomen, and increased sensibility, with sometimes brilliancy of the eyes. It is said to be often difficult immediately to distinguish Hydrocephalus from fever, and this is the form of the disease in which there is the

greatest resemblance between the two diseases; but we are led to suspect some deeply-seated evil, from the frantic screams, and complaints of the head and belly, alternating with stupor, or rather lowness;* and we are struck with the irritability of the stomach, in a degree beyond what we find in fevers of this country, retching and vomiting being often brought on by a change of posture, certainly by every attempt to sit up in bed; and with the disordered state of the bowels which attends this irritability of the stomach. And when at any time the child has a little respite from the violence of these symptoms, we find our suspicions confirmed by his look; for, in this disease, when the features do not express pain or terror, there is not unfrequently an expression, which it has, in common with some other diseases of the brain, of dejection, bordering upon insensibility, which is quite insupportable to those who are interested in his recovery.

III. I have observed less frequently than the first case, yet I think more so than the second, what I mean to describe as the third form of the disease. It may be considered as an instance of

* This lowness, however, differs from what occurs only in the last stage, viz. a state resembling the coma vigil of fevers, as when roused, or spoke loudly to, in general the answer to each question is ready and collected.

that conversion of diseases,* which arises either from the excess or combination of the symptoms of the original complaint, operating upon a habit favourable to the new disorder, or perhaps from the state of the habit produced by the primary giving rise to the consequential disease. When hydrocephalus arises after an imperfect state of health, as where there had been a scrophulous action which has abated; or where, from predisposition and the anomalism of the symptoms, such action is looked for; or where the child has had some epidemic disease formerly (perhaps many months before) from which he has not perfectly recovered, or regained sound health; the attack is sometimes made with all the violence which I have described as distinguishing the second form. When, again, the attack comes as the sequel of an acute disease, as fever, hooping-cough, perhaps dentition, or during some actually existing scrophulous disease, then the child almost imperceptibly slips into Hydrocephalus;†

* See the ingenious paper on this subject by Dr. Ferriar, of Manchester.

† Perhaps had I not been misled in these cases by my security as to the nature of the previous disease, I might more early have detected some Hydrocephalic tendency. I have reason to think, in one case of this variety, that the symptoms were not unlike those described in the first form of the attack; but they were thought symptomatic of the original disease. In some cases, even

there are scarcely any of the acute symptoms; and the palsies or convulsions are the first indications of the new disorder.*

The situation of the child is not yet absolutely desperate; for, after the appearance of most, or even all of the symptoms enumerated in speaking of the two first forms of the disease, the constitution is not always subdued. Instances are recorded, in which, without the use of any active medicine, the disease has gradually abated, instead of running a fatal course.†

had I been on my guard, I think I scarcely could have pointed out the precise time when the change from the one disease to the other took place.

* Instances of Hydrocephalus unattended with pain are mentioned by authors, and have repeatedly occurred in my practice. Dr. Quin takes notice of a case, where, during the child's illness, no more symptom suggested any suspicion of the real cause of the child's death; but when the body was examined, a large quantity of water was found within the ventricles of the brain. See also Case XX, App. to Dr. Quin's Treatise, which is of this kind. It is a case of conversion from a scrophulous disease of the mesentery.

† Dr. Watson, *4th vol. London Medical Observations and Inquiries*, relates the case of a boy who recovered from the last stage of Hydrocephalus. If we except a blister, the medicines used were of little activity. And for four or five days after the blister was applied, every symptom increased. We may conclude that Dr. Watson did not place much to the account of the medicines which were

Of cases under the first two classes now described, I shall add examples of recovery: those which I have attended of the third class, with but one exception, ended fatally, and I presume recoveries are very rare. I consider the first form of the disease as the most favourable; perhaps the second might be equally favourable, were it seen and detected early; but I conceive that, in cases of the second class, the first two or three days are decisive, and these are generally lost. The second form of the disease is the most uniform in its progress; in the examples which I have seen, not only the first, but all the stages, were distinctly marked. I would have it understood, that the distinction which I have made is chiefly applicable to the attack; in the latter stages of the disease, there is little diversity in the symptoms.

But, in all the stages of this disease, we see proofs of irregular excitement; these indeed become more conspicuous as the disease advances, but are often observed, even in the early part of the disease: at one time the pulse is quick and

prescribed, for his deduction from the case is, that "it "may sometimes happen, as in the present instance, that "nature, *although but moderately assisted*, will enable the "sick to struggle through diseases beyond our most "sanguine expectations."

Dr. Willan, Vid. *Reports on the Diseases of London*, p. 269, tells us of a child who recovered, after being abandoned to his fate."

throbbing; the heat of the body is increased; the skin parched; there is a deep blush on the face, or on one cheek; and the breathing is sighing, laborious, and quick: at another time the blood circulates more equably; the skin is of a natural warmth, or moist with perspiration; the countenance is pale; and the breathing so soft that it cannot be heard. The appetite and the thirst vary; sometimes exhibiting nearly a natural state of the stomach; at other times the heavy smelling breath,* which has been supposed

* Dr. Whytt has remarked a sickish and most offensive smell of the breath, which he never had observed in any other distemper. Another author has observed, "Aer e pulmonibus sæpius magisque quam in aliis "ægris fætidissimus est." This smell is perceivable in many disordered states of the stomach, which, perhaps, are connected with a peculiar state of the skin. It is the same smell which is perceived in the beginning of the exanthemata. I have observed a smell resembling it in several dropsies, in diabetes, both in a case which was under my care in the surgical ward of the Royal Infirmary, and in the case of Captain M. who afterwards recovered while under the care of Dr. Rollo. It also has some resemblance to the breath of a determined dram-drinker, before he has commenced his potations for the day.

How does the breath become impregnated with this odour? From the lungs, I suppose; not, I should think, from the pharynx. It certainly cannot arise immediately from the stomach; and yet, in a case which was lately under my care, of great sickness at stomach, with acute pain

peculiar to this disease, the total absence of appetite, and constant vomiting,* even for days, show the stomach to be in the greatest disorder. The bowels are never regular; they are generally slow, requiring cathartic medicines; and now and then a constant and severe bilious purging, attends the vomiting. The urine is sometimes withheld for twenty-four or thirty-six hours; yet I have had a patient with a constant desire to pass urine, which was voided with excruciating pain, and always followed by great increase of the pain of the head. And not only are the vital and natural functions irregular; we find the same extremes in the animal functions: To this indeed the diseases of the brain owe much of their interesting character. The senses and judgment

in the abdomen, furred tongue, and purging, every thing rejected from the stomach had this smell in a most offensive degree. This odour would seem to attend other cases of debility, after violent excitement of the stomach. A boy swallowed some soap-ley; his stomach was much injured, and he escaped only with his life: on the third day after the accident, his breath was strongly impregnated with this disagreeable odour.

* Dr. Fothergill says that the sickness and headach alternate. I have not, from my own observation, had this confirmed. But, as the remark is repeated in Dr. Quin's work, I cannot doubt its accuracy. I have observed the head and belly complained of, as if the pain had suddenly struck both at the same instant; and, once or twice, upon the pain suddenly leaving the belly, it was complained of in the head.

are often perfect and entire, sometimes morbidly acute; in general, the retina is painfully sensible to light, and the child is sometimes unpleasantly affected by slight sounds; on the contrary, sometimes, even in the early days of the disease, the mind is subdued, and there is the greatest dullness of apprehension. Towards the end of the disease, after delirium, convulsions, and insensibility, I have once or twice been surprised a little before death to find a complete return of intellect.

Dr. Whytt, and after him other authors, observing in Hydrocephalus the remarkable variations which often take place in the state of the pulse, have divided the disease into three stages, of each of which the peculiar condition of the circulation is made the leading symptom. And, doubtless, it generally happens, that after the signs enumerated in describing the attack of this disease have continued for a certain time, the pulse changes, becoming first unequal and irregular,* and then slow, but doubled by the least exertion; and with the slow pulse there is gene-

* There is often this peculiarity in the pulse. It beats, perhaps, ten or twelve strokes at the rate of 60, and the next six or eight at the rate of 100. The same kind of pulse has been observed after poison had been swallowed. At a first visit, when I had found the child asleep, I have several times detected the disease by this state of the pulse.

rally a greater degree of dullness, and more torpor; at first, the pain in the head does not abate, nay, I have known it increase; but when the slow pulse has continued for some time, the pain is less complained of. And now we observe a very dilated pupil, and a want of consent between the eyes, attended with imperfect, and not unfrequently double vision; the child is no longer able to sit up, even for the shortest period; there is a dosing state, interrupted by startings, and short intervals of delirious pain, and often by a troublesome cough; still, however, there is not much incoherence;* sometimes the stage, which has been characterized by the slow pulse, advances with regularity, after the child has been eight or ten days ill, and then (though it is impossible with certainty to predict a second change in the pulse) perhaps in three or four days more, it becomes more rapid than ever; and thus it marks the commencement of what is called the third stage, and ushers in, some time before death, a still more hopeless series of symptoms.

Whatever difficulties there may be in the early, there is no disease more easily distinguished in the more advanced stages. Indeed, how can we mistake, when we see a child rolling his head on the pillow, or perhaps sawing the air with one

* In plerisque (uti supra diximus) nulla vel lenissima tantum deliria adsunt. Ludwig, Vid. *Baldinger Sylloge*, vol. iii. p. 139.

hand, while the opposite side is palsied; with a hectic on the cheek, his eye-lids half concealing the pupil, and the eye deprived of its vivacity by the filmy covering of the cornea, the complete dilatation of one or both of the pupils, and the suffusion of the adnata; drawing a long sigh; frequently grinding his teeth; quite incoherent, or in a state of complete insensibility; with a burning fever on his skin, or sweat forced from every pore; and all these symptoms alternating with, and at last finished by, apoplectic breathing, and violent convulsions.

But the student will be disappointed, if he expects, as Dr. Whytt * has taught, that these stages will follow each other in a regular and mea-

* Dr. Whytt first introduced this important disease to the profession, and although so many eminent physicians have directed their attention to it, little has been added to the history which he has given. Yet I am inclined to think that he was directed to this disease by two articles in the Edinburgh Medical Essays. The one, to which I shall afterwards refer, is a very distinct and perfect case of acute Hydrocephalus, related by his predecessor in the medical chair of the university of Edinburgh, Dr. St. Clair; the other is by Mr. Paisley. Mr. P. concludes his account of a case, where the ventricles were distended with fluid, with these observations; "Since "this case, I have seen several children who complained "of a pain in one particular part of the head, having "great drowsiness and heaviness of their eyelids, a pulse "slower than natural, an inclination to vomit," &c.

sured progress. A child has sometimes appeared in health on the very night in which he was seized with the convulsions which in a few days destroyed him. I have observed the pulse become slow, without any other change in the disease, for some days; and although there is, for the most part, a period, sometimes at the very beginning of the disease, during which the pulse is slow, yet it often lasts for so short a time, that unless the child is very attentively observed, it will escape notice. Every attentive observer must have found the pulse slow and quick, and and then again slow, constantly varying towards the end of the disorder.*

Although Dr. Whytt is perhaps too methodical in his arrangement of the history, and has adopted, as the distinguishing symptom, one which, though striking and important, does not uniformly or correctly indicate the changes in the disease, and which is common to many diseases of the brain, yet in most cases these changes are so regular, that a division into stages is perhaps, upon the whole, advantageous. To accomplish this is not easy, considering the alterations in the excitement, and the variety in the course of the symptoms in every different constitution. Still retaining the three stages, I shall venture to present them under some change of character.

* Authors mention the disease unattended with the slow pulse.

The 1st as the stage of increased sensibility; the 2d the stage of decreased sensibility; the 3d the paralytic or convulsed stage.

In the first stage, every stimulus produces a sensation more than proportioned to its common effects. There is great aversion to light and to sounds; there is watching, sickness, pain, a quick pulse. In the second stage, the child is not easily roused, his pupil is dilated, his pulse slow, he is lethargic, with often an obstinately costive belly.* In the third stage, which perhaps may be considered as a continuation of the second, there is squinting, rolling of the head, raving, stupor, convulsions, with a rapid thready pulse.

It must be allowed by every physician who has had frequent opportunities of seeing this disease, that its duration is uncertain when once the pulse has become slow, or rather when the stage of torpor has arrived. I have known instances where, in the forenoon, the child, although subdued, was perfectly collected in mind, and the slow pulse of very short duration, and yet before

* I believe it is not known to what extent medicines, stimulating particular parts of the system, may be given after the first stage. Beginning with a moderate dose, I have at last given three drachms of tincture of cantharides daily, without producing any strangurious affection, or indeed the slightest sensible effect. It is well known, indeed, that the largest doses of cathartic medicines are sometimes unavailing.

night the child was dead. When the disease has advanced to the last stage, it is not to be expected that nature will long sustain the struggle, and accordingly, in some children, it is continued only for a few hours; but others, particularly those more advanced, sometimes linger for a long time. I have been painfully obliged to continue my visits, day after day, for a week or ten days, at every visit thinking the child had only a few hours to live, and generally I have found that no symptom except the hurried breathing, so fatal a symptom at the end of febrile complaints, can with certainty be said to denote the speedy approach of death.

From the date of the first symptom, Dr. Whytt supposes the disease to extend to four, five, or six weeks. Dr. Fothergill has found, that it is almost always ended in three weeks.*

* Dr. Quin observes, that Fothergill perhaps formed his opinion of this disease from what is observable in patients of a more advanced age, some of whom he saw affected with this disease. This is entirely a misapprehension on the part of Dr. Quin; for, at the end of Fothergill's paper (Medical-Observations and Inquiries, Vol. IV. p. 55) there is the following paragraph: "When this paper was read to the society, "Dr. Huck said, he believed "that the disease (Hydrocephalus) was not confined to "children, or such as were under puberty, for he ima- "gined that he had seen it two or three times in adults, "and gave me the following case, where the dissection "put it beyond a doubt," &c. This is a proof that Dr.

Like every disease of the brain, the duration is uncertain; in some cases in the second, and also in the third variety of the attack, it appears to run its course in a few days; and I have known it in the first variety, from the great length of the first stage, last many weeks; but the result of my observation, even in this variety, has been in favour of the more limited period of Dr. Fothergill.

In children at the breast we do not so readily distinguish the attack of Hydrocephalus; we indeed see somewhat of the expression; we observe the child moaning, feverish, watchful, frowning; the expression of pain not violent. The disease evidently not from any disorder in the breast or bowels, for the respiratory organs are unaffected, and there is not the flinging out of the limbs, and extreme impatience, which children evince in cholic or griping pain. The Hydrocephalic stools differ from those attending any of the bowel complaints of children at the breast; and in no other infantine complaint have I been struck with the knitting of the eyebrows, unaccompanied by crying. The disease certainly wants, in these cases, much of the decided character which it

Fothergill drew his account of the disease from children alone. And so far from this being a more rapid disease, if we may judge from cases on record, it is in adults sometimes more tedious. Consult on the subject Memoirs of Medical Society, Vol. VII. p. 173.

assumes in childhood and youth; but, even in infancy, I believe Hydrocephalus may in general be early detected by the attentive observer.

I have, on two different occasions, been called to children not a year old in convulsions, both of whom died in a few days of Hydrocephalus. To their mothers they had not appeared materially ill before the fits seized them. One of them, for several nights, had had frequent spasms of the glottis, very short, but threatening suffocation, the child crowing, and becoming purple, but immediately recovering. Both children had Hydrocephalic stools. It is always desirable to know whence the convulsions arise, and perhaps the following distinction will be found useful. When convulsions arise from Hydrocephalus, generally one side is more affected than the other, one arm or foot being with some regularity retracted and flung out again, while the other is palsied, or perhaps spasmodically retracted; the eyes are suffused; there is often a circumscribed deep blush on the cheek; and the breathing is slow and irregular; sometimes, however, it is convulsive. Whereas, in convulsions not radically depending upon organic disease of the brain, both sides of the body are equally affected; the head is thrown back, the shoulders elevated, the eye is ghastly, the white of the eye bloodless, and the pupil often dilated; the eye not unlike its appearance after

death; and the whole countenance is flushed. In the interval between the convulsions, we have the best opportunity of discovering their origin.

Hydrocephalus is the disease of every season of the year. Were I to trust to my own cases, I should say that it prevails most in summer. It is also the disease of every stage of life, perhaps with the exception of old age. Hydrocephalus is, however, more particularly the disease of childhood; and in the middle years, between weaning and puberty, I have met most frequent examples of it.* It chiefly falls upon the children of families having a strumous taint; at least upon children having those peculiarities of skin, complexion, and features which indicate scrophula;† and sometimes it attaches itself to particular

* I am inclined to coincide with the observations of Ludwig: "In infantibus vero sexus nullum descrimen "fuisse, sed malum maribus æque ac fœminis commune "esse observationes Lipsiæ factæ probant. Sed post de- "cimum annum ingruens, plerumque puellas adflixit."

† Dr. Perceval observes, that of twenty-two cases of which he kept notes, eleven were certainly strumous children, and four were probably so. Med. Facts and Obs. Vol. I. p. 129. From my own observation, I should think this proportion a very moderate one. When a whole family is swept away by Hydrocephalus, I suspect it is intimately connected with this strumous taint. "Novi familiam cujus infantes circa sextum "ætatis an- "num omnes periere ex hoc morbo, scrophula huic "effusioni ansam præbente" *Vide* Convulsio ab Hydrocephalo Sauvages, T. I. p. 553.

families. I have attended two families, in one of which four children, in the other three, died of this disease; and I have heard of an unfortunate father who lost eleven children of Hydrocephalus. In these families the disease does not however appear in a more inveterate form. It has been observed, that where mania is a hereditary disease, it is more easy of cure. I am inclined to think that this is also the case with Hydrocephalus when a family complaint; as I have several times seen it brought to a favourable issue in families where previously it had been fatal.

I can affirm, from extensive and careful observation, that not only are children in whom scrophula is active very liable to Hydrocephalus, but conversely, that all the symptoms of Hydrocephalus are sometimes exchanged for a scrophulous disease.

Upon dissection, we generally find within the cranium, the veins, particularly those of the membranes on the surface of the brain and lining of the ventricles, gorged with dark coloured blood; sometimes considerable adhesion between and thickening of the membranes, and minute and florid vessels upon the pia mater. The ventricles we find to contain from two to six ounces of limpid serum; also fluid, in a small quantity, under the tunica arachnoides, both above and at the base of the brain. The substance of the brain is generally soft and blanched, fimbriated, and

particularly soft where it forms the ventricles. The substance of the fornix is often like a soft curd. In the abdomen, I have found the intestines inflamed and constricted from spasm, and the surface of the liver of a bright red colour, abounding in minute vessels; and sometimes extensively adhering to the peritoneum.* In several dissections, I have found the surface of the liver studded with small white tubercles, not larger than a grain of

* There are some circumstances, perhaps connected with the frequency of the disease, peculiar to the condition of the brain in childhood. These, I imagine, it would be difficult to explain. It is but a poor approach towards an explanation to say, that where the deposition of matter is great, as in the increase of parts, the absorbents are unusually active. I shall therefore content myself with the bare statement of the facts which have led me to this conjecture. When the body of an adult is wasted to skin and bone, as after a marasmus, from whatever cause, there appears to have been no absorption within the skull; in dissection, we still find the brain entire. Whereas, in childhood, when the body is exhausted by a tedious disease, as from scrophula, I believe we shall seldom fail to find more or less fluid in the ventricles. Sometimes this effusion is in great quantity. I must avail myself of this opportunity of explaining, that effusion is not to be considered as proceeding from the disease of which I am treating, unless when preceded by the symptoms which I have described. Often it would seem to result from a condition of the brain more allied to chronic than to acute Hydrocephalus, the original symptoms of increased vascular action in the brain being exceedingly obscure.

mustard. The glands of the mesentery are often diseased, as is evinced by their enlargement, and the caseous depositions which we find in the substance of the glands.

After the attempt which I have made to deliver a full history, it might be thought unnecessary to discuss formally the diagnosis of the disease; to describe minutely the combination of symptoms which distinguish it from other diseases. I shall therefore satisfy myself with little more than a short notice of the causes from which similar symptoms arise.

1st. They arise from an immediate affection of the sensorium, in consequence of some general disease, as fever.

2dly. From other organic diseases of the brain, as tumour of the brain, or partial inflammation, ending in suppuration.

3dly. From the brain morbidly sympathizing with a distant part.

It is in general easy, even in the more early periods of the two diseases, to distinguish Hydrocephalus from fever. We must particularly attend to the train of the symptoms. The gradual commencement; the more irregular remissions; the dyspeptic symptoms; the nature of the excretions, in particular the glairy, dark, and unnatural stools; the aversion to light; and the whole expression of the disease, differing much from that of fever. The peculiar nature of the

pains attending Hydrocephalus; the acute pains of the body; the peculiar pain of the head. The pain, when fixed, is oftener dull than acute; but so overpowering, that it does not admit of the head being raised from the pillow. It is sometimes a very acute pain. It is not increased by every throb of the artery, like the phlegmonic pain. Generally, it is deep-seated, like the pain attending some of the visceral inflammations; but it differs in this, that it is not increased, or rendered more frequent, by any muscular exertion. At intervals, and these sometimes regular, it darts through the centre of the brain, and the child is roused with an expression of helpless anguish from the dosing which precedes this acute pain, and into which he instantly relapses when it is gone.

Hydrocephalus resembles several of the varieties of fever, but none so much as the acute infantile remittent. The two diseases may be distinguished, among other symptoms, by these which are peculiar to the latter. 1st, The regular and complete remission. Dr. Butter (the author of an accurate description of the infantile remittent fever) refines too much when he says that there are three remissions, one in the forenoon, one in the afternoon, and one during the night. Unless in the advanced stages, and in the worst form of this fever (when, perhaps, the remission is hardly to be observed) there is one remarkable

remission generally in the morning, sometimes early in the forenoon; and the exacerbation commences late in the forenoon, or in the afternoon, and lasts till next morning, the nights being restless and delirious. 2d, Fœtid and dark brown, or mud-like stools. I must however admit, that I have once or twice, in remittent fever, found what might have been called Hydrocephalic stools —a glairy dark green discharge. A young physician cannot too much habituate himself to the variety of expression which he will find in the countenances of the sick. In going into the ward of an hospital, or approaching the bedside in the sick chamber, he ought first to try to discover the disease in the face of the patient; he thus acquires a faculty like the *tactus eruditus* of the surgeon, which is very imperfectly derived from books; which he cannot, it is true, easily communicate, but which, notwithstanding, is of sterling value. To this faculty, which gives both method and simplicity to a clinical investigation, the experienced physician owes his real and well-deserved superiority. Hydrocephalus and fever are thus often known by a glance of the eye.

I have twice attended cases of the fatal disease of the brain and its membranes, which arises in scrophulous habits from a caries of the temporal bone. There are first suppurations of the ear: these sometimes happen at the interval of many years; for this is a disease not confined to chil-

dren. These suppurations are not, in the first instance, attended with very great pain. Indeed, while the discharge of matter from the ear is free, there is little other inconvenience. At last, however, one of these attacks of suppuration is followed by extreme pain, darting from the crown of the head to the ear or mastoid process, by disorder in the stomach and bowels, stupor and palsies. As all organic diseases of the brain have a general resemblance, this, at first sight, might be mistaken for a case of Hydrocephalus; but in the examples which I have seen, the disease was much more tedious than Hydrocephalus. This scrophulous disease may be known by attending to the previous suppurations; to the pain striking through the head; the fixed pain, sometimes inflammation and swelling behind the ear; the stiffness of the jaw, which is sometimes nearly locked, and only opened with extreme pain; the inability to turn the head, and the great pain in the attempt; and the swelling of the chain of lymphatic glands of the neck. This swelling, indeed, is occasioned by other diseases of the brain; but it never arises from Hydrocephalus, although we find it accompanying that disease. In dissection, we find a considerable portion of the bone diseased, the membrane destroyed, and the brain, particularly the cerebellum, often extensively sup-

purated.* I confess that I have been somewhat embarrassed in the diagnostic between Hydrocephalus and some of the organic diseases of the brain. I had some intention of attempting the elucidation of this subject by a description of these diseases; but as most of the cases which I have seen were also attended by Mr. Charles Bell, and as they will appear to much more advantage in the important work on morbid anatomy, which has for years engaged his attention, I shall leave to him the investigation, only remarking, that where there was suppuration, there were also paroxysms of shivering, almost of a convulsive nature; and that all the other organic diseases of the brain in children which have fallen under my observation, have had a more tedious course than Hydrocephalus.

* Dexterum cerebelli lobum abscessu magnam partem corruptum vidit cel. JANUS PLANCUS Ariminensis in nobili puero, qui a suppresso puris ex aure ejusdem lateris fluxu, cui a primis usque annis obnoxius fuit, inciderat in acerrimam cephalalgiam cum febre continua acuta; ex qua intra breve temporis spatium mortem opetiit. Febris pluries intra diem exacerbatur et horrifica erat sic ut hemitritaeo similis videbatur. Accedebat subinde aphonia et trismus, sed brevi redibat loquendi potestas. Tandem paralysi non oppositi, ut moris est, sed ejusdem lateris correptus, sensibusque orbatus fato cessit. *Vid.* Burserius Institut. Med. Pract. Vol. V. § xix. Bell's Principles of Surgery, Vol. II. Part II. Title *Vomica Hypocranii.*

I have, lastly, to mention, that a train of symptoms, similar to those of Hydrocephalus, often arises from the brain, morbidly sympathizing with those parts of the system to which it is associated by an immediate connection. We know, by the phenomena of other diseases, that these are the alimentary canal, the liver, and the urinary organs;* and I have seen Hydrocephalic symptoms, arising from sympathy with a deranged state of all these organs; however, it is chiefly from a morbid state of the liver and alimentary canal, that we find the Hydrocephalic symptoms by association to arise.

I am naturally led to attend to the sympathetic connection between the abdominal viscera and the brain, not merely to establish the diagnostic, but to regulate the practice, as I am convinced that the disease of which I am treating is often fairly and incurably established by the sympathy which the brain has with these organs. It may be diffi-

* The Carus Ischuriosus Sauvages, Vol. I, p. 839, must be admitted as a proof of the sympathy of the brain with the urinary organs. That ischuria gives rise to Hydrocephalic as well as apoplectic symptoms, I have had an opportunity of seeing; and in the 3d vol. *Med. Facts and Obs. Art. I*, it is related of a boy under cure for ischuria renalis, " that his original disease (ischuria) " appeared to be completely relieved; but in the course " of a few days, he again became languid and heavy, and " I am sorry to add," says the writer, " that he died about " a month after with symptoms of Hydrocephalus."

cult absolutely to prove this. It is one of those opinions, of which there are many among physicians, pressed upon the mind by repeated observation in the course of practice, and yet liable to considerable objection. But I shall state the considerations which appear to me to render this conjecture extremely probable, after requesting the attention of the reader to the following case.

The subject of this case was a boy two years and a half old, a fat and lively child, with blue eyes, delicate and fair skin, and much neglected in his diet.

Friday, Aug. 29.—I found him flushed, with a full and thick pulse, breathing very laboriously and quickly (76 in the minute) the diaphragm, violently heaving, and the chest much raised by every inspiration. He became pale, and flushed again, as I sat by his bedside. He is quite lethargic, and sleeps with his eyes only half closed. In his sleep he starts and moans. When taken out of bed, he vomited some light green bile. He has a cough, not frequent, and it is unattended with any pain in the chest; his breath is offensive; his belly costive; his stools are dark and fœtid.

He was seized with these symptoms two nights ago. Yesterday morning he was rather relieved. He was again extremely ill all last night.

℞. P. Rad. Convolv. Jalap. gr. x.
Submuriat. Hydrarg. gr. vi. ℳ. f. Pulv. ii.

One of these powders he is to have immediately, and the other at bedtime.

Aug. 30, 4*th day.*—Yesterday evening he was exceedingly ill; the breathing more laborious than ever I saw it in a child. In addition to the powders, which were ordered to be repeated every four hours, he had a blister applied to the pit of the stomach. He had seven or eight stools, not fœtid, but dark and slimy; in one of the stools was a large lumbricus. His breathing continues very laborious, p. 120. He is flushed; still dosing, and not roused by being lifted out of bed. His tongue is much loaded. He picks his nose, and grinds his teeth.

R. Aloes Soccot. in Pulv. trit. gr. xx.
Submur. Hydrargyri, gr. xvi. ℳ. f. Pulv. iv.

One to be taken every six hours.

Evening.—Symptoms increasing; great heat of body; respiration 88; nails purple. The aloetic powders have been vomited; return to the powders formerly prescribed.

5*th day.*—His breathing continues very laborious; p. 140; his countenance is livid; his eye is heavy; his tongue white and dry. The vomiting has ceased during the night; he has had several stools, exactly such as we find in Hydrocephalus; mucus mixed with very dark bile.

6*th day.*—I did not visit him before evening. He has had no stool for 36 hours; p. 140. His

expression becomes more unfavourable. As he lies awake, he frequently grinds his teeth. The severe dyspnæ admits of a very imperfect circulation through the lungs, and causes the leaden countenance and purple lips. His belly is swelled. Omittantur Pulv.

R. Tart. Antimonii, gr. ij.
Aq. Dist. ʒ vi. ɱ.

Of this solution give a table-spoonful every hour.

7*th day.*—The nauseating solution was duly administered. He vomited two or three times, and was, during the whole night, extremely sick. After a soap glyster (injected this morning) he had one large dark green and more fœtid stool; and, since morning, he has had two more, consisting of fæces, mixed with mucus and bile. Since these evacuations he has appeared relieved, in particular, less lethargic.

9*th day.*—In the two last days he appeared to be convalescent; however, he had gained no strength. He is wonderfully feeble to-day. His hands are swelled; his tongue is dry; his skin hot. He had a restless night; often feebly tossing about his hands in restless anxiety: this restlessness continues. He has some hiccup. His stools are again scanty.

10*th day.*—He has been extremely restless and uneasy all night; flinging out his arms; vomiting every thing swallowed; starting from his sleep; constantly sighing. To-day the restlessness,

sighing, moaning, and irregular breathing, continue. His eyes are inflamed, and distil a glutinous matter; the pupil is dilated, and the cornea filmy. The face and palms are much flushed. The tongue is dry and foul, and the lips chopped. Belly costive; pulse 140, small and jarring.

℞. Pulv. Cinnam. Comp
Submur. Hydrarg. Aq. xviij. ℳ. f. Pulv. vi.

Sig.

One to be given every four hours.

11*th day*.—No stools; another restless night; p. 140; respiration quick; insensible; dosing and starting; he sighs constantly; his breath is very sickly.

12*th day*.—His friends think that he has been for these three days totally blind. His pupil is much dilated; his right cheek deeply flushed. He sighs constantly. He has had no stools; nor has he passed any urine for the last eighteen hours. His tongue is dry. Cont. Submur. Hydrarg.

13*th day*.—Since my last visit he has passed much liquid fæces, quite black, intolerably fœtid; p. 140. His eye is again expressive, the pupil contracting. He sees distinctly. He has taken some nourishment.

15*th day*.—He purged seven or eight times during the night. The stools are fœtid, and dark green. The mouth is aphthous. He is extremely weak; but he now takes enough of nourishment.

18*th day*.—I found this boy amusing himself, still extremely languid, but daily convalescing. His stools are quite natural.

I would observe in this, which is a case of acute remittent fever, among other alarming symptoms, lethargy, brought on solely by a disordered state of the abdominal viscera. When the cathartic medicines failed to alter the nature of the stools, and indeed to procure any discharge, by substituting the nauseating solution, the bile was poured out in sufficient quantity to stimulate the bowels, and the comatose state subsided. The viscera again became torpid, alarming Hydrocephalic symptoms came on, and, had I been ignorant of the previous history, I might have thought the child in the last stage of Hydrocephalus; as it was, I had almost lost hope of his recovery. The dark stools, however, were thrown off (whether by the calomel I shall not say); a proof that the functions of the viscera were resumed; and the child quickly regained his health. I have seen many such cases, some of which I could have added, but this one is sufficient for my purpose.

1. Cases* less acute must have occurred to

* Case communicated by a friend.—"Christie Mac "Lean, a girl about nine years old, complained of head-

every physician in extensive practice, of children, especially in the lower ranks of life, relieved by a short course of active purgative medicines, from a situation in which much of the expression and many of the symptoms of Hydrocephalus were combined—irregular fever, retching, headache, lethargy to a great extent; symptoms evidently arising from a disordered state of the abdominal viscera.*

" ache in the evening; her mother bathed her feet, and " put her to bed. She soon fell asleep, and no notice " was taken of her till next morning. She was still " asleep, and her mother became alarmed when she found " she could not awaken her. I saw her about noon " sleeping profoundly, respiring fully and slowly, with " now and then a heavy sigh or moan: the pulse 100, " and intermitting. When the eyelids were lifted up, " the eye appeared fixed, and the pupil large and im- " moveable. The flame of a candle excited indeed a " slow, feeble, and undulating contraction. I was inform- " ed that she had been extremely costive, and what her " mother called *drooping*, for some days; and that, two " days ago, she had taken a dose of senna without effect. " I ordered a purgative injection to be given immedi- " ately, which evacuated her bowels twice. She was " soon after so far roused as to swallow a bolus of jalap " and calomel. It also operated powerfully; and next " morning I was presented with two chamber pots load- " ed with the most extraordinary collection of fæces I " ever saw. But my patient was perfectly recovered."

* Nay, it would appear that Hydrocephalic symptoms arising from sympathy with disordered digestive organs,

2. In many cases, previously to the appearance of the Hydrocephalic symptoms, the chylopoetic viscera have been disordered for many weeks. The appetite has been bad; the bowels costive, the stools betraying disorder in the hepatic system; there has been all that want of alacrity, both of body and mind, so invariably the consequence of the derangement of the biliary secretion: and in several children, previous to the existence of any morbid sensation, the first symptom of ill health was the loss of the healthy colour of the skin.

3. In children predisposed to the disease, I have, while removing, by a course of purgative medicines, a vitiated biliary secretion and disordered state of the bowels, removed also the very symptoms which had presented themselves in other children of the same family, when the attacks of a Hydrocephalus, which actually proved fatal, were supposed to have been established.

4. In children where I did not know of any family predisposition, I have, by the same means, in many instances, removed the symptoms which

and existing without any change of structure in the brain, are sometimes fatal. Mr. Abernethy examined the body of a child who had unequivocal symptoms of Hydrocephalus, in which the brain was found perfectly healthy, the only diseased appearance being in the bowels. Vid. *Surgical Observations, part.* ii, *p.* 193.

are always found in the beginning of Hydrocephalus.

5. In some cases, I have found that children under Hydrocephalus, early in the disease, when the region of the liver has been handled, have complained much more than they did when the same pressure was applied to any other part of the abdomen.

6. Upon dissection of Hydrocephalic children, I have found in the liver the remains of great inflammatory action, and also proofs that undue irritation had existed in the alimentary canal.

In a former essay, I endeavoured to enforce the necessity of observing more attentively the connections of the liver, in order fully to comprehend some of the most important diseases of infancy, and I am induced to recal the attention of my readers to the derangement of this important organ.

The increased arterial action on the surface of the liver, the remains of which I have observed in my dissections, to every appearance, had been of some standing, and in two or three instances, from the extent of the adhesions, it evidently had been of great intensity.

While the disease is forming, there is generally a defect in the function of the liver. It seems to admit of only a scanty and imperfect formation of the bile, insufficient to stimulate the intestinal

canal, which becomes torpid, and is sometimes loaded with fœtid clay-coloured excrement. This state of the canal, in conjunction with the disordered condition of the liver, is perhaps one cause of the dyspeptic symptoms which are almost invariably present in the beginning of Hydrocephalus, although it is not to be denied that the vomiting in the more advanced stages of the disorder, is more naturally explained (according to Dr. Whytt) by the stomach sympathizing with the diseased state of the brain.

When Hydrocephalus is established, the stools, although small in quantity, contain an unusual proportion of bile. Indeed they appear to be solely a mixture of dark bile, and of the mucus of the intestines; but the state of the bowels shows that this bile is an imperfect secretion, and insufficient to stimulate the canal; and this, I apprehend, is in a great measure the explanation of the torpor of the intestines, not that in this stage of the disease they are slow from paralysis.

In some constitutions of greater irritability, there is a continual vomiting and purging of bile. Here the very irritable state of the stomach overcomes the condition of the liver proper to the disease, and by reflected sympathy, if I may use the expression, forces it to pour out an increased secretion.

Vertigo occasions a flux of bile into the stomach, and consequent sickness and vomiting, as may be seen in sickness from swinging, or in seasickness, and in cases of sickness from vertigo, originating in organic diseases of the brain. Injuries of the brain have often been succeeded by abscesses of the liver, &c. On the other hand, there are many instances of apoplexy succeeding to jaundice; and ingenious physicians have thought that sudden death in gouty persons, has been occasioned by metastasis from the liver to the brain;* or, in other words, by sympathy which the brain has with a torpid state of the

* Dr. Powel, in the Gulstonian lecture for 1800, p. 83, says, that, in a short time, he had met two cases, where a jaundice of some continuance was followed by a decided apoplexy and death. I very lately visited a woman who was seized with palsy of the right side, loss of speech, &c.; and in two days after seizure she died apoplectic. She had been ailing for seven or eight months; for the last four she had anasarca of the lower extremities, and ascites; and, from her habits of life, and indeed from every consideration, I had long considered her liver as the primary seat of the disease. This woman was past the middle of life; Dr. Powel's patients were both young. Cases of apoplexy, with jaundice and other diseases of the liver, are not rare. Baglivi, Dissert. iii, de Bilis Natura, p. 433, oper. Morgagni, Epist. xxxvii. Powel's Observations on the Bile and its Diseases, &c. loc. cit. Consult also the Sepulchretum, lib. iii, sect. xviii, obs. 6, *et seq.*

liver. In the bodies of apoplectic patients, the liver is often found greatly diseased. Thus, in other diseases, the reciprocal sympathy between the liver and brain is immediate. It would be quite unnecessary to adduce many examples of the sympathy between the brain and the alimentary canal; they must be in the recollection of every reader.*

* One afternoon, not long ago, I received a hurried message to come to a child who was said to have swallowed poison. I found a fine child, about three years of age, in great agony. He had, about an hour after taking a hearty dinner of broth, &c. come in from play, thirsty, and taken hold of a bottle, thinking to get a draught of table beer; the bottle, however, was one in which was kept, for cleansing dirty bottles, concentrated caustic alkali, which had been procured from the soap manufactory. Of this he took one mouthful: the servant, who was in the cellar when he ran in, declared he took no more. I found his mouth dreadfully burned; but the greatest distress was in his stomach. He was sitting, when I entered the room, with his hand pressed upon his stomach, pale and sunk.

In the night after the accident he slept much; but he frequently awoke uneasy and thirsty, and he vomited several times.

Next day he salivated, without ceasing, a very ropy colourless fluid; his pulse was 160; he had subsultus, flushed face, hissing inspiration; and he was in a state approaching to *perfect stupor*. He opened his eyes now and then; but he was incapable of attending to what was passing. When, with great difficulty, shaking him,

I am not prepared to frame rules by which we may decide when the symptoms arise from the morbid sympathy between the brain and a deranged state of the liver or the intestines, or when it originates from the disordered state of the brain, unconnected with any distant organ. This investigation is important, but not easily prosecuted; perhaps future obervation may prove that we shall not be wrong to trace the disease to the organ which first has its functions sensibly impaired; in a great many cases it has appeared to

and talking loud, he was somewhat roused, he appeared oppressed with the greatest anxiety.

On the second day after the accident, his expression was improved; he looked up; he still had great fever; his breath was extremely sickly and offensive; his mouth appeared one aphthous sore.

It was not before the fourth day after the accident that a stool was procured. After this, for several days, the stools were pale, firm, and mixed with grumous blood. The child was treated with diluents, copious bleeding, particularly from the temples, blisters to the stomach, laxative glysters, &c. His mouth was sore for three weeks; his health not fully restored for a long time. Indeed this accident laid the foundation of another disease, viz swelling of the lymphatic glands of the neck.

Some years ago I was sent for to a child who had, by the same mistake, swallowed soap-ley. But his stomach being empty, he died within twenty-four hours apoplectic. The stomach was corrugated like a piece of burnt parchment.

me that the series of diseased actions has commenced with the disordered state of the abdominal viscera. To this, it is not a sufficient objection to say, that the symptoms denoting a morbid state of the abdominal viscera, are apparently of inferior importance to those which indicate a disorder of the brain; for it should be recollected, that it is a law in morbid sympathy, that the diseased sympathy apparently bears no proportion to the diseased action. Contenting myself with having, in this imperfect sketch, connected the appearances, upon dissection, with the disordered function of the liver, as we find it early in Hydrocephalus, and with attempting to give importance to these circumstances, for the present, I shall relinquish the subject. The consideration of it, however, has made me adopt a practice which is supported by cases, and, I am happy to discover, by the observations of experienced physicians.*

* The following paragraphs I shall make no apology for transcribing The last I read with great satisfaction, as it confirms what I had written, and perfectly agrees with the result of my practice for some years. In the intercourse of private practice, I have long been accustomed to respect the author's observations, and to value his friendship It is needless to say that he is a physician of distinguished candour and eminence.

" This much is known, that Hydrocephalus often " steals slowly on the devoted victim, with symptoms

Non interest quid morbum faciat sed quid tollat. Unfortunately this, which was the favourite

" resembling those of incipient marasmus. Till some " better theory is established, it is not unreasonable to " suppose, that the marasmus of which I have treated, " may, on some occasions, give rise to Hydrocephalus, " by impairing the vigour of the constitution, and fa- " vouring serous effusion in the ventricles of the brain.

" This conjecture merits the greater attention, on this " account, that the symptoms of Hydrocephalus resem- " ble those of incipient, and even of confirmed maras- " mus, and have been removed by the diligent exhibi- " tion of purgative medicines. The truth of this obser- " vation has been repeatedly confirmed in my private " practice, and it affords an additional reason for the ex- " ercise of watchful attention, to prevent the confirmed " state of marasmus, which may, in more instances than " we are aware of, have been the forerunner of Hydro- " cephalus." *Observations on the utility and administration " of Purgative Medicines*, by James Hamilton, M. D.

A very respectable physician, the late Dr. Haliday of Belfast, relates, that " the son of Mr.——— had the " most evident symptoms of this disease: vomiting in " the beginning, perpetual stupor afterwards, with a " slow pulse and respiration, pupils astonishingly dila- " ted, and a total loss of vision; yet he emerged. His " head was blistered, and cataplasms were laid to the " feet, *and he was largely purged with jalap and calomel.* " He is now perfectly well." This communication will be found in *Macbride's Methodical Introduction to the Theory and Practice of Medicine.* Dr Macbride adds, that " he himself once had the care of a boy with similar " symptoms, who escaped, after *violent purging, by means " of calomel and resin of jalap.*"

saying with the ancient empirics, cannot be made to apply to the disease in question. In the confirmed stages, and often from the very first of this disease, the practice is as unsuccessful as the causes and explanations are obscure and unsatisfactory. The observations which I have to make, however little they may advance the cause in which I am embarked, arise from a feeling, that it is only in an improved, or rather corrected explanation of the symptoms, that we are to expect the true practice to be properly established.

I have accidentally mentioned Dr. Whytt's way of accounting for the retching in the beginning of Hydrocephalus. There is a section of his paper, entitled, "an attempt to account for "some of the most remarkable symptoms attend-"ing a dropsy in the brain," which I shall briefly analyse. The inclination to vomit is explained by the sympathy which the stomach has with the disordered state of the brain: the aversion to light by the increased sensibility of the retina: the slow irregular pulse, in the second stage, by the defective sensibility of the cardiac nerves, in consequence of a general want of nervous energy. The quick pulse, in the third stage, is said to arise from the violence done to the medullary fibres of the brain, causing such an irritation as must quicken the pulse: the dilatation of the pupil, from the insensibility of the retina; the apo-

plectic breathing, from the compression of the brain. This, he supposes, prevents the uneasy sensation occasioned by the accumulation of blood in the lungs from being so soon felt; so that the inspiration is not made until there is a sense of suffocation in the breast.

I have dissected the brain of a woman who died of apoplexy, in which there was no appearance of disease. Numerous references to similar dissections, in the writings of physicians both of the present and of the last age, might be produced;* and idiopathic epilepsy sometimes terminates fatally, without leaving any apparently diseased change in the brain. That a state of danger, prior to any change in the structure of the organ, or even to increased vascular action, as discoverable by dissection, often exists in Hydrocephalus, as well as in other diseases of the brain, is highly probable; nay, in one child who died of Hydrocephalus (foot-note. p. 45,) the dissection put it past a doubt. The brain was perfectly healthy in appearance, the disease being in the bowels. The symptoms, therefore, must have arisen from a sympathetically excited state

* Morgagni, Kirkland, Burserius, Abernethy. Some of the papers written in aid of Mr. Crowfoot, in the controversy on apoplexy, may be consulted, in particular, the ingenious paper signed Pyrrho, London Med. & Phys. Journal, vol. vii.

of the brain, or from a change in the structure of the brain, which the most skilful anatomist is unable to discover.

Were there no other foundation, we might infer from the headache, which has been observed before the regular formation of the disease, that this state of excitement, in many cases, precedes increased vascular action. This excitement takes place before we find the pulse quickened and the sensibility increased. These, however, are soon added, and, doubtless, arise from the increased vascular action in the brain, and show that the headache is no longer merely a sympathetic pain. The increased vascular action explains most of the symptoms of the first stage.

The most striking symptom of the second stage is the affection of the eyes—the squinting and double vision. Of these I would venture the following explanation. There are four straight muscles of the eye, sufficient for every change in its direction; these are under the command of the will. To poise and preserve the eye in its situation, the oblique muscles pull against the recti; but these not being necessary to direct the eye, are, like other merely antagonising muscles, not under the command of the will. The effect of loss of sensibility falls, in all parts of the body, first on those muscles which are under the direction of the will. The recti lose their power

sooner than the obliqui; so that the obliqui, obtaining a preponderance over the recti, turn the eye from its proper axis, and occasion squinting; and as the rays of light no longer strike on corresponding parts of the retina, we have also double vision. These derangements in vision are not confined to this disease; they are found in all diseases where there is general debility of the muscles, from effusion in the brain, in tubercles or suppuration in the brain. This is even exemplified in the end of fevers, where the squinting goes as the strength returns.

In the last stage of Hydrocephalus, the whole system is again excited, from "the injury sustained by the substance of the brain."*

The quick pulse before death arises from the great effort made to keep the machine in motion. "The pulse is rapid from the struggle;" but, from the loss of the sensibility of the substance of the brain, the vascular action does not arise to a great height; hence the pulse, though rapid, is small and thready.

In the dissection of the brain after Hydrocephalus, the most striking appearance is the fluid contained in the ventricles; but, in reasoning on the immediate causes of the symptoms, the importance of this effusion appears to me to be overrated. What is only an effect, a mere

* Whytt.

symptom, is assumed as the cause of all the symptoms.

It requires but a very limited knowledge of pathology to render it obvious that this disease is not a dropsy (as supposed by Dr. Fothergill) produced by a ruptured lymphatic: or by any original weakness or laxity of the brain, whereby the small exhalent arteries will throw out the lymph faster than the absorbent vessels can imbibe it; or by a too thin and watery state of the blood; suppositions of Dr. Whytt. Perhaps there does not exist a dropsy of this kind—an idiopathic dropsy. My notion of dropsy is nearly conveyed in this aphorism of the venerable Heberden: "*Hydrops "non tam ipse morbus est quam alicujus morbi "signum.*" It is obvious, that, before the dropsical effusion takes place, the condition of the part, as it exists in health, must be altered; and this antecedent condition of the part is the disease. Accelerated circulation as certainly precedes the effusion of lymph, unless arising from a strangulation or rupture of the lymphatic, as it does the formation of purulent matter. Indeed it would be difficult to point out a disease which has not its commencement in accelerated circulation. The science must be in a very improved state before all the different modifications of increased vascular action be understood. In Hydrocephalus I do not pretend to offer any explanation of its pecu-

liarities, yet I am inclined to think that the morbid action in the brain is specific. It certainly appears to me different from all those actions to which it has been assimilated. This, however, I may safely affirm, that, in the effusion into the ventricles there is nothing at variance with the uniform effects of disease, nothing different from the effusion into other cavities of the body, arising from a diseased condition of the contained viscera, or their investing membranes.

Dr. Quin says, that Hydrocephalus "owes its "origin to a morbid accumulation of the blood "in the vessels of the brain, sometimes proceeding to a degree of inflammation, and generally "(but not always) producing an extravasation of "watery fluid before death."

I do not mean to detract from the merit of this ingenious physician, who rectified the error (which rested on the authority of Whytt and Fothergill) that this disease was a dropsy of the brain; and who has done much towards the present improved treatment of the disease. Still I am afraid I must differ from him, in limine. I am not disposed to cavil where inaccuracy is merely in the mode of expression; but in the present instance, the explanation appears to arise from a view of the subject not sufficiently clear to serve as the basis of reasoning and practice.

There must be an active before there is a passive state. There certainly is some change prior to the morbid accumulation of blood. Inflammation does not adequately express this altered state; yet Dr. Quin's view to me were less exceptionable had it been thus announced. That this disease owes its origin to a degree of inflammation which produces a morbid accumulation of blood, and generally an extravasation of watery fluid before death.

I would venture to submit the following as a more consistent view of the pathology of Hydrocephalus. That, in this disease, there is produced a venous congestion, in addition to, and probably arising from, the increased arterial action: that the effusion of serous fluid arises from this venous congestion: that this effusion has a tendency to counteract the baleful effects of the increased action, and to retard the fatal termination of the disease; of course, that the effusion into the ventricles is not the cause of the violent symptoms;* and that the increased arterial action, though perhaps varied, does not cease

* "It appears to me even doubtful whether the symptoms which generally show themselves in this disease depend upon the effused fluids." Remarks on a case of Apoplexia Hydrocephalica, by Dr. Garnet, *Med. and Physical Journal, vol.* v. This short paper appears to me one of the most valuable which has been written on the subject.

when the congestion and effusion have taken place.

Dr. Darwin imputes the fluid found in the ventricles to a debility of the absorbents. But this debility, as I conceive, will perpetuate rather than cause the effusion of serous fluids. This is little better than to return to the exploded opinion of Dr. Whytt.

Dropsy, I suspect, never appears before the balance which in perfect health exists between the venous and arterial systems is lost, by the inordinate action of the latter. Serous effusion is one of a long list of evils arising from venous debility. After a certain time, by the laws of our constitution, without any palpable disease, the balance in the circulation is lost. This, indeed, is slowly developed; but, after the prime of life, every year takes something from the vigorous action of the veins, admitting more and more of congestion in this system of vessels. It is this venous plethora which is prematurely effected by excess of stimulus. Compare with the arterial preponderance, the vermillion fullness of youth, the livid and bloated countenance of the habitual drunkard; here the tortuous and dilated veins may show us how imperfectly their absorbing function is performed; and their weakness is as distinctly, although less strikingly demonstrated, in the effusion into the ventricles, and upon the

surface of the brain, in those who have been long paralytic and infirm, as when it is produced by a more rapid process, by the Hydrocephalic action; yet in neither case is the effusion itself, I apprehend, productive of harm. In age, when, like every other part, the brain is absorbed, it may act a very important part.*

I imagine that the stage of torpor commences with the congestion in the system of the veins. In the early part of the disease, when there is only arterial action, we find irregularity in the excitement; but the prevailing state is of increased ir-

* To infarction in the veins of the abdominal viscera much has been attributed by the German physicians. Kaempff, who published a dissertation in support of this hypothesis, entitled, *De infarctu vasorum ventriculi*, imagines, that from this source are derived not only many abdominal diseases, as hypochondriasis, dyspepsia, mælena, hysteria, and many of the uterine diseases, but also more distant affections, headaches, apoplexies, epilepsy, asthma, in short, the whole circle of disease. Much has been ingeniously written on this subject, as any one who will take the trouble of consulting the papers of Kaempff, Koch, Elvert, Faber, Brothbeck, Tissot, &c. will find. The doctrine of these physicians is obscured by the prevailing opinions of the period when their dissertations were written; yet their hypothesis, "of the blood circulating in veins so weakened as to be "unable to push it forward with sufficient vigour, being "a great cause of disease," is as respectable as some which have more recently usurped its place in the medical schools.

ritability. While only the one system of vessels is affected, we may expect symptoms as in an irritative disease; but, in an incompressible viscus, when, along with increased arterial action, there is also venous congestion, the prevailing state is that of inirritability; oppression must ensue in all the vital functions; there is irregularity in the breathing and in the pulse, which is also slow and labouring.

I have met with a case of Hydrocephalus, where the child died in consequence of the diseased state of the brain; yet, after death, no effusion was discovered in the ventricles.* The dis-

* Dr. Quin found no fluid in the dissection of some bodies, when there existed every symptom of Hydrocephalus Instances are given by authors, where the disease early terminated fatally before there was effusion. The following case I owe to an ingenious and learned friend.

" The most acute case of Hydrocephalus I ever attend-
" ed, was that of Captain W—'s child, a boy in his fifth
" year. He died within eight days after the first sensible
" illness, and was confined to bed only four days. The
" progress of the disease, although rapid, was regular,
" the three stages of Dr. Whytt being well marked. He
" died at length convulsed. The head was opened. The
" ventricles contained not more than a table-spoonful of
" watery fluid; but the brain was so turgid, that when
" the bones were sawn fairly round, the section was thrust
" up half an inch by the sudden and forcible protrusion
" of the cerebrum. Not only the veins of the pia mater

ease was strictly the acute Hydrocephalus; it was indeed an extreme case of the disease, where the excitability was suddenly exhausted by the violence of the attack. When, as in this case, the child dies early in the disease, with every symptom of accelerated arterial action, but before the subsequent congestion has existed for any length of time, the dissection will never afford much effusion. When, on the contrary, the patient long survives the slow pulse, and when, from the continuance of the disease, we have reason to think that the congestion has existed for a considerable time, then we find a large effusion. In such cases, I have discovered, within the head, little appearance of increased arterial action, as marked by the tissue of minute and florid vessels. This stage of the disease was over; yet the effects of inflammation abundantly appeared in the thickening and greater adhesion of the membranes; in the great congestion; and indeed, from the pain, suffusion of the eye, &c. we cannot doubt that it exists to the last.

The great pain, pyrexia, convulsions, and suffused eye, cannot be derived from a small quantity of a mild fluid in the ventricles. Do we not

" were loaded with blood in a very remarkable degree;
" the medullary substance of the brain was finely dotted
" with numerous red points, and the cortical substance
" streaked with pencils of red parallel lines."

find immense quantities of fluid, of exactly the same nature, collected in the brain, without any bad symptoms. Persons have lived under chronic Hydrocephalus, after the ventricles were distended with twenty pounds of fluid.* I have, in three instances of acute Hydrocephalus, after the child had been delirious, convulsed, and blind, seen him recover the use of his understanding, and, what was less to be expected, of his sight. Now the effusion must have begun long before this period, and therefore cannot be held as the cause of the suspension of the animal functions. It is the morbid action of the blood-vessels wasting the brain, and unfitting it for its functions, which destroys the child; and I think it no rash opinion, that death would occur earlier in the disease, did not the fluid exude, and thus continue to the brain the necessary degree of support from within, which would have been lost by the wasting of the organ.†

* For ample information of chronic Hydrocephalus, see in the 2d vol. of Sandifort, a paper, entitled, *J. H. Gaudelii Dissertatio de Hydrocephalo.* The following is the character of this thesis justly given by the editor: Ex præcipuis scriptoribus, qui hoc argumentum pertractarunt omnia quæ illud illustrare possunt, sedulo collegit, et in brevem lectu dignissimam, epitomen redegit.

† Some ingenious remarks on this subject will be found in Bell's Anatomy of the Human Body. vol. iii, p. 73, *et seq.*

It is curious to meet this opinion in the writings of the ingenious and acute opponent of Haller: "That the whole symptoms of this disease "proceed from different degrees of the same "cause, viz. the pressure or distension of the "parts of the brain, occasioned by the water con-"tained in the ventricles." It is from the circulation being loaded, and not from the substance of the brain being compressed, that the symptoms of what is usually called compression arise. Even were the brain compressible, which the best physiologists deny, there is a striking proof that, in this disease, it is not compressed. The veins always appear remarkably turgid. Had there been pressure within the head, they would, upon dissection, be found empty and flaccid. I admit that there is tension; but this appears necessary to life: remove this tension and asphyxia will follow. Dr. Whytt might have recollected many instances of death following the rash removal of this tension. What is the result of tapping the brain in chronic Hydrocephalus? This operation, which has often been performed by ignorant men, is generally almost immediately productive of fatal consequences.

Could we suspend the diseased action, after the effusion even of a considerable quantity of fluid into the ventricles of the brain, provided the structure of the brain were not injured, I rather

think we should find little irregularity or defect in the functions of the body; for, upon dissection, quantities of effused fluid have been found in the ventricles, when no complaint of pain in the head, or symptom denoting an oppressed brain, had existed before death. Maniacal patients, in whose ventricles many ounces of fluid have been found, have died without evincing any Hydrocephalic symptoms, or symptoms of oppression.* Fluid is to be found in the ventricles, wherever the substance of the brain has been absorbed in consequence of increased action, from whatever cause. In dissecting patients who have died of a scrophulous disease of the brain, of firm tubercles called schirrus of the brain, of suppura-

* Whether symptoms of oppression had or had not existed in maniacal cases, effusion is one of the most uniform appearances that is met in dissection. In six out of thirteen maniacal dissections, described by Morgagni, fluid was found in the ventricles. See *Arnold on Insanity*, vol. i, p. 278. The physician to St. Luke's, Dr Simmons, says, that he has found effusion in a large proportion of the maniacal cases which it had fallen to his lot to examine. *Lond Med Journal* for 1785, p. 159. Of twenty-six epileptic maniacs, there were thirteen in whom both ventricles were quite distended with fluid, and five others in whom these cavities were full. Of twenty-four melancholic patients, there were ten in whom both ventricles were found astonishingly distended with water, and four in whom they were quite full. *Medical Aphorisms on Melancholy*, &c. by J. Ernest Greding. See Appendix to Crichton on Insanity.

tion from a diseased bone, of the consequences of trepan, I have found effusion to a great extent. There is scarcely an organic disease of the brain which is not accompanied by effusion. The opinion that effusion into the ventricles of the brain is not necessarily destructive, is also supported by the appearances sometimes found in the dissection of apoplectic patients. Cavities of a large size, containing fluid, the effect of a former attack, have been found in the substance of the brain, and the person has enjoyed good health between the first and the fatal attack. And we are not left without the aid of observation; for cases are recorded where Hydrocephalus has abated, after the appearance of those symptoms which may be considered as indicating water already effused.*

Dr. Cullen has considered this disease as a variety of apoplexy. I am inclined to doubt the

* In explaining the nature of the cavities containing a serous fluid, which are sometimes found in the substance of the brain, Dr. Baillie observes, "they would "appear to be the remains of the cavities formed by ex- "travasated blood in cases of apoplexy, when the patients "have not been cut off immediately, but have lived af- "terwards for some months or years. The extravasated "blood would seem in such places, to be dissolved and "taken up by absorption; but the injury is not repaired, "and a cavity remains filled with serous fluids." App. to chap. xxiv. Morbid Anatomy. This would show, if the explanation be just, that effusion is the remedy which nature provides for absorption within the cranium.

propriety of this collocation, for there appears to be little affinity between the two diseases. Age, indolence, and intemperance, lead to apoplexy; in their predisposing causes no two diseases can be more strongly contrasted. I believe Hydrocephalus was never known to arise from any one of the many occasional causes of apoplexy mentioned by Dr. Cullen; and as to the proximate cause of Hydrocephalus, I have indeed given a very erroneous view, if it be the same with the proximate cause, according to Dr. Cullen, of apoplexy, viz. "some compression of the rigin "of the nerves." The attack in apoplexy is momentary, in Hydrocephalus it is sometimes protracted; and when the diseases are established, there is as little resemblance in the symptoms as in the mode of attack.

Although I derive all the bad symptoms from the morbid state of the circulation in the brain, I am equally far from thinking that this resembles that which takes place in phrenitis.* We must

* Of three children of one family who died of Hydrocephalus, the two last had the disease in a singular way. Of the case of the last I have preserved a note. In the beginning there was sickness and costiveness, no pain in the head, great languor; after a purge, which occasioned some tarry stools, the boy was for some time relieved. He again became languid, and dosed for several days. Then convulsions came on. There was no expression of pain, nor direct appearance of increased circulation in

again apply the same test, and compare the causes, symptoms, and in particular the morbid

the head from the beginning, nor indeed till within thirty-six hours of death, when the convulsions came on.

Phrenitis is a disease scarcely seen in this country. The only case of which, in thirteen years of full practice, I have seen, I shall oppose to this note, more forcibly to show how distinct in character it is from Hydrocephalus. The occasional cause of this phrenitic attack was powerful; the predisposition had been established by a former attack, arising from exposure to a tropical sun.

In August 1801, I was sent for, late one evening, after an oppressively warm day, to visit a poor man who was represented as in extreme danger. I was conducted to a small garret, to which I ascended by a trap-stair. In this small low-roofed room every air hole was shut; and it was filled with the officious women who lived in the neighbourhood. The object of their curiosity was a young man, full and sanguine, who lay in the corner of the floor, under the sloping roof. Until I got the hatch in the roof thrown back, and the room cleared, I was actually gasping for want of air This young man, who had been a soldier, is now a tobacco-pipe maker. He was quite well in the morning, and spent the greater part of the day at the oven where the pipes are baked. In the afternoon, he was seized with a most racking pain, which darted through his head, with a weariness in his hams, and pain in all his bones and joints. The pain in his head, in a short time, became intolerable, and he has been howling from the intensity of it. His countenance is inflamed; his eye full and bloodshot; his skin is burning hot; his pulse quick and bounding; his breathing diffi-

changes produced by the two diseases. Now, in all these points, the view which Dr. Rush has taken appears erroneous. Granting even that, in the main, he were right in his opinion, it is certainly objectionable both in perspicuity and in simplicity.

Dr. Rush observes, that the disease in its first stage is the effect of causes which produce a less degree of that inflammation which constitutes phrenitis; and that its second stage is the effect of a less degree of that effusion which produces serous apoplexy in adults. I have taken the liberty, he adds, of calling the former stage phre-

cult, from the tightness across his breast. He is very irritable, but quite unable to command his attention.

This is a man of temperate habits, who had taken no intoxicating liquors. His wife knew no cause for his illness, but the heat of the day and of his work. He was wounded while campaigning in the Mysore; and, during his recovery from his wounds, he sustained a similar, although less violent attack. Upon being largely bled he was relieved; but the attack prolonged his recovery from his wounds.

I had the bed removed into the middle of the room, and bled him freely. I introduced as much air as possible into the room, and left him almost naked. I ordered him 10 gr. of jalap and of calomel.

In the morning he was much relieved; the relief followed the bleeding; he became almost immediately tranquil. The attack was much more severe than that which he had sustained in India; the relief more immediate.

nicula, from its being a diminutive species or state of phrenitis; for the second stage, I have preferred the name of chronic apoplexy.

Are we to understand that the same causes, operating less powerfully than they do when they occasion phrenitis, will occasion Hydrocephalus? This is not what is expressed; but I rather think it is intended. If it is not, I am at a loss to know what those causes really are which produce a less degree of that inflammation which constitutes phrenitis. The exciting causes of phrenitis, we all know, are excess in wine, external violence, insolation, indulgence in the more violent passions, or indeed excess in any kind of mental exertion. Now children are not subjected to the influence of any of these causes, if we except external violence.* To this, indeed, they are

* The causes which act directly on the brain, Dr. Rush says, are falls and bruises on the head, certain positions of the body, and childish plays, which bring on congestion or inflammation, and afterwards an effusion of water in the brain. The indirect causes are, 1, intermitting, remitting, and continual fevers; 2, the rheumatism; 3, the pulmonary consumption; 4, eruptive fevers; 5, worms; 6, the cholic, palsy, melancholy, dysentery, dentition, insolation, scrophula. In the four first heads, we may consider the disease as from conversion. In the fifth, I suppose the Hydrocephalic symptoms are originally by consent. In the last head, insolation might be considered rather as a direct cause. I cannot account

abundantly exposed; and being stated by Dr. Rush, in another part of his paper, as a direct or exciting cause of Hydrocephalus, I shall make some observations on this part of his doctrine.

With extensive opportunities of seeing Hydrocephalus, I have not met one instance of its having been directly, and I believe only one where it was indirectly, occasioned by external violence. In three cases which I attended, the disease was said to have been occasioned by accidents. In two of them, there was an interval of nearly two months of perfect health: in these, therefore, the accident, as an exciting cause, must go for nothing. In the third case, it is noted, that about ten weeks before the boy died, while at play, he had a severe fall upon his head. The scar of a wound on the upper and middle of his forehead still continues, about an inch long. Some days after this fall, he began to complain of pain in his head; but having a severe cold, the headache was supposed to arise from the troublesome cough. The child continued now and then complaining of his head, and coughing; declining, but almost insensibly, until the eighth week after the accident, when he could no longer go about;

for cholic, palsy, melancholy, dysentery, dentition, becoming indirect causes, in any other way than by their inducing a state of general bad health, which appears to be the most general predisposing cause of any.

and his friends became alarmed, &c. This is the only case in upwards of 100 which I have attended that can with any probability be ascribed to external violence; and I would observe, even in this, that due attention ought to be paid to an obstinate catarrh, as more likely to impair the general health of the child, and to predispose to Hydrocephalus, than even the accident.

Sometimes, in a short time after an accident, there has been observed, as in this case, a drooping state, long before the brain is palpably affected. I do not mean to affirm, that injuries of the head never give rise to Hydrocephalus; all I contend for is, that when they do, it is only intermediately, by inducing this asthenic state, or by calling into play what, from a good and fortunate management, had hitherto been latent; I mean a scrophulous condition of the system,* which I have repeatedly seen to follow a severe accident, and which wonderfully favours the establishment of Hydrocephalus.

* This Sauvages has noticed in more places than one. *Vid. tom.* i, p. 576, Eclampsia ab Hydrocephalo. "Accidit infantibus trium, quatuor quinque annorum, "maxime, illis qui scrophuloso viru sunt infecti, quorum mesenterium glandulis duris est obsitum." I have already quoted what he has said under the head of Convulsio ab Hydrocephalo, t. i, p. 553. What Ludwig has said is even stronger. "Tamen habitum scrophulosum forte habere vim prædisponendi, &c."

From the causes of Hydrocephalus, a subject exceedingly obscure, Dr. Rush proceeds to the morbid effects of the disease upon the brain. He affirms, that the two diseases differ only in degree: that Hydrocephalus is only a diminutive species of phrenitis; and in calling the former phrenicula, he is followed by later writers. So far indeed has this view prevailed, that the disease, undergoing another change of name, has been called Hydrocephalus Phreniticus; and this name is adopted, even in the Edinburgh university.

Now it ought to be recollected, that Hydrocephalus scarcely ever affects the adult, and phrenzy as seldom occurs in childhood. They are diseases of different conditions of the brain, the nascent and adult state of the organ. Phrenzy is an endemic disease. Hydrocephalus, I should suppose to be a very general disease, at least it prevails in very different climates, both in the new and the old world. Hydrocephalus I have oftener seen in children with dark eyes and complexion; phrenitis is the disease of the sanguine and choleric. All this should imply something very different in the essence of the two diseases. Hydrocephalus often indeed appears in children who were previously healthy; yet, as I have already remarked, it is in strumous constitutions, such as are but little susceptible of the phlegmonic inflammation, that we meet with most fre-

quent instances of the disease: it often, too, succeeds imperfect recovery from fevers, particularly of the eruptive kind, and attends the debility which follows many infantine diseases. If it be maintained, that the cachectic state which follows an injury of the head, arises from the commencing affection of the brain, this, it must be allowed, evinces a very chronic disease, and one differing widely from phrenzy, which is among the most sudden to which our frame is liable. Lastly, it ought to be recollected, that, in Hydrocephalus, the centre of the brain is the part chiefly affected; at least, in most cases, we find the effusion on the surface of the brain bearing no porportion to that in the ventricles, and the cortical part of the brain sound, while the central parts are broken and dissolved; whereas the effects of phrenitis are more superficial * being

* When a blow on the head is fatal, not by injuring the skull, exciting extravasation, or causing concussion, but by directly inducing inflammation, this inflammation would seem to be phrenitic, not merely by the rapidity of its course, and the violence of its symptoms, but in affecting the surface rather than the centre of the brain. I offer this case in explanation.

On the 15th May, a carter, about 30 years of age, tall and athletic, was knocked down by a stone striking him on the back part of the head. The wound was trifling; it was situate at the lower and back part of the parietal bone; but he lay senseless for some time after

sometimes apparently confined to the membranes on the other side. The assertion of Dr. Rush,

receiving the blow, and, on recovering, was much affected with nausea; and, from the first, he complained of severe pain in his head all about the wound.

On the 16th, after a sleepless night, he was found complaining of pain and nausea, vomiting whatever he drank, his tongue becoming foul. He had a cathartic, which operated briskly.

17th. The symptoms were increasing, the pain in particular. He complained of deafness in the ear of the side on which he was struck, and of a pain extending to the upper part of the neck. His tongue was foul; his face flushed; p. 72, and full. He was largely bled.

18th. Yesterday he burst into expressions of wild revenge against the man who threw the stone at him. In the night, or rather early this morning, he became delirious. He tore the fillet from his arm, and lost a great quantity of blood in his struggles. He is to-day in a state of the most restless uneasines, flinging about his arms, knitting his brows, and contracting his eye-lids, quite incoherent. The case now appeared of the most hopeless kind; but that nothing which medical skill could suggest might be untried, Dr. Monro, senior, was called into consultation. We cut down to the bone, rather to relieve the vessels of the scalp, than with the expectation of finding any injury. The bone was sound. He was again largely bled, his pulse being 116; two hours after, it was not to be numbered. He died in less than four hours after the consultation.

Dissection of the Head, obligingly made for me by Mr. Fyffe, May 20.

Upon laying back the skull-cap, it did not appear that the cranium had received any injury. It was only upon

that the second stage of Hydrocephalus is the effect of a less degree of that effusion which produces serous apoplexy, is gratuitous; and the violation of nosological propriety, in giving a distinct name, chronic apoplexy, to this stage, is unnecessary; for it is not effusion which produces apoplexy; neither, as I have already proved, are the symptoms of the second stage of Hydrocephalus the effect of effusion; nor is the effusion less in degree in Hydrocephalus than in apoplexy.

These observations apply to the disease in whichever of the two first forms it makes its approach. If it be said, that, in the second varie-

slitting up the dura mater that the morbid appearances presented. The falciform process was inflamed. There was no uncommon turgescence of the veins; but marks of inflammation were apparent all over the surface, both above and on the base of the brain; and these were most conspicuous between the convolutions of the brain. Under the pia mater there was serous effusion, with, in many places, a deposition of coagulable lymph. The coagulable lymph was more generally spread over the surface of the cerebellum than upon any other part of the brain; and it surrounded the vessels as they dipt into the substance of the brain.

Upon making an incision into the substance of the brain, the points of blood left on the cut surface were of a dark red colour.

From the right lateral ventricle, there flowed about half an ounce of serum, more than usually turbid. There was found a similar effusion in all the ventricles.

ty there is much of the violence of a phrenitic, attack, it may be urged in reply, that although, as asserted by a very respectable writer (Ludwig) the attack be modified by the constitution of the child, " *Quo robustiores sunt infantes, eo violen-* " *tior prima morbi accessio esse solet, et contra,*" or by some less obvious cause, yet there is a perfect identity of action, as may be proved by the similarity in the suit of the symptoms of the second and third stages, of the termination of the disease, and of the change produced in the structure of the organ.

Dr. Darwin has said, that " Hydrocephalus " internus, or dropsy of the brain, is fatal to " many children, and some adults. When the " disease is less in quantity, it probably pro- " duces a fever, termed a nervous fever, and " which is sometimes called a worm fever, ac- " cording to the opinion of Dr. Gilchrist, in the " Scots Medical Essays." There is here an obscurity which it is hardly possible to dispel, Perhaps, *mutatis mutandis,* I may recur to the form of words used by Dr. Rush, and say, that our disease is the effect of causes, which when less powerful, produce nervous fever. To nervous fever, we have Dr. Darwin's authority for saying, that the typhus mitior is synonymous. But this is very rarely called worm fever, and very erroneously, when so called. Synonymous to

worm fever (an absurd designation for any disease) are febris lenta infantum, febris lenta remittens. The typhus mitior, it is generally admitted, is produced by specific contagion, which, in its progress, it re-produces. For this disease, Dr. Darwin, as remedies, advises wine, opium, &c.; nothing but stimulating medicines. Now we certainly are so little assisted by this analogy, that we may dismiss it without any ceremony.*

Nor do I think that the disease is brought on by causes which increase plethora within the head,† as by the suppression of wonted dis-

* If there were any merit in this opinion, it rather appears due to Dr. Macbride, who has said, "that the disease which Dr. Whytt has described so accurately, under "the name of the internal dropsy of the brain, appears "to be a nervous fever, and might rather be termed the "Hydrocephalic fever, as the appellation of dropsy gives "an idea of a chronic disease. It is peculiar to young "subjects, and is the most deceitful of all the febrile "diseases, beginning for the most part, like a common "fever, with slight anomalous symptoms," &c. *Methodical Introduction to the Theory and Practice of Medicine*, vol. ii, p. 49.

† I shall subjoin a case of a disease very different from Hydrocephalus, brought on by violent exercise, in a young man much disposed to what is called plethora in the vessels of the head.

J——— S———, æt. 23, master of a trading vessel, a tall and active young man, with a sallow complexion, and languid, or rather dull expression of countenance.

charges, tumbling, or other childish plays, attended with stooping, or indeed by any obstruction to

On *Friday*, 13th *of September*, he was at a merry-making, and danced all night, and came home on the morning of *Saturday*, apparently overcome with fatigue. On *Sunday*, he was languid and drowsy. On *Monday*, upon leaving his ship in the morning, he found himself giddy, and in coming along the quay, he was much ashamed to find himself staggering, as if intoxicated. In the course of the day, this vertiginous feeling increased, and he was very dyspeptic. On *Tuesday*, with a view of relieving these uneasy feelings, he took an emetic, which produced some vomiting, and occasioned considerable flow of blood from the nose, and a greater degree of sickness, and the sickness continued all day after.

September 18th, *Wednesday*, I found his p. 44, perfectly regular, and of a moderate strength. He has slept well during the night; and he can fancy himself quite well while in bed; but whenever he raises his head from the pillow, the giddiness returns. I made him rise out of bed; he staggered to the window; and I found his pulse raised by the exertion to a natural quickness; but before he rose from the chair to return to bed, it had sunk to 48. He was so overpowered with sickness, that I was obliged to support him in his way back to bed.

It is painful to him to fix his eye upon any minute object, or indeed to exert it in any way; but his vision is not otherwise impaired. His manner is not natural. He is generally absent; but sometimes, although not without an apparent effort, he is for a short time extremely attentive to what is said, but is not able to command his attention for any length of time. This I observed, even when, by his own account, he was but lit-

the return of blood from the head. These may and do occasion venous congestion, and perhaps

tle affected with sickness or giddiness. He has scarcely any headache : his belly is costive. In his habits of living he is temperate. He says he knows no cause for his illness.

In the month of March last, his head was much hurt by the fall of a carpenter's addice from a great height, which divided the scalp for three inches in length. The wound healed easily; and he says he was in his usual health in the latter end of last week. All his life, till within these eighteen months, he has been, in the warm season, subject to profuse bleedings from the nose, which kept him much paler than he is at present. His landlady says, that, for these two months he never came into her house that he did not appear drowsy, often lying down to sleep in the day-time, and sometimes he would fall asleep with his head resting on his arm. I directed ℥ xij of blood to be taken.

℞. P. Rad. Conv. Jalap.
Submuriat. Hydr. aa. gr. x. ℳ.
Sit pulvis q. primum sumend.

September 19th. The purge operated freely. He slept well; but awoke this morning with the same feelings, and with some pain in his belly; p. 48. I had *lb.* l. of blood taken from his arm; the blood in neither case sizy. The pulse was not affected by the bleeding. He complains of thirst. Repeat the purge.

September 20th. He has had several stools. Since the last bleeding, the sickness and giddiness have not been nearly so distressing. He sat up all the afternoon, and passed a better night; p. 68; tongue white; urine high-

serous extravasation; but congestion, when not produced by arterial action, is attended with very

coloured. He has still some giddiness, and is unable to walk without staggering; but he finds himself much better, and is able to look steadily at an object. Repeat the powder.

September 21st. There has been no return of the sickness. He is still giddy. He slept several hours last night, but was much disturbed by frightful dreams. His belly is lax; urine scanty and high coloured; p. 48; gums and tongue affected by the mercury. I directed another free bleeding, which in no way affected the pulse.

September 22d. The blood is sizy. The night he passed restlessly; but he is much better to day; the sickness and giddiness are abating; p. 48.

R. Sod. Phosph. ʒ x. e juris bovini *lb.* i. sumendas.

September 23d. In the afternoon, yesterday, he was forced to go to bed, by the vertiginous feeling somewhat modified. After an attempt to read, suddenly every thing in the room seemed to spin round with great rapidity. This continued for nearly an hour; however, he passed the night well, and to-day he feels comfortably. He has no remains of the vertigo or sickness; and his pulse is nearly natural.

January 1806. I met this young man, apparently in excellent health. He had no return of his complaint after the 22d of September.

In a vertiginous complaint of many years standing, supposed to have been brought on by wearing the neck-cloth too tight to hide scrophulous cicatrices, the symptoms were, vertigo in stooping, a sense of fainting when

different symptoms; and were this plethoric state of the vessels fatal, the brain would be found in a very different state. Hydrocephalus, as I have already said, appears to me to consist of a diseased action of a peculiar kind. What this is we can as little explain as we can the nature of the scrophulous or syphilitic action. Our object therefore here, as in these actions, is to register and arrange every essential fact, and never to relax in our inquiry, until, by this induction, we shall arrive at a successful practice.

Before entering upon the consideration of the plan of treatment, I beg leave to recapitulate some circumstances characteristic of Hydrocephalus. They all appear to present themselves upon taking an attentive view of the disease.

1st, Hydrocephalus often arises after a manifest disorder of the digestive organs has existed for a considerable time.

2dly, Hydrocephalic symptoms of short standing often disappear while we are correcting the disordered state of these organs.

the head was suddenly thrown back, strabismus, paralytic debility of the whole frame, diminution of mental energy.

In these cases, I am inclined to think, that, in the first instance, there is no arterial action; mere plethora from venous obstruction, and perhaps some degree of extravasation. I do not, however, pretend to say, that this obstruction may not be the cause of arterial action. I think the affirmative highly probable.

Are we not encouraged by every analogy to state as a thing probable in the highest degree, that, in these cases, the Hydrocephalic action arises from the brain sympathizing with the disordered condition of the liver and alimentary canal?

3dly, In its first stage, Hydrocephalus is evidently attended with a considerably increased arterial action.

4thly, In as far as we know of these, the Hydrocephalic action differs essentially from the apoplectic and phrenitic actions.

5thly, If, independently of arterial action, such a state as plethora, in a particular system of vessels, can with propriety be said to exist, the Hydrocephalic action differs widely from such plethoric state.

6thly, Several diseases appear convertible into Hydrocephalus.

7thly, But, in as far as we know, scrophula alone, with Hydrocephalus, is liable to mutual conversion.

When gout leaves the joints, and the patient dies, from an attack of pain in the stomach, or from an apoplectic attack; or during an attack of acute rheumatism, when the pain leaves the extremities, and the patient dies, after exhibiting unequivocal symptoms of a pneumonic attack, occurrences daily to be met with, it is never doubt-

ed that these transitions are symptomatic of the original disease. When from an attack of scrophula, there is a change to Hydrocephalus, it would almost appear, that the symptoms of the latter were a continuation of the former disease. This is the most obvious view of the change; it is what first occurred to me. But, although I would by no means be understood to speak with confidence, there is a difficulty in the way of this conclusion, which inclines me to consider these changes as instances, not of metastasis or translation, but of conversion. There is another diseased state of the brain evidently produced by the agency of scrophula; I mean the tubercular; and therefore, if a morbid action be uniform when it seizes the same structure, and this I believe is admitted, Hydrocephalus cannot well be considered as an effect of scrophula. It would appear, that we are not warranted in admitting more than a great affinity between the two actions; that, by the one, a great tendency to the other is established.

The following propositions are rather to be considered as anticipations of what will appear in the sequel.

1st, This disease so seldom, without the interposition of art, terminates in a healthy condition of the brain, that it may be assumed, as strongly the tendency of the Hydrocephalic action,

to terminate only with the destruction of the organ.

2dly, We are at present ignorant of any way of subduing Hydrocephalus without the substitution of another constitutional irritation.

Perhaps those cases, in the appendix, in which little effect was apparently produced by the mercurial medicines, and where the digitalis seemed to produce so much, may be urged against this proposition. I shall be happy to find it invalidated. But the question must be determined by many trials, not by one or two cases, where mercurial medicines were freely employed, and which sometimes in other diseases are beneficial, even in the absence of those effects which usually denote their presence in the system.

3dly, After the new irritation is substituted, there is a much greater chance that a healthy condition of the brain will ensue, than that Hydrocephalus will return.

4thly, But it ought not to be overlooked, that there are instances of the return of Hydrocephalus, after it had been apparently subdued.

5thly, Increased secretion of urine, and unusual diaphoresis (especially from the head) frequently the former, have occurred when this disease has terminated favourably.*

* Are these occurrences to be considered critical, or ought they to influence the curative plan? The appear-

In the progress of Hydrocephalus, we have reason to think that the state of the brain varies much. During the existence of the precursory state, although there be excitement, probably there is no increased vascular action in the brain. In the beginning of the first stage, the effects of the increased action upon the sensorium are perhaps

ance of the urine varies so much in different patients, that, in the history of the disease, I have taken no notice of it. When the urine, after giving mercury, flows very freely, I consider it a very favourable prognostic. The following communication from a friend, shows a termination of the disease unusual, but I believe not singular. "I have "frequently observed, in the last moments of Hydroce- "phalus, and when the patients were evidently moribund, "a profuse sweating about the neck, or back part of the "head. My father used to mention the case of Mr. W. "S——'s child, where a very profuse evacuation of this "kind had the appearance of being critical. This child "was attended by my father and an eminent physician "from Edinburgh. The disease was considered by "both as Hydrocephalus, and treated accordingly, till "the child was thought past all hope. The physicians "visits were discontinued. A profuse sweat broke out "on the head and neck, and flowed so copiously, that "the pillows had to be shifted, one after another, as I "have heard my father say, and as I have since been told "by the father and mother, to whom I addressed myself "for farther information. From that moment, the child, "who had for days lain in an insensible and hope- "less state, is said sensibly to have recovered, and yet "lives. Seven years have elapsed since his recovery."

not great: even when the disease is so far advanced that the patient is febriculose, averse to light, sick, disturbed in his sleep, and in great danger, perhaps we should see but little marks of arterial action. In cases where, from the symptoms, there was no doubt of the existence of Hydrocephalus, no diseased appearances have been found in the brain. We however know, from dissection, that before the patient has continued for many days in this alarming state, there are sufficient proofs of arterial action. When the pulse is becoming irregularly slow, the effusion is probably beginning; and as the slowness of the pulse is going off, when the torpor is great, we should discover all the remains of arterial action, adhesions of the membranes, great congestion, effusion, and even obvious change of structure. We shall find all these, when then the paralytic or epileptic symptoms have been present, with the addition of effusion, proportioned to the duration of these symptoms.

One class of medicines, or one regimen, can scarcely be expected to suit all these states of the brain; on the contrary, I believe every different stage, certainly every different form of the disease, requires a considerable difference of treatment.

I have made the general history unusually full, as the early detection of the disease is one great

object of this essay; and on the second or third day from the attack, it often appears with so distinct a character, that all the danger is laid before the diligent inquirer; and it is now that he must employ the most active measures; there is no time for regulating his practice by the result of doubtful remedies. For this disease, which unfortunately he too often meets with, the physician must ever be on the watch. He ought never to hear a child complain of headache, without procuring the history previous to this complaint, and comparing it with every ambiguous symptom. He scarcely should trust the symptoms to his memory. In a page of a small note book, I have the scheme of Hydrocephalus, which will be found below;* and while prosecuting my inquiries into

* Constitutional Tendency. Hydrocephalus a disease in the family, scrophulous constitution.

Previous Diseases. Fevers, disorders in the alimentary canal, scrophula active.

Precursory Symptoms. Irregular appetite, dyspepsia, foulness of the bowels, disturbed sleep.

1st. Or Stage of increased Sensibility. *Expression.* Contracted pupils, reserved and timid manner, aversion to light. Sighing. *Febrile Symptoms.* State of the pulse, watching, starting from sleep, headache, sympathetic pains, vomiting. *State of the Belly.* Nature of the stools, pain in the bowels, tenderness of the belly. Smell of the breath.

2d. Or Stage of Torpor. *Irregular Pulse.* Slow, how altered by exertion. *Respiration.* Irregular, sigh-

the nature of the disease, I have frequently had recourse to it; and unless the symptoms are very forcibly impressed on the mind, something of this kind is necessary.

The chance of cure is nearly in proportion to the duration of the symptoms: if early discovered, although a very dangerous, it ought not to be held an incurable disease. After what has just been written, I need hardly add, that I act upon a principle different from that laid down by some authors, and several physicians, with whom I have conversed. While there is a doubt remaining, that is, until the disease is in a hopeless form, they proceed as if the symptoms arose from worms, or some cause of irritation, unconnected with the state of the brain. To hope for the best is the part of the patient's friends, not of his physician. It is to take from the already too unequal chance which he has of recovery. My practice has been, when my fears are once awakened, to

ing. *Expression.* Subdued manner, enlarged pupil, slight strabismus, dosing. *State of the Intellect.* Tendency to delirium, pain indistinctly complained of. Urine, stools. Changes in the excitement

3d. Or Paralytic Stage. *Expression.* Vacant, suffused eye. Quick and thready pulse *State of the Intellect.* Insensibility, raving, coma, occasional recovery of intellect. *Palsies and Convulsions.* State of the pupil, horrid squinting, sawing with the hand, opposite side palsied. Hurried respiration, manner of death.

lose not an hour in prescribing the remedies from which I should expect benefit, were the disease in the most unquestionable shape; and whatever good may have arisen from this principle, I will venture to affirm, that it never was productive of harm.

I now proceed to the indications of cure. These appear to me to be—

I. To remove from the constitution every irritation which either may have given rise to, or may have assisted, by morbid sympathy, in prolonging the diseased action in the brain.

II. To subdue the Hydrocephalic action; 1st, by diminishing the increased activity of the circulation within the head; 2dly, by substituting a new action.

III. To alleviate pain and sickness if very urgent.

IV. To accept every assistance offered by counter irritations.

V. To support and renew the strength; to support it more particularly under any critical discharge.

It is with great diffidence that I attempt to explain what appears to me to be the method of curing this disease. The cases which are added to this essay, would show, that the disease yields to different methods of treatment. They clearly

point out the necessity of unwearied attention on the part of the physician.

By the following detail it will appear, that some of the remedies recommended are quite opposite in their tendency to others. Some of them, viz. the evacuants and digitalis, reduce the vascular action; others, the mercurials and blisters, increase the action of the arterial system.* The

* Dr. Rush observes, with great discernment, that this disease is produced nearly in the same manner as pulmonary consumption, by debilitating causes, which act primarily on the whole system. I quote the following paragraph from Dr. Garnet's remarks on Hydrocephalus, already referred to. I think the view just, and the practical deduction worthy of all attention.

" In strong subjects, especially those who have attain-
" ed the age of puberty, general bleeding may be used;
" but I should rather prefer local bleeding, *because even-*
" *tually a great degree of debility comes on*; and it seems
" probable, that the accumulation in the vessels of the
" head may be most effectually relieved by evacuations
" made as near the part as possible. I am convinced that
" there often exists, not only in this disease, but in some
" others of the inflammatory kind, *a local inflammation*
" *without much sthenic diathesis;* and when the vessels
" have taken on an inflammatory action in any part, gene-
" ral bleeding may be employed to such an extent as to
" weaken the system very much, without considerably
" abating the increased action, while local bleedings,
" especially after one general evacuation, often produce
" a speedy solution of the inflammation."

seeming inconsistence will be reconciled, by keeping in view the general indications of cure, and that this is one of those diseases too little contemplated by theoretic writers, where the state of the organ affected appears to be at variance with the state of the system; where the increased action of the vessels of the part often follows general debility; in a word, where, to avert impending destruction, we must employ measures contraindicated by the existing diathesis; measures which, it is obvious, must be strictly limited by the danger, I may also add, in apology for practice which may seem too experimental, that I know no disease which is so much influenced by the age, constitution, and temperament of the patient.

Our attention, in the first instance, must be directed to the state of the alimentary canal.

In perhaps every instance, upon the first appearance of symptoms of Hydrocephalus, it will be safe to use some strongly cathartic medicine; and it will be proper to repeat this as circumstances require. But, should we ascertain that the alimentary canal is torpid, and imperfectly performing its functions, admitting an accumulation of fæculent matter, or that the secretions flowing into it are vitiated or diminished in quantity, which we discover by the peculiarity in the appearance, or the pungent fœtor of the stools, we must, by

steadily pursuing the purgative plan, endeavour to effect a change; for, while this is produced in the appearance of the stools, by the stimulating quality of our medicines, we are effecting a most important change in the hepatic system, alimentary canal, and all the parts, including every organ essential to life, which is connected with them.

The purgative plan may be pursued without inducing debility; on the contrary, with evident accession of strength, as long as there is foulness of the bowels;* either while the stools are fœtid and clay-coloured, or while they are dark and slimy. Occasionally, purgatives may be given in the more advanced stages; in the state of the bowels peculiar to this disease, known by the oily-looking, or glazed dark green stools. This cannot be accompanied with any sanguine expectations of effecting a cure; for these Hydrocephalic stools appear to me to arise from the liver, acted upon by an excited state of the brain; nay, these medicines may somewhat retard the establishment of the mercurial irritation; but they will stimulate the torpid canal, perhaps prevent reaction upon the brain; obviate any accumulation in the great intestines; contribute to keep away the purging and the dyspeptic symptoms, to which the disease is so liable; and certainly

* The note which this letter refers to will be found at the end of the appendix.

assist in moderating the convulsions, which generally conclude the disease.

When the disease is somewhat advanced, the most active purges will sometimes be found unavailing. This arises from the torpor, and perhaps in part from the inverted motion of the alimentary canal. As combined with nausea, I have found it difficult, sometimes impossible, to remedy this condition of the bowels; sometimes, however, when the strength of the patient is such as to render the practice safe, it will be removed by a general bleeding.

In most constitutions, the first doses of almost every preparation of mercury, more especially of calomel, stimulate the bowels. If this be the case, it is obviously the most suitable medicine. In many, however, more particularly after the first dose, mercurial medicines have not this effect, and in some they appear to render the bowels torpid. When they have no purgative effect, we must give, in addition, some other medicine, as scammony, gamboge, jalap, or aloes.

Even should we observe little disorder in the alimentary canal, biliary secretion, &c. and should the strength of our patient be unimpaired, and his constitution originally sound, we shall find no ill consequences arising from the exhibition of purgative medicines, perhaps every second or third day; and, from every analogy, we may in-

fer, that these will abate the pain and increased action in the head.

Purges have generally been given in this disease; but, when called early, what I recommend is, the exhibition of the largest dose, which can with safety be prescribed, of some powerfully cathartic medicine, two, three, or four times a day, and this continued for several days, or until natural stools are procured. The advantage of keeping the intestinal canal under the continued influence of a stimulus, I have, in various instances, found to be so great, that I am induced to repeat the declaration of my belief, that the happiest result may be expected from this measure.

When symptoms of Hydrocephalus arise after the constitution has been exhausted by a former disease, I need not say how discouraging the case is; yet it appears as if the cure ought, in this instance, to be attempted chiefly by purgative medicines, assisted by blisters.

These observations apply to the disease, from whatever cause it may seem to have arisen; not so the following. The family constitution; the constitution, age, and strength of the child; the immediate and remote causes of the attack, and the symptoms present must be taken into account. By these considerations, at least as far as bloodletting is concerned, will be regulated the remain-

ing part of the plan. I conceive, that the physician, who, like Dr. Rush, recommends unlimited blood-letting, and he who, considering Hydrocephalus as a dropsy, or disease purely of debility, prescribes bleeding, are equally mistaken in their practice.

In most cases, local bleeding by leeches, or cupping, or general blood-letting, according to the state of the pulse, and strength of the patient, must be had recourse to. This evacuation not only brings down the pulse, and relieves the pain, but is of signal service when we are determined on a mercurial course:* nothing so immediately

* In Macgregor's Med. Sketches of the Expedition to Egypt from India, p. 178, I find a confirmation of this opinion, as to the assistance derived from bleeding, when we would secure the speedy effect of mercury. He writes while he is treating of hepatitis. "Sometimes in "Egypt, and in many instances in India, I have observ-"ed that I could not affect the gums with mercury, or "with acid, till venesection was performed. After this "operation, I have often succeeded, and induced a flow "of saliva, in cases which had long resisted a liberal use "of mercury and nitric acid." I conceive that we must, in a great measure, subdue the violence of the Hydrocephalic inflammation before the constitution will submit to the influence of mercury. I believe that this principle is of general application, and ought not to be overlooked when mercury is to be given, particularly in diseases of high action. The system, in robust young men, must be brought down by confinement and a reduced

renders the constitution susceptible of the powers of mercury. With this view, when I could not otherwise affect the mouth, I have successfully prescribed blood-letting. However, I am convinced that blood-letting, unless in very robust constitutions, or in the second variety of the attack, is not to be repeated without great danger; it must increase the debility which is induced by the disease, and which sometimes is such as to remove all hopes of a cure, even when, by the renovation of the animal functions, we discover that the Hydrocephalic action is suspended.

I have applied leeches and blisters to the region of the liver, to prepare the way for, and cooperate with, the purgative medicines (which are generally of the cholagogue class) in restoring this viscus to a sound performance of its functions; and I have imagined that benefit was derived from these applications.

The use of bleeding after the stage of increased sensibility may seem questionable. Those who consider the disease at its acme before the beginning of the stage of torpor, may think bleeding improper, when it is to be considered in its declination. As I hold that there is increased action

diet, when we would bring on salivation, for the cure of venereal complaints. This shows, that even the vigorous state of the vessels of health is unfavourable to the mercurial influence.

during the whole progress of the disease, I do not hesitate, with a stout child, to recommend local bleeding, if it is otherwise indicated at any period before the appearance of the convulsions.*

When the existence of the disease becomes probable, there ought to be no other delay than that occasioned by our endeavours to subdue the disorder in the bowels, in commencing the mercurial course, which, it must be allowed, has cured Hydrocephalus, even when far advanced. I have witnessed the efficacy of mercury, in several cases of which I have no voucher. This medicine has, in many instances, in the practice of Percival, Dobson, and others, cured the disease. Two of the cases subjoined show the virtues of mercury in a strong light: and it should give us more confidence in this remedy, that I have several times observed, when the mercurial stimulus was fully established, that the symptoms were interrupted, and the termination of the disease, although fatal, unlike what we find in cases where mercury has not been used.† The con-

* Is this a disease favourable to the trial of the cold effusion?

† Zoonomia, Class I, 2, 3, 12. "A solution of hydrargyrus muriatus, corrosive sublimate of mercury "three grains, dissolved in an ounce of rectified spirit of "wine, is said to produce instantaneous and violent sa-"livation, as described Class II, 1, 5, 1. Could a small "quantity of this violent stimulus be used, according to

vulsions were suspended; the senses, both external and internal, restored; the disease appeared

" the age of the child, with probable good effect? Could " the trephine be used with safety or advantage when the " affected side can be distinguished?" Turning to Class " II, 1, 5, 1, we find it stated, " that Mr. Wright, an el- " derly surgeon in Derby, thirty years ago assured the " author, that he had frequently given half a drachm of " corrosive sublimate as an emetic, without any incon- " venience to the patient."

All this appears to me very inconsiderate; and it is the more reprehensible, as proceeding from a physician whose writings, from the extent of his observation, are of good authority. The suggestions about the trephine is innocent, as no surgeon in his senses would in such a case listen to the proposal: even the mentioning of such a thing betrays an ignorance of this part of pathology very unworthy of the author. But the recommendation of corrosive sublimate is really reprehensible, and ought to subject the author to the severest censure. An unguarded person, when he reads that half a drachm of this drug had been given by an experienced and respectable surgeon, might be induced to prescribe it in a fatal dose.

Although this is no excuse, I cannot help thinking that there has been some mistake or misapprehension in Mr. Wright or Dr. Darwin. The muriate of quicksilver, in a much smaller dose than half a drachm, is a certain poison. In very divided doses it is prescribed in untractable venereal cases; but it is an unmanageable medicine. I have known gr. $\frac{1}{4}$ bring on alarming vomitings; and in small doses it sometimes affects the bowels with great violence. I leave the reader to judge whether this be a medicine for an infant labouring under Hydrocephalus.

to be checked; but the debility was such, that the vital functions languished; and the constitution had sustained so great a shock, that every effort to invigorate them was unavailing.

The digitalis purpurea has repeatedly been recommended for the cure of Hydrocephalus. The use of it might have been suggested by the analogy between this complaint and phthisis pulmonalis. I have not used this medicine long, and some of the cases have been nearly hopeless when I took the charge; therefore the observations upon it which I have to make will be few. Yet I cannot be altogether silent, as I have observed it to produce a great, and in two cases, I conceive, a salutary influence. Of these cases, which are added, I shall, however, leave the reader to form his own opinion.

Digitalis is a medicine of great power, but it operates so differently on different constitutions, that it must also be held a medicine of great uncertainty, requiring in all cases to be very nicely managed. I have found an adult, from the constant tendency to deliquium, pain in the temples, and depressing pain at the pit of the stomach, unable to bear 30 drops a day of the same preparation (the saturated tincture) of which I was giv-

I may add, that, when given in moderate doses, it will often disappoint our expectation, as it often fails in raising salivation.

ing daily to a child, four years old, 120 drops: we cannot, before trial, say what quantity of this medicine a patient can bear. The effects of it have little analogy with those of some other active medicines. An under-dose of opium will produce, in an inferior degree, a similar effect to that which is produced by an over-dose. Ten drops of laudanum will, in most constitutions, induce languor; 50 drops, profound sleep. But of tincture of digitalis, although 50 drops would, in most constitutions, occasion vertigo, sickness, great prostration, in some, for aught I know, death; yet ten drops, in the same persons, would not produce the slightest effect: therefore an under-dose of this medicine goes for nothing. If we do not use efficient doses of digitalis, we are undoubtedly trifling. Again, digitalis does not act with that uniformity which we observe in the operation of other medicines: before trial, we cannot say what part of the system will be affected. Another remark may be worthy of notice: we cannot, by gradually augmenting the dose, give, without danger, what, in the first instance, would be an over-dose, as we can of opium: for instance, beginning with 40 drops of laudanum, we may bring the dose up to 400, in short, to what, were not the constitution gradually inured to it, would be a fatal dose. But when we give as much of the tincture of digitalis as will affect

the heart, brain, or stomach, we must stop short; we cannot, without danger, pass this; indeed, we cannot always continue it; and if we rashly push this medicine, we may destroy our patient. The system is often brought under the influence of the fox-glove, by continuing the dose, which at first appeared to produce no effect: yet this does not avail our patient; for the disease is so acute, that he must speedily be placed under the operation of a sufficient dose. Lastly, the effects of digitalis are more permanent than of many other active medicines derived from the vegetable kingdom. I have found a pulse still influenced by digitalis after two or three days.*

The method which I have for some time followed in using digitalis is the most obvious: it accords with the view which I have given of its powers, and does not appear ill adapted to the attainment of a safe and quick effect. I begin with a moderate dose, eight or ten drops of the saturated tincture; and to every succeeding dose, which is generally given at an interval of six

* What I have said of the dangers attending the administration of this medicine, I draw from the observations of others, and from my experience of its effects in the adult constitution, and in other diseases. There appears to me something, either in the nature of the system while under the influence of Hydrocephalus, or of the infantile constitution, independent of disease, which resists the powers of the digitalis.

hours, I add two or three drops; so that, in a day or two, generally some part of the system is affected. I proceed with great caution, ascertaining, while augmenting it, the effect of the medicine after each increased dose.

There is a consideration peculiar to this disease, which forbids the indiscriminate use of this medicine. The effect of digitalis resembles very much the change produced on the approach of the stage of torpor; and thus, when there is every necessity for pushing the medicine to a full dose, we are induced to suspend it altogether, from a fear lest it be acting too powerfully. Digitalis renders the pulse slow and irregular, and induces great languor. But with the slow irregular pulse of digitalis there is smallness and sharpness; with that of Hydrocephalus there is softness and inequality, more of fullness. The languor from digitalis is attended with vertigo, sometimes momentary blindness; that from Hydrocephalus has more of coma.

In the cure of Hydrocephalus digitalis appears a medicine of great promise; and when it comes to be more generally used, and the manner of administering it better understood, it seems highly probable that our hopes will be realized.

In other diseases we find that digitalis has been successfully combined with mercury; and as the mercurial irritation is more speedily established

when bleeding is used, we might expect that any other measure reducing the action of the arterial system would have the same effect. We should therefore expect similar assistance from digitalis; but my observation, too limited, I admit, rather leads to an opposite conclusion. In two or three instances, where calomel and the tincture of digitalis were conjoined, it was found a very difficult thing to affect the mouth.

Digitalis exhausts the nervous energy; it occasions vertigo and sickness; it retards the pulse; it diminishes irritability, and quickens absorption. From some of these qualities, which it possesses in an eminent degree, it appears admirably suited to meet the socond general indication of cure, and with consequences by no means so ruinous to the constitution, particularly of a delicate child, as blood-letting. I do not think it can be made to supersede blood-letting; but I hope it will obviate the necessity of repeating what the weakness of the patient so much opposes. These hints, however, and what has been written on this subject by others, are by no means sufficient. The reader, by careful trials, must satisfy himself; and let him be assured, that this is a disease in which clinical experiments, prudently made, are not only allowable, but highly to be commended.

Blisters are to be employed with the view of producing irritation in the neighbourhood of the diseased organ. With this view, large blisters round the head, to the forehead, occiput, and sides of the head, should be applied in succession, and the surfaces dressed with strong mercurial ointment. In the course of one illness I have ordered nine or ten blisters to be applied.

Of the utility of blisters in many diseases, physicians differ more than might be expected concerning a point which is to be decided, not by reasoning, but by experience. Until of late, I imagined the efficacy of blisters in this disease to be rather questionable, and in many cases I declined prescribing them: but lately, in several cases, I have witnessed a remarkable mitigation of the symptoms after the application of a blister. When the local irritation has been such as to call the general circulation into sympathetic action, bleeding in general is necessary, after which, I believe the sooner blisters are applied the better. Bleeding, independently of its importance in reducing the strength of the circulation, so as to deprive it of the power of supporting the diseased action, is of great relative value; for it makes the system more sensible to every impression, it prepares the way for other agents, and in particular for this important counter irritation. Still I am

of opinion that singly blisters will not cure the disease; but among the remedies for this disease they are entitled to rank high.

To allay the pain of Hydrocephalus, when not attended with stupor, opium has been recommended. With this design I have never prescribed it. Joined with some aromatic, it sometimes completely succeeds in correcting the bilious vomiting and purging. For this, however, we have a more certain remedy in blood-letting. Cold applications to the forehead and temples have been strongly recommended for moderating the pain in Hydrocephalus. A blister to the nape of the neck is a sovereign remedy for the intense headache which sometimes accompanies the attack of the synochus biliosa. I should think it in the beginning of Hydrocephalus a very promising application.

Much has been written on the best method of restoring the system to strength after the declination of disease. Besides recommending a moderately nourishing diet, I have, on this subject, little to offer. When a great cause of irritation is removed, if there be any strength left, the system never fails to act with vigour.

It is of importance to support the strength of the child. This is to be done by soups, animal jellies, and even wine. In this disease there are

times when the child will eat even voraciously; these are to be taken advantage of. Can any thing be more evident than that every opportunity of supporting the child's strength is to be embraced, when it is considered that the debility attending the disease sometimes is fatal; the child dying from this, and not from the paralytic state of the brain? Should there be any discharge which may be considered as critical, of course this indication will merit the more attention.

Of the method of preventing Hydrocephalus, what I have to say is short, but I hope not unimportant. The mother must be taught to attend to and understand every irregularity in the state of her child's bowels. It is not merely costiveness which is to indicate the propriety of a purgative course: costiveness is not to be neglected; but constitutional costiveness may perhaps exist without danger. Attention must be paid to every deviation (not absolutely temporary) from a natural appearance of the intestinal evacuation.

Attention to the state of the bowels will be much easier both to the parent and child than the management of a seton or issue, and I apprehend much more availing, although I by no means forbid these applications. Were I to explain further what I think necessary to be attended to when Hydrocephalus is a family complaint, I

should be led into too wide a field; nothing less than the application to my subject of every part of the Hygieine; and the cases which are added have necessarily made this paper much longer than I originally intended.

NUMBER I.

CASES

OF

HYDROCEPHALUS ACUTUS.

CASE I.

J. M. 12th May, 1804.—The subject of this case, a fair and delicate girl, of a scrophulous family, after gradually losing her appetite, complained, about ten days ago, of pain in her belly; two days after this complaint she became fretful and dull; then she was often flushed, particularly in her sleep; she also complained of acute pain in her head.

For these three days she has complained very often of pain in her head, and of pains in her belly and legs. She is not to be amused, never lifting her head from her mother's breast. During last night she has frequently started from her sleep, screaming with pain in her head. She yawns and sighs often, and, when free from pain, she would fain lie unnoticed. Her pulse is quick, her tongue white, and her breath heavy. She

has slight spasms in the eyelids, and subsultus in the wrist. Her belly is costive. Her complaints so much resemble those of her brother, who died some years ago of Hydrocephalus, as to reduce her mother to despondency.

16th May.—By strong mercurial purges, her bowels were emptied of a great quantity of dark green slimy fæculence. The stools are now natural, and she appears nearly well.

CASE II.

R. S. four years of age; a boy of a florid complexion, and very dark eyes.

15th May 1805.—About ten days ago this child became languid drowsy, and he frequently fell asleep in his chair. On the morning of the 12th he vomited his breakfast, the drowsiness continuing, or rather increasing; between the 12th and 13th he retched all night, and complained of pain in his head. The retching continued during the 13th: what victuals he took he immediately vomited.

On the 13th he had a better night; but he often sighed.

On the 14th he sighed heavily: the sickness was constant.

Before the retching comes on he generally changes colour, from pale to a deep purple.

He is just now lying asleep: he breathes softly; his pulse is 60, and very irregular. When I had him roused, he was much inclined to dose again; he was quite distinct. He continues to sigh.

Give one of these powders immediately, and one every eight hours.

R. P. Rad. Jal. gr. xij.
Submur. Hydr. gr. vi. ℳ. f. Pulv. ij.

16th May.—In the night he had two large fœtid stools, green and gelatinous. His stomach is still unsettled; p. 90; tongue cleaner; sighing somewhat abated. Continue the powders.

17th.—His bowels are loose, the stools frequent and more natural, without any admixture of glairy matter. The vomiting has ceased. His look is by much less dull; p. 100, and quite regular. His skin is cool; his tongue clean. Continue the powders.

18th.—His bowels are loose; his stools are natural. No vomiting nor sighing. His appetite is tolerably good. No mercurial fœtor in his breath. Omit the medicines.

These cases I present as a specimen of many of the same nature, which, during the last six or seven years, have occurred to me; and I am persuaded, that the complaints would have been relieved by any equally active purgative medicine with that prescribed. I neglected to mention,

that three of the last patient's (R. S.) brothers or sisters died of Hydrocephalus. I am inclined to think, that in those children who have a family right to this disease, it is to be detected more by the nature of the stools, and comatose tendency, than by the inflammatory symptoms.

I have many notes of the cases of children, who, several days successively, have come home from play or school, pale, with pain in the head, which, one said, was like the thumping of a hammer within the head, another, like a knife running through the head, &c. They were observed sick, drowsy in the day-time, sometimes feverish, and vaguely complaining. It would be unnecessary to record these cases. I allude to them partly, because sometimes they ended in Hydrocephalus, but more especially to say, that by far the greater number were cured by continued purging with jalap and calomel.

CASE III.

D. R. aged 8, with dark eyes and complexion, and coarse skin ; a fine intelligent boy.

12th *May* 1805.—His complaints are of six days standing, during which time he has been extremely dull, and has frequently complained of severe pain in his head ; he has slept more than usual ; his belly has been costive. Two or three

evenings ago he retched frequently. Some years since his brother died of Hydrocephalus. His p. is 56, and very irregular. He has not much heat of skin. His tongue is white. Since I came into the chamber he has sighed often, and has complained indistinctly; when roused, he says that he has pain in his head. I ordered him to have one of these powders every four hours, in a little treacle.

℞. Submur. Hydrarg. gr. xxiv.
Pulv. arom. ʒ i. ℿ. f. Pulv. xij.

13th.—He has had two free, dark, and slimy stools; p. 70, and irregular. He sighs much; but he says that his head is less pained.

14th.—P. 104; irregular. Tongue clean; still sighing. He is more lively. His urine is limpid and copious. His stools are free, and nearly natural.

15th.—This boy complains more of his head, has a very alarming look, and sighs constantly. He has slight convulsive twitches. His tongue is clean. His skin is of a natural warmth; his belly natural. He wakes from his sleep suddenly, complaining of lancinating pain through his head. He takes the calomel regularly. Apply six leeches to the head.

16th.—Five large leeches were applied to the temples. The blood oozed from some of the orifices all night. His breath has a mercurial

fœtor. He says that he feels better. His eye is evidently clearer. P. 92, and regular. He sighs less. His urine is high-coloured and scanty.

17th.—P. 100; tongue clean; considerable salivation and fœtor of breath. The gums are slightly ulcerated. The pain in the head and sighing have ceased.

21st.—He has no Hydrocephalic symptoms; his gums are recovering; and he is again going out.

25th May.—I was again requested to visit this boy, which for several days I had left off. Yesterday, in the afternoon, he had an attack of vomiting, which has scarcely ceased since. I found him not vomiting; but there was still a frequent inversion of the œsophagus, as in ruminating. Since yesterday morning, with little intermission, he has complained of severe pain in the back part of his head; and he has had a purging for these two days. To-day he has been observed again to sigh. His pulse is 76, and irregular. His tongue is clean.

26th.—During the night he had several doses of a purgative medicine. The vomiting has abated, and the purging is less troublesome; but he has sighed very frequently, and is exceedingly dull. I observed him faintly moaning, and expressing much uneasiness in his head. His

pulse is remarkably irregular; at one time so slow, for two or three beats, as to be felt intermitting. He must return to the powders; and again have six leeches applied.

27th.—The application of the leeches was again followed by a great discharge of blood. His tongue is white; p. 96, full, irregularly intermitting. He is extremely dull. He feels the light painful to his eyes. The pupil contracts readily. For some hours during the night he had double vision. He is still sighing, and complaining of the pain in his head. He had some retching after breakfast. Since morning he has had five dark-green glairy stools, not incorporating with the fluid in the vessel. He slept not ill during the night; but several times he started up incoherently; and, upon recovering himself, he complained of headache. Sometimes, when his attention appears attracted by what is passing in the chamber, suddenly the pain strikes through the head, and forces him to cry wildly.

28th.—Six large leeches were again applied last night; and he takes the calomel regularly. His pulse is 120; not quite so full; much more regular. His skin is cool. His mouth, particularly the gums, much affected with the mercury. Stools free, more natural, but still rather green; urine limpid. He slept calmly, and did not start. He awoke vomiting; and since morning,

he has often retched. He continues very dull. He has several times cried with the pain. He has less sighing. He had, by candle light, the double vision.

29th.—Yesterday, from half past two until he went to sleep, the retching was incessant. The retching returned at five o'clock this morning, and has continued very troublesome. He has also been troubled with hiccup. Since the retching came on this morning, he has not once complained of headache. He mentioned the double vision; but he has neither squinted nor sighed to-day. He has had no stools since last visit. There is great salivation. Leave off the calomel. This boy's brother, who died of Hydrocephalus, in his last illness, had the same incessant retching for five days: in most respects, his illness much resembled that of my patient.

30th.—He is lying in a state of constant salivation. The inside of his cheeks and gums are extensively ulcerated. He has no complaint but of his mouth. He has ceased to sigh, and has neither double vision nor squinting; but he is still dull; p. 108; retching suspended.

8th July.—His gums are still spongy. The salivation has ceased. His appetite is returned. He no longer complains of his head.

In less than a month this boy was again at school, and he has had no return of his complaint. In this case, the return of the disease, after being apparently removed, deserves attention. The case is more imperfect than otherwise it would have been, had I paid more attention to the secretion of the urine, in particular to the quantity secreted.

In the spring of 1807, he was for six weeks ill of jaundice.

CASE IV.

D. M. aged 4; a fine looking boy, fair, with blue eyes.

25th December.—This boy is sitting with his head leaning on a pillow, asleep, his face flushed, his eye-brows contracted, breathing softly, now and then sighing. His p. is 132, and his skin warm.

I find him expressing great aversion to light, peevish, displeased when he finds himself observed, unwilling to be roused, yet perfectly distinct. He frequently complains of severe pain in his head, pointing, as the seat of it, to the left temple; and he complains of pain in his belly, and sometimes in his limbs. In the night he has little sleep; what he obtains is disturbed and

short; and he awakes starting and incoherent. During the day he is reserved and silent, unless when in pain. His tongue is furred in the middle, and his breath is sickly. He has no appetite, but considerable thirst. His bowels, from the use of laxative medicines, are open. Yesterday he vomited once or twice.

He has been confined several weeks with catarrhal complaints; in addition to which, for ... e twelve days, he has had febrile symptoms, with headache. On the 19th, he appeared relieved; on the 23d his complaints returned; and, ever since, he has been in a situation much as I have described, the headache, indeed, daily increasing. Two nights ago leeches were applied to his temples.

He is to have 2 gr. of calomel three times a-day, and the leeches again applied.

26th.—Four leeches were again applied to the temple, and the discharge of blood was considerable. The dullness increases. He starts in his sleep, and never awakes without being agitated, and complaining of his head. He has great thirst; the right cheek is much flushed; he sighs constantly; p. 132. I have ordered eight drops of the saturated tincture of fox-glove to be given with each dose of calomel.

27th.—I found him amusing himself blowing soap-bubbles; cooler; his p. still 132. His tongue

is moister; he has not sighed so constantly; and he complains less of his head. Again apply the leeches.

28th.—The bleeding was free. He slept tolerably well. He has complained of his bowels. He is sighing more, and his look is more anxious. He always awakes troubled. He has had many stools, in appearance more natural. His urine, which has hitherto been scanty, has in the night, exceeded two pounds; p. 140; tongue cleaner.

29th.—He had a very restless night; towards morning, complaining much of his head. His pulse, tongue, and the heat of his skin as yesterday. He is still sighing, and again flushed. He has a short troublesome cough. His breath is untainted. I have desired his mother to rub in strong mercurial ointment thrice a day, twenty minutes each time, and to repeat the leeching.

30th.—This morning he complained much of his head; through the night, which was passed quietly, he often sighed; since morning he has been very dull; p. 108; stools natural; urine scanty. He has ten drops of the tincture, and two grains calomel, four times daily.

31st.—He has not once, to-day, complained either of his head or bowels, nor has he sighed; he had one low fit, lasting about half an hour; but, since, he has been playing with his brothers. The light is less offensive to him; his look is more

cheerful. There is no mercurial fœter in his breath, which is pure; the night was passed calmly, without starting. There is no fullness in the pulse; it is unequal, but regular. It differs from the pulse which is found in the change from the first to the second stage of Hydrocephalus, in which the beat is full, soft, generally irregular and unequal.

1st January.—Although he awoke several times complaining of his belly, yet, on the whole, he slept tolerably well. He has sighed two or three times to-day; he looks more anxious; p. 96, and regular; stools green. Apply the leeches, and increase the tincture to twelve drops.

2d.—His look is less favourable. His pupils are much dilated. His tongue white; p. 104. These two days he has again complained of his head; to-day often, and of his belly. His urine is copious; his stools are slimy and green.

3d.—He is again dull, and complaining much of his head, and sighing; his p. is 100, irregular and unequal; his stools get darker; his urine is scanty. Increase the tincture to fifteen drops. Continue the calomel.

Eight o'clock Evening.—He has twice taken the medicine in the increased dose; p. 92, regular, compressible, rather jarring. Since noon, he has sighed often, and complained much of his head. For some days, he has taken very little

nourishment. His tongue is loaded; his stools are dark; his head is hanging on his breast; he is certainly duller; his hand is cool; is breath is still untainted.

4th.—His pulse is fuller, and more irregular, 92; he is duller; his pupil dilated; tongue loaded; the heat of his skin is not great. He has vomited every thing which he has taken since last night. The stools are dark green, and very fœtid. The calomel and fox-glove have been vomitted. I have again recommended a large blister, and eighteen drops of the tincture; and I have allowed him to leave off the calomel. He has been regularly rubbed.

5th.—His tongue is loaded; his breath untainted; his stools are dark and scanty; his urine natural, and more abundant; the vomiting has ceased. In the night he started and sighed, and complained of his head, probably of the blister; he is pale; but his eye is more expressive; p. 96, and irregular. I ordered him to take immediately two ounces of the infusion of senna, with a drachm of the tincture of jalap, and twenty-one drops of the tincture of fox-glove, at the usual time.

6th.—In three hours after taking the purging draught, he had two free and natural stools; within the last twelve hours, he has voided nearly two pounds of urine; since the forenoon of yesterday,

he has not sighed; he slept from one o'clock to eight without once awaking; when he awoke, he called for bread. He looks relieved; p. 92, with one intermission; tongue moist, not loaded. His nose, which for the most part has been dry, is now running; and he has had a slight degree of salivation. His head, as usual, is dressed with the mercurial ointment. He has twenty-four drops of the tincture.

7th.—He had, from the purging draught, which he again took in the evening, three free stools; his urine is copious. The night was undisturbed; no complaint; no sighing; tongue clean; p. 84, sharp, and irregular. His eye is expressive; no salivation.

8th.—Urine three pounds; two stools, has no complaint of his head, p. 100, sharp, now and then intermitting; there is some return of the sighing; and he has been once or twice sick to-day.

9th.—He slept softly; but, during the night, he was frequently disturbed with sickness; he sighed this morning; he is pale; he did not sicken after his last dose, twenty-five drops of the tincture; but he vomited the one taken in the night; p. 92, and irregular; in every respect a pulse which might be called Hydrocephalic, unless in the sharpness or jar of the beat; tongue clean. Instead of the calomel, I ordered a mer-

curial pill (Hydrarg.) with every dose of the tincture.

10th.—With the exception of some muttering, he passed the night well, not complaining of his head, but much of his belly, and sighing. Stools free; rather light or clayey. He is sick, and duller, with the same pulse as yesterday. Apply a blister to his head.

11th.—The blister appeared during the night to distress him; and he sighed often, as he does still. He looks dull. He has again lost his appetite. He has no thirst. His tongue is moist, with a gray fur. He is again slightly salivating. I doubt if this be from the mercury, which does not appear to affect the gums; perhaps from some nausea. The urine is more scanty; stools fœtid and clay coloured. He complains of pain in his right arm; p. 120, regular. Give the pill, and thirty drops of the tincture, every sixth hour.

12th.—His bowels are rather slow, now and then pained. His pupil is more contracted. He has no complaint of pain in his head. His tongue is white and moist; gums not affected; urine rather scanty. He is languid and pale; and, during the night, he was much disturbed with sickness; and he has six or seven times complained, for a minute at a time, that he could not see; pulse irregular and indistinct; as small as in the wrist of an infant; not more than 52; no

sighing. Omit the tincture. Give a little wine and soup.

Evening.—The pulse confirmed again, jarring, exceedingly irregular. He has had two natural stools; frequent returns of the sickness. Continue the pills and ointment. Omit the wine.

13th.—He slept well. His belly is regular. His urine again is more copious; his tongue moist and clean; pupil contracted; eye lively. He had only one attack of dimness of sight since the fox-glove was left off; p. 80, still irregular; no pain in the head, or sighing.

16th.—He has no complaints, nor sighing. His tongue is clean; his appetite good; urine free, with much sediment; belly natural. He never frets nor cries, without shortly after complaining of pain in his head; but he complains at no other time.

At the time of sending this case to the press, the boy is in perfect health, which he recovered in a few weeks after the date of the last report. I believe that several of the symptoms after the 7th were to be attributed to the tincture; but I was not quite sure of the disease being checked; and, while it was going on, I apprehended no danger from the fox-glove. The dimness of sight

explained the patient's situation. After every increased dose of the medicine, the state of the child was particularly examined. The mercury was continued for eight or ten days longer; but it produced no obvious effect.

CASE V.

A. S. aged three years and six months, with fair complexion, of a delicate constitution, and habitually loose in his bowels. About six weeks ago he had a severe attack of a bowel complaint, to which he is subject; and, along with this, he had fever. Of late, he has had slight catarrhal symptoms.

Last night, about eleven, he became very restless and feverish; was observed frequently starting; and had some delirium. To-day, he has had rigors, followed by flushing. His eyes are heavy. He has some cough. His pulse is 120; breathing 32; tongue rather white; colour high; the lips and inside of the nostrils of a bright vermillion. Brows contracted. He still starts in his sleep. His belly is costive; his urine scanty. I prescribed for him, to be taken immediately,

R. P. Conv. Jalap. gr. vi.
Submur. Hydrarg. gr. iv. ℳ.

And a table-spoonful of this mixture every three hours.

℞. Infus. Cass. Senn. ℥iij.
Carbon. Pot. gr. x.
Tinct. Conv. Jalap ʒij.
Syr. Simpl. ʒvi. ɱ.

16th.—During the night, he had five or six stools, of a deep yellow colour, apparently containing much bile. He was feverish and thirsty in the night, but not delirious. He cannot support his head. His look is anxious; p. 140. His tongue cleaner. His breath is sickly smelling. He is still starting. I have ordered six leeches to the head, and the laxative mixture to be continued.

17th.—Yesterday, in the afternoon, he sighed often; in the evening, he had some remission of the fever; during the night, he was restless and feverish. His stools are brown or muddy, less natural. His pulse is 132. There is a deep hectic on the cheek. The bleeding from the leeches was considerable. Repeat the powder, and still give the mixture.

18th.—He had a restless, but not so feverish a night. He often complained of his head and belly. When the belly is pressed, the hepatic region chiefly is complained of. His eye is clouded; his brow knit; p. 128; his bowels are free.

Omit the mixture, and give, every eighth hour, two grains of calomel, and apply the leeches.

19th.—Since last visit, he has had no remission of fever. He passed a restless night, was thirsty, and had some difficulty of breathing, and cough. He has had two natural stools. His expression becomes unpromising. His eyes are dull; brows knit. Now and then he is heard deeply sighing. He is without any complaint of pain. There is still considerable tenderness of the abdomen. His p. is 132; tongue clean. Along with every powder, he is to have a dose of saturated tincture of fox-glove. Ten drops are to be taken with the first powder, and every succeeding dose is to contain a drop more than the last.

20th.—He has had no remission of fever. He spent a miserable night; insensible; tossing; feverish; very thirsty. To-day, he complains much of his head; p. 120, regular. One stool like mud.

21st.—He has had another restless night; insensible; flushed; no remission of fever. He has had no stool. His urine, hitherto scanty, is rather more copious. His pulse is 112, regular. He has still a troublesome cough. He frequently sighs. He is pale, dull. His eyelids are heavy, and his pupils dilated. His tongue is loaded. His breath is extremely heavy. Continue the powders and tincture, and again apply the leeches.

22d.—The discharge of blood with the leeches was less copious. In the afternoon of yesterday, he sighed incessantly. His cough was troublesome; yet, last night, he slept four hours without interruption; towards morning, he often moaned. His pulse is 120, not full. There is considerable mucous discharge from the nostril. His eye is dull; the pupil dilated; he sleeps now with his eyes open. His stools are dark green, and muddy. His urine scanty. He has taken, since the beginning of his illness, scarcely any nourishment. Continue the medicines. As yet, he takes only fourteen drops of the tincture.

23d.—He had a restless night. He vomited his breakfast; the milk which he had taken curdled. He at present is asleep, breathing calmly; his eyes are open. His face expresses discontent. He has frequent spasms of his eyes. He has not sighed to-day above three or four times. His breath continues sickly. His pulse 84. One dark stool. Urine scanty; not ℥ij. in twenty-four hours. He takes twenty drops of the tincture.

24th.—By the constant cough, he was prevented from passing a good night. He has passed three unnatural stools; urine ℥iij. His pulse is 100, and regular, rather small; skin cool; tongue clean; the pupil is more contracted: his expression is less unfavourable; yet he cannot support

his head. Yesterday afternoon, he again sighed, without ceasing. Twenty-two drops of the tincture were given with the calomel.

25th.—All yesterday, after I saw him, he slept so that there was no rousing him. His breathing was irregular; sighing: he was grinding his teeth. In the night, he complained of his head. His cough is less troublesome; he has had no stool for thirty-six hours, and passed scarcely any urine: his skin is dry; p. 100. There is no mercurial fœtor in his breath. Give him immediately ten grains of powder of jalap. Continue the tincture and powders.

26th.—He had a calm night: he has passed two free stools, dark green: he has had no sighing; p. 100: he sleeps constantly.

Evening.—His pulse exceedingly irregular, and does not exceed 60: he is profoundly comatose; not in the least roused by being rudely lifted from his bed: he sighs; his eyes are spasmodically affected; stools deep green. Since morning, he has once or twice opened his eyes, and then he complained more than ever of his head. Apply a large blister to the forehead, and six leeches to the temples.

27th.—The comatose state in the night, several times, was interrupted by severe shoots of pain in the head, and by an urgent thirst; he at one time sighed incessantly. The bleeding con-

tinued for the greater part of the night. The blistered part was dressed with Ung. Hydr. Fort. There is considerable subsultus in his hands and legs; and his eyes and eyelids are agitated with constant spasms. When his eyelids were forcibly kept open, the pupil appeared much contracted: his nose is dry. The coma prevailed until morning. Continue the medicines.

28th.—He has had no drowsiness since yesterday forenoon: his night has been most uneasy; sleepless; with great thirst; vomiting and looseness; the stools muddy, green, and fœtid: his eyes continue spasmodically affected. There has been no sighing. About seven this morning, he sneezed incessantly for more than five minutes; since which, he has again complained more of his head: his pulse is 100, and regular: he continues to take his medicines, 24 grs. of the tincture every six hours.

29th.—He had an easy night. About six this morning, the sneezing fit returned, lasting about ten minutes; after which, came on great thirst and vomiting, the spasmodic affection of his lips and mouth, and the headache. He is pale: he has acquired a squint: he is again sighing: his stools are dark green; urine scanty. Apply two blisters, four inches in diameter, to the temples.

30th.—He had a bad night. The sighing is constant. The squinting and sickness conti-

nue. Urine greatly increased, lbij. since yesterday afternoon. Stools plentiful and natural; p. 120, small. Apply mercurial dressings to the blistered parts; and, as the skin has been uniformly hard and dry, try the tepid bath. The calomel is still given with the utmost punctuality, and twenty-five drops of the tincture four times a day. No mercurial fœter.

1st May.—The fomentation was followed by some moisture of the skin: his eyes were a good deal affected during the night: he has no headache; no sighing; squint very perceptible; several loose dark stools; urine more scanty; nose running. Dose of the tincture, 30 drops. Repeat the bath.

2d.—He had a sneezing fit in the morning; p. irregular, and jarring, 72. The pupil of the left eye (that which is turned from the axis) is much dilated. He sighs, is fretful, and pale. Stools copious, and clay-coloured; urine plentiful. Dose, thirty-three drops of the tincture. The bath being unwillingly submitted to, is omitted. Apply a blister to the vertex.

3d.—He had a restless night, probably from the blister. The squint less perceptible; p. 100, and regular. Stools large, apparently containing little bile. Urine free. Apply mercurial dressings to the blisters. After taking thirty-three drops of the tincture, he generally complains of sickness.

4th.—He slept well. His appetite is considerable; and he is able to stand alone. After the morning dose of the tincture, he had a severe attack of vomiting. His urine is lbij. daily; stools as in jaundice, colourless; pulse sharp. The only Hydrocephalic symptoms which remain, are occasional sighing, and slight strabismus. He amuses himself with some other children. Omit the tincture.

This boy, for some days, was making rapid strides to health; however, his bowels, perhaps from mismanagement, became much disordered: they were, for many days, apparently without bile. He had also dysury to a great extent. He again complained of his head and belly. The sighing, squinting, and starting, returned; and his pulse became irregular, sometimes not more than 60. His condition often varied. About the middle of May, his complaints took an intermittent form, the fever regularly coming on in the forenoon. About this time, he had a large sty on each eyelid, near the inner canthus. I tried bark with little benefit; then I prescribed, as if all the symptoms arose from the disordered bowels, laxatives, testaceous powders, opiates. The medicines appeared to have little effect. But, as his stools became more natural, his health

again appeared to improve. This was in the first or second week of June.

On the 2d July, I called for the boy as I was about to draw out his case for publication. I found him in good health, rather pale, which his mother attributes to the relaxed state of his bowels. He takes his victuals perhaps too heartily. He has not altogether lost the squint. I have learnt, from the best authority, that this boy's only brother died of Hydrocephalus.

CASE VI.*

30th June 1806.—I was desired to visit FORREST FAIR, a boy between seven and eight years of age, who had occasionally been my patient for psorophthalmia. He is of a scrophulous family, of a slender form, and tall for his age. He has been ill for two days, complaining, as he does now, of constant severe headache, and pain of the belly; moaning in his sleep, picking his nose, and grinding his teeth. He vomited, this morning, a quantity of watery green-coloured fluid, which has deposited, at the bottom of the vessel, a slimy viscid sediment. The face is

*This descriptive case, and one which will appear in the sequel, I owe to my friend Dr. Kellie of Leith. I am also indebted to Dr. K. for some other valuable communications on Hydrocephalus.

much flushed; the eye dull and heavy, the adnatabeing suffused, and slightly inflamed; skin hot; belly tumid; bowels costive; pulse 130.

℞. Pulv. Convolv. Jalap. gr. xij.
Submuriat. Hydrarg. gr. ij. ℳ.
Samat mox, et repetatur vespere si opus sit.

1st July.—Is much disposed to slumber, moaning much, and keeping his hand on the forehead. He is easily roused, and then he complains violently of his head. When taken from bed, and brought to the light, he grew faint, and vomited. Has passed three large stools, of a deep green-coloured, consistent, tremulous, gelatinous substance, having a very peculiar smell of what is called faint or heavy, but not at all feculent. The face highly flushed; the eye suffused; tongue clean and florid; skin hot; p. 120. He is also very thirsty; his drink has been milk and water, or toast and water; which he has repeatedly thrown up again.

Four ounces of blood were taken from the foot. Two grains of calomel to be given every three hours.

2d.—The calomel powders have been regularly given. He has passed five stools, of the same appearance as those described yesterday. The stomach retains drink better; he vomits only when taken out of bed, or raised to the erect posture. Seems less torpid than yesterday. When

asked how he is, the invariable answer is, My head! My head! p. 120; skin still hot; face flushed and eye suffused.

Eight ounces of blood were taken from the arm. The calomel to be continued.

3d.—He seemed greatly relieved yesterday, for some time after the bleeding; complained less of his head; and said it was better. The face, at my evening visit, was less flushed, and the skin not so hot; the pulse was 112. He has since, however, passed a most restless night; screaming at times with great violence, and crying to his mother to hold his head. Towards morning, he became quieter. He is now in a listless torpid state; but not asleep. He answers questions slowly and unwillingly. When asked how he feels his head, he says, better. But, when otherwise disturbed, as when I was feeling his belly with my hand, he cries out plaintively, Oh my head! He has not vomited since yesterday morning. Two tremulous gelatinous stools, not quite so green; skin not so hot; face less flushed; the adnata of the eye less suffused, but the pupil is large and dilated, though sensible to the impression of a stronger light; p. 100.

Sumat. Sulphat. Sodæ ʒij. ex Infus. Sennæ ʒiv.

Evening Report.—Vomited the laxative soon after it was taken. No stool. He is still more comatose; p. 120.

Injiciatur Enema Purgans.
Applicetur Vesicatorium Capiti.

4th.—A quiet night. He is now moaning heavily, and tossing his head from side to side. He is easily roused; answers always that his head is very ill. Pupil large. Blister well risen. Injection brought off one stool of no better appearance than the former; p. 120.

Sumat. Submuriatis Hydr. gr. ij. 3a q.q. hora.

5th.—A restless uneasy night, crying out the pain of his head, and tossing with his hands. He is now more torpid than he was yesterday. Belly tumid and hard; three stools green and slimy; p. 100, and intermittent.

Vesicator: Abdomini
Cont. Submuriat Hydrarg.

6th.—Has passed a quieter night. He is still lethargic. When roused, he says his head is better. Four stools of the same unnatural appearance; p. 112.

Omitt. Submur. Hydrargyri.
Sumat. Infus. Sennæ ℥ iv.

7th.—Two green gelatinous stools; complains more of his head. Other symptoms as yesterday; pulse intermitting. Vesicator capiti.

8th and 9th.—The symptoms continue much the same; at times he has been restless and

screaming, at others, he appears torpid and comatose.

10th.—He is more insensible. The eyelids remain half opened; the pupils are still more dilated, and the left eye is turned away from the nose. He drinks a great deal, and swallows with avidity. He takes beef tea, and milk with water. Three slimy stools; p. 120, regular.

Two drachms of common mercurial ointment to be rubbed in on the thighs and belly night and morning. To be supported with beef tea or chicken broth. All other remedies to be omitted.

17th.—From the 10th to this day, the symptoms have varied but little. The lethargic state occasionally interrupted by irritable and restless fits. The pulse has varied from 100 to 120. He has passed daily one or two green gelatinous stools; and has made a considerable quantity of urine. Every day ℥ ss. of mercurial ointment has been consumed in friction. This day he is sensibly better. The eyes are more fully opened; and he answers questions with less difficulty. His fingers are constantly in his mouth, of which he complains. The gums are evidently affected by the mercury; there is slight fœtor of the breath, and the flow of saliva is increased. He cried for a breakfast of porridge, and ate several spoonfuls; p. 100. No stool since yesterday.

The belly is less tumid, and feels soft and easy. Omitt. Ung. Hydr.

18th.—A restless night. Complains much of his mouth; he is constantly pulling the two molares of the right side with his fingers. They appear a little loose, and probably are giving him pain. He is quite sensible, and sees distinctly; says his head is still painful. No stools; p. 112.

19th.—Slept better. Salivation continues. Complains much of pain in the two right molares, the gum round which appears swelled and spongy. He is very fretful; skin hot; p. 120. No stool.

Sumat. Infus. Sennæ ℥ iv.

20th.—Symptoms as yesterday. One gelatinous stool.

Sumat. mane et vespere Calomel, gr. ij.

21st.—Three slimy watery stools, with very little fæculent smell. Omitt. Calomel.

22d.—Salivation continues, with pain and swelling of the right jaw; in other respects better. Takes porridge and milk for breakfast; broath and potatoes for dinner; small beer for drink: p. 112. No stool since yesterday.

24th.—Continues to convalesce; he requested to have his clothes this morning, and is now lying in bed dressed, amusing himself with toys. No stool since the 21st. His mouth is still sore.

The molares loose; the tongue white and furred; p. 100.

Sumat. Infus. Sennæ ʒ ii. cum Tinct. Jalap. ʒ i.

25th.—Four fæculent lumpy stools, of natural colour, and odour; appears greatly relieved; is sitting dressed in his mother's arms; p. 112. Salivation continues; and he complains much of the loosened molares.

28th.—Convalescent. No stools since the 24th.

Rep. Haust. Infus. Sennæ.

29th.—Three fæculent stools. Matter is discharged between the gum and the loose bicuspides of the right side. Saliva still flows abundantly.

1st August.—Convalescent; functions natural. The two bicupides, which have given him so much distress, came away incased in their alveolar process, which has been separated from the jaw.

5th.—Recovered.

NUMBER II.

CASES

OF

HYDROCEPHALUS ACUTUS.

CASE I.

6th July.—D. C. aged eight, was observed to have become unusually dull more than a fortnight ago. He continued so for about a week; and this would have been unnoticed, had he not several times come from school complaining of headache. One day, about eight days since, he returned from play complaining heavily of his head. His complaints after this attracted more attention, and he was taken from school. He would willingly have passed the whole day in bed, but his friends were constantly urging him to bestir himself. He had no spirit; and when he was not allowed to lie, he would sit down, and in a few seconds fall asleep on his chair. In the night, though, upon the whole, he slept a great deal, yet he was feverish, and he often awoke alarmed or screaming wildly of his head.

When he was sitting, sighing, and yawning, and making some faint and indistinct complaint, if he were asked what ailed him, it was his head, or a pain darting through his head. He has vomited frequently, particularly in the morning upon leaving his bed. He has, since the beginning of his illness, been without appetite, and his bowels have been slow.

I made my first visit to-day, and find that he is considerably emaciated, and his complexion has become more sallow. As he sits on his chair, his head seems heavy, it appears ready to fall to a side, and, as if he had difficulty in supporting it. He can hardly keep his eyelids open. There is great dejection in his look, and his eye is languid, and there is somewhat too much of vascularity in the tunica albuginea. His breath is sickly. His pulse about 100, but so irregular, that it beats five times in five seconds; and in the next five seconds, it beats ten. It is raised twenty strokes in the minute by walking across the room. His respiration is only fifteen in the minute. His urine is high coloured. Stools dark and fœtid.

7th.—Last night four leeches were applied to his temples, and several laxative powders (P. Jal. gr. vi. Cal. gr. iij.) were given. He has had two large evacuations from his bowels, glairy, and of a dark green colour. The leeches

were large, and the bleeding continued four or five hours from all the orifices. His urine deposits a considerable sediment; his tongue is clean. There is no change in his expression; he sits, with heavy eyelids, sighing, and often yawning, and much subdued; p. 72, quite irregular. His friends say, that he has complained less of his head. Continue the calomel, without the jalap.

8th.—About noon he was attacked with retching and vomiting of every thing which he had swallowed. This continued till evening was far advanced: it appeared to be checked by a few drops of laudanum. After this he had a very restless night, complaining much of his head. Since yesterday, he has had three or four of the same kind of stools. There is little change in his look; he is, however, making some effort to amuse himself; p. still irregular, about 100. Breath sickly.

Evening.—He has just had four large leeches to his temple, having in the afternoon complained much of his head; p. 60, and quite regular.

9th.—A large blister was applied to his head after the bleeding stopt. He has moaned of his head all night. He has slept but little: he started much. His look is even more oppressed, and is very anxious; the pain is all in the forehead; his eyes are very averse to light. He has a slight cough. His tongue is whiter. He is

now confined to bed; pulse when lifted and placed in a chair, 80; the beat very irregular; in bed, about 54. Respiration 15. Stools dark and fœtid.

10th.—All night he has complained much of pain in his belly; when examined, there appears most tenderness under the margin of the ribs of the right side. He is becoming weaker; his vision, hearing, and judgment, are perfect; still his chief complaint is of his head; at whatever time I enter the room he is moaning in the same hopeless manner. His pulse begins to quicken; it is in bed 100, when lifted 136. Breath mercurial. His head was dressed with the strongest mercurial ointment.

11th.—He had, from the frequent paroxysms of pain, a restless night; he is sleeping softly; he is troubled with tenesmus; his stools form a dark bottle-green, glairy mass; his gums are tumid. I had him taken out of bed, but was glad to replace him, as he retched violently, and complained of his head; he is less ready in his answers: his pulse is again down to 74: the skin of his neck and breast is like an ice plant covered with small pellucid pustules.

12th.—He has had one ounce of the Ung. Hyd. Fort. rubbed in within these three or four days; and, for the last six days, at the rate of 12 gr. of calomel daily. His mouth is much af-

fected with the mercury, so that he complains more of his mouth than of his head; and he has refused to take even liquid nourishment, of which he had taken plenty hitherto. His belly is costive. Omit the calomel, and give 12 gr. of powder of jalap.

13th.—He had three stools. This night was a very uneasy one. He called for food, but was unable to sit up to take it; p. 120, and weak. When roused, his vision and understanding are perfect.

14th.—At seven this morning he became convulsed. The convulsions have continued ever since.

15th.—He is quite blind and insensible. The convulsions continue.

17th.—I did not see him yesterday; but, upon calling this morning, I found him without convulsions; his pupils contracting, and he was able to distinguish objects. He was taking food. Pulse 120. His stools are more natural. His tongue is swelled from the mercury.

19th.—He died in the evening of the 18th. When I called, a few hours before his death, he was extremely weak; his breathing quick. He appeared sinking, as I should have expected at the end of a fever; but he had then no convulsion; and though said to have been convulsed some

hours after, I believe it was merely the dying struggle.

Dissection.—In the membranes on the surface of the brain and lining the ventricles, there was rather more than usual of the venous congestion. There were about four ounces of fluid in the ventricles.

Upon opening the abdomen, there escaped an unusual quantity of fœtid air, which had been confined within the peritoneum. The omentum was wasted to a thin membrane. The great intestines were filled with flatulence; and the small intestines, in many places, appeared solid, from spasmodic contraction; and, at two different points, they were involved. The veins of the concave arch of the stomach were unusually turgid.

The whole of the convex surface of the liver was connected, by strong adhesions, to the peritoneum. This surface, and the peritoneum opposed to it, were both highly inflamed, abounding in minute and florid vessels.

CASE II.

M. B. aged seven.

Sunday, 15th September.—This girl was brought to me about seven weeks ago. She then

complained of pains in her belly; her bowels were foul; and she had passed ascarides; but she appeared to recover upon getting some doses of jalap and calomel.

About eight days ago, she began to complain a second time. She had never regained a perfect state of health. She now complained of her belly and head. On Wednesday last, her complaints were confined to her head; and she has had scarce any intermission of pain, which is chiefly in the crown of her head, since Wednesday. She has often been sick, generally vomiting what she has drank. Her appetite is gone. Her sleep is not sound; she often starts up alarmed; it is also disturbed by the severe shooting pain in the head. She is often observed drawing a long inspiration. Before Thursday last, she had a remission of her complaints at noon, with an exacerbation in the evening. But now a certain degree of fever is always present.

Her p. is 104; her tongue is white, or rather gray; her skin warm. Upon examining her belly, she shows no uneasiness, unless in the right side. She was lying dull, and was not disturbed by the examination, until I passed my hand to the right side, where there was so much tenderness, that she writhed and fretted under very slight pressure, so that I was obliged to desist. She is dull, and averse to light, and has constant-

ly a look of uneasiness; when the eye is exposed to light, the pupil is contracted. When lifted, she is impatient until replaced in bed.

17th.—Leeches were applied, on the 15th and 16th, to the temples; and she has had several doses of jalap and calomel, which she is to continue every six or eight hours. There are still some ascarides in her stools. Her nights are passed as I have already described. She sleeps for a short time, and then she starts up alarmed, or complaining of her head. During the day, she lies quiet for a quarter or half an hour, anxious to escape every notice or attention; and then she is suddenly disturbed by a violent pain in the upper part of her head, or in her breast, and cries affectingly. She complains little, for these two days, of her belly; to-day, she has complained of it only once, and she bears it to be examined. Her urine is not high-coloured, but deposits a large sediment. The sickness continues, and retching. Her pulse is 84; to-day it is both irregular and unequal. Her breath is dyspeptic. She often sighs. Upon taking her from bed to the window, she complained of her head, and showed much aversion to the light.

18th.—Pulse 64; less irregular; softer. The sighing is more frequent. The vomiting continues. Her tongue is white. She complains less of her head, breast, or belly. Her sleep is

rather less disturbed. Her urine scanty. She has had no stools since yesterday. She lies quiet, but is alive to what is going forward; for whenever we talked of lifting her out of bed, she expressed great alarm. Upon lifting her, her pulse rose above 100. Her vision is perfect, and she has no squinting.

19th.—Stools green, and oily-looking. There is rather less of the sighing and vomiting. Her breath is very heavy; pulse 64; respiration 18; pulse raised by the least exertion; respiration not quickened by motion. Countenance very anxious; still averse to light. Her intellect is unimpaired. She is reduced in flesh. Her gums are tumid from the mercury. During the night, she again complained as much as ever of her head, chiefly of the forehead, and was restless and started. She is to have a large blister to the scalp.

20th.—She had a very restless night; complaining, not of the blister, but of pain shooting through her head. She has not vomited during the night; but occasionally complained of her side and belly. Her urine is scanty and limpid. Stools dark green, oily-looking, and of a heavy smell.

She is sensible and quiet; her vision is unimpaired; p. 70; breathing 24; tongue clean. In extreme fear of being lifted out of bed.

21st.—Pulse about 100; no stools or urine past for the last twenty-four hours; and the vomiting of every thing taken has returned. She was very feverish and hot in the earlier part of the night. Since morning, she has become something lethargic; every now and then complaining, but more indistinctly, of her head. When raised, her pupil was seen much dilated; but there was no squinting.

22d.—In the evening of the 21st, she was somewhat delirious; but, as the night advanced, she felt quiet, complaining faintly of her head; during the last forty-eight hours, she has passed her urine but once, and only one stool. The vomiting has ceased. The sighing continues. She complains so much of the uneasiness in her mouth, as to induce me to order the mercurial medicines to be suspended. Pulse about 100, and rather small. She breathes calmly (24.) She was sensible; but, upon lifting her, she became insensible; her eyes were fixed, and her face without expression; immediately I observed her pupil to dilate; her limbs were gently stretched; her arm, after being thrown out awkwardly from her body, was cataleptically fixed for some time; her pulse fell to 72. I left her insensible and almost motionless.

23d.—This morning she is lying quiet, and breathing easily, without spasm or convulsion;

but blind, and quite insensible. Her eyes are fixed; the pupils much dilated, and half covered with the eyelid; p. 100, and weaker; it intermits, or rather some of the pulsations are so feeble as not to be felt. She sighs heavily. During the night, she was much agitated with convulsions, of which the attack I witnessed yesterday was the beginning.

24th.—She lies in appearance much as yesterday; the eyes are more suffused; the vascular action so great, as to occasion the secretion of puriform matter, which distils from the angles of the eyelids. She was sick, and vomited during the night, and was again much convulsed. She called for drink in the morning: but it does not appear that she either hears or sees; p. 100; breathing soft; belly costive.

In this state she lingered three days. On the 27th, her breathing became accelerated. She died on the 28th. During the last thirty-six hours, the convulsions had much abated.

CASE III.

W. L****'s daughter, aged seven; a well grown girl, with dark eyes, and sandy hair.

About three years ago this girl had the scarlet fever severely; after which, she was dropsical for some time; her belly, ever since, has been larger than usual; and she has not had the same perfect health she had before.

Six weeks ago, she had an irregular feverish complaint, of which the most striking symptom was a great degree of foulness of the bowels. During this attack, however, she never once complained of her head. She recovered while using a laxative medicine. But she has not been so active or cheerful since; and her colour has been unusually sallow; however she amused herself as usual; had returned to school and play; and had no particular complaint. I attended her in these two illnesses.

Saturday, 2d August.—On Wednesday evening (30th) while amusing herself beside her mother, she complained of pain in her head; but this complaint was transient, and seemed accidental. On Thursday (31st) morning, she was quite well; but, towards evening, she occasionally complained of her head; and her mother observed, that the palms of her hands were warm: upon this, thinking she had worms, she gave her a dose of the artemisia santonica. On Friday (1st August) she was observed drooping and feverish; and she again complained of headache: her mother was induced to give her an emetic.

To-day, I was called in in passing. I was much hurried, and had scarcely time to note these circumstances. I found her dull, hot, her tongue white and moist, her pulse quick; she was complaining of her head. I ordered Submur. Hydr. P. Convolv. Jalap. P. Cort. Laur. Cassiæ, a. a. gr. iv.

Sunday, 3d August.—In the evening of yesterday she was tranquil, and free of fever; during the night, she slept tolerably well; but talked much in her sleep; and once or twice awoke starting; and several times started in her sleep. Upon holding a candle to her eyes, she turned from it, and complained of headache. This morning, she has seemed to dose much; but, while dosing, she has several times indistinctly complained of her head. She has been repeatedly sick, and once she has vomited some ropy colourless fluid. She lies opposite to a window, but always with her face averted from the light. Her look is timid and thoughtful. The pain is chiefly in her forehead; but she has once or twice complained of her ear. At times, and often the interval is long, she is free from pain. Her breath is heavy, which often it is observed to be when her stomach is disordered; her pulse is quick; her belly full; but soft, and not tender. She has a short, not frequent cough. She had several stools from the purge, dark green, but not glaz-

ed. Repeat the powder; and give, every four hours, Submur. Hydr. gr. iss. P. Cort. Lauri Cassiæ, gr. v. Apply six leeches to the forehead. Let the head be shaved.

4th.—Four leeches were applied, and, after they dropt off, the blood flowed freely for many hours. She has had two dark green glairy stools. Her tongue is white, furred, rather moist; her breath is not so sickly; her pulse 116, and, I think, irregular. There is slight subsultus in the wrist. In the night, she has been feverish, restless, dosing; in her mind wandering, and complaining of her head; she has also complained of pain in her belly; yet she has sometimes been for a long time without any complaint. Twice this morning, when lifted from her bed, she vomited. Her look is dull, and, from the contraction of the eyebrows, somewhat frowning; the pupils are much contracted. When replaced in bed, she naturally turned from the window, and buried her face in the pillow, to avoid the light.

5th.—Pulse 120. Her tongue is furred, and less moist. She had two stools of the same nature as those she passed yesterday; her urine is natural, the secretion scanty. She has considerable appetite; no thirst. She was cool this morning, but not all day yesterday. All night long she was restless, complaining much of her head, tossing her head about, and very feverish; sigh-

ing; vomiting; complaining much of the light; and complaining of pain in her bowels.

6th.—She has had no remission of fever since yesterday; the night was again passed uneasily; she was hot; she tossed about her arms; she was sick, vomiting every thing she took, and often complaining of her forehead. She is still very dull, and the expression of her countenance continues unfavourable. Her face is bedewed with moisture; her pupils are contracted. When lifted, her head is always leaned on her mother's shoulders. The sickly smell of her breath still prevails. She has had two scanty stools. Her p. is 96, and regular; respiration 24, irregular; sometimes sighing; her tongue is white, less furred. Give ʒ ss. of the following mixture every hour, till stools are procured.

℞. Tinct. Convolv. Jalap. ʒ i.
Aq. Dist. Laur. Cass. ʒ v. ɱ.

7th.—Although the night passed more calmly, yet she complained much of every noise. She was sometimes cool, sometimes profusely perspiring. She has had no stool, and little urine; her tongue is loaded; her p. 100. Since morning, she has had more torpor and flushing; she lies with her hand pressed to her head. All day she has vomited immediately after swallowing any liquid, and upon the least motion.

Eight ounces of blood were taken from the external jugular.

Evening.—Her pulse is nowise changed by the bleeding. She has complained less of her head, and the sickness has left her; but she becomes rather incoherent.

8th. Evening.—Last night, upon getting a glyster, she had a stool nearly natural, containing apparently little bile; although now and then complaining of her head, she had a quiet night, and she was less flushed this morning; but the torpor rather increases; p. 104, firm. The pupil is more dilated; her tongue is loaded, and her breath still offensive. She became more flushed as the day advanced. The fæces to-day are green and glairy. She has already taken ʒ i. of calomel. This forenoon she was again bled. Omit the cathartic mixture.

9th.—During the night she was complaining much; restless, incoherent, and rolling her head on the pillow. At present she sleeps calmly; p. 96. When roused, her countenance has less expression of any kind; more of stupid dejection; her pupils are very dilatable. Use the mercurial friction.

10th.—She has had a dreadful night, almost constantly indistinctly moaning, rolling in the bed, raving, at one time she rose and attempted to strike her father. She is at present shifting from

side to side; insensible; not blind, yet with very dilated pupils, and a vacancy of expression somewhat similar to what blindness gives. She is sometimes flushed. Her skin is warm; her pulse 124; her breath sickly. She has had no stools, and has passed very little urine. She has had some return of the vomiting. Gums not tumid.

11th.—All night she has been restless and complained of her head and belly; and, by her mother's account, she has twice had some slight convulsive attack; her pupils are dilated, the right much more than the left. She sees distinctly, and at present is sensible, but dull. Her countenance is flushed; pulse 104. She breathes with great regularity. In the night she had three stools.

12th.—During the night she has often been convulsed; her pupils are much and equally dilated; there is a flush on her left cheek; her face is dull and inexpressive, sometimes frowning. She is restless; generally insensible; breathing irregularly; moaning; p. 140. While sitting beside her, she took a fit. Her face, from a state of vacancy, for a second or two, became, as it were, thoughtful; then it was much disturbed with spasms, in particular, about the left eye, which, from strong and repeated convulsions, appeared to wink with great quickness. The right eye was wide open, and staring; the mouth

pursed up; the left arm was gradually extended, the fingers hooked in; the limbs stretched out; the head thrown back; then the eyes became fixed, or moved quickly and tremulously, which motion was not discovered, unless they were narrowly inspected; then there was quick breathing and sighing; and lastly, she appeared to be in a soft sleep. Her pulse, which was 140 before the fit, during it fell to 96. After these attacks, she lies quietly for nearly half an hour: they are preceded by great restlessness and anxiety.

13th.—Pulse 140; lying flushed. Sometimes she is deadly pale. She has slight subsultus; her gums are blistered; her breath is no longer sickly, but not mercurial. During the night she had four attacks similar to that described yesterday. The vomiting has returned.

14th.—Pulse 140. She has not been convulsed during the night. She has convulsive twitches of the lips and eyelids. She has voided no urine, nor has she had a stool since yesterday.

15th.—Low, pale; she is picking the bedclothes and moaning, squinting, and quite blind; the pupils dilated and inirritable, as in death; the eyes slightly suffused, and slowly rolling from side to side. Her lips are sordid; her tongue black and dry. She is slightly convulsed, sometimes shuddering. She shows no signs of sensibility, further than sometimes raising her hand

when the flies light on her face. She has had no stool, and scarce any urine for two days.

16th.—She is blind and insensible; p. 144. There has been some flow of urine. She had a small stool, which was colourless. Her respiration is quicker.

17th.—Her breath is again sickly. She has had no evacuation. She has lain quiet since last night. Her eyelids are closed; her countenance without expression, pale; her jaw sunk.

In the evening she became again agitated with convulsions; she had frequent hiccuping; her respiration was still more hurried; and before midnight she was dead.

The dissection was not permitted, although earnestly urged.

CASE IV.*

J. M. aged seven years eight months.

The parents of this child are healthy, and apparently free from any constitutional predisposition. Of their other children, two died of Hydrocephalus; the one under the usual acute form, the other sunk under the chronic form of the

* This Case, and Case VI, p. 131, are from the same respectable quarter.

disease, the head being much enlarged. A third child of the family has lost one half the jaw-bone from scrophulous necrosis; and the bones of one of the thumbs are now exfoliating, from the same disease. The boy, the subject of the present case, has been hitherto very healthy, and was, in every respect, as fine a child as I ever saw.

When called to see him on the 6th July, 1807, he complained much of his head, which he seemed quite unable to hold up. Though dressed, he was lying on two chairs, and was seized with inclination to vomit, when made to rise. The pain, which he describes as very severe, is in the forehead and temples; the eyes have a languid, heavy, suffused appearance, and his eyebrows are kept strongly knit. He picks his nose. The tongue is white and furred, skin hot, pulse 120, belly costive, urine turbid, depositing a chalky-coloured sediment.

For three days past, his mother has observed him looking ill, refusing his food, declining his usual exercises, and expressing a desire to go to bed earlier than usual. Yesterday he complained of his head, for the first time. He has had a dose of senna, which operated twice the day before yesterday; and last night his mother gave him an emetic of ipecacuanha.

Sumat. quam primum Submuriat. Hydrarg. gr. ij. et cras mane, Pulv. Jalap. gr. xv. cum Submur. Hydrarg. gr. ij.

7th.—Four highly feculent stools, of natural colour and consistence, with a prodigious number of ascarides. He appears, however, no way relieved. When raised from his bed, he vomited, and complained grievously of his head.

Sumat. statim Submuriat. Hydr. gr. ij. et repetatur vespere.

8th.—Complains more of his head. He lies constantly on the left side, with the head very low, and dislikes much to be disturbed, has vomited twice this morning, no stool, face flushed, eyes suffused. He dislikes the light, and complains of the slightest noise. Skin very hot; p. 120, not hard.

Six leeches to be applied to the temples.
Two grains of calomel every third hour.

9th.—The leeches bled well. He seemed for a while somewhat relieved, and said his head was better, but towards evening he became worse, screaming dreadfully, and crying to his mother to hold his head. In this restless manner he passed the night, and slept none till towards morning. He is now quieter, and says his head is easier. Two stools, with ascarides. Has not vomited since yesterday; p. 112. The leeches to be again applied.

R. Pulv. Jalap. Comp. ʒ i.
Calomelanos, gr. vi. ɱ
& divide in doses iv.
Sumat. 1m. 3tia. quaque hora.

10th.—Exacerbation of pain and fever, with return of restlessness last night. Is again easier this morning; but complains much of his head, and now also of his arms. The pupils appear larger, but by no means fully dilated. He inclines still to lie on the left side, i. e. from the light. Four large offensive stools, brown-coloured, and not very watery; no ascarides. Drinks much, but refuses food of every kind. Face flushed. Skin hot; p. 100. Repetr. Pulveres Purg. ut heri.

Evening Report.—He is much worse since seven o'clock. He screams constantly, oh my head! my head! At eight o'clock, he is quite delirious and unmanageable, talks incoherently, and tosses his head about from side to side. Pupil more dilated; pulse 80; face extremely flushed. No stool. To bleed him in the neck or arm was impracticable, on account of the frantic and restless delirium. With some difficulty, I opened a vein in the foot, and obtained about four ounces of blood. He soon afterwards became quieter. Two leeches were then applied to his forehead.

Omittantur Pulv. Purg.
Sumat. Submuriatis Hydrarg. gr. ij. 2da, q.q. hora.

11th.—The screaming and delirium continued till near four this morning, when he fell asleep, and remained quiet till seven. Says his head is

easier, but he complains grievously of his arms, which he has desired his mother to rub, and bind up with ribbons; for he seems now quite sensible. The face less flushed, pupil very large, but perfectly irritable on approaching the candle, he sees distinctly, knows every body, and every thing; pulse 80, and intermits three or four times in a minute. Has eaten largely of jelly and bread, which he asked for breakfast. No stool yet. Contr. calomeles, u. a.

Evening Report.—Has been very quiet since morning, till about eight this evening, when the exacerbation returned. He now screams, and calls out, oh my head! oh my arms! hold my head, rub my arms! The calomel has been regularly given. One spare stool; p. 100; intermittent. Calomel to be continued. Two drachms of mercurial ointment to be rubbed on the thighs, the head shaved, and a large blister applied.

12th.—A very restless night. He complained constantly of his head and arms, and tossed about, but did not appear otherwise delirious. From three to seven he slept pretty softly. He is now, at nine, lying on his back devouring, with surprising voracity, a second slice of bread with currant jelly, and asking for more. All his actions, indeed, are precipitate and passionate. He complains of head and arms; pulse 112, quite

regular; the beats being full and firm, rather hard, tongue clean, pupils dilated, face flushed, no stool, little urine passed.

Sumat. statim pulv. Jalap. ℈ i.
Calomel gr. ii.

Six leeches ordered to the temples. The mercurial friction to be continued.

Evening Report.—The leeches have bled profusely. He has been quieter and easier. Three copious, highly offensive, brown-coloured, feculent stools. No ascarides observed in them. He has taken a great deal of beef tea and jelly with bread. At this time, nine of the evening, he is in a slumbering state, complaining at times only, or when asked how he is, of his head and arms. He shuts his eyes, and complains so much on the approach of the candle, that I cannot ascertain the state of the pupils. The face is rather pale, the skin less hot, p. 120, smaller and softer. Another blister to be applied to the head. The calomel to be continued every two hours, and the mercurial friction to be repeated.

13th.—Slept quietly till this morning; has been since more restless, turning from side to side, and complaining of the head and arms. At other times he remains quiet, corrugates his lips, opens his mouth, and then grinds the teeth forcibly, and in a manner most painfully audible.

Has had one slice of bread with jelly, which he ate quickly, but with less voracity than he did yesterday. In general, he takes willingly whatever is offered him, and he answers questions pretty distinctly. He says he is better, and complains less of the head than of the arms. In a moderate light, the pupils appear much dilated. He sees, however, distinctly, and names several objects which have been presented. Blister has risen, and discharged well. One stool, brown, fœtid, and offensive. Urined once, in small quantity, yet pale and watery. Tongue slightly white, pulse 130, regular. The blistered part to be dressed with Ung. Hydrarg. The calomel and mercurial frictions to be continued.

Evening Report.—During the day, he has been quiet, sensible, and collected; at times only moaning, and sighing profoundly. He has repeatedly asked for various kinds of food, for beef-stakes, and dried fish. He has had beef-tea and bread, and a few prunes. In this way, he continued till about seven in the evening, when, after repeated fits of screaming and restlessness, he was attacked with strong general convulsions, of the spastic or tetanic kind. One of these fits, I have just witnessed. The neck, the arms, and fingers, were chiefly affected; and the convulsions seemed confined to the extensor muscles. The fit over, he appears quite insensible, he grinds

the teeth with dreadful force, and, between whiles, mutters indistinctly, like one in the low delirium of typhus. Pulse 140.

At Midnight.—Low muttering delirium. Eyelids half raised. Pupils completely dilated. He turns himself occasionally from one side to the other with a kind of precipitate leap. Only one convulsion since that I witnessed at nine o'clock. Nothing can be got within his mouth, the teeth are kept so forcibly together. Pulse 160.

14th.—Several convulsions since last report; and, in general, he has been in the same low, insensible state, muttering, moaning, and grinding his teeth with a most horrible stridor. About three this morning, he passed, in bed, a large, offensive, feculent, watery stool. Has swallowed, at intervals, a small quantity of wine and water. At seven this morning, he appears less insensible than he was last night. He grinds his teeth as before, he moans heavily, and cries out at times, "Oh my arms!" He stretches them frequently out; he picks his teeth, and tugs his shirt sleeve. He swallowed easily a spoonful of jelly which I gave him, and then cried out for drink. He refused the wine and water which was offered; he refused also beef-tea. He cried out again for water—"Water, water, I want *cold* water!" Of some cold gruel, he now drank very greedily.

At ten o'clock A. M.—A most violent general convulsion, which continued with little mitigation for twenty minutes. Pulse, during the fit, 100; before and after the fit, 140. Continue the mercurial frictions, and let him have wine, to the extent of four glasses, with water.

Evening Report.—Several convulsions from eleven till two o'clock, from which time he has been quiet and insensible. At nine this evening, he still slumbers softly. Has taken about three glasses of wine. No stool nor urine passed this morning. Pulse 100.

15th.—Has passed the night in the same slumbering state, occasionally moving his arms, and sighing deeply. Towards morning, he turned himself, and passed his urine in bed. He looked up, and drank some wine and water freely. He knew his mother, and spoke to her.

At nine this morning.—He is awake; the eye is clear; the pupil is much dilated; and, though he rolls his eyes much, and seems to direct and fix them with difficulty, he sees and distinguishes objects distinctly, several of which he named. When asked to show his tongue, he pushed it out very readily: it is very black, foul, and swelled, but moist. He takes the wine and water willingly, but has some difficulty in swallowing. The countenance is pale; the features sharp: the alæ narium drawn close; p. 100, soft

and equal. Has taken, since yesterday, about six ounces of port wine.

The wine to be continued. To have calf-feet jelly, and beef-tea, *ad libitum*. The head, which is still sore, to be dressed with Ung. Hydrargyr.

Evening Report.—Has continued in the same quiet state, though more awake. Has taken four glasses of wine, and two glasses of jelly. He answers distinctly; says his head is bad, and arms easier. He picks much at his eyes and nose, but has not ground his teeth. The pupil is nearly natural. He has urined three times very plentifully. No stool. Pulse 130. Continue.

16th.—A tolerably quiet night; sleeping generally; and at intervals moaning, sighing, and picking the bed clothes, eyes, and nose. Has passed urine twice. No stool. Has taken, during the night, three glasses of wine, and one of calf-feet jelly. He answers distinctly; says he is better, but complains of his head. He swallows more easily, and more naturally. Tongue less swelled. Gums look a little red and full; no mercurial fœtor, however, nor salivation. Pulse 140. Skin hot. Belly swelled and hard. To have four grains of calomel; to be repeated, if no stool has been procured, at six in the evening. Urine, &c. as before.

Evening Report.—Became uneasy, and evidently worse, about five o'clock. He moaned

heavily; ground his teeth most dreadfully; and was soon afterwards seized with a general convulsion. At ten this evening, he is still convulsed over the whole body. As before, the spasm seems confined to the extensor muscles; the legs and arms are forcibly stretched out; and the neck and trunk are quite rigid. There is very little interval between the convulsions.

17th.—The convulsions continued with very short intermissions. He died this morning at seven o'clock.

No dissection.

NUMBER III.

CASES

OF

HYDROCEPHALUS ACUTUS.

CASE I.

J. M. whose case was given (Case I, No. I) again became my patient in December 1806. Indeed, as she never had regained her health after her illness in May 1804, I had very often, in the meantime, been consulted about her complaints. She had frequently scrophulous ophthalmia; the lymphatic glands in her neck were swelled; there was a protrusion of the tenth dorsal vertebra; the instep was much enlarged, from a swelling of the bones of the foot. She has been frequently troubled with a disordered state of the abdominal viscera; at these times, her abdomen was observed tumid, the stools dark and fœtid, her breath heavy, and she was not without fever. When these symptoms were relieved, by aloetic purges, she generally had tolerable health for some weeks or months. When the protrusion

of the spine was first observed, her bowels were, and for some time had been, in a very disordered state; and it appeared to me, and to others, that as her stools became more natural, the effect of the aloetic pill, the protrusion in the spine was less conspicuous.

In the latter end of November, when I called to inquire for this girl, whom I had not seen for some months, I found that she had had several fits of sickness, and had been for some days costive. I considered this as a return of the complaint from which she had so often suffered, and ordered her pills, with aloes and gamboge.

I visited her on the 1st December, and found that she was still costive, and that, in addition to her other complaints, she had occasionally, for two days, complained of pain in her head and belly; but that she was often cheerful. I found an unwillingness in her friends to give her medicine. I urged the necessity of having the state of her bowels corrected.

4th December.—She has had only one dose of the pills. She is screaming with pain in her head and belly. She is drowsy, fretful, and feverish.

℞. Tinct. Jal ʒ i.
Syr. Simp. ʒ ss.
Aq Font. ʒ iij. ℿ.
Sumat. Coch. 3a q.q. hora.

6th.—She has taken all the mixture, which produced only one scanty stool. She is extremely dull. Whenever she leans her head upon her mother's knee, she instantly falls asleep, and awakes confused. The pain, which is chiefly in her forehead, is more intense and constant.

℞. P. Jal. gr. xx.
Submur. Hydrarg.
Sacch. a.a. gr. xij. m.
f. Pulv. iv.

7th.—She has taken three of the powders, but has had only one small stool. I found her asleep; pale; altered in appearance; her eyes slowly rolling under her eyelids; the headache most excruciating during the whole night; her pulse 60. Upon awaking, she sighed heavily; was for some time indistinct; her pupils much dilated. She had considerable strabismus. Her tongue is loaded. As it was impossible to get her to swallow medicine, I advised laxative glysters, two of which were given, and were followed by the discharge of a quantity of dark fæces, of a colour between red and brown, mixed with black and ropy slime.

8th.—She lies sleeping calmly; in her sleep, now and then sighing. Her pulse is under 60. The heat of her skin is moderate. She has a fixed squint; her mother thinks her blind. No more stools have been passed.

9th.—Her left side is motionless; her right is convulsed. For some days she has refused all nourishment. During the last twenty-four hours, she has lain as I find her; comatose; grinding her teeth; breathing for the most part softly, but sometimes stertorously; generally flushed; her eye inflamed; and quite insensible. Her stools, of which she has had several during the night, are firm and clayey; pulse 100, full; her breath is very sickly; her mouth is drawn to a side; her tongue is white and dry. The slight convulsions, with which she is often seized, generally disappear after a long-drawn sigh.

10th.—Pulse 140; sleeping calmly. During the night she had three violent fits of convulsion. Her stools are dark, but not Hydrocephalic.

11th.—Pulse about 200. Her respiration is becoming quick; it is about 40. She is pale. Her eyes are fixed. Her mother says, for a considerable time during the night, that she recovered her sight, and was also sensible. Her urine and stools are scanty.

12th.—She died on the evening of the 11th.

Permission, with great reluctance, being given to open the abdomen, these were the appearances which were observed.

There was nothing unusual in the first view which presented of the intestinal canal; but, upon a more narrow examination, I discovered, in

the small intestines, evident traces of increased vascular action; in several places, the blood vessels had that florid and injected appearance which is only found after inflammation. In children, where there had existed any irritation in the bowels, upon dissection, we seldom fail to find construction and intussusception of the small intestines; accordingly, about a foot of the ilium was found thus involved; at this part, however, I could discover no remains of inflammation.

The gall-bladder was much distended with dark-green bile.

The surface of the liver was quite irregular, from a multitude of tubercles of various sizes. When the substance of the liver was cut into, we found the structure universally tubercular; and, except on the convex surface, it was unusually colourless. The appearance of increased vascularity on this surface was striking; and it adhered, by numerous bands of unequal strength, some of them as firm as the broad ligament, to the peritoneal coat of the diaphragm, which also had been much inflamed.

Many of the mesenteric glands were enlarged. Some of those which appeared unusually firm I cut into, and found containing a quantity of caseous matter. There was nothing unusual in the appearance of the spleen, pancreas, kidneys, or great intestines.

We were not allowed to make a dissection of the brain.

CASE II.

June 1801.—C. D. aged fourteen, of a highly scrophulous family, complained from the beginning of spring of rheumatic pains and want of appetite; and her constitution was so much shaken, as to lead her friends to think that she was in a decline. Towards the end of May, the pains chiefly complained of were in her head. In the beginning of June, the pain was seldom absent. Her bowels about this time were much disturbed; she had severe and constant purging, and, at the same time, she was sick and vomited bile; her pulse denoted much fever; the slightest quantity of calomel, even half a grain, increased the bowel complaint. Purgatives, opiates, and cretaceous medicines, were alike unavailing; the sickness, diarrhœa, and fever continued; at last, she complained less of her head; but this was from her having become lethargic. She showed considerable displeasure when roused; and she invariably turned from the light; her pupils ceased to dilate; she had every symptom of Hydrocephalus, except the slow pulse; but that this

was her disease, was not suspected sooner than about ten days before her death.

CASE III.

June 1805.—R. A. aged six.

This boy, since the beginning of last summer, never has enjoyed good health. In July 1804, he had hooping-cough; this he surmounted; but the utmost delicacy of constitution remained; he was long without appetite. After the cold winter weather set in, he was attacked all over the body with circumscribed tumors, about the size and shape of a nutmeg, apparently formed in the cellular membrane, which slowly suppurated, leaving scrophulous sores. When these tumors first appeared, he was so dyspeptic, low, and weak, as to be confined to bed. As the spring advanced, he appeared to recover strength. I called occasionally to see the progress of the scrophulous disease. One day, upon remarking that he had something peculiar in his look, his mother said, she was afraid he was losing his sight. I examined him, and found that the pupils did not contract; one side was paralytic. He complained of no pain in his head; but in ten days he was dead, during which time most of the symptoms of Hydrocephalus were manifested.

CASE IV.

Hydrocephali interni, et acuti, ut illud a lento et chronico distinguam, historiam etsi brevem, et non absolutissimam, qualem accepi ex ore ejus, qui curationi præfuit, cum sectione cadaveris heic referre non erit inutile. Puella quadriennis, caput habens magnæ molis, temperamento sanguineo, et bono corporis habitu prædita, *antehac tussi rheumaticæ pluries obnoxia*, cœpit de dolore capitis subinde conqueri. Quadam die repente subriguit et post frigus et horrorem, incaluit non exigua febri prehensa. Ducta ei alvus est eccoprotico antiphlogistico, sed febri adhuc prosequente, missus postea etiam e vena sanguis. Febris interdiu inequaliter incedens sæpius invalescebat et vicissim se remittebat, nunquam ad apyrexiam perveniens. Post missam sanguinem melius habuit, ita ut non modo paullatim febris evanescere videretur verum a lecto etiam surgeret, cibumque et appeteret, et paullo largiorem per aliquot dies assumeret. At dolor capitis nunquam eam penitus reliquit, nec pulsus ad naturalem omnino motum rediit, inæqualiter enim, et celerius micabat. Tandem quatuor ante mortem diebus febris iterum accessit, auctusque est

capitis dolor sic ut primum deliraret, deinde motibus convulsivis faciei et demum artuum subinde corriperetur. Postremo resoluta ex uno corporis latere, stertens, et sensibus orbata viginti quatuor amplius horas transegit, nequidquam juvantibus epispasticis, antiphlogisticis et revellentibus quibuscunque medicamentis misere vitam cum morte commutavit, die nimirum decima septima, ex qua morbus incipere visus est; quarta vero ex qua febris, et capitis dolor recruduit. Sectioni anatomicæ ejus cadaver opportuno ab obitu tempore traditur. En quæ parentum defunctae amicissimus Kavina, strenuus militum prætorianorum chirurgus primarius, in ea invenit, mihique scripto retulit: aperto cranio dura mater tensa et colore subcæruleo, uti esse in pueris ob cerebri molem, et vasorum subter positorum transparentem nigredinem solet, apparuit. Ejus vasa sanguinea, item que piæ matris, et cerebri ipsius turgida admodum et sanguine plena, et præ ceteris sinus omnes venosi qui præter modum eo tumebant. Retractis meningibus exterior sinistri anterioris cerebri lobi facies obtegebatur concreto tenui quodam humore translucido et flavo qui gelatinam æmulabatur. Ventriculis magnæ vis aquæ inerat qua turgebant. Hæc in capite. Thorax deinde reseratus est. *In anteriore pulmonis dextri parte mox occurrit tuberculum, ex quo secto et expresso aliquid humoris*

lymphatici prope ad drachmas duas prodit. Supra eandem pulmonem concreverat mucosus humor quidam flavescens gelatinosus. *In sinistro pulmone duo reperta tubercula fuere qua pus fœtidum expressa fendebant.* Extrinsecus ejusdem faciem fœdabat macula violacea nigricans. Vasa pulmonica vix quidquam sanguinis continebant. Auricula vero dextra polypo magno occupabatur, et eo maxime intumuerat. Abdomen non fuit dissectum, Burserius, Inst. Med. Pract. vol. v, § 52.

Dr. St. Clair, *Edinburgh Medical Essays and Observations, vol.* ii, *art.* 18, gives an excellent case of Hydrocephalus converted from scrophula: the attack is also of the acute form. This boy had had hectic, from pulmonary complaints, from which he appeared to have recovered. Suddenly, fever with delirium came on; then startings, shrieking, increase of fever; epileptic fits; a return of intellect; "the pulse slower than that "of a man in health;" violent convulsions and death. He died on the 8th day. In the dissection, was found, near the beginning of the jejunum, a small quantity of the feculent matter which is almost peculiar to this disease. In the breast, nothing was faulty but the lungs, which

adhered firmly on all sides to the pleura, and were full of tubercles, and suppurated imposthumes of different sizes; so that whenever they were cut, either thin pus ran out, or a thick substance of the consistence of new cheese, was found within the membranes of the tubercles. The blood vessels of the brain were all greatly distended with blood; and in the ventricles about six ounces of water were found.

Dr. Percival relates, "that a girl, aged nine "years, after labouring under symptoms of "phthisis pulmonalis four months, was affected "with unusual pains in her head, which increas- "ed rapidly, to such a degree as to occasion fre- "quent screamings. The cough that had before "been extremely violent, and attended with "stitches in her breast, now abated, and in a few "days ceased almost entirely. The pupils of the "eye became dilated; a strabismus ensued; and, "in about a week, death put a period to her ago- "nies." In the paragraph preceding that which I have quoted, Dr. Percival says, "Practical "writers have related many cases of dropsical "metastasis. I have seen an affection of the "brain which appeared to be Hydrocephalic, "and probably originated in inflammation, sud- "denly and completely relieved, by the attack of "an acute pain in the side, which terminated in "a fatal abscess and hydrothorax."

It is surely unnecessary farther to pursue this illustration of the connection between Hydrocephalus and scrophula.

CASE V.

On the 4th of July, while visiting the garrison hospital under my care in Leith fort, a soldier's child was brought to me, a girl of eighteen months, not much fallen away in flesh, but pale, or rather of a sickly yellow complexion, such as children with a relaxed state of the bowels acquire. She had been weaned nearly two months; and her bowels, since the weaning, and indeed for some weeks before, had been loose. The lymphatic system appeared deranged. With the looseness, her belly was full, her limbs soft, and somewhat œdematous. However, I expected that a gentle mercurial course would restore her to health. On the 9th, her father requested me to go to his room to see her, as she appeared to him much worse. I found her lying, at first sight, I thought, asleep, sawing with her right hand; and her left, I understood, she had lost the power of using. Upon investigating the case, I discovered, by the most unequivocal signs, what I might have concluded from this appearance, that she had fallen into Hydrocephalus.

CASE VI.

A. S. two years and a half old, a fair child, of a temperament which formerly would have been called pituitary or phlegmatic.

9th December.—About eight o'clock last night, this boy was seized with a convulsion fit. When I saw him, which was about ten minutes after seizure, he was recovering from the fit. He had past, during the fit, a loose clayey stool, mixed with dark slimy streaks, exceedingly fœtid. A glyster of gruel with salt was immediately injected; then he was put into the tepid bath; and he had regularly given him, every two hours during the night, a potion, containing carbonate of magnesia and powder of jalap. About four in the morning he had another fit. I was sent for; but before I arrived, the violence of the convulsion was again over. However, his body was still retracted; his limbs, particularly of the left side (which was the side most convulsed) were extended; his pupils were dilated, his countenance was pale. This morning, from ten to twelve, he was never altogether free of convulsion —often violently convulsed. I have not seen him during the violence of the convulsion; but it is described as sometimes a perfect ὀπισθοτονος. In the interval between the fits he is quite distinct.

To night he is pale, he has frequent convulsive twitches. His pulse is extremely quick and hard, his skin is warm. Having had about two drachms of magnesia, and one drachm of jalap, his belly has been very loose; the stools are dark and viscid, with a very pungent fœtor.

About the 2d of December, this boy's gums and tongue were observed affected with those circular painful ulcers, attended with salivation, which vulgarly are supposed to indicate difficult dentition; he was feverish, and lost his appetite. On the 5th and 6th, he appeared to be in a state of convalescence. On the 6th, he was running about the house in good spirits, and his mouth was much easier. On the morning of the 8th, he often complained of pain in his belly; he was dull in the afternoon, he lay with his head on his mother's breast. He never has complained either of sickness or of headache. Some of the ulcerations, more superficial than they originally were, are still to be seen in his gums.

10th.—This boy had another fit last night at midnight. He is now insensible. His pulse is extremely hurried, and vibrating. His pupils are wonderfully contracted. His skin is hot, his tongue loaded. The subsultus still continues. His stools are large, green, and slimy. His head has been shaved, and rags dipt in cold water and vinegar frequently applied.

11th.—Four leeches were applied to his temples, and a blister to the scalp. His pulse is by no means so quick (about 130.) The adnata is suffused, not deeply; the iris appears pale. His pupils are less contracted. One cheek is flushed. He is frowning, sighing, restless, insensible. The twitches, particularly of the left side, continue; he passes frequent dark stools; his urine all along has been scanty.

12th.—Yesterday he began to take digitalis and calomel. The cornea is covered with a viscid secretion, which conceals, in the right eye, the shape of the pupil. The pupils are but moderately dilated, and contract, upon the approach of a candle to the eye; yet he appears quite blind; his pulse is about 200; his respiration quick (50) not laborious; he sometimes sighs; his breath is very sickly; he has convulsive twitches about the eye, and his left hand and fingers are irregularly, sometimes spasmodically, moved: his mother says that he was at one time to-day quite sensible to her attentions; he has had three green and slimy stools.

13th.—He died last night about midnight.

CASE VII.

11th October.—Two children and their mother had fever, with morning remissions. One of the children, about the seventh or eighth day of the fever, had symptoms of oppressed brain, apparently from Hydrocephalus having taken place of the fever. She was briskly purged, blistered, and she took digitalis in large doses, and calomel. In four days, from the change in her disease, she had no symptoms either of fever or Hydrocephalus. She was indeed very weak. About the time (30th September) that the fever left the mother of these children, a third girl, about four years of age, sickened. The fever which this last child had was ardent, with a morning remission, not very complete; she never complained of her head, nor was she sick. On the 9th day of October, the fever appeared to have left her; and immediately a severe vomiting and purging of bile ensued. She became exceedingly dull, and has scarce spoke since. The purging continuing, on the 10th an opiate was administered, after which the purging ceased; the dullness and insensibility increased, and she was, in the night of the 10th, quite insensible, and rolled incessantly from side to side. The heat of her skin returned.

She is still extremely restless; her pulse is nearly 200. Her pupil is dilated, yet contracts upon the approach of a strong light. Although she is insensible to every thing which passes in the chamber, yet she is able to express her displeasure upon being lifted out of bed. She sighs frequently. I attended her sister during her illness; my first visit to this girl was made to-day. I was as careful as I could be in procuring the foregoing account of her disease.

12th.—The night was passed miserably; the girl was not so much convulsed as in a state of constant restlessness, tossing about the bed, grinding her teeth. Her eyes were often fixed; her pulse is 180, or 190, and small. She is blind; her breathing is irregular, her breath sickly. Such restlessness I never witnessed.

13th.—She has had no stool for these two days. Her night was quieter. She still is restless, and apparently insensible. She is deeply flushed. She sighs much. There appears in her agitation great impatience.

14th.—She died this evening, before I had made my visit; but I understand that her left side was in constant motion during the greater part of the day.

Dissection, 15th October.—There occurred unusual difficulty in separating the skull-cap from the dura mater. This arose from an indissoluble

adhesion, at the upper part of the lambdoidal suture, of a part of the membrane to the bone. The adhesion was circular, and about an inch in diameter. It was evidently the effect of inflammation, but whether of a recent date, is, I think, very doubtful. The dura mater did not at any other part exhibit any great mark of disease.

The longitudinal sinus was but scantily filled with blood. On lifting the dura mater, there appeared on the brain the most incontestible remains of arterial action. All over the surface, the red blood vessels were very abundant; and, in the spaces between them, there were suffusions of vermillion-coloured extravasation, in pretty extensive masses. Under the tunica arachnoidea, there was a considerable quantity of serous effusion extending over all the surface of the brain, but lodged chiefly in the interstices between the convolutions. The veins were not empty, but by no means turgid. The substance of the brain was of a natural degree of firmness; and, on dividing it, numerous red spots of blood studded the cut surfaces.

The ventricles were found but little dilated. They contained a certain quantity of serous effusion. The hole of communication between the ventricles was somewhat enlarged, allowing the free transmission of the fluid. The fluid in the ventricles did not exceed an ounce. The plexus

choroides was coloured deeply with arterial blood; and the velum interpositum was beset with little red blood vessels in great numbers, and similar to the appearance which presented when the dura mater was removed from the surface of the brain.

The substance of the fornix was perfectly firm. All around the base of the brain, the surface exhibited the same marks of inflammation which were described on the upper part of the brain. Yet there was no such appearance on the surface of the cerebellum; on the contrary, there was not to be discerned a single red blood vessel.

The dissection of the head was conceded by the friends so unwillingly, that I did not propose to open the abdomen, without which, however, no dissection of Hydrocephalus is to be considered as complete.

CASE VIII.

September 1806.—A few days ago, a girl about seven years of age, who had been labouring under a continued fever, with morning remissions, with which three children in the same lane were affected, appeared to me to have got a crisis. She became cold on the 15th day of her fever; her tongue clean. I called on the 18th

day, and then I discovered a sad change; her pulse was about 80, and was raised to great quickness by lifting her up upon the pillow, or turning her. The pupils were dilated; the iris paralytic. She was totally blind, and quite insensible. She was breathing irregularly; frequently sighing. She had every symptom of Hydrocephalus, with the exception of the stools, which were fœtid, and of a dark reddish brown. In this state she lay three days, and died, after being much convulsed.

I could adduce many other instances of remittent fever terminating in Hydrocephalus.

Dr. J. Hunter records an instance, in an adult, of the remittent fever of the West Indies terminating in effusion of the ventricles. I shall content myself with referring to the work of this intelligent writer. *Observations on the Diseases of the Army, p.* 81. If I mistake not, in typhus, the dilatation of the pupils is mentioned by some authors as a fatal symptom; and well it may, if, as I imagine, it arises from a conversion of a very hopeless nature. In the case of an adult, whom I attended this spring, in fever, with great disorder of the sensorium, the pulse, a few days before death, came down below 80, was soft and

irregular. Perhaps the pulse, as in this instance, coming down, may be mistaken for a crisis. It has occurred to me since, that I might have been mistaken when I thought that the girl (Case VIII.) had got the crisis. Dr. Willan desires us to distinguish between acute Hydrocephalus and the symptomatic Hydrocephalus, which takes place, with very similar symptoms, after the crisis of malignant fevers. *Reports on the diseases of London, p.* 270.

It may be considered as the tendency of other diseases, in which the bowels are torpid, to lead to Hydrocephalus. Dr. Willan observes, that, in two cases of chorea S^ti. Viti, which he examined after death, from two to four ounces of clear lymph were found in the ventricles of the brain. *Reports on the Diseases of London, p.* 245.

A sufficient number of cases have been presented to show the conversion of other diseases into Hydrocephalus.

NUMBER IV.

DISSECTIONS.

I.

Dissection of a boy of six years of age, who died of Hydrocephalus. The disease lasted exactly twenty-one days. There was rather more of pain in the head than usual; in other respects, it was a case presenting a fair example of the disease. The boy, before the attack, had been apparently in good health.

The intestinal canal appeared rather paler than usual; the liver darker. There was no fluid in the cavity of the abdomen; indeed the peritoneum was not even lubricated.

After minutely examining the abdominal viscera, we proceeded to the dissection of the head.

In lifting back the dura mater, it was found to adhere to the tunica arachnoidea in several

places. The veins of the pia mater were full of blood, but not turgid.

On cutting off part of the brain, we found it firm and tough, in the cut surface there were numerous spots of dark, apparently venous, blood.

On cutting into the left lateral ventricle, a colourless fluid flowed out, and the ventricle appeared to be considerably dilated. The veins on the walls of the ventricle were filled with blood. The plexus choroides had no redness in its colour. The vena Galeni was full of blood. The edges of the fornix were fringed, the substance of it was peculiarly soft.

The other ventricles were in a condition similar to the lateral ventricle; the ventricles contained in all about three ounces of fluid.

II.

Dissection of a fair-complexioned boy, eight years of age, apparently of a scrophulous habit, who died of Hydrocephalus on the 6th May. Six or seven weeks before his death, he became unusually reserved, then thin and pale; yet he took his victuals somewhat too greedily. About three weeks after, he began to decline in his health; he was seized with a severe bowel complaint, which

continued eight or nine days; when it stopt, he left off taking nourishment almost entirely; what he took he vomited. About this time (viz. about ten days before he died) there was observed great quickness and brilliancy of the eyes, and he complained almost incessantly of headache; for several days after the vomiting left him, he had frequent fits of retching. Since the purging left him, he has been scarcely out of bed. In the latter part of his illness, he dosed much, and always awoke delirious; he sighed, started, was convulsed, complained constantly and impatiently of his head, frequently also of acute pain in his belly, and had great tenderness of the abdomen. The pupil was dilated; and the consent between the eyes was lost. He died after violent convulsions. The symptoms which, strictly, are attributable to a diseased state of the brain, were of a very short duration—under a fortnight. I saw him only five days before his death, when the case appeared to me hopeless.

Upon laying back the integuments of the abdomen, the intestines appeared generally distended by flatus. The transverse arch of the colon was greatly contorted, and remarkably distended above the rest of the intestines. In diameter, it might measure $2\frac{1}{2}$ inches. In the whole course of the small intestines, were frequent, but not high-coloured, marks of inflammation; and, in several

places, circular contraction of the coats. The colon was free of any marks of inflammation.

The surface of the liver was studded with white tubercles, of the size of millet seeds. There were no other morbid appearances in the abdomen.

On removing the skull-cap and the dura mater, there was observed nothing very remarkable on the surface of the brain. The veins on the pia mater were filled, but not distended.

The substance of the brain was firmer than natural. On cutting a pretty thick layer off the superior part of the brain, the lateral ventricle appeared to be much distended. A fluid, by tapping with the fingers, could be distinctly felt; it pushed up the roof of the ventricle. On making a small opening with the point of the knife, water spouted to some distance. The foramen commune, under the fornix, was much enlarged, and the ventricle of the other side was found collapsed. The substance of the fornix was very soft, being nearly of the consistence of thick cream. The plexus choroides was quite colourless; there were upon it several little papulous eminences.

All the ventricles contained water, and had been much distended by it. The veins on the walls of the ventricles were full, but not turgid.

The appearance of the vessels on the base was similar to that on the surface of the brain.

The quantity of fluid collected from the brain during the dissection was five ounces.

The quantity of fluid was, considering the duration of the disease, remarkable. I can explain this only by the violence of the symptoms which were present at the beginning of the Hydrocephalic attack.

III.

15th May.—Dissection of a boy twelve years of age. This boy died, after being for two days dreadfully convulsed. I saw him for the first time on the day previous to that on which he died. I found him drenched in sweat, large drops standing upon his face and forehead; his pupils dilated; his eyes rolling slowly; his pulse quick and thready; asleep; his breathing low. I attempted to rouse him, but could not. I understood that he was quite insensible. He was a boy of a very scrophulous constitution, subject to scrophulous ophthalmia, and swelling of the glands. During last winter, he did not enjoy a day of health. I recollect that he was brought to me about six weeks ago. He then complained

of a constant pain in the back part of his neck. At that time I examined him particularly, and discovered a commencing rising of the spine. I understand that he complained of his head about a fortnight ago. He was then much in bed. On the 8th, he had an attack of sickness; constant vomiting; nothing remained on his stomach. On the 9th, and succeeding nights, he had severe diarrhœa. The vomiting and purging was incessant till the 12th. On the night of the 12th he became delirious; and, with very short intervals, he continued so to the last.

When the skull-cap and dura mater were raised from the upper part of the brain, there appeared to be some effusion on the surface, and lodged in the angles between the convolutions of the cerebrum. On puncturing the membrane under which it lay, the effusion was found to be serous; on the pia mater, towards the back part of the head, were marks of inflammation.

On cutting away part of the brain, the surface presenting was moist. The substance was of a moderate degree of firmness.

On puncturing the lateral ventricle of one side, a quantity of watery fluid flowed out (about three ounces.) The ventricle was enlarged; the veins on its sides were conspicuous. The plexus choroides had upon it vesicles filled with serum. When the fornix was raised, there appeared, in

the middle of the velum interpositum, a vesicle of the size of a large pea, containing serous fluid. The substance of the fornix was quite soft. The hole between the ventricles was enlarged; and both ventricles were emptied by the puncture into the one which was first opened. They appeared to have been equally distended.

The third ventricle was enlarged, and contained fluid. In examining the base of the brain, the tunica arachnoides, round the infundibulum, was distended with fluid of a light green or yellow colour. On puncturing it, a good deal of serous fluid escaped. Besides the fluid, there was on the pia mater, at this place, a considerable deposition, apparently of coagulable lymph. It lay in distinct clots.

The fourth ventricle was enlarged, and contained fluid. The quantity of fluid collected during the dissection was five ounces.

We next proceeded to examine the contents of the abdomen, and found the intestines generally, and very much distended with flatus; at one or two places there were contractions of their coats, and marks of increased vascular action. The glands of the mesentery were enlarged. The gall bladder was completely distended.

The last vertebra of the back, and first of the loins, were found projecting.

IV.

Dissection of a boy nearly three years of age, who died of Hydrocephalus. First he was observed sallow and dull; the dullness lasted for six weeks, during which time his appetite was much impaired; but he made no complaint. He took to bed eighteen days before he died. On the morning of the 5th day after he was confined to bed, he became sick, and vomited; in the afternoon he had a severe fit; he had many in the latter part of his illness. During the last four days of his life, he was insensible and blind.

On raising the skull-cap, there appeared to be on the dura mater an increased number of little red blood vessels. The longitudinal sinus and veins on the pia mater were filled with blood. There was a considerable quantity of serous effusion over the whole surface of the brain, and marks of increased action in the small arteries, with here and there spots of extravasated blood. Towards the back part and right side of the brain, there was a considerable secretion of coagulable lymph.

The substance of the brain was firm. The left lateral ventricle was distended, and on opening it, a limpid and colourless fluid, to the quan-

tity of three or four ounces, escaped. The ventricle was considerably enlarged. The right lateral ventricle corresponded in appearance with the left. The foramen, under the fore part of the fornix, was much enlarged, allowing the water which had been in the right ventricle at once to escape, by the opening made in the left. The plexus choroides was free of blood and colourless. The substance and continuations of the fornix were very white and soft. The third and fourth ventricles were enlarged, and had contained a proportion of fluid.

On the cerebellum under the tentorium, there was a deposition of coagulated lymph, but not of great extent. On the base of the brain was effusion of serous fluid, and at particular parts, of a thicker opaque lymph, similar to what was observed on the upper part.

In the abdomen, the morbid appearances were white spots, not larger than a mustard seed, like minute tubercles all over the surface of the liver; in distribution like a regular and distinct eruption: enlargement of many of the glands of the mesentery. They were white and hard; and when cut into, were found to contain a cheesy substance, of a pure yellow colour, as if mixed with purulent matter.

On the following case and dissection, I shall not venture to give a decided opinion. I am inclined to think it a specimen of a different disease, rather than a variety of Hydrocephalus Acutus. I am persuaded that it is not a rare disease. Although this is the only dissection which I have made, I think that it is the second, if not the third case of the kind which I have seen. It appears of importance, to attend to every circumstance which can obscure the diagnosis of Hydrocephalus. I have pointed out two accidents which appear to me to embarrass the physician. 1st, He makes a favourable prognosis in some infantine disease, *e. g.* in remittent fever, and in a day or two he finds his patient Hydrocephalic by conversion, he is led to the rash conclusion, "that Hydrocephalus is only to be dis-"covered by dissection."* 2dly, By another unlooked-for turn, this conclusion is confirmed. An unfavourable prognostic is made in the case of Hydrocephalic symptoms arising from sympathy with disordered bowels, and the child upon the administration of active purgative medicines, unexpectedly recovers. The disease,

* These are the words of an eminent physician in London.

of which I am about to give an instance, may be another cause of confusion, as in its symptoms and its effects, it closely resembles Hydrocephalus Acutus. Hence it is entitled to every attention.

V.

J. P.'s child, eight months old, with blue eyes; a fair and thriving child.

On the 10th April, this boy, in the forenoon, was quite well, cheerful, and happy. In the afternoon, he was fretful. All night he was extremely fretful.

On the 11th, he was dull, oppressed, fretful, and feverish. In the afternoon, he started and screamed wildly, rather than in pain. His bowels were disordered; and, upon taking a cathartic medicine, he passed some green, fœtid, and ill concocted stools.

On the evening of the 12th, he was lively and cool. In the afternoon, the fever, fretfulness, and starting, returned. He had a very restless night.

13th.—I first saw him. His complexion is pale; brow contracted; he is extremely warm; his pulse 180; tongue rather loaded. He starts and sighs often; his legs are in constant motion,

not violent; his hands are frequently drawn in and extended, and his fingers are spasmodically moved; at times his eyes are much affected—fixed, with enlarged pupils; he is said to have had a convulsion fit shortly before I called. Before I left him the effects of it seemed to have disappeared. He was again quick and observing.

14th.—This child passed a very disturbed night. His left hand is in constant motion; it is hard to say whether it is spasmodic or voluntary, it is the regular motion which we observe in Hydrocephalus. He has slight spasms about the mouth and eyes. His brow is contracted; pupil rather dilated, not readily contracting. His respiration is quickened (70;) pulse about 160. He has great febrile heat. His tongue is cleaner; complexion pale; bowels loose; his stools are of a bright yellow colour, as if containing much bile, with green streaks, and a very sour smell.

15th.—In the course of last night he had three severe epileptic fits. He often sighed. He is much worse this morning; his pulse is about 200. His eyes are spasmodically affected; the pupil much contracted. There is subsultus; moaning. He is pale. His belly loose.

16th.—As the day advanced, yesterday, the convulsions became less violent. The nervous twitchings remaining. He died at three o'clock this morning.

Dissection of the head of this child, performed the day after death.

On raising the dura mater, we were struck with the appearance of the parts presenting. On a superficial view, there appeared to be, on the brain, a quantity of a green coagulum like jelly, in a layer of considerable thickness, in which the veins of the pia mater lay imbedded; these seemed to be coated with a white opaque deposite.

What at first appeared like jelly, upon examination proved to be serous exudation between the tunica arachnoides and pia mater; it was in far greater quantity on the upper part of the brain than elsewhere, and seemed pretty equally distributed on each hemisphere. It might be compared to a large flat vesication, the margin of which arose from the horizontal line which divides the upper and middle third of the circumference of the brain. Although beyond this part, the appearance of vesication did not extend, yet the veins on the pia mater, all around the external part of the brain, were nearly coated with what appeared to be coagulable lymph (at some places flakes of it lay distinct;) from this the pia mater appeared as if converted into a thick membrane, in fact it was thickened, as appeared on examining that part of it where the exudation on the surface did not exist; and here we found little red

vessels and streaks of blood, such as appear on an inflamed membrane.

The sinuses in the dura, and the veins in the pia mater, were filled with blood.

The substance of the brain was very soft. On cutting it, fluid exuded so as to bedew the new surface.

There was but little fluid in the ventricles, not exceeding half an ounce. The plexus choroides was nearly colourless, as if bleached.

The substance of the fornix, as well as the other parts of the brain, was very soft.

There was little or no fluid in the third or fourth ventricle.

The quantity of fluid collected exceeded three ounces and a half, of which three ounces was collected from the surface of the brain.

THE END.

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