

**A statement of the early symptoms which lead to the disease termed water in the brain : with observations on the necessity of a watchful attention to them, and on the fatal consequences of their neglect / By G.D. Yeats.**

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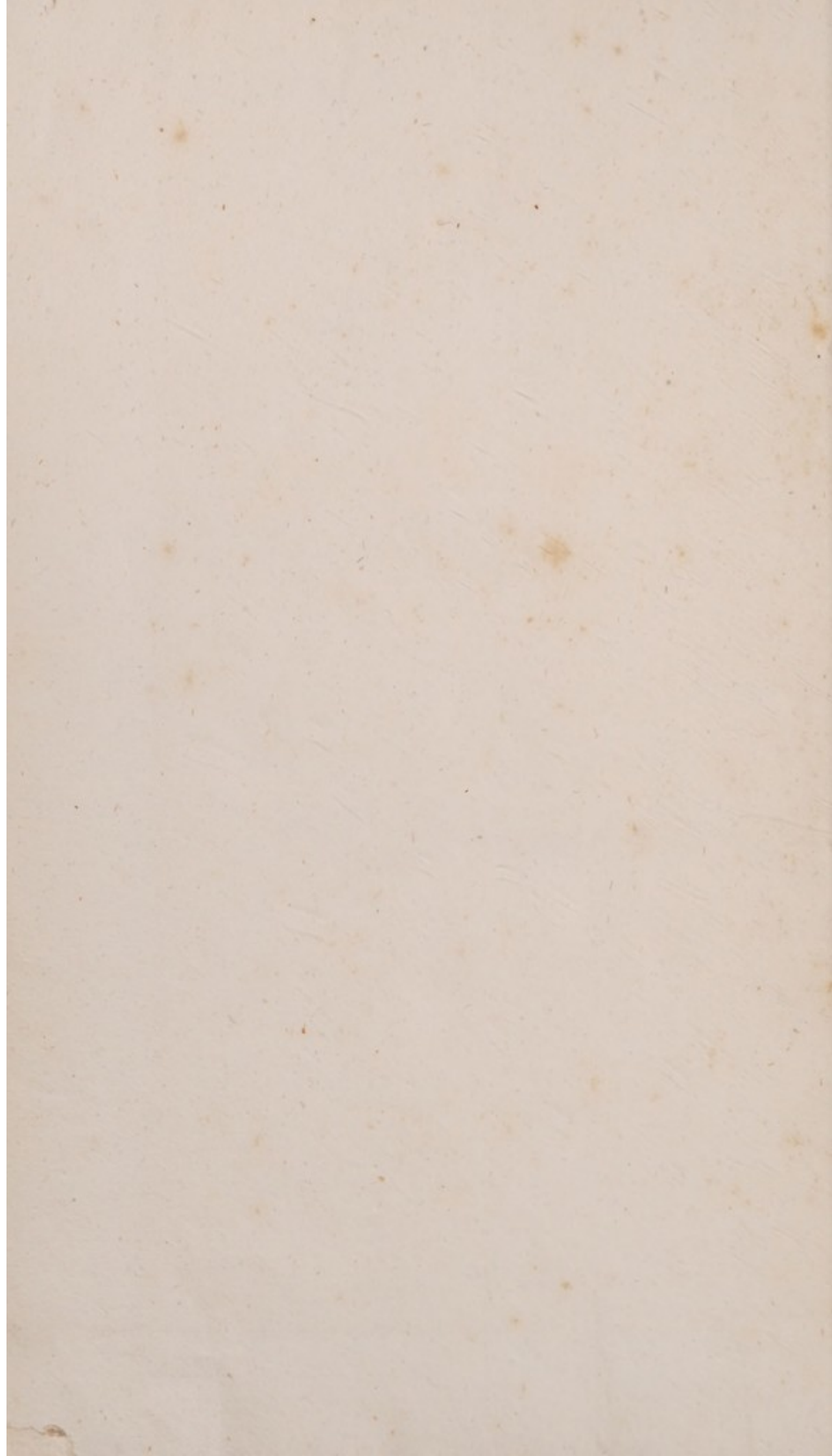
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# STATEMENT

## THE EARLY SYMPTOMS

### OF HYDROCEPHALUS

#### IN INFANCY

One of the early symptoms of this disease is to be

observed in the form of a swelling of the head.

The swelling is usually first observed in the

frontal region, and is accompanied by a

#### PROGRESSIVE ENLARGEMENT

of the head, and a corresponding increase in the

weight of the brain, and a corresponding

increase in the size of the ventricles.

The swelling is usually first observed in the

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*One Moiety of the Profits of this Edition is to be  
given to*

*THE ASYLUM FOR FEMALE ORPHANS.*

---



*William H. Triebel*

A  
STATEMENT  
OF  
THE EARLY SYMPTOMS  
WHICH LEAD TO THE DISEASE TERMED  
**WATER IN THE BRAIN;**  
WITH  
OBSERVATIONS  
ON THE  
NECESSITY OF A WATCHFUL ATTENTION TO THEM,  
AND ON THE  
FATAL CONSEQUENCES OF THEIR NEGLECT.

---

By G. D. YEATS, M.D F.R.S.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON;  
OF THE ROYAL MEDICAL SOCIETY, EDINBURGH;  
HONORARY MEMBER OF THE DUBLIN SOCIETY;  
PHYSICIAN TO HIS ROYAL HIGHNESS THE DUKE OF CUMBERLAND,  
TO HIS GRACE THE DUKE OF BEDFORD;  
ONE OF THE PHYSICIANS TO THE ASYLUM FOR FEMALE ORPHANS;  
AND LATE PHYSICIAN TO THE LUNATIC ASYLUM AND INFIRMARY  
OF THE COUNTY AND TOWN OF BEDFORD.

---

SECOND EDITION,  
CONSIDERABLY ENLARGED.

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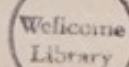
1823.

STATEMENT

THE EARLY SYMPTOMS

WATER IN THE BRAIN;

OPERATIONS



BY D. KEATS

SECOND EDITION

LONDON

1853

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## CORRIGENDA.

Page ix, Preliminary Remarks, line 6 from the bottom,  
*dele* "of" after subsequently.

Page 7, line 5, *for* may *read* will.

17, — 2, *for* serious *read* serous.

28, — 12, *for* of *read* and.

47, — 11, *for* it *read* its.

138, — 5, *for* as *read* notwithstanding.

141, — 10, *for* distured *read* disturbed.

148, — 14, *for* phrenetic *read* phrenitic.

157, — 24, *for* give *read* gives.

159, — 10, *for* impaired *read* improved.

161, — 10, *for* uriter *read* ureter.

162, — 17, *for* of the *read* after.

163, — 9, *for* cujusbis *read* cujusvis.

163, — 10, *for* inteumuerat *read* intumuerat.

TO  
HIS ROYAL HIGHNESS  
PRINCE ADOLPHUS FREDERICK,  
DUKE OF CAMBRIDGE, K. G.  
PRESIDENT ;

TO  
HER ROYAL HIGHNESS  
THE DUCHESS OF CAMBRIDGE,  
PATRONESS ;

TO  
THE VICE-PRESIDENTS, THE TREASURER,  
AND OTHER  
THE GUARDIANS  
OF

**The Asylum for Female Orphans,**

AS A MARK OF RESPECT, FOR THE ASSIDUITY, ZEAL, AND FIDELITY WITH  
WHICH THE GENERAL COMMITTEE MANAGE ITS CONCERNS,  
AND FOR THE ANXIOUS ATTENTION THEY PAY TO THE MORAL CONDUCT,  
THE COMFORTS, AND THE HEALTH OF THE ORPHANS  
COMMITTED TO THEIR CARE,

THIS TREATISE IS INSCRIBED,

BY THEIR VERY FAITHFUL AND OBEDIENT SERVANT,

THE AUTHOR.

17, QUEEN STREET, MAY FAIR,  
AUGUST 7, 1823.

THE HOUSE OF COMMONS  
IN PARLIAMENT ASSEMBLED

REPORT OF THE SELECT COMMITTEE  
ON THE PETITION OF THE

THE DEBTS ON CLARENCE

THE VICE-PROVOST OF THE TOWER

THE CLARENCE

THE REPORT OF THE SELECT COMMITTEE

AS A MEANS OF ASSESSING THE DEBTS ON CLARENCE  
AND THE VICE-PROVOST OF THE TOWER  
AND THE VICE-PROVOST OF THE TOWER  
AND THE VICE-PROVOST OF THE TOWER  
AND THE VICE-PROVOST OF THE TOWER  
AND THE VICE-PROVOST OF THE TOWER

THE SELECT COMMITTEE

AND THE VICE-PROVOST OF THE TOWER

THE TOWER

PRINTED BY  
H. K. B. B.



## SOME PRELIMINARY REMARKS.

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A Second edition of my pamphlet on Water in the Brain being called for, it seemed best to divest it of the form of a letter, as it would enable me to make such alterations, additions, and improvements, as would render the work still more worthy of public notice. It occurred to me also, that the more clearly expressed, and the more generally diffused among parents were the cautions and admonitions respecting the commencing symptoms of this complaint, the greater chance would the practitioner have, by an early summons,

of being successful in the treatment. Being desirous, therefore, of making the publication as useful as possible to the friends and parents of young people, besides divesting it of the form of a letter, I have divided the subject into sections and made considerable additions, adding also a table of contents, so that the reader may at once refer to any necessary part, whenever as parent or friend he may be anxious about the state of health of his little charge ; and in order not to distract his attention in the perusal, the notes are inserted at the end of the work : and a concise view of the intestinal functions has been inserted. The notes are enlarged with observations and references to some of the best authorities, elucidating the subject, for the examination, at leisure, of the professional reader of curiosity and research. Parents, I trust, therefore, will find the publication a useful manual ; and the professional reader, active in the pursuit of his subject, may, if he



pleases, explore the rich mine of ancient and modern authorities.

Since the first edition of this pamphlet was published, a great many cases have come under my care, which have established beyond all doubt in my own mind that the affections of the brain, especially in young people, which end in effusion there, if not guarded against, have their foundations in a great majority of instances in a deranged function of the powers of the epigastric viscera, and the many insulated cases, which have been published by several Gentlemen of the profession in the periodical journals, with a successful practical result founded upon the same doctrine, have given this opinion a currency upon philosophical and scientific principles. That complicated assemblage of symptoms which bewildered the practitioner and led him away like an ignis fatuus from the real nature of the disease, has been developed and analysed into greater sim-



plicity, and the means of empirical experiment have become the means of rational practice.

I intend these observations to apply strictly to that species of disease in young people, formerly so much involved in obscurity, which commences in a morbid action of the epigastric viscera, is in time communicated to the brain, and ends in a fatal effusion of fluid there: for although the ray of science has thus shed its light and dispersed some of those dark clouds which obscured the nature of this complaint, yet the precise condition and proper treatment of some of the diseases of the brain are still in part hidden from our view, for the symptoms of its morbid states are sometimes so contradictory, giving rise to indications of such contrariety, as to produce hesitation in the practical determinations of the most experienced; and this is sometimes caused by simple irritability of the brain, assuming all the ap-

pearances of a high inflammatory state there. I believe that in some instances of the former, bleeding has been injuriously performed, when in the latter it has been as injuriously omitted.

The gastric consideration of diseases is not new, neither is the practice, founded upon an attention to sympathetic symptoms, of modern date. Whoever will take the trouble to consult the invaluable works of Hoffman, particularly his chapters "*De consensu partium nervosorum generatim & sigillatim cum ventriculo. De generatione morborum ex morbis, & De commutatâ morborum sede,*" will not only find this opinion correct, but will see an admirable explanation of many facts and of the effects which a disease in one part produces on a distant organ. The practice, however, in sympathetic diseases, has been much improved in consequence of the improvement of the science of medicine in every respect, and in consequence



also of a better acquaintance with the virtues and effects of individual medicines: and among the diseases the treatment of which is handled with greater safety and success, is the one which is the subject of the present treatise, whether it be produced sympathetically by an impression on the brain from deranged functions in the digestive powers, or takes its origin idiosynthetically in the brain itself without any such previous ailments.

I have continued to use the term Hydrocephalus, not because I think the appellation appropriate, for it does not designate the disease, but because from custom it is known what it means, and the professional public has not yet generally sanctioned a better nosological appellation expressive of the nature of the complaint. "Is Hydrocephalitis admissible?" says Dr. Woolcombe in his remarks on the frequency and fatality of different diseases. This comes nearer to the point than any



term which has been yet offered; but something still more expressive is wanting. *Phrenicula Hydrencephalica* appears to me sufficiently distinctive, and every student would immediately know in his nosological studies to what disease this term was applicable. *Apoplexia Hydrocephalica* is, I think, out of the question, as the disease bears no resemblance to apoplexy in its characteristic symptoms. It is, however, very applicable to that sudden effusion of fluid which sometimes occurs in infants, and to which Dr. Golis of Vienna, in a good practical work on this subject, has very aptly given the name of Waterstroke. The symptoms also are different from those of *Phrenitis*. There is never the delirium ferox, and the pervigilium very rarely attends, the child almost always wishing to be left to quietness and repose; and *Phrenitis* is not so likely to terminate in effusion, being generally cured by resolution. Dr. Rush was the first to apply the term of

Phrenicula; it is sufficiently expressive of that inflammatory condition of the brain which is sometimes destructive both to its energy and to life without effusion of fluid: and I add Hydrencephalica as the distinctive appellation, descriptive of that collection of fluid in the ventricles which is the most common termination when the disease ends fatally. A good deal of confusion has prevailed among writers in their accounts of the nature and cause of the disease from the want of precise ideas of the condition of the cranial contents in this complaint. Some good admonitions on this subject will be found in Dr. Witlock Nicholl's Practical remarks on disordered states of the cerebral structures.

In consequence of some particular circumstances which occurred in the early part of my professional career, now more than twenty years ago, I was induced to turn my thoughts more closely to the consideration of Dropsy of the Brain. I was



not satisfied with the explanation of the symptoms I read in books, because it did not appear to me to accord with the phenomena ; and I was still less satisfied with the mode of treatment, for the melancholy reason that it was almost uniformly unsuccessful. I then began more accurately to analyse the symptoms with diffident and anxious eagerness, and to be more minute in my enquiries respecting the commencement of the complaint ; and it was not long before I perceived that in by far the majority of cases, symptoms which I then considered singular and contradictory, preceded the attack on the brain. Whilst my mind was engaged with thoughts on this subject, the works of Rush, and subsequently of those of Hamilton, of Abernethy, and of Cheyne fell in my way ; the perusal of these with a reference to the labours of Hoffman, of Cheston, and of Kirkland, contributed to confirm my suspicions, that hydrencephalus was not always originally



a disease of the head; and I accordingly hailed with gladness aid so powerful in assisting me to become emancipated from the received doctrines on the subject. And since the publication of my letter to Dr. Wall on Water in the Brain, my opinions have also been confirmed by the additional experience of the late Dr. Clarke, and by Dr. Wilson Philip, the former by the energy of his practice upon principles similar to those I had laid down for the management of the actual attack of hydrencephalus; and the latter by his explanation of sympathetic disease arising from deranged digestive organs, in his excellent and philosophical treatise on indigestion.

But whatever importance I may attach, and it is very considerable, to the idea that hydrencephalus in its origin commences in organs distant from the brain, I am very far from denying that the disease does originate, how often I cannot say, within the cranium. But experience of every sort,

personal, colloquial, and from reading, has amply confirmed to me, that unless we treat the disease as connected with, or arising from, gastro-hepatic derangement, we shall be disappointed in our practical expectations. There is no doubt, however, that the extinction of the derangement in the digestive organs is often only the removal of effects produced by morbid action in the brain ; still, nevertheless, the proper management of the gastro-hepatic derangement is one great step towards a cure, in as much as it obviates or mitigates the reaction upon the brain, and thus prevents an increased intensity and complication of disease.

The connection too between the diseases of the brain and deranged functions of the abdominal or other viscera, is as conspicuous in the advanced periods of life as in our infant years. In the latter we have hydrencephalus, either rapidly hurrying the little sufferer into a premature grave, or



approaching in a lingering form with a gradually enlarging head: in the former, apoplexy of the active kind either instantly surprises the patient at the moment of apparent high health and conviviality, or slowly advances upon him with lethargy, carus and gradual palsy. The experienced Physician knows how much in both instances of infancy and age, the disease of the brain is connected with an imperfect action in the more immediate digestive organs or in the intestinal canal. The analogy is striking; the conclusion of their similarity inevitable, whether we explain it from mechanical or sympathetic causes. The constipated state of the bowels at both periods of life is attended, though not always, in either case, with a morbid affection of the brain. The remarkably increased appetite which so often exists previous to an attack of genuine apoplexy, and the continuance of it in the paralytic state when the patient survives the stroke,



is not a little remarkable when we recollect the kind of appetite that very frequently exists in hydrencephalus: it is an irregular excitement of the stomach; a craving something more than appetite which produces an eagerness to eat without a corresponding gratification from its indulgence, and this indulgence is followed by consequences neither creditable to the physician who permits, nor advantageous to the patient who insists upon it.

The pathologist who refers the origin of diseases constantly to one particular part, must either have a very limited knowledge of anatomy, or must take a very partial view of the animal œconomy. Whoever therefore believes that we are always to look to the liver for the causes of disorders, or that the stomach is uniformly the primum mobile in morbid actions, or that irregular intestinal movements is the nucleus upon which are formed the various diseases to which we are subject, will find himself

disappointed in only relieving the symptoms and in not curing the diseases. Whatever division therefore may be made of doctrines, as a general principle into purgative and hepatic theory, or into theory of digestive organs, they will form a distinction in systematic writings, but will not be of much use except the Physician keeps in view the reciprocal effects which a morbid action of one portion of the digestive organs has upon another, and ultimately in this way upon the system at large.

I have not been able to ascertain how far hydrencephalus has increased of late years, on account of the great difficulty of knowing accurately from the bills of mortality the precise numbers which fall victims to this disease, as many children die convulsed from inflammation or other irritation of the brain, or from effusion as the consequence, and they are put down in the bills as dying from convulsions. Affections



of the head in general appear however to have been considerably on the increase. "The increase of Apoplexy and Palsy," Dr. Heberden observes, "has been gradual and constant. The proportional mortality from these diseases is now more than double what it was a hundred years ago. On the average of the last five years of the last century it appears, from the bills, to have been as 1 to 50. Our table confirms the observation as far as relates to the present times, by giving the relative mortality as 1 to 32." Woollcombe on the Frequency and Fatality of different diseases, p. 95. This great increase appears to me to be owing to an indulgence in the luxurious diet of the table, by which the digestive organs become oppressed and ultimately affect the brain.

The general prevalence of the opinion of the incurable nature of hydrocephalus, has I fear, in many instances, caused a



fatal despondency in parents, and a supineness and irresolution of practice in the medical attendant. I say this from knowing that some very excellent and sensible gentlemen of the profession, entertain a hopeless opinion of the result in cases which exhibit that stage of the complaint where effusion appears to have taken place or is rapidly doing so, but I have now so often seen children emerge from the most imminent peril of oppressed brain, with all those symptoms characteristic of considerable congestion and effusion, that, contrary to what my feelings were in my younger days of practice, my hopes and expectations are more encouraged under circumstances where they used to be supplanted by the character of despair. A most striking instance of this has very recently occurred in the case of a little boy, who lay moaning, comatose, and emaciated, with dilated pupils, and almost constant vomiting, and was considered as lost from incurable

hydrencephalus, having been pretty actively disciplined with gamboge, calomel and scammony. The mother had desired that I might see the child, to confirm or not, the opinion given by the Physician and Apothecary in attendance, that it was a case of the kind, "because, if it is Water in the Brain," she observed to me, "whatever can be done will be of no avail." I stated to her there was reason for believing that mischief existed in the head, but I did not on that account despair. I was permitted, with much reluctance, to proceed:—the boy completely recovered.

It gives me much pleasure to find, in turning over the pages of the late Dr. Clarke's Commentaries on the Diseases of Children, which have been published since my pamphlet, that the observations and experience of a man of his judgment and opportunities for information of this kind, confirm my opinions upon this point. "The



general fatality of cases of hydrocephalus is so well known, and it being the opinion of many medical men that the cure of it is impossible, it becomes extremely difficult to counteract the effect of these opinions on the minds of parents; and it is to be feared that the death of many children has been more owing to the want of exertion than to the incurable character of the disease," p. 145. And a German writer, of more recent date, Dr. Golis of Vienna, who has clearly attended very closely to the nature of this complaint, observes, "Late interference, and ignorance of the disease, are the sole causes of the great fatality of the acute hydrocephalus. Should my warning to mothers have contributed any thing to the diminution of the customary oversight of its first symptoms, and the present treatise render those physicians, who are sceptical about its frequency, more watchful of this disease, and throw any light on its diagnosis, my earnest wishes to

be serviceable to mankind will be fulfilled," p. 125. . Translation by Dr. Gooch.

The name of the disease before its nature was better understood, has contributed to diffuse this feeling of despair; but now that its real character is better ascertained, and a more judicious treatment adopted, this hopelessness is beginning to subside, and I am glad in giving my aid to assist in diminishing it. I must not however be misunderstood as meaning that we may always look to an equally favorable termination in this as in many other very severe diseases with which we are acquainted; but I wish seriously to impress upon the minds of parents, that they are not to resign the child to its fate as incurable because it labours under this disease. The idea of its incurable nature has been entertained from the circumstance of the name of dropsy being given to it before it has any title to that appellation; and now, indeed, that the nature and treatment of



dropsy itself are better understood, that name even of a complaint of the brain should not alarm us so as to create despair; but at all events it is not dropsy in its first stages, and only becomes so in consequence of neglect, oversight, or injudicious and mistaken treatment. I do not mean to deny, however, that this disease will not unfrequently prove fatal under the best treatment from the beginning from various causes, like any other disease, as peripneumony for example, than which hydrencephalus does not appear to be more dangerous. But “ the treatment of this “ inflammation has not been so successful “ as that of most other internal inflamma- “ tions, both because generally the prac- “ titioner is often not consulted until so “ much mischief has been done to an “ organ, whose structure and functions are “ essential to life, as to be irremediable; “ and also because the diagnostic symp- “ toms are frequently overlooked by su-

“ perfcial observers and by persons not  
“ conversant with the diseases of children.”  
Clarke’s Comment. p. 146.

I fear I may be laying myself open to the charge of over confidence in medical treatment by these assertions, but I feel assured of their truth from having witnessed recoveries of cases unequivocally stamped with the character of the complaint; and the reader will observe that the remarks apply to the phrenicula previous to the full hydrencephalic state strictly so called: and also we cannot say to what extent a collection of fluid in the brain may go without producing death; we do know, however, that it may go to a considerable extent without proving fatal, and even with the preservation of the intellectual powers: the difference would seem to be in the quantity of pressure to which the brain can accommodate itself without danger to the faculties and to life, and to the degree of the preceding inflammation ex-



hausting the vital energy of the brain : upon the prevention, in the first instance, of this inflammatory state, and upon its *resolution* in the second, when it does occur, by active and discriminating practice, depend very greatly, if not altogether, the successful termination of the attack. The effusion will be less injurious in proportion to the degree of energy which is left to the brain on the subsidence of the inflammatory state, and if there be no impaired structure in the contents of the cranium, which not unfrequently is the consequence of inflammation there.

Although I have professed to treat only of the first symptoms, deeming it of the greatest importance that they should be arrested in their progress, I have nevertheless in some degree entered into the nature and treatment of the last stage, and into the consequences of the disease, but not so minutely as the important interest of the subject requires ; this would com-

prise a work of considerable magnitude, and would lead to a consideration of the pathology of the brain in all its branches. Observations on and references to the morbid condition of the brain, however, which often remains as a consequence, more or less severe, and sometimes ultimately fatal after great suffering, will be found in the text, but more largely in the notes.





## A STATEMENT, &c.

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No doubt has been entertained at any time on the propriety of attending to the first approach of disease, of whatever nature it may be, but every professional man of experience well knows the necessity of putting parents on their guard by calling their attention to those early symptoms, the antecedents of the disease, the subject of the present treatise, which, when neglected, misunderstood, or overlooked, very frequently lead to that fatal complaint termed Water in the Brain.



Having frequently witnessed, during the course of many years practice, the fatal consequences arising from the friends of young sufferers being lulled into a false security, by the apparent mildness and equivocal nature of these very early symptoms, it appeared a desirable object to point out, not only what these are, but to inculcate the absolute necessity of watching their increase, and of checking their progress, with whatever apparent mildness their existence may be marked.

I beg the remarks may be considered as chiefly applicable to children, from two to fifteen years of age; during which interval this disease most commonly occurs, although I have witnessed it at maturer periods of life. (A) Many years ago I saw a young woman of twenty-three years of age, about a week before she fell a victim to this complaint. On dissection, water was found in the ventricles of the brain, and its vessels were turgid with blood. About a

year after, her sister, two years younger, was seriously attacked, and was saved by her having observed the earlier symptoms which by neglect had proved fatal to the other. Since the first publication of this pamphlet, many similar instances have occurred to me of others of a family being saved by the death of one of them, the symptoms being in consequence more early attended to by the parents. The watery effusions which take place upon the surface of the brain, and into its ventricles, at advanced periods of life, being more of a chronic nature, become the subject of distinct consideration, although they are generally the result of similar causes. Precautionary observation is more necessary during the interval of time I have mentioned, on account of the inattention of children in stating their complaints. With infants at the breast and under two years of age the disease also occurs; and here the difficulty is great in detecting the ad-



vances of the complaint, before it has arisen to an alarming extent : the appearances of the countenance, of the evacuations, the different expressive features of the child with its manner, to which I may add the absence of certain symptoms usually attendant on infantile disorders, will guide the physician conversant with the signs of the approaches of this disease, in forming his decision. And great advantage is to be derived by attending to, what I may be permitted to call, the medical geography of the countenance ; an attention to the variation of the features, as expressive of different kinds of pain, is of considerable consequence in assisting to detect diseases, in those particularly who are unable to detail their symptoms. I am sure that an experienced and attentive physician will be very frequently able to enumerate the symptoms of a patient, from observing him. In infants, from whom our information must at all times be very imperfect,

an auxiliary acquirement of this kind is of primary magnitude.

There are two periods in the growth of children, during which circumstances occur which sometimes run into severe disease, and act as exciting causes, if not obviated, in producing that state of the brain which ends in effusion of fluid. The circumstances to which I allude are teething, and in females, about the age of fourteen or fifteen the efforts of the constitution to develop the circulation in the production of the monthly discharge. At both these times the constitution is extremely irritable and the nervous system tremblingly alive to impression. In both instances if the circulation be not properly managed with a due attention to the increased sensibility of the nerves, the head too often suffers from the excitement of its vessels into inflammation with all its serious inconveniences, as I have frequently witnessed. And here I must particularly enter a caution against the frequent



use of calomel as a purgative during the time of teething. I believe it dangerous under such circumstances in some cases. My professional readers will find in the postscript (note OO) an instructive quotation from Hoffman on this point; my own experience confirms his remarks.

An attention to the early signs and insidious approaches of Water in the Brain, becomes also a matter, perhaps, of greater importance in another point of view; not only from the equivocal nature of these symptoms, but from their being frequently common to other diseases; thus deceiving the hasty examiner, until the chain of actions, constituting the disease, is so fully formed, as not to be misunderstood; and the alarm is taken, at a time when our art either altogether fails, or with the greatest difficulty, anxiety, and suffering, succeeds in establishing a cure. To those who are at all acquainted with the very sudden and violent attack which this disease often

makes, my earnestness and importunity in procuring, thus early, an attention to those symptoms, will not appear too urgent or pressing: and although persons conversant with the complaint may seldom be mistaken in their discrimination, yet experience teaches us that from the great similarity of the symptoms to those of diseases produced by other causes, errors will frequently occur without the closest attention, watchfulness, and care. I speak from observation on a number of cases; but, if we are to wait until the general system becomes greatly disordered by the affection of the brain, to form a decided diagnosis, I fear we shall often be disappointed in the wished-for effects of our prescriptions, however ardently desired, or however judiciously directed. Experience points out to us, the approaches of this distressing disease, long before this period. If, also, we proceed upon the principle, that this is a disease of the head only, we shall be



exposed to constant disappointment in our practical expectations, and to unavailing regret for the commission of errors. (B)

The advantages derivable from immediately attacking an approaching disease, have given rise to trite, but just, maxims in the schools of physic ;—

For want of timely aid,  
Millions have died of medicable wounds.

But, however great the advantages may be, which are felt from an attention to the early signs of approaching disease, they are of much greater importance, and the necessity of such watchful attention is more indispensable in a curative point of view, on the subject of the present treatise ; in as much as, with all other diseases, in which our art is at all available, a cure may be effected in almost any of the subsequent stages.

With the first train of symptoms which form the ground work of the future disease

of Water in the Brain, our practice must commence ; otherwise, we shall very often visit our patient only to lament the inefficacy of our prescriptions, and to watch the inevitable progress to death. There is no doubt that there is considerable difficulty in certainly and absolutely determining that, except the very early train of symptoms to which I allude, be subdued, they will positively end in Water in the Brain. This, however, I can very safely say, that I have very frequently known such symptoms to terminate this way when neglected in the onset ; and, from experiencing the dangerous consequences of such neglect, I have, when fortunate enough in having the opportunity, often prevented this secondary fatal state, by the adoption of timely and proper means.

It has been, indeed, but recently, that this disease has been at all understood, and a more consistent pathology, in consequence, adopted. It has been ranked in



the list of incurable diseases, and indeed, if the diseased actions are suffered to make progress, until the affection of the head becomes the most painful and most prominent feature in the catalogue of symptoms, we must still consider the complaint, though by no means always, yet often, as one upon which no permanent salutary impression is to be made. The idea, however, of the incurable nature of the disease, has arisen from the early symptoms not having been understood, from their being too commonly considered as the trifling ailments common to children unconnected with what subsequently occurs ; and from the appearance of these symptoms at times, at distant intervals, with apparently intervening health, before the very formidable signs of an affected brain supervene. It has thus happened, that attention was not paid to the complicated nature of the complaint, till the affection of the head exhibited the deplorable condition of the patient, and even

then, it was often not seen until dissection demonstrated the morbid appearances in the brain. By this oversight of the early progressive connection of symptoms, and by the mind being entirely occupied on account of the distress expressed by the patient of great suffering in the head towards the conclusion of life, the brain became the only object of enquiry; and from abundant disease being found there, the original symptoms were overlooked or forgotten. Hence the complaint was considered as a disease of the head only, beginning and ending there. (C) No active and steady practice was pursued, until the effects of the original symptoms were produced upon the brain, when, as books pretty fully and lamentably inform us, the disease most generally proved fatal.

My attention was particularly directed to the consideration of this complaint, at the desire of the late Samuel Whitbread, Esq. in the very earliest period of my pro-



fessional career, in consequence of a loss which had been sustained in his family by this disease. It has, more or less, occupied my mind ever since; and twenty-four years of observation, in pretty extensive practice, both hospital and private, have afforded many opportunities of witnessing the necessity of immediate attention, to the very first link in the chain of diseased actions producing the complaint. I am sure that I cannot too strongly, or in too forcible language, press the necessity of such attention upon the minds of all. “ 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 head-ach, without “ procuring the history previous to this “ complaint, and comparing it with every “ ambiguous symptom. 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 been just 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, 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 brain.” (D) Judi-  
 cious as these remarks are, I would never-  
 theless be upon the alert sooner than Dr.  
 Cheyne seems to imply. I would keep in  
 view the consequences of a diseased state  
 of the digestive organs upon the brain, be-  
 fore any pain was complained of there.

Dr. Whytt, without knowing what the  
 early symptoms were which led to this dis-  
 ease, was yet, from his sagacity and expe-  
 rience, fully aware of the great importance  
 of an early discovery of this tendency. “ If  
 “ this disease could be known early,” he  
 observes, “ and before any considerable



“ quantity of water has been collected, it  
 “ might, probably, be sometimes cured ;”  
 and, he adds, that “ he has never been so  
 “ lucky as to cure one patient, who had  
 “ those symptoms which, with certainty,  
 “ denote the disease,” (E). This has un-  
 questionably arisen from the symptoms of  
 the disease not being known or understood,  
 until, from their alarming progress, an ex-  
 tensive and fatal impression was made upon  
 the brain. It is also evident, from the  
 same author, that the earlier symptoms  
 were considered as arising from water al-  
 ready deposited in the ventricles of the  
 brain, whence the disease uniformly ac-  
 quired its emphatic appellation : for I am  
 disposed to believe it an entire assumption,  
 that the symptoms described in page 27  
 arise from the deposition of water in the  
 ventricles. They are caused by the com-  
 mencing vascular excitement of the brain,  
 previous to the effusion. The error arose  
 from misunderstanding the causes of the

symptoms, which the discovery of water, by dissection, tended to confirm; and the practice, guided by this preconceived notion, would be, as the great majority of cases proves, eventually unsuccessful.

Dr. Rush, too, the American Sydenham, was impressed with the idea of the vast importance of detecting the disease early; although the morbid condition of the digestive organs had escaped his observation. He was one of the first, with Quin and Withering, who began to have more correct notions of this disease, by pointing out, with accuracy, the vascular activity in the brain, and the advantages of depletion by blood-letting. (F). It is remarkable that, notwithstanding so accurate an observer as he was, he no where mentions the very morbid stools brought away in this disease; although he remarks that the bowels are obstinately costive, and that worms are sometimes past; neither are they in general noticed by Quin; and by Whytt



not at all ; and although observed by Fothergill, it led to no curative indication —so completely was the mind occupied by the affection of the head only. (G). Dr. Cheyne appears to have been the first who directed the attention to the morbid state of the abdominal viscera.

Fothergill, nevertheless, makes this pointed remark ; “ The head is always hot from the first attack, and the præcordia likewise ;” and further observes, that children pointed to their stomach, when desired to tell where they were pained. (H). It is singular enough too, that the attention was directed to the state of the bowels, from the general observation, that symptoms from worms most strongly resembled those of Water in the Brain.

Light, however, was breaking in upon Dr. Rush's mind respecting this disease, contrary to the received opinions of the day, when he says, “ no more occurs in this disease, than takes place when hy-

“drothorax follows inflammation of the  
 “lungs, or when serious effusions follow  
 “an inflammation of the joints.” (I) This  
 was approaching nearer the fact than any  
 doctrine that had been published, and led  
 to a more judicious and successful practice  
 than had hitherto been adopted; and in  
 Britain, the publication of Quin, confirmed  
 the observations of the American physician.

It is not my intention to enter into any  
 theoretical discussion on the nature of the  
 symptoms. This would lead me beyond  
 the limits I have prescribed to this treatise,  
 and would draw the attention from the  
 more useful practical objects, intended to  
 be impressed. The anomalies of sympa-  
 thetic disease are well known, though not  
 sufficiently understood; and the experience  
 derived from such knowledge, has proved  
 of great practical utility.

The doctrine of fatal diseases occurring  
 in one part of the body, from impressions  
 made on a distant part, is not sufficiently



matured to be rounded into a system, although enough is known to guide us with much practical advantage. (K). We all know, both from practical experience, and from the studies in our closet, that a blow upon the head will cause not only sickness and disorders of the stomach, but will introduce such a train of morbid actions in this part of the body, as will ultimately terminate in organic mischief: again, the commonest information will tell us, that a disordered state of the stomach and of the other organs of digestion, will produce a corresponding morbid affection of the organs within the skull, in the form of dimness and various other imperfections of sight, ringing in the ears, head-ach, giddiness, &c. &c.; and that these subsequent diseases will be violent and dangerous, according to the intensity and continuance of their original causes: sometimes, indeed, they appear to bear no proportion to these causes. (L)

Taking it then for granted, from this familiar statement, and without entering into any scientific discussion of more complicated sympathies, which the intelligence and experience of the reader will readily suggest, that it will not be disputed, that diseases not only of a troublesome, but of a dangerous and fatal nature, are thus produced ; I proceed to an enumeration of those early symptoms, on the occurrence of which, I am desirous of cautioning the attendants of children in particular, if they are anxious to secure them from Water in the Brain.

It must, however, be premised, that, generally speaking, two different causes produce this disease ; external and internal. The former are Insolation and mechanical violences, and motion of every kind, which would increase vascular action in the brain, and directly cause disease, giving rise to effusion. So intimate is the connection between the external and internal parts of



the skull, that injuries done to the scalp and pericranium will often produce disease internally. The effects of course will be dangerous or fatal according to the violence of the cause, from simple agitation of the brain, to a great concussion of it; and the degree of increased activity of the vessels of the brain will cause either effusion or supuration—perhaps neither—and yet death will ensue. (M). These, if violent, from their sudden very troublesome effects, will always arrest the attention, by which every precautionary means will be taken. Such causes, too, are comparatively rare, as directly producing dropsy of the brain.

I may here, however, mention two cases which were published by the late Mr. Ford, in the 11th volume of the London Medical Journal. The first case was that of a girl, four years of age, who died of this disease, and eight ounces of water were found in the ventricles; the blood-vessels of the brain were not loaded with blood; the

child ran about the house as usual, for a fortnight after the accident, stated in the case, in apparent good health. The second, was the melancholy instance of a child, two years old, whose head was struck by the carelessness of the nurse against a bathing tub; disease soon came on, and the child died in ten days. No morbid appearances were observed in the head, except three ounces of water in the ventricles. No mention is made of any examination of the abdominal viscera.

With respect to these external causes, falls, blows upon the head and concussions of the brain, there is no doubt they give rise to morbid action within the skull, producing immediate acute disease, or a chronic one at sometimes a very distant period, terminating in death by effusion of fluid, by suppuration, adhesion, or some morbid growth. These causes will also, by their impression on the brain, affect the digestive organs from the great connection which



evidently exists between them. The carelessness of servants often inflict such accidents, and very many will conceal such a misfortune through their whole life, and even when they have seen the child declining in health, and afflicted with disorder of which they must have known the origin and progress. That the brain, thus affected by external accidents, does influence morbidly the functions of the stomach is well known to all physiologists, and has been particularly exemplified in a chapter of Dr. Cheston's Pathology, and by older writers.

We can easily understand why, in such accidents, the brain, the first seat of deranged health, should ultimately exhibit marks of the greatest deviation from its healthy state, by pain dependent on inflammation, and by effusion as the consequence of it. Although I have never clearly traced a case of hydrencephalus to external violence, yet I feel no difficulty whatever in believing that such accidents do produce

Water in the Brain, by causing that inflammatory state of the vessels which ends in effusion of fluid, more especially if they occur to persons who have a constitutional predisposition to morbid action, for it is well known that mechanical injuries more easily excite disease in those who have a predisposition from constitutional susceptibility. I cannot doubt that an external cause has frequently laid the foundation for the disposition in the Brain to put on the action generating hydrencephalus, yet certainly in by far the majority of cases, the disease occurs more from specific constitutional action, whether it be through the medium of the digestive organs, or directly in the brain, than is to be attributed to such causes. Parents should, nevertheless, particularly guard against even slight blows to the head, especially if they have lost a child from Water in the Brain, as there is a presumption that a predisposition exists in the surviving children. In such



families too, it becomes a matter of the first moment, carefully to preserve the digestive functions in a healthy condition, by a proper regulation of the bowels, and by a close attention to diet; that accidental causes, whether external or internal, might not so easily produce a diseased effect upon the brain. Blows upon the head, indeed, however apparently trifling, will lay the foundation for this complaint, by a diseased impression on the liver and digestive organs. Some remarkable cases and observations in Dr. Cheston's work, assist in throwing light and in confirming opinions on this subject; particularly the case of a boy, nine years of age, who after being almost entirely recovered from concussion of the brain and laceration of the scalp, died with symptoms of disease in the digestive organs. On examination, several abscesses were found in the liver, and much disease in the membranes of the brain. "In this case, the symptoms which imme-

"diately succeeded the fall, were timely  
 "removed by the antiphlogistic method;  
 "and I think it not at all improbable,"  
 says Dr. Cheston, "that had the fall been  
 "productive of no other bad consequences,  
 "than what appeared at first in the head,  
 "the poor boy would have recovered."  
 "We frequently see the bad symptoms,  
 "immediately succeeding a severe stroke  
 "on the head, in a day or two almost en-  
 "tirely removed; yet, that the most ma-  
 "lignant consequences shall ensue, and  
 "this long after, when the patient has been  
 "supposed out of danger, and even al-  
 "most recovered:" and he goes on to ob-  
 serve on the above case, "the wound  
 "never degenerated for the worse, till the  
 "abdominal complaints were violent, and  
 "the constitution, from the additional mis-  
 "chief there, seemed evidently on the de-  
 "cline." (N).

Whatever may be the effects which ex-  
 ternal violence produces on the brain, the



internal causes are those to which I wish to secure the attention, and which indirectly give rise to Water in the Brain ; because they are slow, insidious, and therefore unheeded in their approach, and frequently very sudden, and always dangerous in their attack. They are seated in the digestive organs, the functions of which become deranged with various symptoms ; and of this derangement the hepatic powers, from their great importance, largely partake. From this variety of occurrences in the morbid changes of the digestive functions, and from their impression on the brain not having been rightly understood, have arisen the doubts and contradictory opinions on the origin and commencement of this disease ; and notwithstanding the excellent works, (and none have escaped me, at least of those published in this country,) I find in the statement of the cases, all the ingenious authors have commenced the enumeration of the symptoms, at a period

subsequent to that on which I wish to fix the attention. Hence it has happened, that the cases have been extremely troublesome in their management, and very frequently fatal. For want of this timely alarm, precautionary steps have not been taken sufficiently early, to afford an almost absolute certainty of establishing a cure, and the patients have slipped into the disease, before any one was aware of its approach. I am very far from imputing a want of attention, penetration or skill; I respect the great abilities of those who have attended to this subject, and from the perusal of whose works, I have myself derived so much information. I do not forget, that although some things have been omitted, much likewise has been performed. It is, however, but recently that the attention of the medical world has been drawn to hydrocephalus as a sympathetic disease, and as one that takes its rise in a very different way from what was originally



imagined; and although the bolder lines of the disease, are ultimately from the affection of the brain, we must, nevertheless, look much further than to that organ for the causes.

It is necessary to premise a few observations on the intestinal functions, in order that the reader, who takes an interest in the philosophical as well as practical view of the subject, may carry them along with him, and apply them, if he pleases, to the symptoms of treatment.

The necessity of the healthy state of the stomach, to the well-being and comfort of the animal, has always been considered a matter of primary importance; but the improvement in the knowledge of anatomy, as well as in many points of physiology, upon which that improved knowledge has thrown light, has opened a more extended view, than the consideration of the stomach merely as a digestive organ would produce. The mouth prepares the food for the sto-

mach, and the latter prepares it for the duodenum, where the more elaborate process is performed. In the stomach, the operation is the simplest, compared with that in the duodenum, being the reduction of the food into a softened mass, changed by the solvent powers of the gastric juice : it is here mixed with no other secretions than those of the stomach itself, except the saliva it has received in the mouth, the mucus in the fauces, and in its passage down the gullet. After it is reduced to this mass by solution, it is propelled after a given time into the duodenum, or second stomach, an organ fully as important, if not more so, than the first stomach ; for the mass is not only mixed with the secretions of the duodenum itself, but with the bile and liquor of the pancreas, and moreover is thereby changed in such a manner, as to have extracted from it, the chyle, or nutritious juice, which is afterwards carried into the circulation for the support of the



body. The duodenum then not only acts as a recipient to the first stomach, but is also the great receiver of the fluids from the liver and pancreas; besides preparing its own secretions, intimately mixing the mass with all these substances, in such a manner, as to procure from them that highly nutrient juice just mentioned. The mass is then slowly passed on through the remaining tract of the intestines, that this nutriment may be gradually absorbed, and carried into the constitution. It is then arrived, deprived of this nutritious fluid, at the colon, or greatest intestine, which begins at the right hip, ascends, and passes in a beautiful arch across the belly, above the navel, and below the pit of the stomach, and then descends to the left hip, where it becomes much narrower in its diameter, and tortuous in its course: the rectum, or straight gut, here begins, and ends with the outlet of the body.

This capacious intestine is the reservoir

for the fæculent part of the food, which is voided at stated periods, in a similar way as the urinary bladder acts for the kidneys, and the gall bladder for the liver. In this way, then, the intestines are propelling organs, carrying forward what they receive for the two-fold purpose of affording greater time, and greater extent of surface, for the absorption of nourishment; and secondly, for the expulsion of the useless, and fæculent part from the body. Their functions in this point of view are highly important, in as much as any continued, or frequently repeated impediment, to the exertion of their propulsive power, or to the facilities of absorption, must prove highly injurious to health, and ultimately fatal to life. The colon, the capacious reservoir for that portion of the food to be rejected, is well adapted, both by situation and structure, for containing a considerable quantity of fæces, before it is absolutely necessary to expel them. Any retention of a quantity



of fæces for a length of time, not only becomes injurious, by the pressure of a hardened mass on parts whose functions are essential to health, but this want of action in the colon, necessarily causes an impediment to the propulsive power of the other intestines, as they are one continued tube ; hence they become quiescent, or are thrown into spasmodic, or other irregular action, not only thus disturbing the digestive process, particularly in the duodenum, but impeding the regular flow of the bile and juice of the pancreas into it : in this way the pancreas and liver become morbidly affected, without any original fault in themselves.

There is another point of view too, in which are to be considered the functions of the intestines, and which appears to me to be established by facts. The whole tract of the intestines is a great secreting surface, not only for supplying mucus for lubrication, to facilitate the transmission

of their contents ; but their exhalant vessels and glands discharge parts, noxious, or useless to the constitution, similar to the kidneys, skin and lungs. It is very probable, however, considering the peculiar functions of the duodenum, that the secretions from its glands, which are numerous in its upper part, are more immediately intended for the purposes of the digestive process, which is more complicated here than in the first stomach. A continued loaded state of the colon, or a frequent repetition of it, will, by impeding the propulsive power of the intestines, diminish or totally suspend, the secretion or exhaling action, on their surface, as is indicated by the fæces being dry and hard in costiveness, and from the dryness of the tongue and fauces, not only in fevers, but in certain torpid states of the alimentary canal, where no fever, properly so called, exists. The effect which such a cessation of secretion from so large an extent of surface, will



have upon the system, is too well established, from the analogy which the suspension of other important excrementitious secretions produce, to need any comment.

The repeated impediments to the regular motion of the intestines, will often have another effect, besides that of diminishing, or suspending the exhalations from their surface, viz. of giving a morbid action to the secerning vessels, both in themselves, and in the neighbouring glands; hence the highly offensive, and badly coloured masses we very frequently see discharged in costiveness, and in irregular actions of the intestinal canal, where very little, or no food has been taken, as in some fevers. This morbid impulse given to the digestive organs, through the medium of the intestinal canal, by a loaded state, or improper action of the colon particularly, has not, I fear, been sufficiently appreciated.

From the intimate connection which exists between the head, and different parts

of the body, through the medium of the nerves, as with the heart, through the medium of the blood vessels, it is not very difficult to understand, that the brain should become affected by a loaded state of the colon, producing an irregular and torpid state of the intestines, and irritation in the digestive organs. This secondary, but no less dangerous, and often fatal affection of the brain, is attempted to be explained in another part of this treatise. The brain, moreover, is the organ which always receives an impression, whenever any part of the body is under irritation, for it is only through it, that we can feel the pain to exist; hence it very often happens, that convulsions are produced, and sometimes fatally, by local irritation in a distant part. An irritated part, very commonly puts on morbid vascularity; this increased vascularity, if continued, ends in an effusion of fluid, or in an enlargement of the part, in the form of schirrosity, or thickening; hence



in hydrencephalus, supervening upon a protracted irritation of the digestive organs, we meet, not only with a watery effusion into the ventricles of the brain, but with the abdominal glands morbidly enlarged; a proof, among many others, of the dangerous consequences arising from a want of proper attention to what are called general nervous feelings, or the nervous irritation of a part. The limits of this treatise prevent me from entering more largely upon this very interesting subject.

In attending to the health of children, particularly in reference to the disease of Water in the Brain, sufficient regard is not paid to the quantity and quality of their food. In general, they are supplied in considerable quantity with various articles, which the well-meant, but mistaken, indulgence of nurses is apt to increase under an opinion that they will be better nourished, and thus have their strength and growth promoted. Perhaps a more

fatal idea never prevailed. The stomach is made to labour more than is necessary, by the improper quantity, and injurious quality, of the food, and an imperfectly subdued mass is carried to the duodenum. Here, I am inclined to believe, that wonderful provision of nature exists, which we see so admirably prevails in other parts of the body on other occasions, of repairing the mischief which is done by the injurious proceeding in the stomach. Hence it is that we often witness the body to be sufficiently nourished, where we know indigestion prevails much in the stomach. But this state of the first stomach, however, becomes a constant source of irritation, and from the close connection which exists by nerves, blood-vessels, and contiguity, the duodenum soon feels the impression, the liver and pancreas partake of it, the sympathetic irritation is felt in its fullest force in the brain, and a sudden, and perhaps fatal disease surprises the



child, at a moment, when nothing was considered to be the matter beyond a trifling costiveness, or some accidental uneasiness in the stomach.

The impression of the improper quality of the food on the stomach, independent of quantity, will sometimes produce very dangerous consequences on the brain. In the treatment therefore of those precursory symptoms of deranged digestive organs, and of irregular action in the intestinal canal, the quantity and quality of the diet should be particularly attended to, as a matter of the first moment; indeed experience, as well as physiological views, have so fully taught me the necessity of it, that without the dietetic regimen, the medical prescriptions will not be of much avail. The quantity of the food should be always moderate, and much less than what the child usually takes when in health; and the quality of it will depend, in a great measure, upon the symptoms

which the digestive irritation has produced.

*Commencement of the Earliest Symptoms.*

In the very commencement of the symptoms, before any alarm is taken, and before any person can possibly imagine, but from experience, that they will often terminate in Water in the Brain, an occasional languor, as if arising from fatigue, with intervals of considerable activity, is observed ; it is therefore attributed to this cause, from the disposition too, which the child manifests, of reclining on the sofa, chair, or lap of the mother ; the usual degree of healthy appearance of the countenance diminishes, though not permanently, in a transient paleness and occasional collapse of the features ; a dark coloured line is observable under each eye, with a dulness of that organ ; (O) the usual softness and pliability of the skin diminish, with a consequent harshness and increased



heat on the surface ; the appetite capricious ; occasional thirst ; state of the bowels more than commonly tardy ; the tongue white, and rather disposed to be dry if examined in the morning ; a cough attends at times, and is often very teasing ; and the pulse at this period exhibits no particular morbid change, either in its frequency, strength, or regularity ; the urine is at times higher coloured than it ought to be, and from observing that the child has not had an evacuation by the bowels as often as usual, recourse is had to some domestic purgative, and a stool is procured more than commonly consistent and firm, and not in the same quantity as formerly with the same dose of the medicine ; no very striking alteration of colour is observable, unless attentively examined, when it will plainly appear that a diseased secretion has already begun to take place in those glands, which pour their secretions into the intestinal canal ; at times the

evacuation will be throughout, much lighter than it ought to be ; at others, only partially so, and again the whole will be more tinged with a darker colour of a greenish cast, and accompanied with some quantity of a slimy matter ; but more than the mere abrasion of the intestines by a purgative will produce. When any uneasiness in the head is complained of, it is not of pain either acute or dull, but of a disagreeable noise and confusion, with some giddiness, and there is a painful sensibility of the eyes ; the scalp, at times, feels sore on being rubbed or touched, and sometimes there is a stiff neck.

During this state, upon examination, a puffiness will be felt, and also a fulness observable over the centre of the stomach, extending towards the navel ; uneasiness is complained of there from pressure, but like all the other symptoms at this time, they are not permanent ; and the only symptom which observes any permanency,



is the torpid state of the bowels, although the degree of it varies in different patients; the costiveness is, nevertheless, always more or less present; (P) the sleep is frequently disturbed by restlessness, indicated by repeated movements about the bed. (Q). The child is said to be only not well, and this is supposed to arise from some improper food that has been taken. It is evident we cannot, *a priori*, positively determine what exact state of disease this deviation from general health will ultimately produce; but full well I know, that this irregular excitement, this vacillating state, in the way above described, very frequently leads to the next chain of more manifest morbid actions, which terminate in Water in the Brain. We should be, under such circumstances, most carefully watchful.

It will at times happen that the excited state of the vessels of the brain will be accompanied with very severe ear-ache;

and as this in general is not a complaint of much importance beyond the pain it occasions, the attention will not be directed to the more dangerous ailment connected with it, and the opportunity for decisive practice be fatally lost; and an injurious practice, by the application of warmth to the ear, adopted. About three years ago, a very interesting case of this kind occurred to me in the person of Lord Spencer's grand-child, a fine boy, about five years of age at the time. A severe affection of the brain, with Otolgia, and a considerable degree of digestive derangement had existed for several days before I saw him. Very fortunately the complaint terminated by a discharge from the ear, otherwise the consequences would most probably have been very serious if not fatal. (R).

I have remarked, that when the symptoms above described are a prelude to the fatal disease under consideration, the children are often gifted with a precision of



ideas and quickness of apprehension much beyond their years. (S). They are thus more interesting objects to their friends, and the loss is more severely felt. Should a practitioner upon being called, hastily dismiss his little patient, with an opinion that the symptoms arise only from a trifling complaint of the stomach, he will again be summoned upon the arrival of the next more prominent set of symptoms, perhaps violent and dangerous, to witness and lament the error of his hasty conclusion.

The duration of this previous state of commencing disease, before it assumes a more arresting shape, will depend upon the accustomed management of the child, and upon its habits as to diet, air, and exercise; and also upon the constitutional disposition of the patient, either independent of, or in connection with, these habits. Hence it is, that in some instances the disease runs a rapid course; in others, observes a more protracted duration. In

general, from the assumed idea that constipation only is the cause, and from the temporary relief that is obtained from the effect of a domestic purgative, an occasional exhibition of a medicine of this kind, when the child is more than usually distressed, is alone trusted to. In some, from whose constitutions the early impression of morbid action is easily removed, this mode of proceeding will sometimes accomplish the desired object. In by far the majority of cases, however, it is very unsafe to trust to the occasional exhibition of a purgative only; it is necessary to check the forming morbid action of the organs, by the combination of an alterative with the purgative, in such a way as that you shall not merely remove the accumulated diseased load from the intestines, by several large evacuations at once.



*Case illustrative of the disease suddenly  
surprising the child in a dangerous way.*

The following is a strong example, which has just occurred as these sheets are passing through the press, of the very sudden manner in which the disease rapidly surprises the child apparently in good health, and hurries it into imminent peril before the parent is aware of any danger whatsoever. It also furnishes a good instance of the success attending prompt and vigorous measures. An interesting little girl, sixteen months old, of lively intellect, of robust make, and apparently in high health, daughter of A. A. Esq. was suddenly seized with violent convulsions about noon of June 2nd, after being very lively and playful during the morning. When I saw the child, the pulse was very rapid and hard; the face flushed; the carotids throbbing with much force; the eyes turned up,

occasionally rolling and ending in a fixed stare ; pupils much dilated, and insensible to the approach of a lighted candle : the mouth occasionally twisted ; laborious and quick respiration ; the abdomen generally and considerably distended. The child continually patted its chest with its right hand, and drew up and down its lower extremities, indicative of distress, the left arm remaining motionless ; and it lay upon its back powerless. A young gentleman, Mr. Yates, with Mr. Smith, apothecary of Upper Berkely-street, saw the child immediately upon the attack, and with great coolness, promptitude, and judgment, had applied nine large leeches to the temples, and had given the child a dose of calomel. The leeches were drawing when I arrived ; they bled freely, and the child must have lost seven or eight ounces of blood. An opening draught was now given, and in an hour after, an active injection was thrown up to hasten the unloading of the bowels.



In the evening the medicines had produced the desired effect; the abdomen had partially subsided; the motions were of a white colour, and very offensive. The convulsed state had diminished; the pupils obeyed more readily the stimulus of light; the child was, however, very drowsy, and the pulse was at one time slow, and at other times hurried, for a few strokes within the minute, a pulse I always consider suspicious and alarming in children in an attack of this complaint as indicative of irritated brain. A powder of two grains of Pulv. Scammon. Comp. with one of Hydrarg. Submurias, was ordered to be taken every four hours, with a small saline draught after it, containing ℞j Potassæ Sulphas. The head and shoulders were directed to be supported in nearly the erect position in bed, and to be kept uncovered and cool. On the following day, the third, the symptoms continued to improve, the bowels having been kept in free action. On

the fourth, the pulse had returned to its natural standard, was soft and quiet. The drowsiness had gone off, the motions had become well conditioned, and the child recovered. Upon enquiry, I learnt that the child had been of a very costive habit, with a large abdomen, and a good appetite which was indulged in. I have no doubt that had this irritation of the brain not been removed by prompt measures, the inflammatory condition which had commenced would have become permanent, of troublesome management, probably ending in effusion, perhaps fatally. It is an instructive case of the kind, and clearly illustrates the doctrine I have endeavoured to establish. An early attention to the condition of the digestive organs, with a controuled diet and regulated bowels, would have prevented this attack.

It is with much satisfaction I avail myself of this opportunity of paying a tribute of respect to the practice and ability of



Dr. Hamilton, the friend of my early life, who has inculcated a similar doctrine in all the diseases on which he has so ably written. As far as the chronic diseases are concerned, my own experience fully confirms the positions of this excellent physician ; (T) that is, the good to be derived does not depend upon many evacuations produced by a strong purgative, but by a gradual restoration of healthy action to the glands of the intestines, and to the alimentary canal. To change the kind of purgative, therefore, has a considerably good effect ; that the different glands, as well as the various portions of the intestinal tube, may be excited by different stimuli ; for I am satisfied, it is not the mere evacuation of the accumulated load that produces the desired benefit, more especially in the disease which is the subject of the present treatise. A great deal of the advantage derived from pursuing his very useful suggestions, arises as much, if not

more, from producing a healthy secretion from the glands which pour their fluids into the intestines, than from giving more regular, at least more evacuating movements to the intestinal actions. It appears to me, that the quantity and quality of the foul discharges do not depend solely upon stagnation in the torpid bowels. Morbid secretions are going on : their mere evacuation, therefore, would not restore health and tone ; an alterative effect is wanted : excite the glands to their healthy functions, in addition to the removal of the accumulated load, and salutary evacuations will regularly take place.

*History and Management of the irregular state of the Bowels inducing the First Train of Symptoms.*

In the state just described, a combination of the evacuants required will occur to every practitioner, with the proper intervals of their exhibition, according to the



age of the patient, and the degree of obstinacy in the constipation. I have commonly given the compound extract of colocynth with calomel, or the Pil. Hydrarg., or the latter with aloes, rhubarb, or scammony, twice or thrice, or even four times, in twenty-four hours, in moderate doses, so as to keep the abdominal viscera gradually excited. In ordinary cases of costiveness in children, an active combination of purgatives of this kind, thus repeated, would prove too violent: but, under the symptoms which precede the attack on the brain, they do not prove so, as the intestines speedily relapse into their former torpid state, unless the healthy secretions be restored, a circumstance which should make us more attentive; for in proportion as the bowels shew a less disposition to act, so ought we to be the more on our guard: and observation has taught me, that more permanent advantage is to be obtained from managing the

intestines in this way, under these circumstances, than from the exhibition of strong purgatives at once, with long intervals of intermission. I need scarcely add, that it is not necessary in this state that the mercury should produce a general constitutional effect. In order too, not only to obviate this, but to evacuate the bowels and the glandular system, a full purgative is occasionally given, composed of a little senna and a neutral salt, omitting for the day the mercurial medicines.

This puffiness and fulness about the region of the stomach, I am disposed to refer to a distention of the duodenum. I am inclined to think that in considering the diseases of the chylopoietic functions, this very important intestine, this ventriculus succenturiatus, has been too much overlooked. Whoever for a moment reflects upon its structure, its great vascularity, its connections, the course it takes, the firm manner in which it is tied down,



its pouch, like another stomach, into which the pancreatic and biliary secretions are poured, will immediately see what severe and dangerous diseases must arise, when any continued or frequently recurring deviation from its healthy action takes place. In the reservoir that is formed by the bend in this intestine in its direction upwards, immediately after it quits its course towards the right kidney, are collected the contents from the stomach, the bile, the pancreatic liquor, and the secretions from its own glandular surface: hence we may safely conclude, that this intestine has a very considerable, perhaps the greatest share, in the digestive process. Any long stagnation of this mass there, to which the duodenum will render its contents more liable, from the extremity next the jejunum being in a course almost perpendicularly upwards, must produce distention, not only from accession of new matter, but from the disengagement of air, the inevitable

consequence of stagnation ; hence it is, that the duodenum is often found much enlarged on dissection. (V). And this intestine too, from not being invested by the firm membrane of the peritonæum, will more readily yield to a distending force. The stagnation of its contents would at times arise, either from the bile not being secreted with its usual acrimony, or from some disease in the intestine itself, rendering it less easily to be acted upon.

It will be readily seen, to what important and distressing consequences this will lead, and, if not obviated, how dangerous they will ultimately prove. The irritation of the duodenum will prevent the further flow into it of the bile and pancreatic liquor, by the production of spasm, confining the ducts and causing those pains complained of about the belly. This delay of the contents of the duodenum, of course will impede the flow of the contents of the stomach through the pylorus ; a fulness



will consequently take place there also, from distention; nausea supervenes, and a soreness is felt over the side and epigastric region, and the distress will be extended by sympathy to more distant parts (U). This distention too of the duodenum will cause pressure upon the large blood-vessels, vena portarum and hepatic artery, which lie immediately behind it; and be it recollected too, that the hepatic artery, in its progress to the liver, sends off a considerable branch to the duodenum itself, by whose morbid condition the function of this branch must be greatly affected. From the course the intestine takes, pressure will likewise be made upon the gall bladder; bile will be expelled, and this will further contribute to surcharge the ducts. The anatomical knowledge of my professional reader will readily suggest to him what mischievous effects must be produced by such a morbid impression on this portion of visceral circulation.

If this state should repeatedly recur, the other digestive organs will soon suffer greatly, but particularly the liver; it will become congested, its functions checked, and its structure injured by the impeded flow of the bile into the duodenum, and all the local and general consequences of deranged hepatic functions will supervene; and as the biliary duct passes under the head of the pancreas immediately before it empties itself into the duodenum, the obstructed flow of the pancreatic fluid will, from the state of the intestine, distend that gland, thus causing further pressure upon the biliary duct, and consequently increasing the surcharged state of the hepatic system. It is very possible that this morbid condition of the duodenum may recur at intervals for some time before the liver becomes much disordered; hence healthy bile may continue to be secreted, and yet the fæces will be bad in their appearance, on account of the



imperfect digestion of that fluid with the other contents of the duodenum. This repeated distention and disordered condition, will cause an atony and consequent languor in its actions : hence a longer delay of the contents, increasing all the evils.

When the digestive organs are oppressed by an accumulated load of fæces, and a consequent inactive state of the colon, purgatives are usually administered, and occasionally repeated when this oppressed state, arising from the same cause, occurs ; and from the immediate and sensible relief, obtained by unloading the lower intestines, no object is looked for, other than this effect. This is a delusive security, and it is the error to which I wish much to awaken attention, for it is not enough to have relieved the intestines of an unusual load ; diseased secretions, to which constipation and irregular intestinal actions have given rise, must be altered ; the intestines must be gradually, and healthily excited, other-

wise the morbid condition, relieved by the operation of the purgative, particularly under improper diet, soon recurs, and that dangerous irritation of the digestive organs, so much to be deprecated, supervenes.

The very operation of the purgative too, particularly when active, is calculated to produce this quiescent condition of the intestines, as every one knows who has ever taken a purgative, from the costive state which most commonly ensues. An active dose of calomel, the medicine usually had recourse to, produces this consequence more than any other medicine, as far as my experience goes. The immediate effects are, undoubtedly, more lively spirits, with salutary sensations; but these continue only for a day or two, while the moving impression remains upon the intestines, and while the secretions temporarily excited, are poured into them; the torpid state soon recurs with the glandular quiescence, resulting from the previous



preternaturally excited state, and langour and lassitude prevail.

A purgative dose of calomel has appeared to me, very frequently, to produce this semi-paralytic state of the abdominal viscera; it is then repeated at intervals to remove this uneasy languor, till their tone is materially affected. I am satisfied, from facts which have occurred to me in practice, that in certain irritated states of the digestive organs, calomel has caused a very unfriendly impression on the nerves of the intestines, so as morbidly to affect, and prove painfully injurious to, the brain. These points have not been attended to with sufficient consideration and inquiry, particularly the constipated state, into which the intestines relapse after a purgative. The kind of purgative becomes therefore a matter of importance, in many morbid conditions of the digestive organs.

I have known a dose of calomel, given as a purgative for a pain and fulness in

the side, to be followed, on the day subsequent to the evacuations, by much suffusion of bile in the eyes; and this has appeared to me to be produced by the increased flow of this fluid, which the calomel has caused, into the duodenum, and which the intestine has not propelled. (W). This has occurred in those irritable dispositions liable to spasms in the stomach and intestines: to these calomel is particularly injurious, causing painful and spasmodic contractions of the duodenum, which prevent the free flow of the bile and pancreatic liquor into it, hence the jaundiced appearance of the eyes.

The intestines are generally very torpid after the operation of a dose of calomel, as I have already observed, and will often continue so under its use, until it accumulates in the bowels, and even then it frequently does not act; for this reason it is, that in the digestive derangement which takes place in children preceding the attack



on the head, I have always found it necessary, and made it an established rule of practice, to join other purgative ingredients with the calomel, to obviate this state of the duodenum in particular, and thus to prevent the bile and its other contents from remaining too long in its cavity. I am inclined to believe that a fatal practice has been sometimes adopted from an inattention to this circumstance, and that patients who have been treated for Water in the Brain by the use of mercury only, have died from the want of the bowels being cleared by proper purgatives, although the mercury shall have done every thing that could be expected from its use, and only its intemperate and unassisted employment has rendered it abortive: hence upon dissection, the head, although previously greatly complained of, has been found free from disease, and the bowels loaded with bilious foulness.

The late Dr. Warren, of Taunton, can-

didly states, that all the ten cases he attended proved fatal, although mercury was used in large quantities, externally and internally; three or four grains of calomel were taken every eight hours, without producing any purgative effect. On opening the head, water was found in the ventricles; and in one case, two ounces of blood were effused on the pia mater. No account of the state of the bowels is given. I have scarcely a doubt that the treatment of hydrocephalus in this way, without the combination of purgatives with the calomel, for the reasons already mentioned, would almost uniformly prove fatal. (X).

It is obvious that if there be a want of proper action in this intestine, the other intestines must of necessity become torpid, and costiveness consequently ensue; for if the bile poured into the duodenum be not freely transmitted, or if it be altered in its proper stimulant qualities, by a morbid process in this gut, the lower intestines



must want their usual stimulus for healthy action; hence the accumulation of badly coloured fæces in the colon, with all the consequences of a general inactivity of the bowels. (Y).

*Case illustrative of the First Train of Symptoms.*

Among the many cases which have occurred to me, I will mention one which has been recently under my care, and which illustrates the practice on the first approach of the symptoms; and I select this case not only on account of its recent occurrence, but because the usual system of occasional purging had been resorted to without effect, and also because the patient had lost, as I was informed by the father, two brothers from Water in the Brain. The case to which I allude is that of a boy fourteen years of age, son of Mr. H. master of an academy at Greenwich. I saw him in November 23, 1822: his symptoms were

occasional giddiness, with pains in the head ; inactivity, with disposition to drowsiness ; feeling languid, and oppressed with apprehensions respecting himself—an unusual circumstance in so young a person ; the light was offensive to his eyes ; a little nausea at times with deficiency of appetite ; a soreness was complained of, on pressure, in the epigastric region, and there was an evident fulness there. The tongue was very foul ; the pulse not at all disturbed, though there was some thirst and a feverish heat towards night. The evacuations by stool were very unhealthy, and the urine was high coloured when first passed, but on cooling became milky and opaque. He had been in this state for several weeks, had taken occasional purgatives, and had had leeches applied to the temples. The strictest antiphlogistic plan was now enjoined. Three grains of the Pil. Hydrarg. were ordered every night, with a solution of the sulphate of potash during the day, and an



occasional dose of the Pulv. Scammon. Comp. according to the principles of practice laid down in the preceding pages ; by the end of the first week, in the succeeding month, all the disagreeable symptoms were removed by the gradually evacuant and alterative plan.

Generally, indeed I may say in all cases, by guiding our practice on these principles, the formation of the ground-work of a dangerous disease, will be speedily and safely removed at this time, and a proper attention to diet and to the state of the bowels afterwards, will be all that is required now that the morbid action is destroyed. It is indeed remarkable how easily the bowels very soon assist themselves in passing off their contents, after the glands have been excited to healthy action, thus aiding the more healthy bile now poured into the intestines, from a better conditioned liver. The delightful surprise expressed by parents at this easy state of the bowels, as

well as at the regularity and healthy appearance of the evacuations, proves extremely grateful to the Physician. All children, however, who have once exhibited this particular disposition to morbid action in the digestive organs, should be at all times the objects of peculiar attention on the least appearance of illness. Fortunate it is, indeed, if it has so happened, that this previous state has been attended to; if not, the chain of diseased actions is lengthened by firmer links more difficult to be broken, but still to be destroyed by discriminating and steady means, though with more time, trouble, and anxious solicitude, before it fixes completely in the brain. The case is not even then to be always entirely despaired of; though, I believe, that when the disease arrives at the point of great excitement of the vessels of the brain with effusion, a majority of the cases sinks hopeless into the grave, after a melancholy protracted strug-



gle, painful to the Physician from his un-availing efforts, and from the deep distress of the mother watching over the convulsive agitations of her daily expiring child.

I confess I would much rather incur the charge of having twenty times supposed cases of Water in the Brain, by attacking what I consider to be the early symptoms, than once ultimately become a witness to this distressing scene, by neglect, oversight, or mistake. (Z).

*History of the Second Train of Symptoms.*

If unfortunately the circumstances already stated should be overlooked or mistaken, the symptoms assume a more formidable and commanding shape: the occasional languor wears more the appearance of permanent lassitude; the returns of activity diminish; the child wishes to be almost constantly in a recumbent posture; the unhealthy look of the counte-

nance becomes more permanent, and more observable in every respect ; the darkness under the eyes is of a deeper colour ; the excitement from feverish action becomes more regular and more apparent, with the consequent harshness of the skin : occasional flushes pass across the cheeks, sometimes more fixed in one cheek ; the hearing becomes more acute, the child starting at slight noises ; transient pains are felt in the head, more or less acute, and more or less frequent, and at times when the child will be apparently enjoying itself with comfortable feelings, its attention will be suddenly arrested by this pain, crying out, “ Oh my head aches ! ” Some will complain of the head feeling sore to the touch externally. The pulse now becomes at times much quickened, and it will change its state of frequency on the least movement ; and though not particularly irregular, yet if carefully examined, and it must be done with some attention, when the child is



under the febrile accession, an irregularity will be readily discovered, once, twice, and sometimes more in the minute. Periods of drowsiness supervene; the bowels are more obstinately torpid, and when stools are procured they are of a very disagreeable smell, and of a very morbid appearance; sometimes a glutinous mass intermixed with dark lumps of fæces, at others there is a mixture of a deep green, with matters similar to yeasty fermentation; their colour and appearance will vary much in the same person at different times. Sickness, nausea, and vomiting are frequently troublesome, either when the little patient raises his head from the pillow, to which drowsiness and lassitude had consigned it, or after taking food, or both. In some, the puffiness and fulness about the region of the stomach, are not now so perceptible, one part of the morbid actions having yielded to others of a more violent nature; this symptom, though common,

does not invariably attend ; its being observed too, depends upon what portion of the digestive organs are most under morbid action at the time of examination. All the symptoms bear evident marks of irregular excitement : a giddiness, with an unpleasant cloudiness in the sight, is complained of, and prismatic colours are occasionally seen ; and although the eyes generally exhibit nothing morbid upon examination, though at times they are blood-shot, a strong light is disagreeable and painful ; the urine varies much in colour and quantity, depending entirely on the circumstance of the febrile accessions ; the appetite becomes deficient but at times morbidly keen ; the thirst troublesome ; the tongue white and inclining to be dry. The complaint in this stage of its progress is still manageable, in some easily so, from the circumstances of the previous habits of the child, as already stated ; but it must be recollected, that



every hour is now most precious, and any moments lost are scarcely to be recovered; for in proportion as the symptoms form more completely a disease of the head, so is it the more dangerous, and consequently with the greater difficulty removed.

If it should so happen, that an idea is entertained that this assemblage of symptoms arises from foul bowels, without having in view their ultimate consequences in producing a disease of the brain, unfortunate, indeed, will it prove; too late will the error be seen, and frequently fruitless the attempt to correct it. I very greatly fear that mischief has been done by the loss of much precious time, in making too nice a discrimination between the symptoms which lead to Water in the Brain, and the Infantile Remitting Fever, on which Dr. Butter has written so well. As it often happens too, that a worm is passed at this time, it serves to confirm the opinion entertained of the cause, and

the fatal delusion decides and continues the inefficacious practice adopted.

*Case illustrative of the Second Train of Symptoms.*

Having just closed my attendance upon an interesting little girl of four years of age, the only child of an intelligent widow; it will be useful to state the symptoms, and they were by no means moderate, in this stage of the complaint, as drawn up by the mother.

“ The subject of this sheet had been  
 “ for ten weeks without having a natural  
 “ motion, and the stools were, during that  
 “ period, occasionally very dark. About  
 “ the end of the ten weeks, she was seized  
 “ with drowsiness, which continued for  
 “ three or four hours, out of which she  
 “ awoke in a very high fever, attended by  
 “ retching; nothing would remain on the  
 “ stomach; a complete nausea at any thing  
 “ in the shape of food took place; violent



“thirst. The motions resembled soot  
 “mixed with boiled spinage, perfectly  
 “solid, and upon remaining, tinged the  
 “water of a dark sap green. The retch-  
 “ing and fever continued for three days,  
 “with very little intermission, yet they  
 “were less at times; perhaps the interval  
 “of an hour might elapse. Calomel had  
 “been given at the commencement of the  
 “attack, and was continued daily, until  
 “the motions became lighter. About the  
 “end of the fourth day all the above symp-  
 “toms subsided, and the little sufferer  
 “became daily better for fourteen days.  
 “She was again seized with drowsiness, a  
 “little sickness, but not retching—Calo-  
 “mel again procured relief. Three days  
 “after this second attack, a pain in the  
 “upper part of the back of the head was  
 “complained of. She could not move, nor  
 “stoop without uneasiness—easily fatigued  
 “—dislike to the smell of her food, and  
 “great fretfulness—the uneasiness in the

“ head was by no means continual, nor  
 “ occurring more than four or five times  
 “ during the day—costive bowels and dark  
 “ stools still as before. Another fortnight  
 “ elapsed, and the fever returned with  
 “ drowsiness—dizziness for the first time—  
 “ could not bear the head off the pillow—  
 “ could not see clearly—objects appeared  
 “ double—the pain in the head very trou-  
 “ blesome, yet would intermit for two or  
 “ three hours—sickness—pain in the sides  
 “ —heaviness about the eyes—burning in  
 “ the palms of the hands and soles of the  
 “ feet—evacuations still dark—flushings  
 “ of the face—starting during sleep—the  
 “ urine of a high bright colour.”

It was at this time that I first saw this  
 child, who is now perfectly well. (AA).  
 The repeated returns of derangement in  
 the functions of the digestive organs would,  
 if not subdued, no doubt have ultimately  
 produced the full hydrencephalic excite-  
 ment of the brain ; which appears, in fact,  
 to have already commenced.



*Management of the Second Train of  
Symptoms.*

The plan to be adopted in this stage of the complaint, must vary from the one pursued with the first described symptoms : the degree of activity in exhibiting the medicines must, of course, as in all other complaints, be proportioned to the violence of the symptoms ; they must be changed according to the form the disease assumes. (BB). From the feel and condition of the pulse, and from the increased febrile accessions and pain, an inflammatory tension has evidently taken place in the circulating system, requiring the loss of blood ; but whether it is to be done locally by leeches, or generally by the lancet, or by both, must depend upon the urgency of the symptoms, the age and constitution of the patient, according to the discretionary judgment of the Physician.

I have directed bleeding, both locally

and generally in the same patient, with decided advantage; most commonly, the detraction of blood is indispensable in one way or the other; most frequently the local depletion is called for. I speak from careful observation on this point, and I am quite assured from experience that we need not be timid respecting this evacuation, from a false principle that the disease arises from debility.

Although I thus forcibly enjoin the detraction of blood, in case the idea of dropsy and the former notions of this disease should induce the practitioner to withhold the lancet altogether, I must caution against large general bleedings, lest a material and sudden reduction of the force of the heart might, from the extreme relaxation which it produces, contribute to that effusion into the ventricles in which the disease itself is so likely to terminate.

I have never put in force the practice of bleeding from the jugular vein in cases



where it is possible to use the lancet; having hitherto found general bleeding from the arm, and the application of leeches, answer my purpose very well. This mode of proceeding is suggested by practitioners of great respectability, and cases undoubtedly occur, particularly those which are very rapid in their progress, in which this active mode of bleeding would be very useful; (CC) and that general bleeding must not supersede the necessity of local detraction of blood is evident, from the consideration that the morbid condition of the extreme vessels, giving rise to the effusion, is independent of the action of the heart. You may therefore reduce the strong action of the heart, without overcoming the specific condition in the extreme branches constituting inflammation there, and the re-action of this local irritation will wear out the patient.

You may bleed generally till the heart is killed, without destroying the local spe-

cific condition, except by the destruction of the whole system, as is evident from great congestion of the extreme vessels observable in dissections when patients have died of local inflammation, after large general bleedings. This has occurred very commonly in the brain. (DD).

It is upon this principle that topical bleeding is so useful, aided by the powerful alterative effects of mercury. The fatal effusions in the brain will be hastened and increased, by permitting this evident inflammatory tension to continue: and from the preternatural vascular irritation which also exists in the organs subservient to digestion, (the morbid action of which produces those very badly coloured stools,) the application of leeches to the region of the stomach and liver, as well as to the head, will be found essentially useful. For the same reason it is, that the neutral salts, particularly the sulphat of potash, given twice or thrice in the day, either in the in-



fusion of roses, or in the saline draught, are always preferred by me at this time to the resinous purgatives, as being more cooling; and experience warrants my strong recommendation of them in preference to the latter, which are too heating at this period of the disease; never failing to give every night two or three grains of the submuriat of mercury.

*Another Case illustrative of the Second Train of Symptoms rapidly approaching to the Third.*

I was desired to visit a young lady, thirteen years of age, at a school at Dunstable in 1813, who had been confined about a week to her room and bed, but had been complaining for some time before. I found her with a pulse ranging between ninety and one hundred, occasionally hurried and intermitting; sickness, irregular febrile accessions; head-ach, sometimes dull, and sometimes very acute, producing very rest-

less nights, with a torpid drowsiness ; light painful to the eyes ; a foul appearance of the tongue ; no appetite, thirst ; bowels very costive, and the evacuations very gelatinous, mixed with degenerated bilious discharges ; urine high coloured : a fulness about the region of the stomach, with soreness on pressure there as well as over the liver. This patient was bled from the arm with relief to the acute pain of the head ; had also leeches twice to the temples and to the epigastric region, and by the use of saline medicines with mercury till the gums were affected, and the occasional exhibition of active purgatives which the very torpid state of the bowels required, completely recovered ; but was for some time in a weak state.

This young lady lost a brother from Water in the Brain two years before, and the mother, from the exact similarity of symptoms in this instance, became alarmed at an earlier period. From the obstinate



costiveness which at this time prevails, it will be found necessary to interpose, twice in the week, a purgative draught, different from the neutral salts daily given in smaller doses, and which, on the day of the purgative, should be omitted; taking care, however, never to omit the mercurial at night. I almost always compose this draught of infus. sennæ; potass. tartrat; and tinct. jalap.

I have uniformly found, in all inflammatory complaints, a combined exhibition of calomel and the neutral salts given in small divided doses, a most powerful anti-phlogistic; and that increased local vascular action takes place in various parts of the viscera of the abdomen in this complaint, is to me indisputable, not only from the symptoms, but from the less equivocal signs observed in dissections.

I have said nothing about the application of blisters. I am persuaded it is not only a matter of nice discrimination to

apply them to the head ; but it is often injudicious to have recourse to them there ; I would not therefore appear to sanction their application by indiscriminate recommendation ; it may, however, be stated, that full evacuations should always be premised before they are resorted to. The diet at this time should correspond with the medical treatment ; no spicy or spirituous stimulants, nor animal food, should enter into its composition, unless it be the latter in a liquid state, in the form of broth occasionally, and even in this way it should be entirely omitted if the pain and vascular tension be great. After pursuing this plan for the requisite time, which the decline of the morbid symptoms will point out, it will be generally necessary to give a tonic about twice a day for a short time, the kind and composition of which will occur to every Physician. I may, however, mention that it is advantageous to join an opening medicine with the tonic, suffi-



ciently to ensure a daily regular intestinal evacuation. A few grains of columbo, with a grain or two of rhubarb, twice a day; or if the increased action has run high, or any disagreeable heat remain, an infusion of columbo, or of quassia with a neutral salt, the Epsom the best at this time, will be the preferable composition. A gradual return to a more substantial diet, may at the same time be adopted.

*A Third Case illustrative of the Second Train of Symptoms, in which the lungs partook largely of the irritation previous to the affection of the brain.*

Miss D——, about five years of age, the daughter of a most respectable surgeon in the city, after being harassed with an exceedingly troublesome cough for two or three weeks, was seized with a severe affection of the head, accompanied by such an irritable state of stomach, that every thing taken was immediately rejected for

some days, and was not subdued without several leeches to the head, a large blister between the shoulders, with the use of mercurial ointment conjoined with camphor and laudanum rubbed over the region of the stomach, and the assistance of a little jalap and calomel, which the child gradually swallowed mixed with treacle. The secretions were very foul, and deficient in healthy bile. She ultimately recovered, but had been long an invalid from digestive irritation. Dr. Laird and Mr. Abernethy both saw this case.

Upon a steady perseverance in, and a judicious application of, the remedies to the degree of violence and variation of the symptoms during the whole of this period, will depend the safety of the patient; by the prevention of the progress, sometimes very rapid, to the next stage of their increased activity, danger and too frequently fatal consequences.



Before proceeding to detail the symptoms and treatment of the third stage of the disease, it will be useful to mention that all the symptoms of the second stage will sometimes be so violent, and the affection of the head become so painful and oppressed, as to induce the young Physician, or one not conversant with the disease, to believe that the case is nearly hopeless, and under such circumstances, a most injurious perseverance in the use of mercury has produced a most severe degree of suffering, and sometimes a fatal event. A very striking case of this kind has very recently occurred to me. A little girl of about four years of age, the daughter of a very respectable tradesman in Southwark, after having laboured under digestive irritation for some days, was seized with much pain in the head, so as justly in the first instance to warrant the active treatment of local bleeding, mercurial medicines, and smart purging, in the opinion of

the very respectable Physician and Surgeon who attended her, under an impression that a very serious affection of the brain existed. Mercury was continually given with gamboge and aloes : at last sickness and vomiting supervened to such an extent, that the food given was constantly thrown up. I was desired to see this child in the first week of December last, and I found her in bed in a comatose state, constantly moaning, reduced to great emaciation with vomiting whenever any food was taken, with a quick irritable pulse, dilated pupils, but which contracted readily enough by the approach of light, but complaining of her head.

From a review of the case, the whole assemblage of symptoms as they existed at the time, appeared to arise from great general debility and a highly irritable state of the stomach, induced and maintained by the mercury. The result proved the truth of the opinion ; for the child was ordered a draught of infusion of columbo,



with some spirit of nutmeg, which agreed well with the stomach, and in about a fortnight she was restored, without taking any other medicine. So completely did all the symptoms of this case simulate that condition of the brain which ends in fatal effusion, that had not my mind been much occupied in closely investigating such cases, I should have been deceived, and have gone on with the mercurial medicines employed at the time I saw the child; but many similar cases have occurred to me, where not only a sympathetic affection of the brain has been mistaken for an original disease, but where the continued use of mercury to overcome the supposed complaint, has proved highly detrimental.

*History of the Third Train of Symptoms.*

The accession of this state is marked with greatly increased violence, and with great suffering to the patient: the heat of the skin becomes more intense and harsh;

febrile accessions more violent and distressing ; the pains of the head more acute and more frequent in their return, and the loud screams of the child on this account are truly afflicting ; the pupils of the eyes shew great dilatation, but still contract on the approach of light, though not healthily, by a waving languid vibratory motion ; a squinting takes place at times ; double vision is complained of, and when the child is desired, though not seeing double at the time, to view an object, I have noticed that he sees the object not where it really is, but on one side of it, by pointing to the spot ; (EE) a knitting of the eye-brows, with an expression of countenance indicative of great distress ; for a few minutes there will be a perfect silence and quietism, with a fixed steady stare of the eyes, and a very great dilatation of the pupils, when a sudden start will take place, with a loud screaming and a quick tossing of the arms over the head ; frequent moaning ; deep



sighing ; sickness and vomiting ; bowels most obstinately costive ; the evacuations when procured are very scanty and ill formed, and extremely offensive ; and when it happens that by any active means a good mass is brought away, it looks like any thing but fæces, being dark, yeasty, and gelatinous, smelling like a mixture of sour grains with putrid matter ; the tongue foul, sometimes brown and dry ; much thirst ; no appetite ; the urine irregularly secreted, both in colour and quantity ; the pulse is very irregular, both in the tone of the vibration and in the flow of the blood ; sometimes slow, sometimes quick and intermitting with a tensive feel, until it at last sinks into permanent sluggishness, ushering in its ultimate and fatal celerity ; a dewy moisture settles in drops upon the upper lip and around the nose ; a considerable wasting of the flesh has taken place ; the countenance pallid and sunk, with accessions of transient crimson flushes

playing about the cheeks ; a hollowness of the temples ; blueness of the lips, with their frequent retraction from an attempt but inability to cry, ending in a whining tone from weakness ; the eye-lids half open and motionless ; the eyes filmy and fixed with a peculiar stare from the extreme dilatation of the pupils ; the circulation is extremely hurried ; convulsions frequently take place ; palsy supervenes, either partially or generally, if the former, the child is constantly sawing backwards and forwards across the body with the arm of the opposite side, and death, most commonly in one convulsive struggle, closes the painful scene. (FF).

In the commencement of this melancholy state, it is unnecessary for me to say how much will depend upon the judgment, prompt discretion, and vigilant attention of the Physician ; for deplorable as this condition is, the recovery of the patient should not be considered as completely



hopeless, were it only on account of the recovery of cases, under apparently similar circumstances. Every attempt should be made by repeated application of leeches to the temples, by general bleeding if the force of the heart will bear it, by cold applications to the head, and by stimulant applications to the legs, to diminish the vascular excitement in the brain. I once thought, before experience had corrected the idea, that when effusion had once taken place, the recovery was hopeless ; but from cases which have come under my care since this opinion was formed, I believe that when death speedily ensues, it is owing to this morbid excitement destroying the energy of the brain, not meaning to deny the evil effects of effusion. (GG).

It will not unfrequently happen that the patient shall recover from the dangerous state of the excitement of the brain with effusion of fluid into the ventricles, but without any paralytic affection of the

limbs ; there will, however, remain a total loss, or a partial abolition, of some one or more of the senses, most commonly of the sight : I have known the smell to be lost ; the speech also will be left imperfect, or destroyed.

A little girl of seven years of age, was made an in-patient of the Bedford Infirmary for total blindness and a semi-paralytic state of one side. Nothing was remarked in the eyes, except an unnatural permanent dilatation of the pupils ; her pulse was preternaturally slow ; she was in perfect health in every other respect. From the account of the symptoms of her previous disease, received from her parent who brought her to the House, there was not the least doubt that this blindness was the consequence of an hydrencephalic attack. I considered the blindness as arising in part from the pressure of the effused fluids on the optic nerves ; it is not improbable, however, that either the structure



of those nerves, or of the neighbouring parts affecting them, was injured by the preceding vascular congestion. The excitement of the system by mercury, and all the other means used, (galvanism was one), proved ineffectual.

Within the last four years I have met with several cases of a similar nature in adults and in children. One of these was Mrs. F——, about thirty years of age, who after having suffered severely from an acute affection of the brain, in which I did not see her, recovered without any palsy remaining, and with the use of all her faculties complete, except her speech, being able to speak no other word but aye, aye. Two others were boys; one eight, the other fourteen years of age. The former, Master H——, the son of an eminent artist, totally lost his sight. The latter, Master W——, after having undergone long courses of mercury, was left with imperfect vision and occasional head-achs. I saw

none of these patients till they were in the state described, except the second, who had not lost his sight when I first saw him, but who had been severely ill for a long time. The last patient had been a long time, as I was informed by his father, a great sufferer from neglected constipation at school.

Sometimes with or without the consequent palsy, a morbid state of the brain will be left, giving rise to severe head-achs, with spasms and convulsions occurring at intervals, and at last fatally terminating in a violent accession of disease of the brain; and during this period, the child will grow with increase of flesh and strength, and with such an appearance of health, as to induce the friends of the little patient to be inclined to discredit the painful prognosis, however distant the fatal event may be, I have been obliged to give on such occasions.

One of the most common morbid con-



sequences of an attack of apoplexy is a great imperfection or loss of speech, and seldom or ever a loss of sight; whereas the latter is the most common as a consequence where children have otherwise recovered from that attack in the brain which produces the disease I have been considering. This, with other circumstances, would seem to point out a difference in the nature of the two diseases, although they fix upon the same organ—the brain.

It is evident that mere effusion into the ventricles of the brain does not speedily cause death, from instances of this kind, as well as from what is termed serous apoplexy. There is no doubt, however, that a portion of the fluids found in cavities, has been deposited there by transudation after death. The pressure of the fluid will sometimes be so great, as to separate the bones before death takes place, even after they have been firmly united; and yet notwithstanding this great collection of

fluid, the senses shall be preserved entire. The late Mr. Ford relates the case of a fine boy, nine years of age, who died of this disease, in whom, for six weeks previous to his death, the sutures of the cranium began to give way, particularly the coronal, between the indentations of which there was a considerable vacancy. On opening the head after death, there was an intervening space of half an inch between the bones of the coronal suture; and in the angle formed by the meeting of the lambdoidal with the sagittal suture there was a still larger space unoccupied by bone, the occipital bone being quite detached and moving easily on the parietal bones: vessels of the pia mater were turgid with blood at the hind part of the head; the ventricles contained twelve ounces of clear lymph; the fæces passed by this boy were of a very black colour. A similar remarkable case is published by Dr. Baillie in the 4th vol. of the Medical



Transactions. The boy whose case is above related, was, however, two years older than Dr. Baillie's. It is a curious coincidence, that in both cases, at the edges, the processes of the sutures were fewer in number, than is usual in children of those ages, which so far confirms Dr. Baillie's correct remark, that had these processes been more numerous or irregular, such a separation of the bones would not have taken place. (HH).

I am persuaded that the chance of cure depends greatly, perhaps altogether, upon arresting the excited state of the vessels of the brain, before the effects of depletion become doubtful and dangerous from the debility which ensues, and before much effusion has taken place. Together with the judiciously repeated application of bleeding and blistering, as already stated, a diligent use, both internally and externally, must be made of mercury, which, when the constitution is influenced by it,

powerfully assists with the other means used, in altering that morbid excitement constituting the disease.

These, with a watchful attention to see that the bowels are daily emptied, are the means resorted to, and sometimes with success; and although there shall be every appearance that effusion has taken place, the patient sometimes completely recovers, by the use of those medicines which carry off effused fluids, more especially when the constitution is under the influence of mercurial action. I must, however, observe that I have known the patient die after the mercury has plentifully affected the mouth; and they have recovered with no signs of an affection of the gums by the mercury, although a very large quantity had been used. There is no doubt, however, that notwithstanding the mouth is not affected, much is introduced into the habit. The circumstance of bleeding producing a state of the constitution more favourable to mer-



curial action, is worth attending to: the observation appears to me correct. (II). High action of the system seems to prevent the salutary effects of mercury we have in view. I have known the mouth speedily affected in acute rheumatism on bleeding the patient, when it had before resisted it; and notwithstanding the plentiful use of it exhibited in syphilis, I have seen the constitution resist its effects with some danger to the patient, when he is under much excitement from daily indulgence in spirituous stimulants. (KK).

With respect to diuretics, I lay no stress upon them as such, unless you can reduce the vascular excitement in the brain. I have seen death take place with much flow of urine. They are nevertheless useful from counter-irritation, by increasing the secretion of other glands. The digitalis requires consideration, on account of the other peculiar effects of this valuable and extraordinary medicine.

*Case illustrative of the Third Stage.*

One of the worst cases I ever saw recover, was that of a fine boy three years of age: the mother was travelling with her little charge, who was naturally gifted with great liveliness and vivacity, and finding him frequently dull and complaining and indefinitely ill, had recourse to hurried assistance during her tour, and the complaint being considered trifling from want of time for investigation, her anxiety, for this deviation from his usual alacrity and good health, was quieted. Instead, however, of subsiding, the vacillating state of bad health became more permanent; and soon after their arrival at home, I saw the child, with all the symptoms of an affection of the brain, evidently connected with a highly morbid state of the digestive organs. The disease, with little variation, gradually became worse; the head violently affected, great screaming, with fre-



quent tossing of the hands over the head ; till at last, with widely dilated pupils, loss of sight, and paralytic, his dissolution was daily expected : the child, however, recovered, and is now in perfect health. Mercury was very liberally used, both externally and internally ; and leeches were repeatedly applied to the head and to the epigastric region ; the head was shaved, and a blister applied over the whole of it, and kept open ; and to these were added, the assistance of saline, diuretic and purgative medicines. Although a very considerable quantity of mercury was used, no salivation took place ; (LL) and as recovery approached, the intestines were more easily acted upon, and the evacuations exhibited a more healthy appearance. It was a matter of gratifying curiosity to observe the gradual return of his sight and of his ability to walk, and his tottering gait for a time, after he attempted to run alone. Had an opportunity offered for an

early and proper attention to the deranged functions of the digestive organs, I am persuaded this very serious and nearly fatal attack would have been prevented.

There is not, I think, the least doubt, that if an irritation takes place in any one portion of the organs subservient to the digestive process, whether it be in the glandular parts or in the hollow viscera, it will produce a general effect proportioned to the degree of irritation. The continuance of this partial irritation, will gradually excite into morbid action all the contiguous parts, thus enlarging what I may call irritation by contiguity. The whole of the digestive organs will thus ultimately be morbidly affected, when will commence irritation from sympathy by affecting the brain. The liver, as one of the most important organs in every way, will partake most largely of this irritation, both by contiguity, if the irritating cause has not commenced in itself, and by sympathy;



hence, as its secretion is the most obvious from its sensible qualities, we the more readily perceive the changes produced by this morbid state. (MM).

The importance of the healthy functions of the brain needs no comment ; the whole body must more or less partake of the injury done to it, but more particularly those parts which have previously laboured under morbid impressions ; hence those very parts from which the irritation was originally propagated, become again and more violently irritated.

It is a matter of no consequence as to the production of the hydrencephalic state, in what portion of the digestive organs the original derangement of action shall commence ; as, if not subdued, the other parts discharging the same office will, ere long, be similarly affected : but this difference is a matter of importance with respect to the facility of cure, in as much as the simple is more reducible than the combined

irritation. The same observations will apply, with equal, if not with greater force, to that condition of the brain, caused by external violence, and producing a morbid state of the digestive functions. I believe too, that when the impression is made upon the brain by a portion only of the digestive organs being in a state of diseased action, the hydrencephalic disposition will be more easily cured from a less intensity of cause, than when that disposition arises from the whole of the chylopoietic organs being under morbid action; although the symptoms upon the brain will be, by continuance, to all external appearance the same. Hence it is, I think, that extremely severe cases have terminated favourably, when others, equally or less severe in appearance, have ended in death.

I have known very severe symptoms of this disease, most clearly produced by visceral derangement, speedily removed by



procuring healthy intestinal evacuations; these being procured easily by the proper exciting medicines. I have known similar instances both in age and constitution, either terminate in death, or that event kept in suspense for a long time, from the impossibility or difficulty of making this salutary change in the glandular functions of the digestive viscera, with the employment of the same means. I believe this difference of event is produced by the quantity of mischief which the irritating deranged actions have done to the digestive organs. If they have been so long continued, or so violent as to produce much derangement of function, it is very clear that the patient will more likely sink, not only from the intensity of the cause producing the sympathetic irritation in the brain, but from the longer time it will require to subdue not only a greater, but a more established disease. In dissections, therefore, various parts of the abdominal

viscera are most commonly found much diseased.

I am, however, aware that sometimes little or no diseased appearances are observed in the digestive organs from dissection. Not meaning to deny that the action producing Water in the Brain may commence there, without its being produced sympathetically, as well as any other organ may have the commencement of disease in itself; there is no difficulty in accounting for this. It is well known that morbid irritations are more quickly transmitted from one part of the body to another in some persons than in others, from the greater susceptibility of impression with which their constitutions are gifted: every Physician can furnish himself with examples of this kind. It is moreover indisputable, that very high irritations will exist, without the part which suffers from them shewing any marks of disease, from dissection. If therefore, the constitution



of such persons should unfortunately be the subject of this derangement of the digestive organs, the irritation will more speedily be transmitted to the brain ; the vascular activity there will be excited to greater violence, as is, I believe, uniformly the case with morbid actions in such constitutions ; the disease will more quickly run its course, and it is probable that under such circumstances, few, if any, diseased parts will be found in the abdomen. (NN).

Undeniable proofs of high irritation, both locally and generally, are exhibited during the period of teething. During the existence of this irritation, considerable morbid changes are observed in the appearances of the intestinal evacuations. It frequently, too, produces great inflammation of the lungs : I have been often alarmed for children under such circumstances. (OO). Should death be the consequence, and dissections discover marks of inflammatory action in this part of the

body, it will not be denied, I think, that the original cause arose in a distant part. The same may be said of abscesses in the liver, from injuries done to the head. Apoplexy is not uncommon from a liver affection, and it is not a little remarkable, that persons who die from a liver disease, generally die comatose.

I have, in a great variety of instances, removed troublesome coughs, by attending to the condition of the chylopoietic secretions. One remarkable case now presses itself upon my mind, of a young woman in the Bedford Infirmary many years ago, who had been in the House some time with every symptom of apparently confirmed phthisis; it occurred to me, from some anomaly in her symptoms, that this alarming state might be kept up by some latent disease below the diaphragm: with an expectoration apparently purulent, a teasing cough and night sweats, she was put under a course of mercury as a forlorn



hope ;—my surprise was great on her recovery. (PP).

In cases of long continued deranged functions of the digestive organs, previous to the excitement of the vessels of the brain, portions of the abdominal viscera are almost always found diseased. The appearances of bodies which I myself have witnessed, as also those related by others, confirm the truth of this observation. (QQ). The varied appearances of the evacuations, may also be accounted for from similar causes.

Although the liver, both from its size, the large mass of blood passing to it, and from its important functions, must greatly partake of this derangement, unquestionably altering the quantity and qualities of its secreted fluid ; yet we must attribute considerable changes in the evacuations, to the morbid actions of the other glands which pour their secretions into the intestinal canal ; and also some variation in

smell, colour and quantity of the discharge must take place from the circumstance, whether the glands pour out their diseased secretions in consequence of simple irritation only, or from disorganized structure; there must be considerable modification from these causes. In whatever way that very important organ the liver may be affected, the affection will undoubtedly have, sooner or later, very considerable influence on the system at large; and though this is of much importance, it is not from diseased bile only. When the peculiarity of its own circulation, and the great proportion of the mass of blood, both arterial and venous, occupied by it, are considered, a disturbance in any way of this quantity of fluid passing through it, must make a corresponding impression upon the whole circulation of the body, independent of those sympathetic irritations to which a living machine, from the



intimate and vital connection of all its parts, is subject.

It is evident, when any great resistance is made to the flow of the blood through the liver, considering the quantity too which goes there; or when its functions are so much deranged as not readily to transmit the blood it receives, that congestion must take place in the other blood vessels; hence the apoplexies, local congestions, and hæmorrhages, which occur in such cases. I have known patients in liver diseases complain of a good deal of pain in the left side, in the region of the stomach and spleen. It is clear that this arises from the superabundant quantity of blood thrown upon the gastric and splenic arteries from the cœliac, as its usual quantity cannot pass along the hepatic artery, in consequence of the obstructed liver; and this obstruction, if extensive, also prevents the vena portæ from discharging its contents, received from the splenic vein;—

another cause of congestion. For the same reason, a greater quantity of blood will be sent to the head by the carotids, the cœliac being prevented from passing on that which it receives from the aorta; hence the giddiness, bleeding at the nose, &c. I recollect a gentleman of fifty-five, who had long laboured under a deeply obstructed liver, and who died very suddenly and unexpectedly, in about two hours from the rupture of a vessel, evidently arterial, in the mouth, and which appeared to be the lingual artery. He was much reduced before this event occurred.

The distribution also of the nervous influence to the digestive organs, is as closely connected as the distribution of the circulating blood; for the semi-lunar ganglion, forming the great central plexus of nerves which surrounds the root and branches of the cœliac artery, being derived from the great sympathetic, and connected also with



the par vagum, sends its communicating branches to the liver, spleen, stomach, pancreas, and duodenum. Be it remembered too, that the nerves which pass to the lower orifice of the stomach and duodenum, is a branch of the right hepatic plexus, derived from the same origin at the cœliac union. We can easily see then, how any distending or other cause which irritates any one of these viscera will readily affect the others, independent of mechanical pressure from obstruction to the circulating blood; and how all will be speedily brought into a morbid condition by a continued affection of any one of them. And as the energy derived from the sensorium concentrates in the connecting medium of the cœliac plexus common to all the digestive organs, the manner in which the whole of these viscera become morbidly affected by any injurious impression on the brain, is not difficult to be understood.

This effect will be the same, whether that impression be from an external cause, or proceed from any one of the digestive organs. For it is easily conceived, that if irritation be transmitted to the brain by a morbid state, for example, of the duodenum, the fountain of nervous influence will return the irritation through the medium of the intimately connected branches of the semilunar ganglion; and thus the whole of the chylopoietic organs will be thrown into morbid derangement, both by nervous irritation and by irregular distribution of the blood. We can in this way understand, how the symptoms will vary in that state of chylopoietic irregularity, which precedes and accompanies the affection of the head in hydrencephalus. This anatomical view of the subject, both by blood-vessels and nerves, assists too in affording an explanation of the interchanging symptoms which attend diseases of the liver or stomach, whether they arise in



either of these organs, or from impressions on the brain. (RR).

In some paralytic affections, which gradually creep upon the constitution when the head becomes affected, a very considerable derangement takes place in the digestive functions. I have seen the stools often of a dark mahogany colour in such cases; and in a recent case, in which the palsy had lasted four years, a complete jaundice with much tenderness over the liver supervened, not attributable to any impropriety of proceeding on the part of the patient, and who had also been under judicious management: although the cure of the jaundice in this instance, and the restoration of the healthy appearance of the evacuations in the others, rendered the patients much more comfortable and tranquillized in their feelings,—no impression was made upon the paralytic state. (SS). It is difficult to say, in cases like these, where the disease originally commenced;

they form instances of masked disease; but I have known anomalous paralytic and numbing sensations, removed by procuring and preserving healthy evacuations:—but to return from this digression, into which the beautiful symmetrical arrangement of the human body will always lead us, when we indulge in its examination.—

Notwithstanding the very sensible qualities of the bile, both in a healthy and diseased state, we should be cautious in concluding that the different appearances of the evacuations always depend upon a variation in these qualities. The bile may be healthily secreted, and yet it will not give the proper healthy appearance to the evacuations, from the alterations it will undergo from the diseased secretions it may meet with through the whole track of the intestines, before it passes off with the fæces, in addition to what has been already stated on the functions of the duodenum. In the same manner as healthy



urine will put on a morbid appearance, in consequence of being mixed with diseased secretions from the bladder: some kinds of food too, will give an unhealthy appearance to the evacuations: we should not, therefore, hastily conclude that the bile is in fault when this occurrence is observed. Unhealthy appearances in the stools, therefore, do not always arise from a faulty action in the liver. This should be attended to.

That the specific action of scrofula will give rise to Water in the Brain, as well as to other diseases with which the human constitution is afflicted, experience abundantly shews; but, I cannot say that scrofulous subjects are more liable to this disease, than others uninfected by it. Hy-drencephalus is, probably, more difficult of cure in such subjects, as other diseases connected with this habit also are. I recollect a marked case of a connection of this kind, which occurred to me many years

ago : I was desired to visit, in Bucks, an interesting and beautiful little girl of eight years of age, the only surviving child of a fond mother, who had lost her other two children, in what complaints I know not, never having visited the family before. I found the little girl labouring under much febrile excitement, connected with a visible morbid irregularity and protrusion of the vertebræ of the lumbar region, and accompanied by a tottering hesitation in her gait when she attempted to walk. An attention to the state of the chylopoietic viscera, adapted to the state of the febrile accessions, with the subsequent insertion of issues in the back, and a course of sea bathing, restored her to good health, the lumbar distortion continuing. Above two years after this, I was again summoned to see this child, whom I found with all the usual symptoms of the last stage of hydronephalus, and who died within a week after



my visit. I was not permitted to open the body. (TT).

That many painful sensations and serious complaints are produced in the brain by an impression from other diseased organs, experience fully confirms. It appears to be the extent of disease in the brain, to which this impression gives rise, that creates objection. To mention one case among many others: a lady, who for a series of years had laboured under very painful derangement of the digestive functions, in which the liver had suffered greatly, discovered a defect in the vision of both eyes, attended with a sense of fulness and tightness across them, and occasional distressing pains in the back part of those organs. The vision was more defective in the right eye, which also suffered most in the other symptoms. I had no doubt that all this arose from the hepatic disease, and that no cure could be effected but by an alteration in the mor-

bid condition of the digestive functions, those of the liver suffering the most. (UU).

That vascular excitement of the vessels of the brain, with consequent effusion of water into the ventricles, does take place, and that such a state of the brain is connected with the disease termed Hydrencephalus, is fully proved as far as can be determined from the nature of the symptoms, and the appearances on dissection. If a person, after complaining of much pain, suppose of the abdomen, with all the concomitant circumstances attending a febrile state, should die, and dissection should shew the peritonæum covered with turgid blood-vessels, and a watery fluid in the cavity of the abdomen, I should think it would not be denied, that these appearances arose from vascular excitement, with the effusion consequent thereto.

That similar symptoms, with similar appearances from dissection, take place in hydrencephalus, are undeniable, from



the experience of Physicians, both living and dead, and which anatomical examinations by myself have confirmed. But the objections chiefly arise from the ideas entertained that its cause is debility, by which general dropsy is produced. No one can refuse his assent to the opinion that hydrencephalus will take place from causes which produce other dropsical effusions, allowing the same morbid alterations to the functions of the vessels of the brain, as to those of other parts of the body; but, it is not in this way, I think, that hydrencephalus as a common occurrence in children, is generally produced; it is more a specific disease. (VV).

Although experience proves that hydrencephalus occurs at almost any period of life, yet it is much more the disease of children than of persons of more adult age. On the contrary, I believe it is equally a fact, that children are not so liable to general dropsy, and that it occurs more

frequently in those of maturer years. Dropsy, properly so called, is comparatively a rare disease with very young people, who are commonly the subjects of hydrencephalus; it is therefore so far, I think, evident that in them hydrencephalus is not usually connected with the dropsical diathesis.

Dr. Quin did not believe any connection to exist between a general hydropic tendency and hydrencephalus; and Dr. Rush has well observed, "I am forced to adopt  
 " this opinion from my having never seen  
 " it accompanied by dropsical effusions in  
 " other parts of the body, nor a general  
 " dropsy accompanied by an internal  
 " dropsy of the brain." (WW). It is a known and curious fact, that the fluid in health found in the ventricles of the brain, does not contain coagulable matter by the test of acids; but that when an accumulation of fluid takes place there from hydrencephalus, a coagulable precipitation is



produced by the application of such tests. It is evident then, that this morbid effusion is caused by an action of the vessels, different from that which produced the healthy deposition of fluid, which is not coagulable, and which therefore, not only increases the quantity, but alters the qualities of the effused fluid. (XX).

The watery effusions which take place after scarlet fever, are produced in an analogous way to the effusion in hydrencephalus. There is no doubt of the great morbid congestion of the extreme vessels in this disease, and the dropsical effusions are the consequence ; if the morbid excitement be speedily removed, there are no dropsical consequences ; if it be protracted, watery effusion most commonly takes place, into some of the cavities or cellular membrane. The very same appears to me to occur, as cause and effect, in hydrencephalus ; if the complaint be speedily removed, we have not usually those symp-

toms which denote effusion into the ventricles; if the child survives with a protracted disease, the symptoms connected with effusion occur. The analogy appears to me very striking, as far as the morbid congestion of the extreme vessels, and deposition of fluid are concerned; and it is not at all uncommon to have strong symptoms of Water in the Brain after scarlet fever—I have frequently witnessed them. (YY).

The opinions which prevailed, that the original cause of dropsy was always debility, gave rise to a uniform mode of practice, not always consistent with the symptoms. A doctrine has gained ground, and we may look to it with advantage by practical application, that bleeding is beneficial in some species of general dropsy, and which may be termed inflammatory, from evident marks of vascular activity. I have experienced decided advantage from bleeding, and the antiphlogistic treatment, in the dropsies to which I allude. (ZZ).



I hope it will not be imagined from the observations I have made on the facility with which this disease may be prevented by an early attention, that therefore I consider it as one of very easy management: it is in a great measure so, indeed, upon an early detection of the symptoms. There is however, perhaps, no disease from the commencement of the morbid actions to their termination, which requires a more guarded prognosis, and from the varying symptoms, which calls for a more vigilant attention. The almost imperceptible manner in which the symptoms, at first mild and apparently trifling, run into violence and danger, particularly when the disease pursues a rapid progress, requires prompt decision, with a watchful and discriminating eye. The danger is at hand, before we are aware of its approach, and the child sinks suddenly into a fatal disease.

In its more gradual approach, the advance will be equally deceitful, though

from being more protracted, the attendants will be aware of the illness of the child, but not prospectively guarded against its ultimate dangerous consequences.

I have now, without entering much into speculative doctrines beyond what was unavoidable from a reference to the opinions of others, submitted to the public a statement of facts which the experience of practice has brought to my knowledge. If the grain I throw into the scale, shall at all assist in fixing the attention upon those first signs of deviation from a healthy condition of the digestive organs, which lead to Water in the Brain, I shall gain the object on account of which I first published this treatise ; for I feel persuaded that an early attention to these symptoms will save the Physician many a painful and fruitless visit, parents the anguish of many an anxious day, and society, probably, the loss of valuable lives.



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## POSTSCRIPT

OF

## NOTES AND OBSERVATIONS.

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(A) page 2. See Dr. Baillie's case of a gentleman, aged fifty-six, *Med. Trans.* vol. iv. p. 9. This case appears to have partaken a good deal of the nature of serous apoplexy; it is probable, the effusion into the ventricles took place about the period of the comatose state immediately previous to death: see Dr. Baillie's concluding remarks. The retention of the full powers of speech with the loss of the mode of expression, is singular. A case nearly similar occurred to me about three years ago. A Gentleman near sixty, was suddenly seized with symptoms of oppressed brain, though without any paralytic affection of the limbs; his memory became imperfect, and he totally lost his speech for a short



time; but upon recovering it, he applied wrong words to things, which he pronounced with hesitation and thickness; and in spelling words, which he was desired to do in writing, he would put down the word but with the letters transposed: and what was most remarkable, when he was asked any questions he would answer 'Tre-cothick' most distinctly, whether he meant to say yes or no, which monosyllables he had a hesitation in pronouncing: he had a particular friend of that name. This gentleman has recovered his speech, and his intellectual powers have returned with the exception that he is unable to calculate complicated numbers in arithmetic. See Sauvages, vol. i. p. 848. Apoplexia Pituitosa. Dr. Huck's cases communicated to Dr. Fothergill, Med. Obs. vol. iv. p. 55. Dr. Lettsom says he has seen the disease at all ages under sixty. Med. Memoirs, vol. i. p. 179. Med. and Phys. Journ. vol. xv. for the case of a widow lady fifty-three years of age; blood vessels of the membranes turgid with dark blood—dura mater firmly attached to the skull on the right side—the brain here of a greyish black and putrified—ten ounces of clear lymph in the ventricles. The fact is, that at every age where much irritation has existed in the brain, water will be found in the ventricles and between the membranes. See Young's Medical Literature, p. 149.

(B) p. 8. See Dr. Warren's (of Taunton) communications; *Lond. Med. Journ.* vol. ix. p. 122. for the imitation of the symptoms of hydrocephalus from the irritation of foul bowels, particularly the case p. 130, in which under the idea of hydrocephalus, mercurial ointment was used without mercury internally, very unfortunately, as Dr. Warren observes, for on dissection no disease was found in the head; but the bowels were filled with viscid matter blended with an unusual quantity of bile; they were likewise in many places in a state of inflammation. Mr. Abernethy mentions a similar case. *Surgical Observations*, p. 193.

(C) p. 11. Dr. Rush, in his account of the dissection of persons dying of this disease, states the appearances of the brain only. *Med. Obs. and Inq.* by Benjamin Rush, M.D. vol. ii. See *Philadelph. Trans.* p. 83. Also *Observations on the Dropsy of the Brain* by Robert Whytt, M.D. p. 24.

(D) p. 13. *An Essay on Hydrocephalus Acutus*, by John Cheyne, M.D. p. 89. 90. an excellent publication on this subject.

I well remember a melancholy instance of mental derangement, producing great sluggishness of mind, in the Lunatic Asylum of the county



of Bedford, which arose clearly from great torpor in the functions of the digestive viscera, manifested too by weak and sluggish movements in the circulation; and which was speedily cured by restoring those functions to their healthy action by exciting and tonic medicines.

(E) p. 14. Whytt, p. 46.

(F) p. 15. Inquiries, vol. ii. p. 201.

(G) p. 16. See case xx in the Appendix to Quin, which proved fatal, where it is remarked, that from a dose of calomel and aloes, fœtid dark coloured excrements were brought away in great quantities.

(H) p. 16. Fothergill's Works by Lettsom, p. 271—2. An exactly similar statement of the appearance of the stools is given by Fothergill and Cheyne.

(I) p. 17. Inquiries, vol. ii. p. 216.

(K) p. 18. Mr. Abernethy's Surgical Observations may be consulted with great advantage on this subject, and the student will be relieved from the perplexity of contradictory symptoms by their perusal.

(L) p. 18. Abernethy, p. 111. Fothergill on the Sick Headach; Med. Obs. vol. vi. p. 105. Warren on ditto, Med. Trans. vol. iv. p. 233. Ferriar on the Conversion of Diseases in the second vol. of his Med. Hist. A very curious case of Hydrencephalus, with dissections, is published in Med. Chirurg. Trans. vol. ii. p. 17. by Mr. Cooke of Brentford. "This makes the fourth case," observes this gentleman, "which I have examined during the last twelve months, all of which were accompanied with affections of the liver," &c. &c. At page 367 of Dr. James Johnson's Medico-chirurgical Journal, is a well marked case of a boy between eleven and twelve years of age, whose digestive organs became exceedingly deranged by a blow on the head, which subsequently produced a fatal hydrencephalus.

(M) p. 20. The pericranium, dura mater, and skull depend so entirely one upon the other, and are so fairly parts of the same system of vessels, that an injury of the pericranium spoils the bone, separates the dura mater, and causes effusion upon the brain. Bell's Anatomy, vol. i. p. 31. A case is related by Mr. Gapper, in the 6th vol. of Medical Memoirs, which the Editors of the Medical and Phys. Journal ingeniously suspect to have originated in insolation; vol. xv. p. 380.



The serious and fatal effects of blows, taking place at distant periods from the time when the accidents have happened, have not been sufficiently attended to or appreciated. I have frequently met with cases in which either a continued bad state of health, or a fatal event, has occurred from accidents, although a considerable time shall have elapsed between the accident and the commencement of the disease; in fact, so distant has been the time from the accidents, and so apparently trifling the immediate effects, that they have been forgotten until violent disease has brought them to recollection, or dissection exposed their fatal consequences to view. The following case affords an illustration of this opinion. I was consulted for the late Capt. —, in November 1821. The symptoms were a thickness in his speech, with a hesitation in attempting to speak quick; a weary feebleness in his limbs; a weak pulse with considerable imperfection in his memory, and also a peculiar vacancy of countenance, and an irritability of temper not formerly belonging to him. I did not hesitate to say that he had diseased brain, of such a degree and kind as probably would ultimately terminate fatally, although I knew nothing of the blow he had suffered till I received the information stated below. The fatal event occurred in the winter of 1820, about a year after I was

consulted ; but I cannot do better than state the facts in the words of Mr. Banks, Surgeon, of Ryde, with his apposite and just remarks subjoined to the appearances on dissection, with which he has been good enough to favour me.

“ On Sunday evening preceding the decease of  
 “ the late ———, he fell off his chair senseless  
 “ and much convulsed ; I bled him largely, and  
 “ he recovered sufficiently to know every person  
 “ and to speak ; his head was shaved and blistered, which rose speedily and well ; an aperient and diaphoretic medicine was given, and  
 “ in the morning he was better, but had wholly  
 “ lost the use of the left side ; he lay in this  
 “ state gradually becoming weaker, having occasionally slight convulsions, until Thursday,  
 “ when after several hours of apparently sound  
 “ sleep, he awoke very sensible, raised himself  
 “ in the bed, said he felt very comfortable, and  
 “ expired. As the disease proceeded the mental  
 “ energy failed, yet to the last there was a perfect recollection of past events in the minutest  
 “ details, and the aberration of mind consisted  
 “ in absence as to passing occurrences, and a  
 “ devotion to the perusal of particular books,  
 “ until their histories, &c. appeared not only to  
 “ be true, but to relate to events at which he  
 “ had been present and an actor in them.



*Appearances on Dissection.*

“ On reflecting back the scalp, the marks of a  
“ former fracture of the left parietal bone, about  
“ two inches in length, were evident, running  
“ down at about an inch distant from the sagittal  
“ to the lambdoidal suture; the bone surround-  
“ ing the fracture was rough and much indented  
“ for about three inches, apparently produced  
“ by some violent blow at a distant preceding  
“ period. The calvarium required unusual force  
“ for its removal, as the dura mater adhered  
“ very firmly: when removed, a considerable  
“ quantity of serum escaped from between the  
“ hemispheres of the brain; the vessels of the  
“ dura and pia mater were large and distended  
“ with blood; the lateral ventricles were filled  
“ with serum, as were also the third and fourth,  
“ the communications to which were much en-  
“ larged. The whole of the medullary substance  
“ of the brain was soft and pulpy, and as it  
“ approached the basis of the cranium, it was  
“ but little more consistent than healthy pus—  
“ its colour was rather darker than usual: the  
“ sides of the lateral ventricles were of a dark  
“ yellow colour. On removing the cerebrum,  
“ the tentorium was observed to project con-  
“ siderably upwards; the vessels of the dura and  
“ pia mater covering the cerebellum were turgid

“ and so close together, that the mass appeared  
 “ to consist of fleshy fibres resembling very much  
 “ a placenta: the medullary substance of the  
 “ cerebellum was of a yellow colour, and in the  
 “ centre of it were two abscesses filled with pus  
 “ —one capable of containing a nutmeg—the  
 “ other somewhat larger.

“ It appears that some years since part of one  
 “ of ——— front teeth was broken off by the  
 “ drawing of his cot screw, when he fell with  
 “ violence, head foremost, on the deck. On  
 “ another occasion, a heavy sail fell on his fore-  
 “ head as he was looking up, which knocked  
 “ him down and stunned him for a considerable  
 “ time. I can easily conceive either of these  
 “ causes to have been sufficient to produce frac-  
 “ ture without the symptoms exciting alarm at  
 “ the time, or to have obtained much attention,  
 “ from the part of the parietal bone where the  
 “ fracture was situated not being likely to pro-  
 “ duce compression of the brain, at the same  
 “ time that it might produce so much of slow  
 “ inflammation as gradually to interfere with  
 “ the functions of the brain, by the destruction  
 “ or alteration of its substance. It is said by a  
 “ messmate of ——— that he had a coup de  
 “ soleil while in the Red Sea, whether prior or  
 “ subsequently to the first fall, I have not learnt;  
 “ in either case the one might have much in-



“fluenced the other in advancing the progress  
“of the disease.”

Mr. Bankes' remarks are so pertinent to the subject that I have nothing to add to them. It may be worth observing, however, that as the diseased appearances were general, and the abscesses in the centre of the cerebellum, yet the paralytic affection only occurred partially, and that on the same side with the fracture; and also that there was comparatively so little disturbance of the intellectual powers considering the extensive mischief discovered. It is worthy of notice also, that although such extensive disease was discovered in the brain, there was no symptom during life which denoted any disturbance of the digestive powers. No account is given of the condition of the abdominal viscera in the dissection.

It is right also to attend to the effects of particular kinds of motions and positions of the body in altering the condition of the circulation within the skull. The rotatory motion to which children sometimes resort as an amusement, by twirling round till they are giddy, should not be permitted. The late Dr. Clarke, in his Comment. p. 102, states that he once met with a case of oppressed brain in a child which was held by the legs with the head downwards, to relieve a convulsive affection, by a foolish nurse; and

my friend, Dr. Paris, has informed me of the following case. A boy, of the age of thirteen, was taken up by the waistband of his breeches and whirled with great violence for several seconds. He complained at the time of a very extraordinary sensation, and for several hours fancied that every object which he attempted to grasp receded from his touch. He constantly dreamt that he was rapidly carried forward in some vehicle, and that at intervals he was suddenly whirled round. In about ten days he became feverish, with the most obstinate costiveness; his head was painful, the light highly distressing, strabismus supervened. Dr. Paris first saw him at this time; the bowels had not been moved for four days, the strongest purgatives having failed, but the bowels were speedily and very largely evacuated by Ol. Terebinth f3j, and although the symptoms were thereby mitigated, the boy ultimately died. The obstinate costiveness is worthy of remark in this case, as clearly arising from a morbid impression on the intestines, from a diseased condition of the contents of the cranium.

(N) p. 25. See Dr. Cheston's very ingenious *Pathological Inquiries*, published in 1766, p. 36. 37. 38; a work well worth attention. The reader will find in the *Philadelph. Trans.* p.



49—80. cases of Hydrencephalus by Dr. Leib; and also, in *Med. Obs. and Inq.* vol. iv. p. 78—321. similar cases by Dr. Watson, which originated in external violence done to the head by falls and blows. In the 6th vol. of the *Med. Obs. and Inq.* is given a curious case of a young gentleman of Oxford, who had been for some time a sufferer from a deranged state of the visceral functions of the abdomen, supposed to arise from worms. On examination of the body after death, these viscera were found perfectly sound—but the membranes of the brain were discoloured; they adhered to one another, and to the brain, with an osseous substance interposed—water in the ventricles. It was ascertained after death that he had received a blow upon the head. “In the course of my practice  
“I have seen several well defined morbid instances where the disease could be traced to  
“such accidents.” *Hamilton on the Diseases of Infancy and Childhood*, p. 165.

(O) p. 39. This symptom is mentioned by *Quin*; see Case XXI. in the Appendix.

(P) p. 42. *Fothergill* also noticed this as a constant symptom. *Works*, p. 272.

(Q) p. 42. Dr. Rush says that troublesome and distressing dreams very commonly attend. *Philadelph. Trans.* p. 150. They are also noticed by Dr. Clarke; *Commentaries on Diseases of Children*, p. 116. A disturbed sensorium will always produce dreaming and restlessness at night, and there is not a more prolific source of disturbed sensorium than a deranged state of the digestive organs. Somnambulism is frequently in children the consequence of this disturbed state of the sensorium from the state of the stomach. See a remarkable case of this kind by the author; *Med. Trans. of the London College of Physicians*, vol. v. p. 444. In the disease termed *Mal d'estomac* in the West Indies, dissection shews the stomach in an exhausted worn out state, secreting little or no gastric liquor—deprived of its red vessels—biliary secretions scanty—sometimes effusion of water in the head as a consequence of the disease affecting the stomach. *Williamson's Observations on the West Indies*, vol. 1. p. 174.

(R) p. 43. “ This formidable malady (Otal-  
 “ gia) does not in all instances commence in the  
 “ tympanal cavity, and extend inwards towards  
 “ the pyramidal portion and the central mem-  
 “ branes. The course of its phenomena may  
 “ be quite the reverse, and originating in the in-  
 “ terior of the cranium, may pursue its dis-



“ organising career in the direction of the tym-  
 “ panum, until its existence is rendered obvious  
 “ by the purulent discharge from the external  
 “ ear. It is indeed to be viewed as a true  
 “ encephalitis or meningitis, which ultimately  
 “ terminates by otitis and the ordinary sequelæ.”  
 Edin. Med. and Surg. Journ. No. lxxiv. for Jan.  
 1823, p. 94.

(S) p. 44. See Quin, p. 31. 32.: also Med.  
 and Physical Journal, vol. xi. p. 401, a case by  
 Mr. Bartlett, with extraordinary intellectual  
 powers:—thirty-two ounces of water were found  
 in the brain. Med. Commun. vol. i. p. 404.

(T) p. 50. Observations on the utility and  
 administration of Purgatives, by James Hamilton,  
 M.D.

(V) p. 55. See the author's observations on  
 the Duodenum, with the plates descriptive of its  
 situation and connections, Med. Trans. of the  
 London Coll. of Physicans, vol. vi. p. 325. Also  
 Dr. Hamilton's useful work on the use and abuse  
 of mercury, Sect. vii. on the Duodenum. Many  
 similar ideas are contained in both these pub-  
 lications without any communication whatever  
 having taken place between the authors, giving  
 confirmation to the correctness of the statements.

I read the Gulstonian Lectures, from which my paper is extracted, before the College in London in May 1817, and the paper was subsequently published in the Transactions for the year 1820. Dr. Hamilton's book was published at Edinburgh 1819. See Dr. Monro's Description of the Duodenum, Edin. Med. Essays, vol. iv. p. 57; and Mr. John Bell's Anatomy, vol. iii. p. 278. Deficiente enim hoc motu peristaltico (duodeni) bilis quæ continuo effluit, ingenti in copia, accumulata et congesta in hac parte, mirifice intestinum distendit. Hoffman Oper. Omn. vol. vi. p. 191. De Duodeno multorum malorum causa—a most valuable little tract.

(U) p. 56. Quandoque etiam effectus pravorum istorum succorum, in duodeno primisque intestinis stagnantur, usque ad caput se exerunt et cephalagias, vertiginem, torporem omnium sensuum, imo apoplecticos insultus ibi machinantur. Hoffman. Oper. vol. vi. p. 192.

(W) p. 61. Portal past a ligature round the intestine of dogs, below the opening of the duct; in five or six hours the eyes were tinged with bile. Saunders on the Liver, p. 234—243. Mr. Bell says that bile has been found in the trunk of the pancreatic duct. Anatomy, vol. iii. p. 327. "Ipsa mercurialia," says Hoffman, "sicuti dex-



“ trè præparata & prudenter adhibita, usus sunt  
 “ longè præstantissimi, ita vicissim minus recte  
 “ parata & præpostere, exigua etiam dosi, pro-  
 “ pinata, universum corpus gravissimo damno  
 “ afficiunt.” De consensu Partium, Sect. i. cap.  
 v. § xvii.

(X) p. 63. London Med. Journal, vol. ix.

(Y) p. 64. “ In cachectico vesicam biliarium  
 “ hepatis annexam, bile plane vacuum, intesti-  
 “ num vero duodenum humori bilioso repletum  
 “ adeoque dilatatum fuisse, ut quasi bursam  
 “ referret.” Hoffman, p. 191.

(Z) p. 68. Dr. Smyth is convinced that his  
 previous unsuccessful endeavours, and those of  
 others, were rather to be attributed to the not  
 having known the disease at an early period,  
 than to any want of skill in the treatment or of  
 efficacy in the means employed. A Treatise on  
 Dropsy of the Brain, by James Carmichael Smyth,  
 M.D. p. 70. 71. This observation is more com-  
 pletely verified with our improved knowledge of  
 the disease.

(AA) p. 75. The fulness and puffiness of the  
 epigastric region formed a symptom in this case.

(BB) p. 76. "I believe," says Dr. Cheyne, in his excellent work on Hydrencephalus, "every  
 " different stage, certainly every different form  
 " of the disease, requires a considerable differ-  
 " ence of treatment." p. 88. My own experience confirms this observation.

(CC) p. 78. "In some cases it might be  
 " advisable to open the jugular vein or temporal  
 " artery, but I have never yet seen either of  
 " these operations performed in this disease."  
 Garnet Med. and Phys. Journal, vol. v. p. 126.  
 Morgagni Epist. vi. art. 16. states that he has  
 opened the occipital veins with great success in  
 the distension of the vessels of the head. In a  
 case of hydrencephalus in a boy ten years of age,  
 published by Dr. Blackall in his excellent work  
 on Dropsy, ten ounces of blood were taken from  
 the temporal artery; it was a case of affection of  
 the brain, not uncommon after scarlet fever.  
 These cases are much more manageable than the  
 hydrencephalus from visceral derangement: the  
 boy recovered. p. 185. Dr. Clarke's reasons for  
 bleeding by the jugular vein are ingenious. p.  
 154—157.

(DD) p. 79. Dr. Whytt, the great opponent  
 of Haller, and the same who has published on  
 Hydrencephalus, has admirably illustrated this



subject in a small volume of *Physiological Essays* published at Edinburgh in 1755, p. 65. 66. 68. I am disposed to adopt Dr. Wilson Philip's theory of inflammation as more adapted to the explanation of the phænomena—on the laws of the vital functions, p. 267. But whichever doctrine the reader adopts, whether it be the one founded on the debility of the extreme vessels, or on their increased activity, still the fact I have mentioned of general, not being sufficient without local bleeding, and that you may bleed generally till the heart is killed without destroying the local morbid state, remains the same. I think the knowledge of this fact, one of great importance and of great practical utility. Since the first edition of my pamphlet was published, the facts and experiments published by Dr. Philip, Dr. Parry, and Dr. Seeds, amply confirm the position of local bleeding which I had laid down as a most important and essential point of practice. Dr. Philip and Dr. Parry are at issue as to the cause of local inflammation, but the difference of their theories does not mitigate against the practice upon which I lay so much stress. It would seem from the very curious and ingenious experiments of Dr. Seeds, detailed at length at pages 88 and 411 of Dr. Johnson's very useful *Journal*, that large and excessive bleedings are always attended with effusion of fluid

into the ventricles. From some facts which have occurred to me, I have scarcely a doubt that I have seen mischief produced by large bleedings in apoplexies. It is gratifying to me to observe, that the experiments and observations of men of talents and observation have confirmed the practice I strongly insisted upon, in not relying on general bleeding to the omission of local detraction of blood. See the Author's Letter to the Editor of the *Medico Chirurg. Journal*, vol. 1. p. 377, with the Reviewer's candid reply, p. 470. See Kirkland on Apoplectic and Paralytic attacks, p. 70. 71, a book which contains many useful practical facts. In the first vol. of the *Trans. of the Dublin College of Physicians*, p. 176, a very instructive case, ably drawn up and candidly stated, has been published by Dr. Crampton, in which on two successive days the patient, a boy twelve years of age, was twice bled from the temporal artery ad deliquium without any relief to the pain; on the contrary, three days after, notwithstanding another bleeding from the arm, it increased, says the report, if possible, and extended to the occiput and back of the neck. The patient ultimately recovered. The case appears to have been a very perplexing one. From the good effects of opium and the warm bath, there seems to have been a good deal of irritability in the system. The report on the 7th of



October is well worthy of remark, "Ravenous  
 " appetite for food continues; food tranquillises  
 " his agitation; delirium at night is appeased  
 " by opium given in divided doses." In cases  
 of perplexing irritability, perplexing from the  
 violent and doubtful nature of the symptoms, the  
 soothing quality of mild food and of Pulv. Ipic.  
 Comp. has been useful.

(EE) p. 89. The same symptom is mentioned  
 by Mr. Richards, Med. and Phys. Journal, vol. v.  
 p. 343.

(FF) p. 91. It is very remarkable that Hip-  
 pocrates accurately describes the symptoms of  
 the phrenetic state of the brain preceding the  
 effusion of fluid into the ventricles, and some of  
 the latter also. He has blended all the symp-  
 toms under one description, but the description  
 marks his extraordinary accuracy. De morbis,  
 Lib. 2nd. p. 466. fol. Foesio auctore, Franco-  
 furte 1624. The sharp pains about the temples  
 and crown of the head—the feverish attacks—  
 the pains and blindness of the eyes—the double  
 vision—the giddiness—intolerance of light—  
 singing in the ears—acute hearing and vomiting,  
 form an assemblage of symptoms which clearly  
 denote an affection of the brain; and that it  
 should have been known to Hippocrates that

effusion of fluid was connected with them, is a proof that he derived his information from dissection.

(GG) p. 92. When death takes place from hydropcephalus, it does not arise from the effusion of fluid, as is very clear from the survival of many who have evidently a collection of water in the brain. The effusion relieves the distension of the congested vessels, and is so far a step towards a cure; and if the energy of the contents of the cranium have not been greatly injured by the excitement, life will continue with tolerable comfort, and the effused fluid may possibly be taken away by the powers of the constitution. I speak of this absorption, however, with great reserve, on account of the uncertainty of any such process in the brain upon matters out of the source of the circulation. In dissections of persons who have died from this disease, we find the contents of the cranium in three different states.

1st. The vessels of the brain and of its membranes filled with blood, and without any preternatural effusion of fluid whatever.

2dly. An effusion of fluid without any appearance of congestion in the vessels.

3dly. Both circumstances will occur. In the first instance the vitality of the brain has been



destroyed by the previously great excitement before effusion has taken place. In the second, the fluid has been poured out at the time the energy of the brain was destroyed. And lastly, the congestion has continued to go on from causes which did not operate to relieve it, as improper treatment, the continuance of the increased arterial action, impediment to the returning blood, &c. &c. when the effusion was taking place. The palsy and deficiency of some of the senses which sometimes remain, are owing to the impaired or destroyed energy of the nerves, and not altogether to the pressure, which has been relieved by the removal of the congestion of the vessels. See Kirkland on Apoplexy, p. 73. 74. 83. Dr. Quin states two cases of persons who died with all the symptoms of hydrocephalus: no water was found on dissection, but the blood vessels were so unusually distended, that the whole brain resembled an anatomical preparation, p. 50. The same facts occurred to Dr. Percival. See Med. Facts, vol. i. p. 127, and the whole of this amiable physician's statements, p. 111 to 133.

There is a condition of the contents of the cranium which sometimes takes place, and which would seem to arise from congestion having so far distended its vessels, and thereby debilitated them, that they are unable to contract sufficiently

to their usual calibre, and to propel their contents; the cerebral veins suffer most in these cases: hence very severe headaches arise, and from the pressure which the brain suffers from the gorged vessels, a great deal of distress is produced in the general system. The erect position to favour the transit of the returning blood, and to diminish the impulse in the carotids towards the head, aided by the application of cold to give a contractible power to the vessels, has an excellent effect. A remarkable case of this kind is published by the author in the *Royal Institution Journal* for April 1823, in which cold applications to the head and the erect position for a week, cured a severe affection of the brain in a gentleman between thirty and forty years of age, after all other methods had failed. The late Dr. Clarke, in his *Comment.* p. 162, mentions the case of a child which was kept in the erect posture in a chair for some weeks, and recovered.

(HH) p. 98. Dr. Palmer relates a case of a girl six years of age, in which there was a separation of the cranial bones. *Medico Chirurg. Journal*, Dec. 2, vol. ii. p. 271. A similar one of a boy five years of age, is mentioned by Tulpius, from whose head was taken five pints of water. *Tulp. Observ. lib. 1. cap. xxiv.* The same



author also mentions the effusion of fluid only into one ventricle. Hydrocephalus dimidiati capitis, cap. xxv.

(II) p. 100. See Cheyne and M'Gregor's Medical sketches.

(KK) p. 100. See a case of this kind by the author in Duncan's Annals of Med. vol. ii. Lustrum ii. p. 400. The mouth became sore in five days on withdrawing the stimulants, under the use of which his constitution had resisted the effects of mercury for a month.

(LL) p. 102. A case of recovery from this disease is stated in Med. Mem. vol. xiv. p. 403, of a child, one year and a half old, in whom no salivation took place, although six ounces and a half and ten grains of mercurial ointment, and thirty-six grains of calomel, had been used.

(MM) p. 104. Taking the subject in a more enlarged view than that to which this treatise necessarily confines it, it may be added, that other organs become affected sympathetically, the lungs for example, producing coughs and asthma, from the connection of the par vagum with the pulmonic plexus of nerves. This mode of viewing diseases has given rise to the best

treatise on asthma—Dr. Bree's very ingenious work on *Disordered Respiration*. In many affections of the brain, a morbidly increased sympathy exists between it and the tract of the alimentary canal, the villous coat of which seems to acquire an extraordinary degree of sensibility. I have often known acrid matters, acting as purgatives, produce so much irritation as to cause great giddiness and distress in the head.

In the early part of my practice, an apoplectic fit seemed to be very much connected with an irritating purgative; the fact made a great impression upon me. Hoffman distinctly states a fatal case of apoplexy in a woman of fifty, which was brought on by an acrid purgative, and cautions against their use. *Hæmorrhagia Cerebri*. sect. i. cap. vii. observ. ii. Irritation of the nerves of the primæ viæ, or of the other viscera of the abdomen, will bring on an hemiplegia. Affections of the liver, spleen, pancreas, and mesentery, &c. bring on a paralytic affection of the limbs. Kirkland on Apoplexy, p. 93. 140. It (apoplexy) does not always originate in the head, as has been imagined, but also in the viscera of the thorax or abdomen, or both together, p. 17. See Dr. Wilson Philip's *Treatise on Indigestion*, p. 273 to 282.



(NN) p. 108. See dissections at the end of Dr. C. Smyth's Treatise, Mr. Abernethy's Surgical Observations, where this subject is well illustrated, Dr. Ferriar's ingenious observations on conversion of diseases in his Med. Histories, and Hoffman De Generatione Morborum ex morbis & de commutatâ Morborum, &c. A very instructive case is published by Mr. Fairburn in the Medico Chirurg. Journal for June 1817. The disease of the head came on, and proved fatal, from the digestive irritations not being attended to in time: *there was great soreness of the epigastric region*, with swelling of the abdomen and other symptoms of high irritation there, which existed for some time before any affection of the head was observable, and yet on dissection the head only was found diseased; the abdominal viscera being sound.

(OO) p. 108. See Underwood on the Diseases of Children, vol. i. p. 224.

“ If a child should survive the age of dentition, “ it rarely is afterwards attacked by phrenitis.” Comment. on the Diseases of Children by the late Dr. Clarke. The high character which Dr. Clarke so justly bore, and the weight of authority with which his remarks are stamped, have given a currency to his opinions; it is therefore necessary to say that this observation must be received

with very great caution, otherwise the young practitioner will not be upon his guard on the early symptoms which lead to the fatal disease of hydrencephalus. Undoubtedly teething acts as an exciting cause in inducing that phrenitic state ending in effusion; but the disease occurs very frequently before and after teething. To the inexperienced this observation of Dr. Clarke is dangerous.

On the subject of teething, I may remark the mischief and danger that arise from irritating the bowels already preternaturally sensible from the greatly increased irritability of the child; "Ex quo," says Hoffman, with his usual judgment and penetration, "*judicare promptum est, quam imprudenter & temerarie ii faciant, qui in dentitionis difficultate, ubi spasmi genus nervosum vehementer torquent & fæces virides sunt, purgantia acria & cum mercurialibus mixta, iterum iterumque propinant, tristi eventu præposterum ejus modi consilium satis confirmante. De consensu partium.*" Sect. i. cap. v. § xxv. Experience of a similar kind on my own part has fully verified this observation.

(PP) p. 110. See a case related by Mr. Abernethy, *Surgical Obs.* p. 147. Also Mr. Paisley's Letter, giving an excellent account of the liver-cough, in Dr. Saunders's *Treatise on the Liver*,



p. 55. The following quotation from the accurate Hoffman is too correct and apposite to be passed over. Descanting on the evil effects of an accumulation of bilious matters in the duodenum, he adds with much justness, "Ab eodem  
 "bile æruginoso stagnante, tusses stomicales,  
 "chronicæ & ferinæ non modo in infantibus,  
 "sed etiam adultioribus oriuntur. Eædem sæpe  
 "intermittentibus & hypochondriacæ affectioni  
 "se associant, quo in casu omnia dulcia pecto-  
 "ralia plus damni quan emolumenti afferunt,  
 p. 192.

(QQ) p. 110. See Cheyne, *passim*. Abernethy, p. 192. 193. Also two well drawn up and instructive cases by Mr. Davis, *Med. and Phys. Journal*, vol. viii. p. 98. The history of these cases is taken up before the affection of the head commenced. Also Mr. Thomson's dissections and apposite remarks. *Med. Repos.* No. 1.

(RR) p. 116. Cheston, p. 44. 144.

(SS) p. 116. The patient, son of the late Mr. Asperne, Bookseller, Cornhill, was a clerk in the Bank, and had been prevented from attending his duties for four years by a paralytic affection, accompanied by great disorder in the digestive organs, in which the liver largely par-

took. Since the first edition of my pamphlet was published, he has undergone a mercurial course with such great advantage in every respect, that he has now for several years been able to attend at the Bank as usual.

It is the opinion of Dr. Baillie, Sir Henry Hallford, and Mr. Copeland, that those palsies which first shew themselves by a weakness in the lower extremities, gradually creeping on till a complete paraplegia is produced, take their origin from the brain, when there is no disease of the spine, although there shall be no palsy of the upper limbs. Although the fact appears to be such, yet it is difficult to understand it, and considering the anatomy of the parts, it appears impossible, as the pressure upon the brain must affect the upper as well as the lower extremities. Dr. Baillie has ingeniously conjectured that the effused fluid passes down the theca-vertebralis, and lodging in the lower part of the spine, causes the palsy; this, as a cause of palsy, did not escape the penetration of Hoffman, and this accidental coincidence of opinion in such able men and accurate anatomists, give confirmation to the fact. "*Serum per poros secedit ac descendens*  
 "*vel ad cerebri basin, vel ad spinalis medullæ*  
 "*alterutrum latus, eidemque incumbens, liquidi*  
 "*subtilioris activi tam secretionem, quam in-*  
 "*fluxum in nervos, intercipit, eoque partes in*



“*latere alterutro sensu privat ac motu.*” *Hæ-*  
*morrhagia cerebri*, Sect. i. cap. vii. § xvii. In  
 protracted disease this very probably does hap-  
 pen, indeed it does occur often, but it will  
 scarcely account for the commencement of the  
 complaint. In no case have we a more complete  
 palsy of the lower limbs than in that which is the  
 consequence of lead colic, and yet there is no  
 affection of the head or of the spine. In the pro-  
 gress of paraplegia, which gradually creeps  
 on the constitution, the head certainly always  
 shews symptoms of serious disease in itself, re-  
 quiring sometimes very active measures there.  
 These cases most commonly end fatally by an  
 apoplectic attack. See Dr. Baillie’s paper on  
 Paraplegia in vol. 6th of the Transactions of the  
 College; Mr. Copeland on diseased spine, and  
 my pamphlet on Neuralgia, p. 32—34.

“In some very rare cases,” says the late Dr.  
 Clarke, p. 131, “though the original disease was  
 “in the brain, the lower extremities have lost  
 “their power, whilst the upper have not been  
 “at all affected.” The palsy in these instances,  
 most probably does occur in the way Dr. Baillie  
 and Hoffman have suggested, as the paralytic  
 state after hydrencephalus is generally the effect  
 of protracted disease of the brain producing effu-  
 sion of fluid, which finds a passage down the  
*theca-vertebralis*.

(TT) p. 120. In Duncan's *Annals of Medicine*, vol. iv. p. 452, for a case very similar to this, by Dr. Haxby of Pontefract. Cheyne, p. 179 to 191. 208. 210. Dr. Perceval states that of twenty-two cases he attended, eleven were strumous. *Med. Facts*, vol. i. p. 129.

(UU) p. 121. This patient has since died of extensive disease of the liver and stomach, but the affection of the head and eyes had been much impaired by a meliorated condition of the digestive organs. *Meminit etiam Lommius*, lib. ii. "Suffusionis seu incipientis cataractæ, ex stomacho proficiscentis, & asserit talem suffusionem intermittere & remittere, si curata coctione prospectum stomacho est, invalescere & reverti si is cruditate labefactus." *Hoffman Opera*, vol. 1. p. 314.

(VV) p. 122. "It is a disorder that happens, so far as I have had an opportunity of observing, more commonly to healthy, active, lively children, than to such in whom, from previous indisposition, there is room to suspect an unequal or weakened absorption." *Fothergill's Works*, p. 273. "I suspect," says Dr. Blackall, "that hydrocephalus originates much less frequently in this constitutional dropsy than in



“ other causes.” See a very ingenious work on Dropsy by Dr. Blackall of Exeter.

(WW) p. 123. “ I have seen,” says Dr. Baillie on Ascites, “ several instances of it in “ children under ten years of age; but it is “ much more common at the middle and more “ advanced periods of life.” Morbid Anatomy, p. 74—304. Rush’s Inquiries, p. 216.

(XX) p. 124. It does not always happen, however, that the fluid effused in hydrencephalus, strictly so called, is coagulable by acids and other tests; it cannot therefore be considered as a general law: the effusion may at one time arise from relaxation simply of the mouths of the extreme vessels; at other times the effused fluid may be the result of different morbid actions in the way of a secretion; this will undoubtedly cause considerable variation. The following experiments shew this.

Sunday, November 15, 1818.

The fluids, upon which the following experiments were made, were taken from the body of the late Dr. Sandeman, aged 71, who died on the preceding Friday of diseased bladder and prostate, extremely emaciated. The body was opened by Mr. Sawrey of Bedford-row. The veins on the surface of the brain were unusually

turgid; attached to the surface of the dura mater over the left hemisphere, was a new membrane containing between its laminæ effused blood and ramifications of blood vessels: the brain was watery throughout, and the ventricles contained much fluid: the vertebral artery was ossified; the internal iliacs were also ossified: the bladder thickened, and at its neck studded with fungous excrescences putting on the appearance of cancer; prostate schirrous; right kidney and ureter filled with matter and wasted; both testicles were much wasted, and a hydrocele of the left; coronary arteries of the heart harder than natural, as also the valvulæ semilunares of the pulmonary artery.

No. 1. Fluid from the ventricles of the brain. No alteration was produced by heating it to the boiling point, nor upon adding nitric acid in that state; nor was any alteration caused by the same addition to the cold fluid.

No. 2. Fluid from the hydrocele. Nitric acid produced an immediate copious white curdy precipitate, like curds of milk, or rather like magnesia settled at the bottom of water.

The fluid, upon being heated, became milky and opaque, and when approaching the boiling point, it became thick like jelly, a tough pellicle forming on the surface and round the edges, leaving the centre more fluid: some nitric acid,



added to it in this state, rendered it a curdled jelly.

In a case of hydrocephalus in an aged man, published by Dr. Herbeden in the fifth volume of the Transactions of the College, some of the arteries of the base of the brain were ossified, as also some of the valves of the heart and the iliacs; the prostate was enlarged, and there was some disease about the bladder, and a hydrocele of the left testicle. The cases are very remarkably similar. In the second vol. of the Med. and Chirurg. Trans. p. 342, the reader will find a chemical account of various dropsical fluids by the late lamented Dr. Marcet.

(YY) p. 125. See Withering on Scarlet Fever, 2nd edit. p. 27. Also the Med. & Phys. Journal for Nov. 1801, p. 120. Cases of dropsy of the Scarlatina, by Dr. Skrimshire. On examining one case that died, four ounces of water were found in the pericardium, and the same quantity in the cavity of the thorax, and six or eight ounces in the abdomen; the dropsical effusion was shewn to be the serosity of the blood with the fibrine, deprived of the colouring particles and the albumen.

(ZZ) p. 125. See Dr. Blackall's work on this subject, p. 277. Annals of Medicine by Duncan,

vol. i. p. 176. *Dissertatio Medica de Hydrope Plethorico*, auctore C. J. C. Grapengiesser, M.D. Hippocrates, in the chapter on Diet in acute diseases, sect. iv. edition already quoted, recommends bleeding from the arm in some symptoms connected with dropsy. His rules and cautions would apply in many cases now. "Ascites calidus viginti venæsectionibus curatus qui ab exhibitis hydragogis & diureticis cujusvis generis magis ac magis intumuerat." Sauvages, vol. ii. p. 504.

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The following references are subjoined, that the professional reader may indulge his curiosity, at leisure, in the perusal of the discussion on the subject of Hydrancephalus.

The Medical Repository for March 1815.

The Edinburgh Medical and Surgical Journal for October 1815.

The Eclectic Review for September 1815, with the Observations on this Review, by the Author, in the Medical and Physical Journal for February 1816.



The Medico-Chirurgical Journal and Review for April 1816, with the Observations on this Review by the Author, in the same Journal for May 1816.

The Critical Review for November 1816.

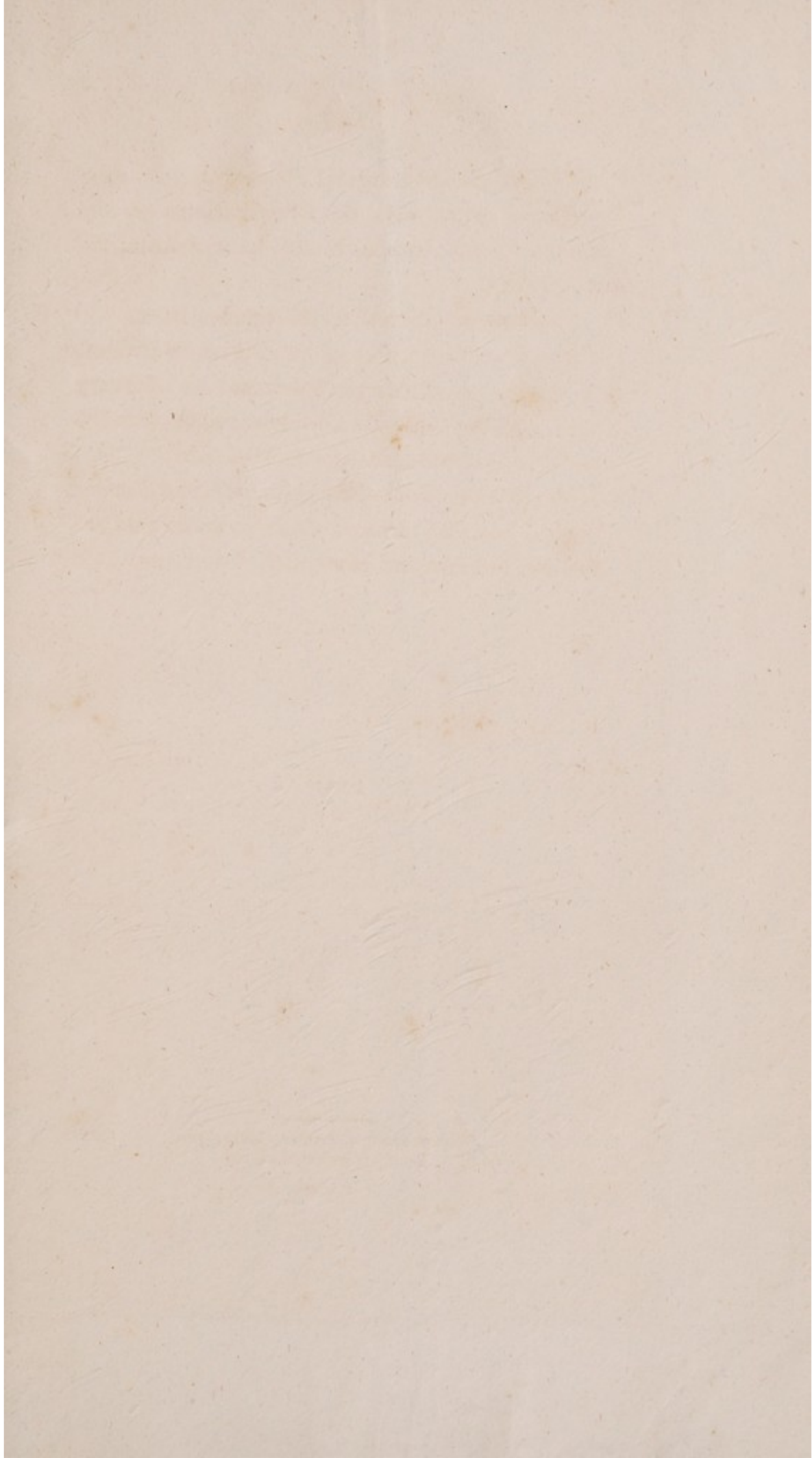
The excellent Letter of Dr. Porter of Bristol, in the Medico-Chirurgical Journal for January 1819, and the Author's Observations on this letter in the same Journal for April 1819.

Mr. William Cooke, Surgeon, of Great Prescott Street, has also printed some sensible and ingenious remarks and cases with dissections.

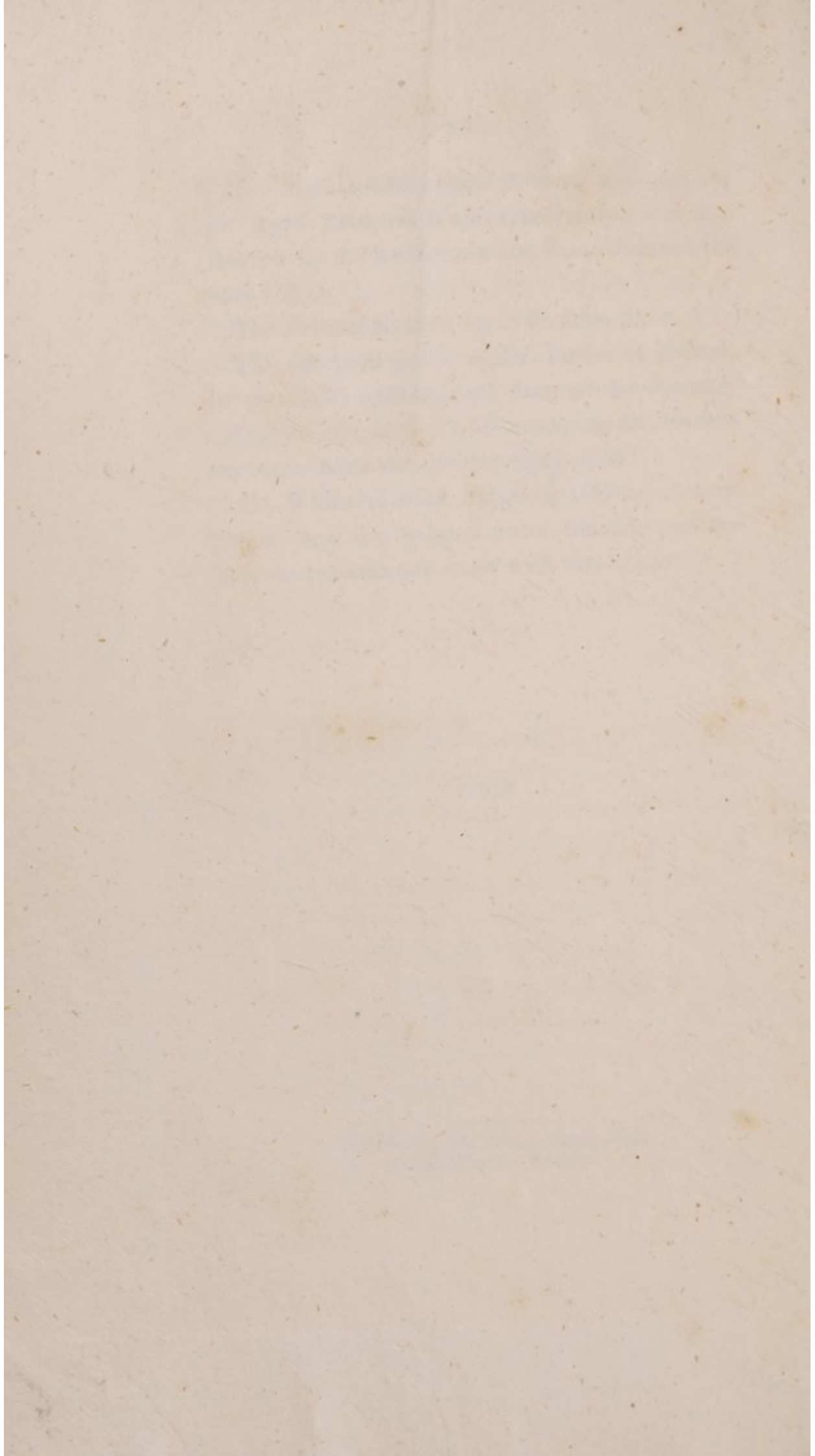
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