

## **Practical observations on the convulsions of infants / By John North.**

### **Contributors**

North, John, 1790-1873.

### **Publication/Creation**

London : Burgess and Hill, 1826.

### **Persistent URL**

<https://wellcomecollection.org/works/hkaqhwww>

### **License and attribution**

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

G

c 39

*P. A. B.*

~~12~~

*C. f. 12*

*G. G. B. 33*

62934/3

$\frac{b}{c. 59}$

511

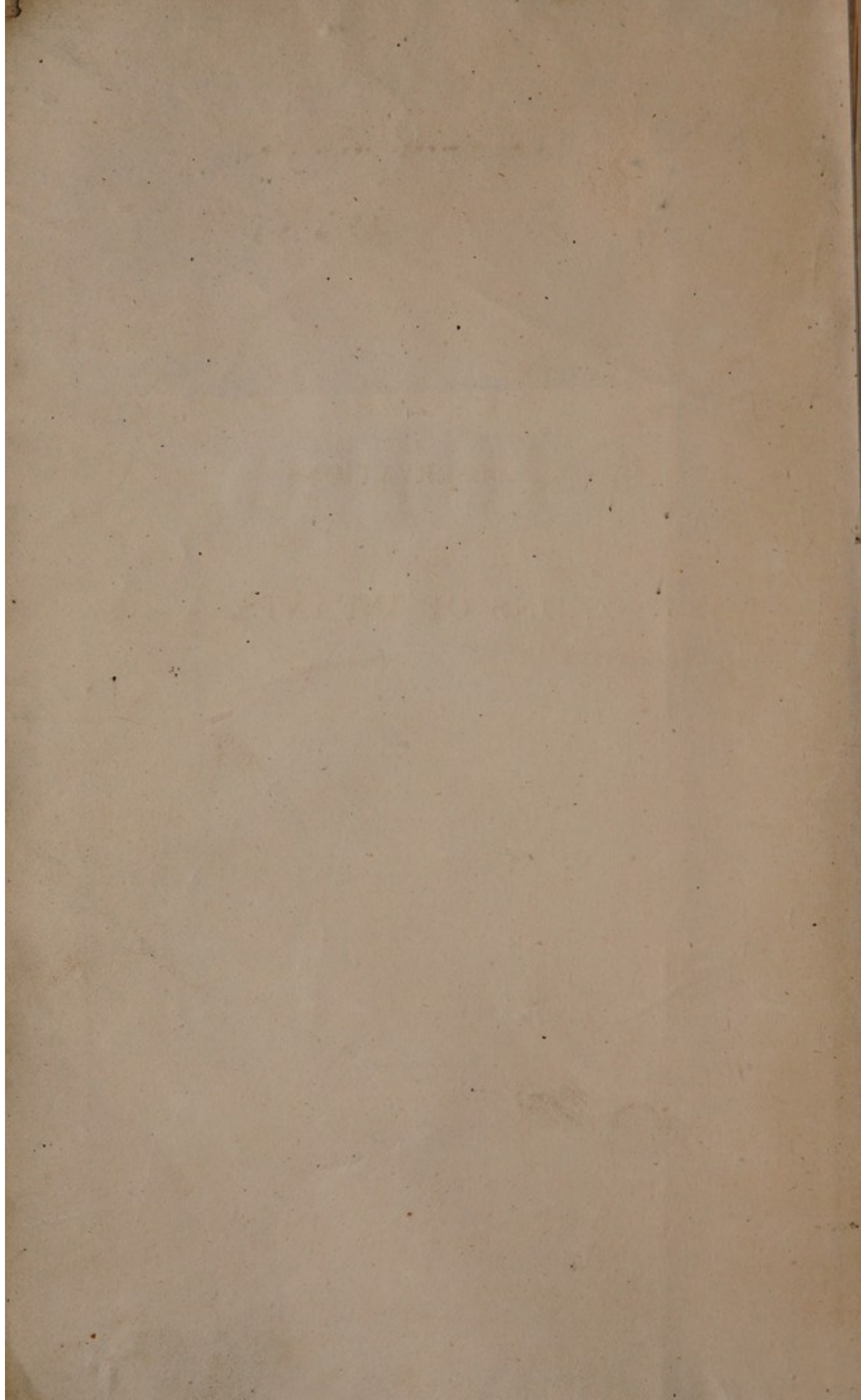
The Library of the  
Wellcome Institute for  
the History of Medicine

MEDICAL SOCIETY  
OF LONDON

Accession Number

Press Mark

NORTH, J.



**PRACTICAL OBSERVATIONS**  
**ON THE**  
**CONVULSIONS OF INFANTS.**

CONVULSIONS OF INFANTS.  
ON THE  
PRACTICAL OBSERVATIONS  
OF  
J. H. W. L. S. M. D.

PRACTICAL  
OBSERVATION

ON THE

CONVULSIONS OF INFANTS.

---

BY JOHN NORTH,

*SURGEON-ACCOUCHEUR,*

MEMBER OF THE ROYAL COLLEGE OF SURGEONS.

---

LONDON:

PRINTED FOR BURGESS AND HILL,  
GREAT WINDMILL STREET.

---

1826.



ROYAL SOCIETY OF LONDON  
LIBRARY

on the

CONVULSIONS OF INFANTS

BY JOHN NORTH

PRINTED BY RICHARD TAYLOR, SHOE LANE, LONDON.

1886

G3

P R E F A C E.

---

NOTWITHSTANDING the frequent opportunities we unfortunately have of watching the progress of the convulsive affections of children, and of deliberately considering the relative advantages of different modes of treatment, much discrepancy of opinion is still found to exist in practice, both as to the nature and treatment of such maladies.

By some practitioners of considerable eminence, the slightest convulsive affection of children is looked upon as an invariable indication, if not of organic disease of the brain, of at least very serious cerebral dis-

turbance ; and free and repeated bleeding, frequent purgation, and large doses of calomel, are the means almost indiscriminately had recourse to in the treatment of such cases. By others, on the contrary, a very different view is entertained of the great majority of the convulsive affections of children, and consequently a totally different practice is instituted. Whilst by the latter it is admitted that in children there does exist a powerful disposition to affections of the head, it is presumed, that convulsions frequently occur from causes which produce a very slight and transient impression upon the brain ; and that in such cases relief is not to be sought for by the employment of the formidable mode of treatment to which I have just adverted.

In my own limited circle of experience, I have had several opportunities of witnessing the injurious effects of the injudicious

application of the doctrine promulgated by the late highly respected Dr. John Clarke, "that in every case of convulsion, the brain is at the time organically affected either directly or indirectly\*." He who will carefully observe the mode of the attack in many instances, and the sudden and complete cessation of the convulsive paroxysms of infants upon the removal of some local cause of irritation, must come to the conclusion, that no serious cerebral disturbance has existed, or is to be apprehended as a necessary consequence. It is undoubtedly true, that convulsions do frequently depend either upon a permanently disturbed state of the cerebral functions, or upon some organic lesion of the brain. But while we admit this fact, it is incumbent upon us, as much for our own reputation as for the

---

\* Commentaries on the Diseases of Children, p. 90.

safety of our patients, that we should not adopt the exclusive opinion which maintains, that we have always to contend with great determination of blood to the head, or organic disease of the brain. I do not imagine the existence of this error for the purpose of assuming the merit of its detection. Those who are best acquainted with the practice of some high authorities of the present day, will be aware that the treatment of the convulsive affections of infants is almost entirely founded upon the belief, that convulsion in every case, be it slight or severe, partial or general, either arises from, or will necessarily be followed by, some serious, although undefined cerebral disease. In every point of view, this part of the subject must be considered important, and I have therefore frequently adverted to it in the following pages.

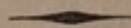
I am not aware that any English author

has written particularly upon the convulsive diseases of infants. The work of Baumes, "Sur les Convulsions dans l'Enfance," is well known. His divisions appear to me arbitrary, and unprofitable in practice. Even jaundice he enumerates as a species of convulsions. The recent publication of Dr. Brachet, "Sur les Causes des Convulsions chez les Enfants, et sur les Moyens d'y remedier," contains much valuable information. A minute detail of many cases of convulsions forms a principal feature in his work. I have not, however, adopted this obvious and easy mode of enlarging the size of a volume. The phenomena exhibited during the convulsive struggles claim less of our attention than the insidious derangements of health which precede the occurrence of the paroxysms, or the consequences which result from their frequent repetition.

It may perhaps be objected, that the treatment I suggest as applicable to convulsive diseases, is little more than that which is required for many and various derangements of health, which every practitioner would enforce. Such is undoubtedly the case. Convulsions are rarely if ever idiopathic in the strict acceptation of the term. They are symptomatic of most of the diseases of infancy, and will consequently be frequently prevented by assiduous attention to the first deviations from health, and the timely application of treatment, which must vary with the constitution of the child, and the particular derangement or disease of which convulsion is a symptom, or to which it is likely to supervene.

Upper Berkeley Street,  
Portman Square.

# C O N T E N T S.



## CHAPTER I.

|  | Page |
|--|------|
| On the Frequency, the Causes, and Symptoms of Infantile Convulsions.—The Prognosis, and Appearances observed on Dissection . . . . . | 1    |

## CHAPTER II.

|                                    |     |
|------------------------------------|-----|
| Treatment of Convulsions . . . . . | 133 |
|------------------------------------|-----|

## CHAPTER III.

|                                 |     |
|---------------------------------|-----|
| On Infantile Epilepsy . . . . . | 219 |
|---------------------------------|-----|

## CHAPTER IV.

|                                 |     |
|---------------------------------|-----|
| Treatment of Epilepsy . . . . . | 238 |
|---------------------------------|-----|

## CHAPTER V.

|   |     |
|---|-----|
| On a Spasmodic Affection of the Chest and Larynx in young Children, accompanied by general or partial Convulsions . . . . . | 253 |
|---|-----|

## CHAPTER VI.

|   |     |
|---|-----|
| Treatment of a Spasmodic Affection of the Chest and Larynx in young Children, accompanied by general or partial Convulsions . . . . . | 272 |
|---|-----|



C. O. N. T. E. N. T. S.

On the Frequency, the Cause, and Symptoms of Infantile Convulsions . . . . . 173

CHAPTER I.

On the Frequency, the Cause, and Symptoms of Infantile Convulsions . . . . . 173

CHAPTER II.

Treatment of Convulsions . . . . . 173

CHAPTER III.

On Infantile Epilepsy . . . . . 173

CHAPTER IV.

Treatment of Epilepsy . . . . . 173

CHAPTER V.

On a Spasmodic Affection of the Chest and Larynx in young Children, accompanied by General or Partial Convulsions . . . . . 173

CHAPTER VI.

Treatment of a Spasmodic Affection of the Chest and Larynx in young Children, accompanied by General or Partial Convulsions . . . . . 173

PRACTICAL OBSERVATIONS,  
&c. &c.

CHAPTER I.

ON THE FREQUENCY, THE CAUSES, AND SYMPTOMS OF INFANTILE CONVULSIONS.—THE PROGNOSIS, AND APPEARANCES OBSERVED ON DISSECTION.

IT appears, from a return made by Dr. Clarke at the end of the year 1792, that of 17,650 children born in the Lying-in Hospital of Dublin, a sixth part died during the first year of their existence, and that nineteen out of twenty fell victims to convulsions. Dr. Lange has recorded, that at Copenhagen, during a period of thirteen years, no less than 12,769 children perished from epilepsy. In his opinion the preva-

lence of this dreadfully fatal disease was to be attributed to the luxurious and effeminate education which was practised in every class of society.

That infants are particularly subject to convulsive affections is a fact which has been admitted by every observer “sous toutes les latitudes, sous la zône brûlante des tropiques, comme sous la zône glacée du Spitzberg\*.”

It has been said that the number of children who perish from convulsions is much exaggerated;—that in a great majority of cases in which they occur, convulsions can only be regarded as a symptom of some other disease, the fatal termination of which has contributed to increase the various returns, from public and private sources, of deaths from “General Convulsions.” To a

---

\* Brachet sur les Convulsions. Paris 1824.

certain extent the objection as to the accuracy of such returns may be well founded. It is doubtless true, that the death of a child is occasionally attributed to the accidental occurrence of a convulsive paroxysm, when it was destroyed by some other disease, of which that was comparatively an unimportant symptom.

Every allowance, however, being made for these probably erroneous records, it cannot be denied that a vast number of children are suddenly cut off by an unexpected attack of convulsions, which not unfrequently occurs when no previous derangement of health could be discovered, or at a time when any malady under which the child was labouring began to assume a less severe aspect, and to justify a confident and favourable prognosis. The occurrence of such cases is no less distressing to the parents than prejudicial to the practitioner.

We never escape from censure when we have raised hopes which are suddenly and unexpectedly blasted, however impossible it might have been for human foresight to anticipate an unfavourable termination. Although, then, the convulsions of children are in most cases symptomatic of some other disease, they are of sufficient importance to admit of a separate consideration, inasmuch as they not unfrequently destroy life in a few moments, when it was not endangered by the malady which excited them. Notwithstanding, however, the universal admission of the fact, that convulsions are always to be regarded with apprehension, I am inclined to believe, from frequent personal observation, that no cases are dismissed in general practice with less attention than those which pass under the convenient term of Convulsions.

It is, indeed, a source of frequent lamen-

tation with physicians, and not unfrequently of neglect,—which is so commonly the offspring of despair,—that the diseases of children are particularly difficult to detect, from their inability of describing their sufferings. I consider this difficulty more imaginary than real. He who will take the trouble to regard with attention the looks, the gestures, and the general demeanour of children in health, will have but little difficulty to detect the first advances of disease; although considerable experience may be required to determine the precise nature of the malady, or its appropriate treatment. Dr. P. Buchan justly observes, that “persons actually engaged in the practice of medicine must be aware, that it is often no less difficult to sift the truth out of the figurative and theoretical language in which adults are apt to clothe their feelings, than it is to judge of the unadulterated expres-

sions of distress exhibited by an infant suffering from disease." If in the latter case we have to contend with an inability to describe symptoms, we shall find the various and frequently inexplicable motives to deception present a no less formidable obstacle to our investigations in the former.

In young children attacks of convulsions so commonly occur, that they are not unfrequently looked upon with indifference even by parents, until their frequent repetition has strengthened the natural or acquired predisposition to their occurrence, and the best-directed efforts of the practitioner must be unavailing. The general axiom of "Remove the cause and the effect will cease" is inapplicable to many derangements of the animal economy, and more particularly to those affecting the nervous system. When convulsions have once taken place, even in the most healthy subject, the brain and ner-

vous system retain for a long and indefinite period such a morbid sensibility, that a return of them is to be apprehended from the most trifling causes, long after the originally exciting cause has been entirely removed.

It is at all times a task of much difficulty to conquer the habit of recurrence of convulsive motions when muscles have frequently been affected by them. The greater the general weakness and constitutional irritability, the stronger will be the tendency of convulsive motions to form a habit.

We so commonly find a strong, and perhaps invincible disposition remain to the occurrence of nervous diseases, which have originally been induced by the application of accidental and trifling causes, that it is not necessary to dwell upon the subject. But what is precisely the change which is effected upon the brain and nervous system,—in what consists the diffe-



rence between a brain thus predisposed, from one which has never been exposed to a shock capable of producing disease, has never yet been satisfactorily explained, and probably never will. But little elucidative evidence has as yet been obtained upon this point even from dissection. Children not unfrequently die with all the symptoms of hydrocephalus, or after having suffered violent and repeated paroxysms of convulsions; and upon examination *post mortem*, we find the brain and its meninges to all appearances perfectly healthy. Whenever we do detect structural derangement, it must be the effect of derangement of action or function; and in many cases death takes place before any organic destruction has been produced by the functional lesion.

It is not necessary to enter further into the consideration of the anatomical and physiological peculiarities of the animal

economy during the infant state, than is sufficient to explain the origin of the well-known aptitude of infants to convulsive diseases. It has been remarked by Boerhaave, that every disease of childhood is accompanied by nervous symptoms, and most of them by convulsive affections of some part of the body, although they may be frequently so slight as to escape attention. The great disposition of infants to nervous affections is not to be wondered at, when we consider that the habit of bearing either external or internal impressions is yet to be acquired. “Every stimulus acts in an inverse ratio to the frequency of its application\* ;” and, until the frail mind and body of the infant are accustomed by habit to have their powers acted upon with impunity, the most hazardous susceptibility

---

\* Crichton on Mental Derangement.

must necessarily exist. The muscles during infancy are pale, soft, and fragile; their contractions are quick, frequent, and feeble; and the external surface of the body is endowed with a very high degree of sensibility, in consequence of the nerves being covered only with a very fine thin cuticle. Hence, from very slight impressions arise very powerful effects. The circulation of the blood is very rapid, the arterial pulsations nearly double those of the adult. The capillary circulation is also infinitely more active. The lymphatic system exerts a more powerful influence upon the general economy of the infant than upon the adult. The muscular fibre as well as the skin is highly sensitive. The nerves are large in proportion to the size of the body. They resemble medullary pulps. Both the cerebral and ganglionic nerves are much more strongly developed in relation to the body

than at any other period of life. The brain is large, and the nerves which proceed from it of a very considerable size. As we advance in years the coats of the nerves and the muscular fibres become firmer, and our susceptibility to external impressions is consequently diminished. Hence it is, that in proportion as we advance in years convulsions are less likely to take place. They sometimes occur during the period of youth. In the adult they are rare; and they scarcely ever happen in old age. The sensations of a child are quick but transient. When any reaction takes place in the system, it is powerful and sudden, and coincides with the general mobility:—motion, indeed, is the language of an infant.

All children are not equally disposed to convulsions. Levret, Mauriceau, Baumes, and other writers, affirm that it may be established as an axiom, that children born

with large heads, or whose heads increase in size disproportionately to the other parts of their bodies, will have convulsions. In my own practice I have seen convulsions occur very frequently in children with small heads. In rickety children the size of the head is disproportionately large; and, from the general symptoms of rachitis, it is evident that the head and spinal marrow are considerably affected: the brain increases rapidly in size, the senses are usually very acute, and convulsions are very frequent attendants of this distressing malady. It not unfrequently happens, when some children of the same parents are affected with rachitis, that others, who are exempted from this disease, are at a very early age destroyed by convulsions\*. The children of parents who

---

\* Dict. des Sciences Medicales, tome xlvi. p. 602.

marry at too early or too advanced an age are more susceptible of convulsions than the progeny of those persons who marry in the prime of life.

An hereditary predisposition to convulsive affections has been observed by many respectable authorities. Boerhaave states, that all the children of an epileptic man died of the same disease. Lorry relates the history of a family of which the father, mother, and their children, were affected with convulsions from the most trifling cause. As an additional proof of the hereditary nature of the nervous affection in this instance, it should be observed, that all the children were equally subject to convulsions, although they were brought up in different situations, and their education was totally dissimilar. A crowd of authorities of the highest reputation might be adduced to prove that convulsions are

not unfrequently hereditary. Those who require any particular confirmation of this opinion may consult the works of Hoffman, Horstius, Forestus, Sauvages, Willis, Tissot, Pujol, &c. &c. There is, indeed, no reason why a disposition to convulsive diseases should not be transmitted from parents to their offspring, as well as a disposition to other maladies. The children of women in high life, who enfeeble their health by late hours, hot and crowded rooms, and irregular diet, are undoubtedly more disposed to convulsive affections than the children of those females who are regular in their mode of living, and who enjoy the calm tranquillity of a country life.

In warm countries the sensibility of individuals of every age, both to mental and corporeal impressions, is much more highly developed than in colder climates. Hence the adage, "An African will start if you

touch him ; but to make a Muscovite feel, you must scorch him."—Dr. Hillary observes, that the children of the isle of Barbadoes are so irritable that they are thrown into convulsions by the slightest noise.

If we seek for a precise definition of convulsions in different authors, we shall find the same perplexing contradictions which so frequently obstruct our progress in medical writers. But not to enter into a useless verbal criticism, it may be said, that when there is either an alternate and involuntary contraction and relaxation of the muscles, or a permanent contraction of the muscles, convulsion exists. The contraction may be so trifling as scarcely to attract attention ; or it may be exerted in the highest possible degree which the muscular structure is capable of supporting without rupture of its fibres. When the muscular



contraction is permanent, it is then termed a *tonic convulsion*. In this species, the involuntary contraction of the muscles renders them motionless, and incapable of renewing their motion until the entire cessation of the convulsion. When there is an alternate contraction and relaxation,—a rapid succession of irregular action and rest in the muscles affected,—the term *clonic convulsion* is employed. Dr. Good proposes a rational alteration in the generally adopted nomenclature of convulsive affections. He offers the term *Entasia*, and observes, “By many nosologists the genus is called *tonos* or *tonus*, which is here dropped in favour of the present term (*Entasia*), because *tonus* or tone is employed by physiologists and pathologists, in direct opposition to irregular vehemence or rigidity, to import a healthy and perfect vigour or energy of the muscles; and by therapeutists

to signify medicines capable of producing such or similar effects." By Cullen and some other writers the term *spasm* is applied exclusively to the fixed contraction of parts ; while *convulsion* is meant to designate that preternatural motion which is the general, if not the constant character of the convulsive affections of children. The duration of a convulsive paroxysm is uncertain : it may last only for a few minutes in some cases, whilst in others it may continue for one or two days. In the latter cases, however, there is some remission of the convulsive violence : the infant appears tranquil for some moments, and is again subjected to the same distressing and involuntary struggles. The terms *spasm* and *convulsion* are not unfrequently used as synonyms. Under the term *spasm* the ancients included every kind of convulsions. In the present day it is applied, generally,

to denote a very slight contraction or tension of a muscle, which in many cases leads to more decided convulsion.

The parts most commonly the seat of convulsions are the eyes, the features of the face, the superior and inferior extremities, and the respiratory muscles. It perhaps never happens that the features retain their natural tranquillity of expression while other parts of the body are convulsed, although the preternatural movements of the face are sometimes slight.

Each part may be separately and successively affected, or the whole frame may be convulsed at the same moment. The convulsive movements are sometimes confined to one side of the body. This variety does not, however, alter the nature of the disease, and is not of sufficient importance to warrant the distinction which has been adopted by some authors of general and

partial convulsions. They are each produced by the same causes, and require the same general treatment.

Neither fever nor disturbance of the intellectual functions forms a part of the symptoms of a paroxysm of simple convulsions. A child may not be able to hear during the paroxysm ; but this is not a proof that its faculties are destroyed. The muscles are no longer obedient to the will. Mr. Thompson of Whitehaven has recorded a curious case in the Medical Repository, of loss of speech and hearing in a child eighteen months old, who had been suddenly seized with convulsions : her vivacity remained, and her health was unimpaired. She continued in this state until her sixteenth year, when after the noise of a public rejoicing she was observed to recover the sense of hearing, and she soon began to articulate.

There is much difficulty in establishing

clear distinctions between the various species of nervous affections: they pass into each other imperceptibly in many cases, and the line of distinction is scarcely to be defined. There is a strict analogy between epilepsy and simple convulsions: the muscular system is in each disorder affected in a very similar manner. An attack of epilepsy, however, commences and terminates by a state of stupor and dulness, which for a time destroys the senses and intellectual faculties. Such is not the termination of convulsions, properly so called. From whatever cause convulsions may occur in highly irritable children, the attack may run into true epilepsy, idiotism, or paralysis. Epileptic paroxysms also return without any obvious cause, and are frequently periodical. The cause of simple convulsions, on the contrary, may generally be determined. The periodical return of the acces-

sions of many nervous diseases is a subject of considerable interest, and one which is very little understood. Dr. Pitcairn relates the case of a man of thirty years of age, who from the age of nine years experienced each year in March and September, at the commencement of a new moon, a convulsive attack of the right arm. I have at this moment a case under my care, of a young lady, who has been seen by many practitioners, and amongst others by my friends Messrs. Arnott and Ward, who for three years has been affected with a remarkable convulsive cough, which commences in November without any apparent indisposition. It ceases as suddenly as it begins, but has lasted for several weeks at each attack. In this case there is a trifling distortion of the spine. The head is of a remarkable shape. There is also slight strabismus.

In the opinion of Hoffman, the principal difference between epilepsy and simple convulsions consists in their seat. Epilepsy he considered to arise from affection of the brain and its membranes, and simple convulsions from the spinal marrow and its coverings.

It is to be observed, that sometimes only a portion of a muscle is influenced by the convulsive action, while the other parts of it are in perfect repose. The violence of the muscular contractions sometimes gives considerable pain. Baumes observes, that cases of convulsions have been seen of such intense violence, that the teeth have been broken, the eyes thrown from their sockets, and blood driven from the nose, or effused into the cellular tissue, producing a general ecchymosis of the body; and that even the limbs have been luxated or fractured. Such cases are doubtless rare. I have never witnessed any examples of such

extraordinary violence in convulsions as to produce any of the above-mentioned accidents. Lieutaud has recorded some cases in which fracture of the bones occurred. Slight ecchymosis is not an uncommon consequence.

Every part possessing muscular fibres is obnoxious to convulsions. To detail all the convulsive movements which are occasionally exhibited to our view during the paroxysm, would be to enumerate the alternate contraction and relaxation of all the muscles of the body. "The most common case of convulsion," says Dr. Clarke (*Commentaries on the Diseases of Children*, p. 81), "is that in which there is an universal spasmodic contraction of all the voluntary and many of the involuntary muscles of the body, accompanied by foaming at the mouth, protrusion of the tongue, staring of the eyes, distortion of the eye-



balls, laborious and obstructed respiration, sometimes accompanied with a violent redness of the face and scalp in the beginning of the paroxysm, followed by a purple colour of the whole body at the end of it. This latter symptom sometimes continues till the child dies." Such is undoubtedly a clear description of a very severe paroxysm of convulsions. We seldom, however, witness so exquisite a form of the attack. The redness of the face and scalp is not usual; neither is foaming at the mouth a very common appearance in simple convulsions, although Dr. Brachet\* decidedly errs in defining the paroxysm to be " toujours sans écume à la bouche."

Whether the convulsions have been continued or intermittent, the cessation of the paroxysm takes place in the same manner: the convulsions become gradually less vio-

---

\* Brachet sur les Convulsions. Paris 1824.

lent and less frequent ; the eye projects less from its orbit, and loses by degrees the unnatural expression seen during the fit ; the face resumes its usual look, and the little patient appears unconscious of any disturbance. If he speaks, he merely evinces great lassitude, and complains perhaps of headache. A refreshing sleep frequently succeeds the attack.

Convulsions rarely appear during the night : the reason is obvious ; it is the season of tranquillity, during which the patient is removed from various stimuli.

Towards the termination of many long and debilitating diseases a sudden starting of particular muscles is frequently observed. This convulsive symptom is termed *subsultus*, and usually indicates much danger. The muscles which have long tendons are particularly subject to *subsultus*. Irregular motions of the involuntary mus-

cles frequently occur, and are defined by the name of Palpitations. The heart is most frequently affected by them. Every palpitation results from a sudden contraction of the part, and must be considered as partaking of a convulsive character.

Of the PROXIMATE CAUSE or nature of convulsions we are, and probably shall ever remain, in doubt. We are equally unable to detect the essential nature of most other diseases. We cannot expect positively to determine the proximate cause of convulsions, until we become acquainted with the medium by which the muscles are connected with the common sensorium and volition of the mind, and with the nature of the nervous power. In the absence of more precise information, however, many conclusions of much practical utility may be derived from a patient observation of the various phenomena connected with con-

vulsive actions. An acquaintance with the healthy actions of the animal economy must be presumed. In disease, we must mark with attention the manner and degree in which the diseased actions of a part differ from its healthy actions.

During a state of health some muscles contract by the effort of the will. In some the intervention of the will is not apparent, although the muscular action is subservient to the will to a certain extent. The action of other muscles is altogether involuntary. The velocity and force of muscular contractions are in relation to the degree of the excitement that is applied, and to the powers of the animal. These contractions are soon succeeded by relaxation; and they are not again repeated until excited by the will or the irritation peculiar to the part. During convulsions the voluntary muscles are excited without the concurrence of the

will; or if an effort of volition is excited, the muscles do not obey its dictates, as would be the case in a state of health. Without, then, possessing a knowledge of the essential nature of convulsions, it must be evident that wherever convulsive motions take place, some morbid change must exist in the seat of volition, or in the nerves, or in both; or that the muscles may have undergone some morbid alteration, in consequence of which they exhibit the various phenomena of convulsions without any alteration in the nervous system.

From numerous experiments which have been made, and which are too well known to require particular reference, it is certain that the perfection of the faculties of sense and motion requires a healthy condition of the nervous system. Convulsions, however, do not necessarily succeed every disease of the nerves. Dr. Pring has shown

that inflammation of a nerve does not of itself produce specific effects which are displayed in the phenomena of convulsive affections. Convulsions frequently occur from local injury of nerves; but it is remarkable that the muscles to which the injured nerve is distributed may be the last affected with convulsive action.

Convulsions of infants are commonly divided by writers into idiopathic and symptomatic. The propriety of this distinction is doubtful. It is at least certain that in a very great majority of cases convulsions are symptomatic; and it might probably be asserted with accuracy that they are never idiopathic. Such certainly has been the result of my own observation, although I am diffident of stating decidedly an opinion in opposition to the many authorities of high respectability who adopt the above division. When the brain is acted upon

immediately by any cause, and convulsions supervene, they are considered to be idiopathic. But in such cases the convulsive action is secondary to some deviation from the natural condition of the brain, and is therefore, in point of fact, as strictly symptomatic as if it were the consequence of derangement originating in some distant organ and subsequently reflected upon the brain. From the imperfection of our knowledge, or the carelessness of our inquiries, the derangement of which convulsions are symptomatic no doubt frequently escapes detection, and the attack is looked upon as idiopathic.

It is an undoubted fact, that convulsions of children are of much more frequent occurrence in the present day than at any former period. The cause of this increase I do not pretend to determine. It may perhaps be fairly inferred that the vast

increase of nervous diseases is to be imputed to the modern and vicious system of educating infants. It is at least certain that all diseases of that class have increased in proportion as polished education has removed children from the bodily freedom and carelessness of mind, which to a certain extent are so essentially necessary to the preservation of their health. In ancient Europe convulsive affections were scarcely known. It will not be denied that mismanagement in the diet of children is a frequent cause of local irritation, which sooner or later gives rise to convulsions in many cases.

Without being inclined to advocate the opinion of Rousseau, who considered reading to be the scourge of infancy, and who would not, therefore, allow his Emilius to learn a line by heart until the age of twelve years, it may be observed, that it is un-



doubtedly too much the custom of the modern system of education to stimulate the infant intellect to premature, and therefore prejudicial exertion. The recommendations enforced by Struve should never be forgotten; and if they are forgotten by parents, it is the imperative duty of the medical practitioner to point out the necessity of complying with them. We should operate upon the tender intellect of a child by the gentlest progression. It must surely be much more judicious to complete the instrument previous to its use, than to employ it in an imperfect state. It is the same with children as adults. In the cultivation of the mental powers we are always to bear in mind the capability of the individual to answer the demands which are made upon him for exertion. It is not only irrational, but it is frequently destructive, to impose either upon the mind or

body, but particularly upon the former, a load which it is incapable of supporting. It may be a source of consolation to those parents who are too apt to lament any apparent loss of time in the very early periods of life, to remember that early acquirements are not to be gained without destruction of health, and that the future progress and mental powers of the individual depend upon the foundation which is laid in infancy by judiciously adapting the studies of the child to its age and constitution. By premature efforts to improve the powers of the intellect, the organ in which they reside is exhausted. The practitioner, then, cannot too forcibly reprobate the pernicious enforcement of precocious studies. The injurious effects arising from the folly and false vanity of parents, who are ambitious of holding forth their children as specimens of extraordinary ta-

lent, are constantly presenting themselves to our view in a train of nervous symptoms, and of susceptibility to ordinary impressions, which frequently pave the way to decided paroxysms of convulsions.

The mere confinement of a child of a tender age to the school-room for several hours a day is highly improper. “Children (says Dr. Darwin) that are constrained to sit in the same place at school for hours together, are liable to acquire a habit of playing with some of the muscles of the face or hands, or feet, in irregular movements, which are called tricks, to exhaust a part of the accumulated irritability by which they are goaded.” Madame de Sévigné seems to have been perfectly aware of this fact by the pithy but not very polished observation, “*Je suis persuadée que la plupart des maux viennent d’avoir le cul sur selle.*”

However robust a child may be by nature, and however capable of resisting the encroachments of disease, he may become, by the negligence or want of judgement of those to whose care he is intrusted, sickly and prone to various derangements of health, and more especially to convulsive affections. On the other hand, a child delicate by nature may with safety pass through the various trials of infancy, and become healthy and robust with proper management. Amongst many other well-known and striking examples of the vast importance of a judicious moral and medical education of children, which at once guards against the evils that not unfrequently arise from ridiculous attempts to make a child hardy by constant exposure, or by pampering the appetite and weakening the body by stimulating food and want of regular exercise, may be mentioned

the authentic anecdote of Henry IV. of France.—His mother had lost many children who had been brought up in all the luxury of a court, and was determined to confide the care of the young Henry entirely to the physicians. He was sent to the house of a peasant, and was educated and fed with precisely the same simplicity as one of the family. He entirely escaped the convulsive diseases to which the other branches of his family had fallen victims ; and that he became powerful in mind and body is proved by the splendour and activity of his subsequently glorious career. While, however, we follow to a certain extent the laws of Nature, with which we may become acquainted by our observation of the customs of inferior animals, and treat with suitable precaution the frail and delicate organs of an infant, we may still prepare the mind and body by gradual and

appropriate exertion, for the trials which they will subsequently have to endure. It may appear ridiculous (and I know, indeed, it is thought so by many) to deprecate the too early employment of the infant mind; but I am persuaded, from frequent observation, that from this cause alone irremediable mischief frequently is caused, and the foundation laid for fatal diseases of the brain, with which convulsive affections are so intimately connected.

Another evil in the general management of infants deserves a moment's notice. Nothing can be more prejudicial to young children, particularly those of a delicate habit and high susceptibility, than even the occasional permission of remaining from bed till a late hour. I am acquainted with a family, which consists of several children, whose health I am confident has suffered materially by this indulgence, as it is

miscalled. If in such children there exists any particular disposition to cerebral derangement or convulsive affections, it will be much increased by the nervous irritability induced by the above irregularity. "*A vigilia convulsio, aut delirium malum,*" says Hippocrates.

He who is intrusted with the medical management of children should constantly remember that his means of affording relief, when convulsions have actually occurred, are limited and uncertain. To prevent their occurrence must be the grand object of the practitioner, by paying assiduous attention to the first appearances of disturbance of health, by opposing decidedly the errors of mothers and nurses, which I have just briefly touched upon, and by the timely application of appropriate remedies.

It is an undoubted fact that the consti-

tution of infants is not unfrequently neglected altogether until they become afflicted with diseases which might have been prevented by due and timely attention. This is more particularly the case with respect to convulsive affections, which are usually ushered in by premonitory symptoms which will not escape the observation of an attentive practitioner. While on the one hand, however, we endeavour to anticipate the progress of disease by an early application of our art, we are not to fall into the too common error of constantly keeping children under the influence of medicine, until "their constitution resembles a spoiled timepiece, which is of more use to the artist than the possessor." The most skilful practitioners are not unfrequently influenced by the Hippocratic dogma of "*Optima medicina interdum est, medicinam non facere.*"



It would be a waste of time to enter into a formal detail of every possible cause of convulsions. The strong natural disposition of children to such affections being borne in mind, it must be evident that every external or internal irritation, be it mental or corporeal, may give rise immediately to convulsions ; or, as is more often the case, some other disease may be produced, and one or more paroxysms of convulsions may occur as a symptom of it. It must be confessed that children occasionally are destroyed by a sudden attack of convulsions, the cause of which it may be impossible to detect either by the most attentive consideration of every circumstance during life, or by the most accurate examination after death. Such cases are rare. “ If (says Struve) a candid statement can be procured, an inquiry into all the circumstances of the case will generally en-

able us to detect some injudicious management to which convulsions may be referred, and to form just conclusions between cause and effect."

That the brain is directly or indirectly irritated in most cases of convulsions there can be no doubt. This irritation may, however, last but for a moment, and be so trifling as to produce no serious derangement of the cerebral functions, much less any alteration of the cerebral structure. It may, it is true, be kept up by a repetition of the exciting cause, and produce irremediable mischief. We cannot, however, admit irritation of the brain to be the proximate cause of all convulsive affections; for in some cases of local injury they must arise independent of the mediation of the brain. It is also well known to physiologists, that if a nerve which is separated from the nervous centre is irritated, con-

vulsions take place in the muscles to which it is distributed. "That the communication by nerves is unnecessary to motion connected with sensation is evident in the case of the iris, which does not move by any known stimulus applied to its own fibres, but suffers elongation by the influence of light on the retina, with which it has no nervous communication. On the other hand, that the intervention of the brain is not necessary to the association of certain muscular movements from slight irritation on a distant part, such as usually produces sensation, is evident from the case of a foetus, in which there was not the smallest vestige of a cerebrum or cerebellum, but which, even twenty hours after birth, moved up its knees when the soles of its feet were tickled, sucked my finger when introduced into its mouth, and a few hours before had passed faeces and urine, and swallowed

food. It is true that in this case there were a spinal marrow and medulla oblongata : but the same motions are recorded as having occurred in another example, in which both these parts as well as the brain were totally wanting\*." Dr. Brachet† has exerted all his ingenuity to prove that every case of convulsions, partial or general, must be dependant upon cerebral irritation. The doctrine is not peculiar to him ; but I cite his authority, as he is the latest writer upon the subject, and has obviously had considerable personal experience, which he has matured by an attentive consideration of the labours of others. He does not appear to me to be always consistent with himself ; but it is not my object to enter into a critical examination of his work. I cannot conceive, however, that the convulsive affections which

---

\* Parry's Pathology.

† loco citato, passim.

arise in plethoric habits where we are called upon to draw blood, and those which occur from the accidental loss of blood (for it is an axiom that every animal which dies from hæmorrhage suffers violent convulsions), can alike arise from cerebral irritation.

It has been said, indeed, by the late Dr. Clarke\*, that “in every case of convulsion the brain is at the time organically affected either directly or indirectly.” This is a very important assumption, and from the acknowledged ability of Dr. Clarke it has a very striking influence upon the opinions of the present day. I am inclined to believe that the practice which has been founded upon this doctrine was neither contemplated by him, nor would have received his sanction.

That in most cases of convulsions there

---

\* Commentaries on the Diseases of Children, p. 90.

is some functional disturbance of the brain, is not only probable but certain. It is also true, that organic disease of the brain may originally exist as their cause, or be subsequently consequential to them. But we must pause before we assent to, or shape our practice by, the unlimited statement of Dr. Clarke. Although we have presumed that an irritation of the brain may be assigned with much probability as the frequent cause of convulsions, this is very far from coinciding with the doctrine which would teach us that the brain is organically affected. The recorded examinations of the bodies of children who have died from convulsions, show also that in most cases no organic lesion of the brain existed. Facts are constantly presented to us, which would appear to prove that convulsions frequently depend upon irritation of the extremity of the nerves, and not upon irritation of their

cerebral origins. So long as any local irritation exists, so long do the convulsions continue, whatever may be the treatment adopted. If convulsions arise from teething, they will in many cases cease almost instantaneously upon the division of the gums,—upon the removal of the local source of distress. This fact will be more particularly insisted upon when we come to the consideration of a peculiar train of symptoms, which appear frequently to be induced by painful dentition. Whatever cerebral disturbance may have been induced speedily vanishes, and it would appear impossible that in such cases the brain can have been “organically affected.” Upon this subject Dr. Good remarks, “The greater number of spasmodic affections do not so much depend upon the state of the brain, as of the living fibres that issue from it and maintain a correspondence with it.” I would wish not to be mistaken.

I am perfectly aware that, notwithstanding the endeavours of Baumes, and a few other writers of very inferior authority to the French professor, it is an undoubted fact, that in children there is a strong natural predisposition to cerebral affections, which it is incumbent upon the practitioner always to bear in mind.

Both in children and adults the effects which arise from any given irritation will depend upon the particular constitution and temperament of the individual. In one, local pain unconnected with general disturbance may ensue; in a second, an attack of fever may arise; and in a third, convulsions with or without pain or febrile movement. With whatever train of symptoms an infantile disease commences, or in whatever part of the body derangement of function or disease of structure may primarily be situated, the irritation endured



by that part may be reflected upon the brain, and convulsions may follow as a symptom of the cerebral reaction upon the muscular structure. The probability of the occurrence of convulsions will be determined by attention to the particular constitution of the patient. The character of the original disease may vanish, and the treatment at first required must be changed for one more directly appropriate to the transition which has taken place. But although we are to bear steadily in mind the possibility and even probability of convulsions being produced by some serious cerebral disease; it is equally important that we should not hastily determine that the brain is organically or even functionally affected, because a paroxysm of convulsions occurs, or prognosticate the speedy effusion of water in the ventricles, unless enormous doses of calomel are prescribed and re-

peated bleedings are had recourse to. Such a mode of practice has been recommended by high authority in several cases of convulsions which I have watched with much attention; and at the same time it has been confidently asserted, that hydrocephalus would ensue if any part of the plan of treatment were omitted. A much more moderate, and I think more rational plan has been adopted, and the children have perfectly recovered. Unless they arise from mechanical violence or intense moral impressions, idiopathic affections of the brain are, I conceive, very rare in children. I by no means agree with the opinion expressed by the French physicians\*, that when convulsions are symptomatic of encephalic inflammations, it is almost always

---

\* Rapport sur les Prix XXXI. prefixed to Brachet's Mémoire sur les Convulsions des Enfants. Paris 1824.

the case that some evident cause has been applied, which has acted mediately or immediately upon the head, and from which inflammation almost certainly arises;—such as blows, violent concussions, falls, &c. &c. Convulsions quite as frequently occur during inflammation of the brain, which is produced by sympathy with some distant part that is highly irritated. It is also said by the same authority, that there is a well-marked difference in the convulsions themselves, when they arise from affections of the head. It appears to me, when a paroxysm of simple convulsions is once excited, whatever may have been the cause of it, that it is essentially the same, although it may differ much in its degree of violence and duration.

It is a frequent and a fatal error in the practice of the present day, to seize upon some individual symptom, such as slight

strabismus, partial convulsions, or a crouping noise in the breathing, and to determine that water in the head will inevitably be the consequence unless a particular and formidable treatment be employed. Each and all these symptoms may, however, arise where we have no reason to suspect any affection of the brain. It was the doctrine of Dr. Cullen, that the brain is the seat of the disease in all spasmodic affections, and that they consist in some alteration of the healthy energy of the brain. In reference even to this opinion, which falls very short of the principle that would induce us to believe that the brain is organically affected, Dr. Good observes, that "this proposition seems rather to follow from Dr. Cullen's singular doctrine concerning the mutable condition of the energy of the brain, and the immutable nature of the nervous power, which is propagated from it by vibrations,

than from the clear force of facts before us." Convulsions in many instances are altogether local. They are confined to particular muscles, or particular sets of associate muscles, and have no effect whatever on the brain so as to disturb its energy.

Infants are liable to convulsions from the first moment of their existence; and it cannot be doubted that they occasionally arise from excessive and long-continued pressure of the head during protracted labour. When convulsions are dependant upon this cause, they generally pass off in a very short time after birth. Children are not unfrequently born without the slightest appearance of life—in a state of asphyxia. Great constitutional debility of the mother, or some obstruction to the free passage of the blood from the mother to the fœtus, may be the cause. By well-directed and persevering efforts the practitioner will

frequently derive the gratification of kindling the almost extinguished vital powers, even if many hours have elapsed without any signs of vitality having been detected. Many infants who are snatched from this apparently hopeless condition enjoy a perfect state of health, but the vital powers can sometimes be only imperfectly excited. The respiration is laborious; the countenance purple and bloated from impeded circulation of the blood. General convulsions almost always succeed, and they may continue for several hours. The death of the child almost inevitably follows. It may be true that we can offer but little assistance in such cases; but the practitioner will ensure the confidence of the parents and friends, if he prepare them for the occurrence of convulsive paroxysms which so frequently follow the above symptoms.

It is observed by Dr. John Clarke, that irregular structure of the heart or lungs not unfrequently produces great anxiety in breathing, and rapid changes in the colour of the countenance. The infant appears to suffer the utmost distress in such cases ; but a well-marked paroxysm of convulsions rarely follows. Death generally takes place soon after birth in such cases. “ In a few instances,” says Dr. C. “ a child has been known to live for several years ; yet it seldom, perhaps never, arrives at maturity.” I have seen several instances of this sort, and in my own family have had the opportunity of watching the progress of one case. Partial convulsions, particularly of the features, occasionally take place ; and the general appearance of the countenance, or frequently an edematous state of the extremities, clearly indicates the malformation which exists. It may be worthy of obser-

vation, that under such circumstances the death of the child happens very suddenly. No well-marked aggravation of the distressing symptoms marks the decline of the general powers. At a moment when the fatal event is least expected by the friends, the child breathes more rapidly than usual, the heart throbs violently for a second or two, the little patient darts suddenly forward in much apparent agony, convulsions in a greater or less degree take place, and he is quickly released from his sufferings. Although, therefore, the child may enjoy a comparative state of good health, our prognosis should always be guarded; and it is incumbent upon us to prepare the relatives of the patient for the very sudden termination of the case, and for the probable occurrence of a fit of convulsions.

It is sufficiently well known that in newborn infants convulsions are liable to arise



from retention of the meconium, unless some mild aperient is administered. The custom of exposing an infant to a powerful light immediately after its birth is highly improper. Convulsions are frequently produced by this common want of precaution and consideration of the tender and excitable state of the whole of the animal economy of the infant. This fact, trifling as it may appear to many, did not escape the acute observation of Van Swieten. The children of royalty were entrusted to his care from the first moment of their existence; and it was a subject of lamentation to him, that they were exposed to the glare of illuminated apartments and the noise of the salutes of artillery, which conveyed abroad intelligence of their birth.

Very young infants are also subject to a particular species of convulsive affection termed trismus nascentium. In this coun-

try this form of convulsion is, I believe, very rare. I have never seen an example of it. In America it is said to be very frequent, and not uncommonly fatal. It consists in a spasmodic rigidity of several muscles, and principally of those which move the lower jaw. Dr. Underwood has never seen this disease "earlier than the sixth day, nor later than the ninth." Baumes asserts that it occurs from the moment of birth to an indefinite period. Dr. Colles of Dublin has lately published an interesting paper upon this disease. His object is to show that trismus nascentium is the same as trismus traumaticus, and that it arises from the suppuration of the umbilical cord. The obvious answer to this opinion is, that if the disease arises from a cause which exists in every infant, namely, suppuration of the umbilical cord, it would be of more frequent occurrence; and that it is hardly

possible that many others as well as myself, extensively occupied in midwifery, should never have witnessed a case of it. Leroy was of opinion that severe nervous affections, and even trismus, are sometimes produced in consequence of dividing the cord with bad or rusty scissors.

Inflammations of the dura or pia mater, or spinal marrow, from whatever cause they may arise, are frequently productive of convulsions. Tumours have occasionally been found adhering to the pia mater in subjects who have been attacked during life with frequent convulsive paroxysms. Bony matter has been formed in the dura mater with sharp processes growing from it. In such cases convulsive motions have commonly been observed during life. Abscesses in the brain may give rise to convulsions\*,

---

\* Vide Baillie, Morgagni, &c.

or blood effused into the substance of the brain from mechanical violence. Many curious cases are on record, in which considerable injury of the head had been suffered, and partial convulsions succeeded. A wound and blow of the head, which rendered the use of the trephine necessary, was followed by convulsions of one arm only\*. Hemiplegia frequently succeeds such injuries. Hoffman relates the case of a child who, having had the cranium fractured on the left side, and a great portion of the brain destroyed, was paralysed on the right side and convulsed on the left†. Great light has been thrown upon the subject of the various phenomena that are produced by mechanical injury to the brain and nerves, by the industry and talent of

---

\* Journal de Medecine, tome lxxviii. p. 10.

† Dissert. de Sanatione, rarissim.

Mr. Charles Bell. In several instances I have known exposure to the rays of the sun, without a covering for the head, bring on convulsions.

The desiccation of cutaneous discharges of any kind is considered by various authorities to be a frequent cause of convulsions in children. Judging from my own observation, I should doubt whether convulsions were ever produced either by the natural or artificial disappearance of cutaneous discharges or eruptions, provided that a slight action was kept up for some time upon the bowels by the assistance of purgatives, and that their effect was not allowed suddenly to subside. I am aware that the united experience of almost every writer upon the diseases of infants is in opposition to the inference I should draw from what has fallen under my own eye. Popular prejudice is strongly also

in favour of the generally adopted professional opinion, that it is hazardous to interfere with long-continued discharges from the surface of the body. It is observed in the "*Dict. des Sciences Medicales,*" Art. CONVULSIONS, that amongst the cutaneous affections, the repercussion of which may be productive of the most serious consequences to infants, measles is certainly to be enumerated. The author of the article states that he has seen many children attacked with fatal convulsions in consequence of measles having been injudiciously treated. In the majority of cases, perhaps, medical assistance is not demanded for the treatment of measles, notwithstanding the occasional severity of the disease. Inflammations of the lungs and bronchiæ are among the most common accidents which supervene to measles; but I have never known convulsions follow, how-

ever injudicious the treatment might have been.

Nature appears frequently to labour under considerable difficulty in the production of various cutaneous affections, and previous to the occurrence of eruptive diseases paroxysms of convulsions not unfrequently occur. In such cases they are generally considered as a favourable omen. From my own experience I should infer that this opinion is well founded, provided the eruption makes its appearance at the usual period from the commencement of the premonitory symptoms. Baumes, on the contrary, considers a convulsive paroxysm previous to an eruptive disease as so bad an omen that the death of the patient may be prognosticated from its occurrence. M. de la Roche, Menuret, and some other writers, are also of the same opinion. It is well observed by Cullen, that if the attacks

of convulsions previous to the appearance of the eruptions are severe and frequently repeated, the danger is considerable, and prompt assistance required. It not uncommonly happens, when a child has been exposed to small-pox, measles, scarlet-fever, &c., that the most violent disturbance of the constitution arises at the period when the eruption ought to occur, and only a very slight appearance is observed upon the skin, which quickly vanishes. In such cases convulsions are common, and are frequently fatal.

That the brain does sympathize strongly with affections of the skin is a fact which is so frequently forced upon our observation, that no laboured confirmation of it will be required. There are some circumstances, however, connected with this admitted truth, that may admit of a moment's observation. When inflammatory action takes place, it



is confined to the capillary system, which is independent of the cerebral nerves ; but the latter are excited by the relation which they hold with the former ; and if this excitement reacts with force upon the brain, convulsions may be produced. The convulsive phenomena are more likely to occur at the time of the appearance of the eruption, because it is then that the greatest degree of irritation exists.

We have observed that some respectable authorities look with suspicion upon the occurrence of convulsions previous to eruptive diseases. This discrepancy of opinion may perhaps be reconciled by reflecting, that whenever an irritation of the brain takes place in consequence of the sympathy of that organ with a distant part, that such sympathetic irritation, particularly in very irritable subjects, may pass into an independent irritation of the brain, which may

be followed by very serious consequences, or even the death of the patient. Here then, the danger will be depending not upon the eruptive disease, which was the prime mover of all the disturbance, but upon the affection of the brain, which has been superadded. The opinion therefore that is so generally entertained, does require modification. Instead of asserting that convulsions which precede eruptive diseases are always harmless, we should only consider them so when they are produced by an excitement of the brain, which appears to be purely sympathetic.

Worms in the intestines are said to be a frequent cause of simple convulsions or epilepsy in children. I am not inclined to deny that convulsions may sometimes arise from this cause, but I believe much less frequently than is usually imagined. In common with every other practitioner who

has opportunities of seeing much of the diseases of children, many worm cases have fallen under my care ; and I do not remember a single instance where convulsions appeared to depend upon the presence of worms in the intestines, or to be relieved by their being discharged. Dr. Brachet\* is of opinion that worms in the intestines are productive of mischief only when they are themselves labouring under disease. He imagines that their movements are then more irregular, and that they evacuate vicious humours which are capable of producing an irritation upon the bowels. The statement of Lieutaud accords with the results of my own observation, that intestinal worms are very uncommon in children at the breast. Many children pass very considerable numbers of lumbricoides without

---

\* Loco citato.

any disturbance of health. Baumes has either been more successful in his investigations, or more erroneous in his deductions. He goes so far as to treat of the different kinds of convulsive affections which arise from the different species of worms.

There are many cases on record in which worms have been engendered in the meatus auditorius, and produced paroxysms of convulsions. Brachet\* relates one such instance. It would appear probable that in these cases the ova of some insect must have been deposited in the part, and that the creature must have been gradually developed. Pain and inflammation would naturally arise, and the subsequent occurrence of convulsions is of easy explanation. The convulsions ceased upon the extraction of the worms from the auditory canal.

---

\* Loco citato.

The difficulty must be great to detect their existence.

It was the favourite doctrine of Celsus, that all the diseases of children are attended with increased severity and danger at the age of seven years. Many indeed of the ancient philosophers considered every seventh year of the life of man as "a climacteric year," which was replete with danger. Disciples of the Pythagorean doctrine are to be found even among the moderns. Baumes, for example, asserts that convulsions are much more frequent at the age of seven years,—a period which he considers to be marked by a general revolution in the constitution of the child. Rosenstein and Tissot are of the same opinion. No facts have occurred to myself which support this statement. On the contrary, I believe convulsions much more commonly occur before the fifth year.

From whatever cause a great predisposition to convulsive affections exists in children, the following symptoms are usually characteristic of that state of increased irritability from which their occurrence is to be anticipated. Although it cannot be said with truth that the child is ill, he is evidently threatened with disease. It will be observable, that during the day he starts with apprehension at the most trifling noise. His sleep is disturbed with sudden cries. Not unfrequently he sleeps throughout the day, and remains restless and entirely sleepless during the night. Whatever might have been the natural placidity of his temper, he now becomes peevish and irritable;—quarrels with his companions; and derives either no pleasure at all, or but a momentary amusement from his most favourite playthings, which will be suddenly thrust away after having slightly occupied his attention.

The eyes are frequently fixed, without being apparently directed to any particular object; or they are thrown upwards, and are steadfastly fixed upon the ceiling. The pupil of the eye is sometimes for a moment contracted, and then suddenly dilated. I have frequently held a candle close to the eye of a child, when I have anticipated the occurrence of convulsions, in order to remark the effect produced. In some instances, where the pupil has been contracted, at the moment the light was applied it has suddenly dilated, and as suddenly again contracted, the light being steadily held close to the eye. The effect of light upon both pupils is not always similar. One may remain fully dilated, while the other contracts; or one pupil may remain stationary, the other being alternately contracted and dilated. I am not aware that the remark has been made before; but I believe, from frequent

observation, that when a light is applied close to the eyes, and the same effect is not produced upon both pupils, that we have much reason to fear some serious affection of the head. It is now, I believe, generally admitted, that the mere dilatation or contraction of the pupils is dependent upon so many and dissimilar deviations from health, that no particular inference can be drawn from either of these conditions of it. An oscillatory motion of the pupil is very frequently one of the indicative symptoms of approaching convulsions.

It is always useful in diseases to examine the position of the limbs during sleep, particularly the sleep of children. If they deviate from the ordinary degree of flexure to the more straight position, there is generally some irregularity in the state of tone, and of course in the vital influx. Upon viewing the position of a child du-



ring sleep, whom, from the occurrence of symptoms above mentioned, we consider disposed to convulsions, we shall frequently find the limbs almost rigidly extended, the great toes and thumbs being turned inwards. Stretching of the limbs, it is true, is both in adults and children a natural action, which is exerted to restore muscular equilibrium. In connexion with several of the other premonitory symptoms, however, it must be considered as a strong indication of a tendency to convulsive movements\*. The colour of the countenance varies frequently in children strongly predisposed to convulsive paroxysms: at one moment it is pale, at another highly flushed. No corresponding variation of the temperature of the surface of the body is to be detected. For a short time the countenance of the

---

\* Good's Study of Medicine, vol. iii. p. 303.

child is expressive of great animation—the eyes are vivid and glassy in appearance. Suddenly, and without cause, he appears languid and inclined to sleep. The breathing is irregular. The child frequently draws long and deep inspirations with apparent difficulty, and these are alternated with a short and catchy breathing. This disordered respiration I consider to be peculiarly indicative of approaching convulsions. It is usually accompanied by a fulness of the upper lip and a contracted appearance of the nose, which alter the natural expression of the countenance. The hands are frequently directed towards the nostrils, apparently without any voluntary effort. If we observe the fingers of a child highly disposed to convulsive diseases, we shall see them either in frequent and sudden motion, or firmly pressed towards the palm of the hand. The thumb is more frequently con-

tracted upon the palm, the fingers at the same time being extended and separated from each other. In a discussion which lately took place at a medical society upon this subject, it was contended by an accoucheur of much celebrity, that this contraction of the thumb is not to be regarded as a premonitory symptom of convulsions. From my own observation, however, I can state that in children in whom we detect this firm contraction of the thumb, convulsions will almost certainly occur at some subsequent period ; unless, indeed, the suspicion of the practitioner is roused, and appropriate remedies ward off the threatened attack. When the child is put to the breast it sucks eagerly for a moment, and ceases suddenly, throwing back the head with an expression of anxiety in its countenance, and perhaps rolling it from side to side. Deglutition appears to be per-

formed with difficulty when these symptoms occur.

Hiccup is not unfrequently one of the premonitory signs of more general convulsions. Beaumes regards it as a disease, and of sufficient importance also to demand a separate consideration. I have never seen this symptom alarmingly severe in itself in children, although it is sometimes troublesome from its frequency and long continuance. Hiccup consists in a sudden and involuntary convulsive motion of the diaphragm, accompanied by a quick and incomplete inspiration, which is attended by a sonorous noise, arising from a spasmodic constriction of the opening of the glottis. In adults more frequently than in children hiccup is a common symptom of many serious diseases, and is indicative of considerable danger in most cases. It appears, in fact, at the termi-

nation of almost every malady affecting the vital organs a short time before the death of the patient. In children the frequency of hiccup is doubtless to be attributed in many instances to an excessive quantity of food stimulating a weakened stomach.

It is very true that each of the symptoms which have been enumerated as evidences of much constitutional irritability, and therefore premonitory of convulsive affections, may occur from a variety of different causes, and be symptomatic of some passing derangement of health, without any well-marked paroxysm of convulsions supervening. We have reason, however, to dread convulsions from the occurrence of several of these symptoms, and we are called upon to adopt the precautions which will be subsequently mentioned.

Nurses are particularly partial to the

term "inward fits." They apply it without hesitation to every derangement of health they do not comprehend, and their use of it is consequently not very sparing. It is meant to express a convulsive affection of some internal part, but we have no evidence that such a condition really obtains. It would appear that the symptoms which are popularly, and perhaps indeed sometimes professionally, considered indicative of these inward fits, arise frequently from collections of flatus in the intestinal canal.

It is thought by Lallemand, Parent, and Martinet, that the symptoms which are by the vulgar referred to these "inward fits," arise in many cases from an inflammatory affection of the arachnoid membrane. Brachet, indeed, is inclined to adopt the term "convulsions internes" to designate the premonitory symptoms of convulsive paroxysms.

Infants from the first moment of their birth may be attacked with spasmodic colic. This painful disease is marked, however, by very different symptoms from those to which the term "inward fits" is applied. Tissot declares that he has seen children vomit pure blood after an attack of spasmodic colic. Dysenteric evacuations not unfrequently succeed severe paroxysms of it. I have seen children in two instances paralysed for a considerable time after the disease. Baumes mentions the occasional occurrence of paralytic affections under the same circumstances. The spasmodic colic of infants is at all times to be regarded with apprehension. Convulsive affections, and even true epilepsy, are not unfrequently produced by it, if the attacks have been long and severe.

It has been justly observed by Dr. Pring, that whatever cause is capable of producing

organic and partial irritation, by which a centre of excessive mobility is established, may prove the source of convulsions. Such a condition may be congenital, or the effect of disease or accidental injury, or of some momentary impression; in which latter case an unexpected paroxysm of convulsions may occur without leaving any permanent derangement of health. There are certain diseases of infancy which appear to destroy the natural disposition of that age to convulsive affections. Those maladies which are accompanied by excessive serous exhalation, unfit the muscular structure for convulsive efforts, and diminish the irritability of the nerves.

From whatever cause fever may arise, convulsive movements of different parts of the body will frequently attend the attack: but a decided paroxysm of general convulsions rarely takes place as a symptom of



continued fever. In the remittent fever of infants convulsive paroxysms are common; and it will require much experience and a careful consideration of the progress of the disease to avoid an erroneous diagnosis in such cases. It is very likely to be mistaken for hydrocephalus. In many cases it is impossible to determine the nature of the disease until many days have elapsed, and it has assumed a decided form. The distinction between hydrocephalus and the infantile remittent fever is of considerable importance. The former malady is always attended by considerable danger. The latter is rarely if ever fatal, if judiciously treated, notwithstanding the tedious course it runs through, and the alarming and anomalous symptoms which occasionally arise during its progress.

In acute and chronic hydrocephalus, con-

vulsions constitute a very important symptom. When convulsions occur in acute hydrocephalus, much danger is always to be apprehended. It is very natural for the anxious parents of a child labouring under general convulsions, as the sequel of the ever-varying train of symptoms to which the term of acute hydrocephalus is so improperly applied, to inquire when it is probable the sufferings of the patient will be terminated; for in popular opinion the existence of convulsions implies excessive pain, although we have certainly no demonstrative proof that such is the fact. In more than one instance I have known the reputation of the practitioner suffer in consequence of his having expressed an opinion that a child would not survive many hours, when it has lingered for several days. It is worthy of remembrance, then, that although the pulse may be intermitting,

the patient perfectly blind, as far as we can judge by the application of a strong light to the eye, and the convulsions general, violent, and continued, he may nevertheless live for days; a no less painful spectacle to the practitioner, who must confess his inability to afford relief, than to the surrounding friends. In cases of chronic hydrocephalus, convulsions frequently occur many months before the death of the patient. A curious case of chronic hydrocephalus has been published by Dr. Baillie (Wardrop's edition of Baillie's Works, vol. i. p. 13), in which a separation of the bones of the skull took place. The child was seven years of age, and the bones of the skull had been firmly joined together. The two parietal bones were first discovered to be separated from each other; and this separation gradually increased until the death of the child, when their distance from each

other was three-fourths of an inch. A short time afterwards, a separation was found at the coronal suture, between the frontal and the two parietal bones, which gradually increased to half an inch. During the last week of his life this boy had daily attacks of convulsions. The head was examined in the presence of Dr. Baillie, and nearly a pint of water was found in the ventricles. Paroxysms of convulsions more frequently occur in acute than chronic hydrocephalus.

By most authors convulsions are said to occur generally in cases of spina bifida. In three instances of this disease, which I have watched attentively and frequently for a considerable time, no convulsions have taken place, unless attempts to afford relief have been made by means of pressure applied to the tumour. In cases of spina bifida also we are taught to look for para-

lysis of the inferior extremities, and to expect much general emaciation and want of ordinary mental capacity. Such is not always the case. Children who are afflicted with this malady are sometimes well formed, active in body, and capable in mind.

It cannot be necessary to insist particularly upon the powerful effects produced upon the animal economy in every period of our existence by the operation of moral causes. It is to no purpose, however, that we admit the fact, unless we apply our knowledge of it in a profitable manner. The duty of both parents and physicians is not comprised merely in relieving the body of their tender charges from disease; it is equally necessary to protect the mind against those sudden shocks to which it may indeed sometimes be exposed by unavoidable accident, but which are not seldom inflicted intentionally by ignorant

nurses or mothers. The mind of a child is as sensitive as its body ; and although we have no very clear notion of the precise manner in which convulsions are produced by the operation of moral causes, the fact is proved beyond the possibility of doubt, by the lamentable consequences which so frequently arise from the influence of the various passions. In the management of children too little care is taken to avoid those sudden moral emotions, which, although not immediately productive of bad effects, may and do very frequently act upon their irritable and sensitive frames in a very injurious manner. The passion of fear, suddenly excited, is often followed by convulsions. An instance has occurred to me in which a child of four years of age, who had never previously been affected with convulsions, was suddenly attacked with a violent paroxysm which destroyed him, in

consequence of the nurse having improperly threatened to throw him from a window if he did not cease crying. Both in children and adults the voluntary and involuntary muscles are frequently affected with convulsions from moral causes. The involuntary muscles, however, are more remotely connected with the sensorium. They are dependent on the ganglionic system, and are consequently less influenced by mental agitations.

Tissot relates the case of a child who was attacked with epilepsy, from the repetition of which disease he was reduced to a state of idiotism, from the sudden firing of a pistol close to his ear. Van Swieten mentions an instance of a child who was frightened by a dog, and who was afterwards attacked by convulsions at the barking, or even the sight of that animal. It cannot be necessary to multiply similar

examples. The principle upon which we ought to act with children must be sufficiently evident. It is incumbent upon us to reprobate the common and absurd conduct of nurses, and even of mothers, who endeavour to frighten their children into the obedience which their own injudicious conduct cannot command.

Although convulsive attacks are not so likely to arise from the effect of passion as of horror or fear, we should guard against that violent emotion in children as much as possible. In children with large heads, flushed faces, turgid jugular veins, and other indications of determination of blood to the head, precautions are more especially necessary to guard against the excitement of sudden passion, which is sometimes regarded as a fit subject for amusement, or perhaps of parental gratification, and as a proof of an early and promising



spirit. I have frequently watched a child during a violent fit of crying or impetuous passion, and have observed with apprehension the great afflux of blood to the head, the increased action of the carotids, and the tremulous and almost convulsive motions of the features.

Convulsions do not appear to be produced in the same manner by every moral emotion. The phenomena that occur as the consequence of anger, differ materially from those produced by the operation of fear. Among the effects of violent anger, we shall have a train of appearances very nearly resembling those which arise from *repletion* of the system:—the patient will be in a high state of excitement. On the contrary, from the passion of fear, a collapse of the vital powers appears to take place, resembling that arising from *inanimation*. Hence arises the distinction between

the exciting and depressing passions. Notwithstanding the ill effects to be apprehended from violent mental excitement of any kind in children, some writers have recommended us to act purposely upon the mind, in order to cure convulsive affections. The occasional success of this experiment has been more than once recorded. Of such treatment I know nothing from my own experience ; and I should apprehend it to be dangerous and unjustifiable.

Many nurses and mothers are in the habit of suddenly rousing children from their sleep, and carrying them from a room comparatively dark into a glare of light. Such a custom is decidedly improper. A child should be gradually and gently awakened. Much momentary excitement is produced even in the adult by being roused suddenly from sleep ; and there can be no doubt that children become in consequence

of such imprudence more liable to convulsive affections. Montaigne, we are told, always contrived to break the slumbers of his infant son by the gradual sound of a soft musical instrument. The idea was happy, although its general adoption would be attended with some difficulty.

Baumes, in his treatise on the convulsive affections of children, has dwelt at considerable length on the probability of convulsions arising in children from impure air. It can require, however, no laboured proof to show, that it is necessary for the preservation of the general health, for the prevention of convulsions, and many other diseases, that children should live in a pure atmosphere. The absurd custom of crowding young children into confined school-rooms, at an age when no instruction can possibly be received, is much too prevalent in this country. The foundation is thus

frequently laid for head affections and convulsions.

It has been already remarked, that a single muscle may be affected with convulsive action. The natural antagonistick power of the muscles which move the globe of the eye may be destroyed by the contraction of one muscle, and strabismus or squinting will be the consequence. It is important to remember, that this unsightly symptom may occur without being dependent upon any affection of the brain. I have before taken an opportunity of deprecating the common and serious error of assuming the existence of cerebral disturbance from individual symptoms. Strabismus, it is very true, is not an unfrequent sign of pressure upon the brain: but when it is so, we shall be assisted in our diagnosis by a train of symptoms peculiar to affections of the head, which cannot be easily

mistaken. Strabismus is a common attendant of the epileptic paroxysm.

The most common causes of those derangements of health which either immediately produce, or eventually lead to, convulsions in children, are errors in diet, with respect both to the quantity and quality of the food. So long as nurses and mothers believe that children thrive in proportion to the quantity they eat, so long will convulsive diseases be frequent and severe. When the stomach has been well, or rather badly, crammed with food, the child may sink into a profound sleep for several hours, or remain awake in a state of perfect tranquillity. His powers are exhausted by the load conveyed into the stomach; and the deceitful calm, which is regarded with much complacency by the nurse, is not far removed from convulsions or apoplexy. From over-feeding, it is true, many children become

plump and stout. The face is high-coloured, and the eyes appear particularly animated. This condition, from which a medical observer will apprehend a variety of dangers, is popularly considered to be a proof of excellent nursing, and an indication of perfect health. Such children frequently die of convulsions, and are particularly liable to diseases affecting the respiratory organs. In fact, the natural irritability of the system is raised to the highest degree by the improper stimulus of large quantities of food upon the nerves of the stomach. Additional danger will attend every disease with which a child may be affected under such circumstances. It is not irrational to conclude, from the simple qualities of that nourishment which Nature prepares for the support of infants, that, in proportion as various articles of food differ in their qualities from the milk of the mother, they are

hurtful and improper. The mischievous consequences which so commonly arise from over-feeding children are in many cases aggravated by a popular prejudice, against which we have frequently to contend. It is an opinion generally held by nurses, that a constipated state of the bowels in children is an indication of strength. They take alarm at the slightest appearance of relaxation of the bowels, which is frequently an effort of nature to prevent disease, or to relieve the child from an over-loaded state of the stomach: while they consider a constipated state to be a proof of a hardy and vigorous constitution. Convulsions are certainly more common in children who are habitually constipated.

That convulsions should frequently arise in children from various affections of the stomach is not surprising. The nerves of

the stomach have an evident and powerful influence upon every part of the frame. The strict sympathy between the stomach and brain is too well known to require particular notice. In adults we have hourly proofs of the existence of this sympathy. In them, it is true, convulsions do not occur, as they are much less disposed to such affections than children. If it were possible to impress upon the minds of mothers and nurses the belief, that whatever irritates or in any manner deranges the stomach of a child is very likely to produce convulsions; if we could succeed in inducing them to follow the ordinances of nature, and to feed their children upon bland and light nourishment in small quantities, at regular periods, convulsive affections would rapidly decrease, and all the tribe of diseases connected with weakened digestion, which either inflicts immediate suffering, or paves



the way for future feebleness both of mind and body. In two or three instances I have known derangement of the digestive organs in children followed by paroxysms of convulsions, to which a state approaching to coma has succeeded, and subsequently the child has become paraplegic. That all these symptoms arose from gastric disturbance, without any serious cerebral affection, is rendered almost certain by the complete restoration to health of both mind and body by treatment which was calculated only to put the stomach and bowels into a healthy condition. It is observed by Mr. Wardrop, in his edition of Baillie's Works, that "cases of paraplegia in adults as well as in children sometimes take place from derangement of the digestive organs."

It will sometimes happen, that mothers are prevented from suckling their children,

and one of two evils must be submitted to. The infant must be brought up by hand, or a wet-nurse must be procured. To preserve the health of a child which is brought up by hand, particularly if it be of a delicate constitution, will require much judicious management. The choice of a wet-nurse is not always without its difficulties. The subject of the transmission of diseases from nurses to the children they suckle is difficult of elucidation. It cannot be doubted that children suffer, that their health is destroyed, and the foundation laid for convulsive diseases, by sucking unhealthy nurses. I believe, however, it is very rare that we have the convincing proof of transmission afforded us, by the appearance in the child of precisely the same disease as that with which the nurse was affected. A predisposition to convulsive affections in children may be originally produced in

consequence of their being suckled by a nurse addicted to the frequent use of spirituous liquors. In several instances I have known children rapidly recover their health when the nurse was changed, who had exhibited most of the premonitory symptoms of convulsions while they were suckled by a woman who indulged in the common vice of gin-drinking.

Violent emotions of mind, or excessive bodily fatigue, should be avoided by nurses. M. Gilibert relates the case of a child who died of convulsions after having sucked a nurse who had been exposed to hard labour under a burning sun. Boerhaave knew some instances in which epilepsy was produced in children in consequence of their nurses having had violent fits of passion. Baumes remarks, that he was informed by one of his professional brethren, that his child died suddenly of convulsions after

having been suckled by a woman who had been violently exasperated. Convulsions may of course occur in a child who is suckled by a woman of impetuous and ungovernable temper, although it does not follow as a necessary consequence that the intemperance of the nurse must have caused the attack.

It was formerly supposed, that if a child was suckled by a woman who was menstruating, it would necessarily be attacked with convulsions. This opinion formed a part of many other ridiculous and imaginary ideas which were popularly entertained respecting females during the period of menstruation, and requires no further notice than the mention of its absurdity.

It is a misfortune of no ordinary magnitude, that there are certain medicines containing opium or some other narcotic, in the hands of almost every nurse ; such

as Godfrey's Cordial, Dalby's Carminative, Poppy Tea, &c. &c. By the improper use of these articles, children are frequently reduced to a state of general debility and nervousness, which very strongly favours the occurrence of convulsions. It may appear extraordinary, that opium and similar remedies should not have the permanent effect of repressing the natural irritability of children, and consequently of preventing convulsions. The operation of opium, however, is relative to the particular constitution of the patient to whom it is given. In highly irritable subjects,—and such are children,—opium rarely acts as a sedative, unless its use is confined within certain limits, and preceded by treatment which will be subsequently referred to. It is much to be regretted, that a practitioner of the high respectability and long experience of Dr. Dewees, should express him-

self so loosely upon this important subject, in a work destined principally for the instruction of students. He speaks much too indefinitely of "large and frequent doses of laudanum" to young children.

A plethoric state of constitution increases the natural aptitude of the child for convulsions. But we must guard against being influenced by an erroneous opinion which is very general. There are many practitioners, and some of no mean celebrity, who assume, that in every case of convulsions there is either a local or general increase of the actions of the arterial system, which demands for its relief the abstraction of blood. It is, therefore, the more necessary to insist upon the frequent occurrence of convulsions from debilitating causes, and from a state of nervous irritability, without any vascular excitement either local or general. It has been said

by Haller, and the doctrine has been adopted and repeated by Bichat, "that the vital force manifests itself in two opposite states;—in paralysis, and convulsions. The first is the sign of *diminished energy*; and the second, of *augmented energy*." Such an assumption is, I apprehend, contrary to fact; and if indiscriminately acted upon, must be followed by injudicious practice. Paralysis frequently takes place in such a condition of the general system as to require depletion for its relief: and although the latter part of the proposition is often true, it must be admitted that it has many exceptions, and that "augmented energy" is not the necessary attendant of convulsions, unless indeed the term refers merely to the increase of muscular action. It is worthy of remark, that every animal which dies from loss of blood is attacked with violent convulsions during the last mo-

ments of its existence. This fact is daily exemplified in slaughter-houses. Puerperal women, who suffer considerable hemorrhage from the uterus, are almost invariably convulsed. There can surely be no "augmented energy of the vital force" in these cases; for it must be observed, that convulsions occur before any reaction takes place in the system weakened by excessive bleeding.

It appears from what has been stated, that convulsions arise both from an increase and a diminution of the vital force. "*A repletione aut ab evacuatione fit convulsio,*" is one of the aphorisms of Hippocrates; and, unlike many dictates which this worthy ancient either has, or is said to have, transmitted to us, the truth of it cannot be denied. Galen\* adopted the opinion of

---

\* Method. Medend. lib. xii.



Hippocrates, but added another cause of convulsions,—an irritation stimulating the nerves in consequence of the existence of some acrid humour. With a due consideration of the circumstances of the case, we shall rarely find much difficulty in determining with which of these conditions we have to contend.

It is a curious fact, which has lately occupied considerable attention, and of which Morgagni was aware, that there may be great determination of blood to the head, with much turgescence of its vessels, when the individual has suffered severe hemorrhage. In such cases the vessels of the head throb violently, pain is complained of, and, if the subject be a child, it will be extremely restless and irritable. Mr. Cooke, in his Abridgement of Morgagni, well observes, that the liability to this form of cerebral plethora appears to be propor-

tionate to the preceding hemorrhage and the consequent debility. Dr. Seeds has made some interesting experiments upon this subject\*. He found when death was caused by opening the veins of animals, a state of venous congestion in the brain. In whatever way inanition may be produced, convulsions are likely to occur. Dr. Hood observes, in his work on Physiology, that although "at first sight it may appear inconsistent to say, that the causes which excite spasm, and double or treble the contractile power of the muscles, should operate by reducing the vital force; that this difficulty is explained away by recollecting that their expansibility is also an effect of vitality."

Excessive and long-continued diarrhœa frequently increases the disposition of chil-

---

\* *Vide* Med. Chir. Journal, Feb. 1816.

dren to convulsive diseases, if it proceeds to such an extent as to break down the constitutional powers, and to reduce the child to the same state which would arise from copious bleeding or want of proper nourishment. After long-continued diarrhœa, the irritability of the child is increased to such a degree, that the ordinary light of day, or the most trifling noise, cannot be borne. The stomach rejects its contents, and the intestines acquire such a morbid sensibility that whatever is introduced into them occasions violent pain, and probably convulsions.

Every hour furnishes us with proofs of the reciprocal influence exerted upon each other by the digestive and sensitive apparatus. The most intense affections of the brain take their source from affections of the stomach, and *vice versâ*. We are, perhaps, too much in the habit, however, of

referring every affection of the brain to derangement of stomach; while we seldom seek for that which almost as frequently exists,—some primary affection of the brain which disturbs the functions of digestion. Hence the unsuccessful efforts which are made to cure the various kinds of headaches, which are as perplexing to the practitioner as they are tormenting to the patient. We not seldom attack the effect, and allow the cause to pass unnoticed and unopposed.

Convulsions are more likely to ensue from local than general irritation, if the degree applied be equal. The nervous system of some individuals is so highly susceptible, that the most powerful effects follow very trifling excitement, while it may be difficult to rouse others from the evenness of temper with which they are endowed by nature. We cannot doubt,

therefore, that the nervous system may be congenitally either strong or feeble. From strict attention, and judicious moral and medical management during childhood, those who are morbidly susceptible may frequently be fortified and enabled to bear the various excitements of life with becoming firmness.

It was supposed by the ancient physicians, and the same opinion is supported by a few modern authorities, that children never die from the effects of difficult dentition. If we allow with Wickmann and others, who have urged the impossibility of disturbance to the system from painful dentition, that the gums are senseless, or provided with no particular sensibility, we are not compelled to grant that these parts are deprived of sensation during dentition. In health bones and cartilages possess little or no sensibility. In disease they become ex-

quisitely painful; and although the process of dentition cannot be considered in every case a disease, it is subject, like every other natural operation, to accidental disturbance, which will be productive of local and general suffering. In Germany it is a current opinion that children rarely if ever suffer from the effects of dentition. The disturbance which so frequently occurs during the progress of dentition is attributed by the practitioners of that country to other causes. Hence they rarely if ever advise division of the gums\*. Many children must undoubtedly be the victims of so erroneous an opinion. It is difficult, indeed, to reconcile the maintenance of such a doctrine with the character which the German practitioners bear for the accurate inves-

---

\* Wickmann, Ideen zur Diagnostik. Hecker, Magazin für die Pathologische Anatomie.

tigation of the causes and symptoms of derangements of health, and for the industrious zeal with which they add to their own stores of information from foreign sources. That children do suffer considerable distress during the process of dentition is certain; and that the pressure of the tooth upon the nerves of the part is frequently the cause of the severe train of symptoms and convulsive paroxysms under which they labour, must be equally clear, from the almost instantaneous cessation of suffering when the gum is freely divided. It cannot be doubted, that if assistance were not afforded by this simple but effectual operation, children would frequently sink under the consequences of painful dentition.

Whatever, indeed, may be the cause of pain in children, convulsions are likely to occur if it is severe or long continued. The

degree of pain required to produce convulsions will depend upon the constitutional irritability of the child. Bearing in mind, then, the general fact, that convulsions may arise from pain, however produced, it will not be necessary to enter into a formal enumeration of the various local and general affections which may give rise to them.

Infants who are attacked frequently with convulsions, are very likely to be affected with chorea at the age of puberty. To this singular and distressing form of convulsions girls are much more obnoxious than boys. The development of the generative system at the approach of puberty is frequently productive in both sexes, but more in females than in males, of much general disturbance and irritation, and not uncommonly of convulsive affections. At this critical period every moral and physical



impression produces an unusual effect. The ancient physicians conceived that the natural revolutions which occur at the age of puberty, not unfrequently prove the cure of previous convulsive affections. To a certain extent this opinion may be well founded. If chorea or epilepsy has been produced by the general disturbance accompanying the approach of puberty, the patient will probably be exempt from future attacks of the malady, when the health is re-established by the completion of that period.

Convulsive affections are stated by Willis\* and other authorities to be occasionally epidemic. It would be more correct, perhaps, to presume, that from a local cause some epidemic disease had prevailed, of which paroxysms of convulsions were the

---

\* Opera, vol. i. p. 496, 497.

symptoms. In the 11th volume of the *Journal Gen. de Médecine*, an interesting description is given by Gaultier Claubry of a very destructive convulsive disease which occurred at Paris. Of five children treated by M. Claubry, two were saved. The lives of the others are said to have been sacrificed to the obstinate opposition of the parents, who objected to the necessary treatment. Twenty-four children perished in one neighbourhood near Paris of this malady, which made its attack in the following manner. The little patients were very suddenly attacked with convulsions and loss of sense. The face appeared pale and swoln: the eyes dull. The mouth was quickly filled with a limpid saliva, which freely flowed from it: this fluid was not frothy. The muscles of the face were contracted: the lips were of a livid colour: the ball of the eye appeared

to project from the orbits: the nostrils were distended. The pulse was hardly perceptible. The extremities were rigidly extended. The head was thrown backwards, and remained motionless. Urine flowed during the paroxysms. The belly appeared much swoln. Upon the subsidence of the convulsions the lower jaw became relaxed, and fell. The tongue was thrust from the mouth, and appeared lengthened. It was pale and moist, as were also the palate and the interior of the cheeks. The attack was speedily fatal. It generally destroyed within seven hours. This epidemic, which only attacked children below eight years of age, was also observed in dogs under the age of four months. The symptoms under which the dogs laboured were precisely similar to those which appeared in the children. In both cases the breathing was stertorous as in apoplexy. Upon

dissection of one of these cases, blood was found effused under the cranium. All the vessels of the cerebrum and cerebellum were turgid with blood. The dura and pia mater were of a deep red colour. On examining the chest, the vessels of the lungs were found gorged with blood. The larynx was smooth and shining at the upper and posterior part. The right auricle and ventricle of the heart were empty. The left auricle and ventricle much dilated, and filled with black blood. The contents of the abdomen were perfectly healthy, but of rather a paler colour than usual. The gums were cleft through their whole extent, and did not indicate any signs of dentition. Three dogs, which were opened after having died of the same disease, presented the same appearances on dissection. The relator of these cases confesses his incompetence to determine the cause of so

singular a malady. Although many of the symptoms are common to epilepsy and other nervous affections, the *ensemble* appears to constitute a peculiar and hitherto undescribed affection.

Dr. Moulson has published some interesting observations on spasmodic and convulsive diseases in the *Medico-Chirurgical Journal* for May 1817, and has given us the appearances observed on dissection of some fatal cases. Having been baffled in his endeavours to afford relief by the usual modes of treatment, he was led to seek further information by inspection after death. In a case under the care of Dr. Saunders, which resisted every internal remedy that could be devised, the different muscles spasmodically affected were noted down during the progress of the disease, in order to examine, in the event of the patient's death, whether any obvious

difference could be detected between them and those which were free from spasm. The child died, and its body was examined. The contents of the abdomen and thorax were healthy. Upon carefully examining the brain and spinal marrow, there appeared sufficient evidence to account for the spasmodic contractions which had caused the death of the child. The nerves distributed to the muscles previously noted down, whether proceeding from the brain or spinal marrow, were found to have at their origins the blood-vessels preternaturally turgid with blood, whilst the blood-vessels ramifying upon the nerves distributed to the muscles free from disease, were perfectly natural. In every case of convulsions that terminated fatally under the observation of Dr. Moulson, he invariably found vascular turgescence at the origins of the nerves distributed to those muscles

that were affected. Similar evidence of the state of the vascular system in convulsive affections is afforded us by Galen, Morgagni, &c. Portal\* enumerates many alterations which he found in the cerebrum, cerebellum, and spinal marrow after convulsions: such as collections of air and water, and of gelatinous matter; engorgement of the blood-vessels, or extravasations of blood; inflammation, induration, abscesses, ulcers, &c. &c. He was aware that these appearances are not peculiar to convulsive affections, but that they were observed in most diseases of the brain: and he questions if these different maladies are not very analogous, and that they differ only in degree. Bajon confined his researches to the appearances of the muscles. Hoffman refers all convulsive affections to

---

\* Anatomie Médicale, tom. iv. p. 69, et seq.

lesion of the spinal marrow and its coverings. We have yet no means of inferring from the part convulsed, the particular part of the brain which may be affected.

These facts are important, but do not offer any support to the doctrine of those who contend, that every case of partial or general convulsion arises from great determination of blood to the head, or from organic disease of the brain. I presume, if severe convulsive paroxysms rapidly follow each other, the disturbance which might have been originally confined to the nervous system, will at length extend to the sanguiferous system; and that the brain, which was at first only momentarily irritated, may become permanently affected. Great local determination of blood to the head may then take place, and its consequences, inflammation and effusion, are to be apprehended. The congestion of blood



in the brain, which is detected in subjects who have died after severe convulsive paroxysms, may as fairly be regarded as the effect of the inordinate action of the whole body as the original cause of it.

We have reason to presume, that where convulsions arise from local irritation, which cases constitute a very large proportion of those we are called upon to treat, that either no vascular derangement takes place in the brain, or that it is but momentary, and that it passes off with the local irritation. It is worthy of remark, that Dr. Clarke, who is of opinion "that in every case of convulsion the brain is at the time organically affected," states, "he has seen many cases in which convulsions have ceased on scarifying the gums extensively, after slight incisions of them had failed to produce any advantage. It will not be contended, that the insignificant

quantity of blood lost in lancing the gums could relieve any serious cerebral affection; although Dr. Brachet\* appears seriously to believe it is in this manner the benefit of lancing the gums is to be explained. The cessation of the convulsions upon the removal of the local irritation, is a convincing proof that but a trifling and transient impression had been made upon the brain.

It is a fact well ascertained by frequent dissections, that the same affections of the brain or spinal marrow are not invariably productive during life of the same symptoms.

We are much indebted to Dr. Whitlock Nicholl for some very valuable observations on disordered states of the cerebral structure in infants; although we might

---

\* Loco citato.

find it difficult, if not impossible, to make any practical use of some of the distinctions which he has endeavoured to establish between the various kinds of affections of the brain during infancy. He remarks, that there is a state or condition of the cranial brain in infants, which may be called a state of irritation or *erethism*. What this peculiar condition of the cerebral structure is, it may be no easy task to determine. It is a state distinct from that which is called inflammation of that structure, for it may exist without any perceptible increase of the quantity of blood that flows through the cerebral blood-vessels. This I presume to be the condition of the brain when convulsions first occur from the excitement of local or general irritation; and if we succeed by appropriate treatment in quickly putting a stop to the irritation, we may, and do frequently, prevent the momentary

excitement of the brain from passing into inflammation, effusion of serum, convulsions, or even paralysis and death.

The "sensitive erethism" of Dr. Nicholl does not materially differ from that restless condition so frequently witnessed in children, which has been described by Harris, Astruc, and others, under the term of "the watchings of children." Want of rest is destructive to health in every age. Children are speedily affected by it; and where these "watchings" continue, convulsions are very much to be apprehended. During sleep the mind reposes from the exercise of its functions. During this state of watching, or from imperfect slumbers, on the contrary, it appears to be painfully on the alert to the most trifling impressions. The animal spirits of the child are violently agitated. Various causes may give rise to this state of irritation in children; such as

derangements of the stomach and bowels, improper food, &c. &c.

It is frequently difficult to determine either the duration of a convulsive paroxysm, or the ultimate consequence of its frequent repetition; and we shall therefore be rarely justified in giving a certain prognosis. Sometimes the most violent and frightful paroxysms pass off without inflicting any serious injury either upon the present or future health of the child. In other instances the attack, apparently slight at its commencement, either destroys the child in a few moments, or paves the way for its subsequent death by entirely destroying the powers of mind and body. It follows, then, that although there are no diseases more likely to excite terror than convulsive affections, the danger is not to be estimated by the apparent violence of the attack. Our prognosis must not be

positively guided by the external appearances or degree of the convulsive movements. We must consult rather the cause of the convulsions, and the nature of the disease of which they are symptomatic. The constitution of the child must also be considered. The danger is much less in a child of great susceptibility, than in a robust subject, who is less easily excited. In the former, convulsions will occur more readily : in the latter, they will be infinitely more severe. The younger the child, the less is the danger we are to apprehend from convulsions. In very early infancy an equal degree of danger attends the convulsive affections of both sexes. After that period girls are more subject to convulsions, and less seriously affected by them, than boys. In children of a sanguine temperament the attack is commonly violent, and passes quickly to a termination, whether it be fatal

or not. In the opinion of Brachet, convulsions arising from external and mechanical causes are less severe, unless some important organ has been injured, which accident in itself constitutes the danger. My own experience would induce me to give a contrary opinion.

Convulsions which arise from irregularities of diet are generally severe and hazardous. If convulsions are caused by exposure to cold, their degree of severity and the danger will depend upon the extent to which the brain is affected. Congestion in the vascular system of the head is much to be feared in such cases. If any sudden moral emotion is productive of convulsions in a child, the attack is in general slight and transient. I have mentioned, at page 85, one fatal case arising from fear. Convulsions occurring during the course of any severe disease strongly indicate its danger.

Recovery is very doubtful if the intellectual functions suffer. “*Sensus etiam suppressi majus periculum in omni spasmorum genere, quàm integri ostendunt.*” (Vogel). Partial are less dangerous than general convulsions. The more frequent the return of the convulsive attack, the greater is the probability of a fatal termination. It is a well-known fact, that convulsions are infinitely more common and more dangerous in hot climates than in the more temperate regions. Cases occasionally occur in which convulsions appear to mitigate the severity of any existing disease. Brachet very justly ridicules the endeavour of Sauvage to prove that convulsions are always beneficial.

We have yet to learn how to determine positively when convulsions do arise, and when they do not, from organic lesion of the brain, or from effusion of water into its



ventricles. When the convulsive attacks are slight and of short duration, and are succeeded by the natural cheerfulness of the child, we have but little reason to apprehend any danger. On the contrary, when the paroxysms are of long continuance, and gradually increase in severity and violence, and leave the child dull and heavy, we have much cause to apprehend a repetition of the attack, and should give a guarded opinion as to the ultimate consequences. In all cases which I have myself witnessed, where the child was destroyed suddenly during convulsions, the dark colour of the face and neck, and the almost stertorous breathing indicated a state very nearly allied to apoplexy in the adult. I have unfortunately not been permitted to verify the accuracy of this supposition by dissection: that it is well founded, however, I think there can be but little doubt.

Death may occur also in consequence of the respiration being impeded by the irregular contractions of the respiratory muscles. The lungs become engorged with blood, and the circulation through them is impeded. Suffocation is quickly threatened, and destroys the patient, unless the natural action of the muscles is restored, and the respiration and circulation are enabled to proceed without interruption. In some cases a state of syncope supervenes to convulsions, from which the child never rallies\*. It is much to be apprehended, that in some cases where a state of syncope has supervened to convulsive paroxysms, that most horrible of all accidents has occurred,—premature interment. However sceptical we may be as to the truth of many of the cases which are recorded, it must

---

\* Brachet, loco citato.

be admitted that there are some instances which rest upon very credible authority, of women and children who have very narrowly escaped being consigned to the grave before the vital spark was extinct. A case related by Dr. Johnson is sufficient to show the possibility of error, and to guard us against the dreadful consequences of it:—A child in the parish of St. Clements, in the city of Colchester, after having taken the breast, was attacked suddenly with violent convulsions, which lasted a considerable time. The circulation and the motion of all parts of the body were entirely suspended: respiration was not perceptible. It was undressed and laid out, and the coffin was ordered. A friend, who was fondly attached to the child, having heard of its sudden death, went to the house to view the body, and not feeling it quite cold, she was induced

to hope it might not yet be dead. The child was taken near a fire and well rubbed, and shortly recovered.

During dentition children are frequently affected with slight convulsive motions of the face, which give an appearance of smiling to the countenance. This symptom is frequently the precursor of well-marked convulsions, and consequently should not be passed over without attention. If during fever, or after any long-continued disease, we observe slight convulsive movements of the features, danger is to be apprehended.

Convulsions sometimes terminate by critical evacuations. Hemorrhage from the nose not unfrequently puts a stop to the paroxysm. Planque\* relates an instance in which the convulsions were constantly

---

\* Bibliothèque Médicale, t. iii. 504, 505.

terminated by an abundant hemorrhage from the mouth, nose, and ears. The termination of convulsions by diarrhoea has been still more commonly observed. Cases of this kind are related by Whytt\*, Jacques†, &c. Vomiting also in the same manner frequently precedes the cessation of the convulsive paroxysm, by removing from the stomach any offending matter upon which it was dependent.

---

\* On Nervous Diseases.

† Observations sur quelques Maladies Nerveuses Convulsives. (Journ. Gen. de Médecine, tome xxix. p. 280.)

## CHAPTER II.

### TREATMENT OF CONVULSIONS.

As in the great majority of cases the pathological phenomena of convulsions must be regarded as mere symptoms, our remedial means must necessarily be directed to the relief of the disease, or derangement which produces them. It has been seen, that the causes capable of producing convulsions are almost innumerable. The treatment must consequently be ever varying; and it would therefore be a useless effort to endeavour to lay down for every modification of convulsive affections in children a determinate mode of practice. The general principles upon which our treatment must rest can only be expected,

In the management of every class of diseases, something must necessarily be left to the discrimination of the practitioner ; and in diseases of the nervous system especially, whether they affect the child or the adult, the shades are so various, and the anomalies so frequent, that it would be impossible to anticipate the precise progress of every case, although we may without considerable difficulty present a general sketch of the subject, which will enable the junior practitioner to proceed in his treatment with accurate views.

Every man who undertakes the treatment of disease, must possess sufficient confidence in himself to act without a guide, when he has made himself master of the fundamental principles of his profession. He who approaches the practical duties of his art, and who hopes to escape every difficulty by a reference to books, will be fre-

quently disappointed. He must occasionally meet with perplexities from which no written doctrines can relieve him.

It is very true, that children often recover from violent and long-continued convulsive affections with little or no assistance from medicine. A spontaneous recovery, however, can rarely if ever be anticipated; and consequently the best exertions of the practitioner are demanded in every instance.

If we wish to form accurate opinions respecting the diseases of infants, and to derive the gratification of sometimes anticipating their progress, we must accustom ourselves to regard with determined attention many circumstances which may be individually unimportant, but from which collectively many useful inferences may be derived. I refer particularly to the gestures of a child whether sleeping or waking; the tone of voice in which its complaints



are expressed ; the state of the respiration ; and the impression produced by stimuli to which it is accustomed.

It happens, unfortunately, when our assistance is required for a child, who, in the popular language, "is in a fit," that we are expected to do much, when at the moment we can in reality do but little. Notwithstanding the various highly extolled "fit medicines," each of which is popularly considered capable of putting a stop to convulsions, it is a fact, that we have no remedy upon which any reliance can be placed for this purpose.

I have before observed, that the duty of the practitioner does not consist so much in cutting short a paroxysm of convulsions, when it has actually occurred, as in carefully observing and alleviating the symptoms which have been described as indicating the probability of an attack.

Although we may have but little confidence in any remedy that can be given, to cut short or relieve the violence of the paroxysm, we are compelled to satisfy the importunities of the surrounding friends by giving some form of medicine. A few drops of the Sp<sup>t</sup>. Ammon. fœtid. or Sp<sup>t</sup>. Ammon. Arom. in water are usually prescribed. The child has generally been put into a warm bath before our arrival. The severity of the attack is frequently relieved by this means: and if we have reason to believe there is any connexion between the occurrence of the convulsions and the sudden disappearance of any eruptive disease, or that the child is labouring under an attack of spasmodic colic, the warm bath will be particularly indicated. The severity of the convulsions is frequently much increased by the irritation which is produced from repeated attempts to administer medicine

internally during the paroxysm. As we expect but little benefit if we succeed, violent efforts should not be used. Opiate frictions upon the chest and abdomen may be of much more service during the convulsions than any internal remedies. The external use of opium is highly spoken of in the 5th volume of the *Journ. Gen. de Médecine*, p. 148, in cases of infantile convulsions. It can never be improper to administer a purgative glyster during the paroxysm; and if there are evident marks of determination of blood to the head, blood should be drawn from the jugular vein. If a professed cupper is at hand, we may take blood by cupping from the temples. To apply a few leeches, according to the common custom, is a loss of time, if bleeding is really required.

It is not an uncommon error for practitioners to estimate the strength of the pa-

tient by the violence of the convulsive movements, and to determine the propriety and extent of bleeding by this deceptive criterion. It is to be remembered, however, that no convulsions are more violent than those which arise from hemorrhage or other debilitating causes. The most violent paroxysms of convulsions I ever witnessed occurred in the person of a weak and delicate woman, who had suffered from uterine hemorrhage after labour. We are not, therefore, to abstract blood during a convulsive paroxysm merely with the intention of relieving its violence. We must be guided by those appearances which have been already stated to indicate an undue and dangerous determination of blood towards the head: but if in every case we bleed during the convulsions either of adults or children, however strong may be the popular prejudice in favour of the practice,

the life of the patient will frequently pay the forfeit of our unjustifiable compliance or our want of judgement. It must be evident that the tender constitution of a child cannot bear the long-continued and violent convulsive struggles which we frequently witness, without much subsequent exhaustion. Harris tells us, that it is always dangerous to bleed during the paroxysm. This opinion is too exclusively stated, as I have endeavoured to show. We are indebted to Dr. Latham for an excellent paper, which exposes the folly and mischief of complying with the popular wish of bleeding indiscriminately every person in a fit, without reference to the cause of the attack, or the condition of the patient. Dr. L.'s communication refers only to adults; but the doctrines it contains bear with equal force and propriety upon the convulsive affections of children.

It has been said by Willis, Hygmore, and others, that if blood be taken during a paroxysm of convulsions, it coagulates instantly like butter (*in butyrum concrescit*). Such a phenomenon may have attracted the notice of other practitioners. I have myself frequently taken blood both from adults and children during the paroxysm, but have never observed it. This circumstance is of some importance; for it has been stated by Mr. Thackrah\*, and I think upon defensible grounds, that “the speedy occurrence of concretion on the effusion of blood, affords a reason sufficiently cogent for the discontinuance of depletory measures.” I confess, I doubt the fact of the immediate coagulation of the blood in convulsive cases.

Dr. Bronn†, of New Orleans, assures us,

---

\* An Inquiry into the Nature of the Blood. 1819.

† Journ. Gen. de Médecine, tome xxxi. p. 457.

that a gradually-increased pressure upon the stomach with the hands very much relieves the convulsive struggles: the pressure must be continued. "We shall find," he says, "if it be suspended, that the convulsions will return with increased violence." For the same purpose he recommends a tight bandage round the body.

Dr. Currie asserts, from eight years experience, that the cold bath is very efficacious in removing the convulsions of children, from whatever cause they may arise;—that it stops the fit, and gives time for the application of other remedies. He has more reliance upon the effects of the cold bath, when it is applied in cases of general convulsions, than if the attack is partial. I confess, I should be unwilling to plunge a child of a very delicate and enfeebled constitution, whilst labouring under a paroxysm of convulsions, into a cold bath.

It would appear to me a hazardous experiment. In private practice also we should frequently meet with much opposition to such a mode of treatment. The employment of the cold bath to prevent the recurrence of convulsive paroxysms will be subsequently considered.

In our treatment of convulsions, we should first endeavour, by a deliberate inquiry into every circumstance which may have been likely to derange the health of the child, to detect the source of the convulsive attack. To effect this very important purpose is not always an easy task. It may sometimes be impossible. But neither the constant difficulty, nor occasional impossibility, of affording relief, should induce us to remain inactive spectators of so distressing an affliction as convulsions. We are not to lose sight of the fact, that convulsion is almost invariably a mere sym-



ptom. Every cause which may probably have excited the attack, or which may have added to the natural predisposition of the infant to such affections, must of course be obviated to the utmost extent of our power.

If it is apparent that the convulsions depend upon a cause which has acted immediately upon the brain, the treatment to be adopted is not to be blindly empirical;—we are not inconsiderately to call in the aid of large and frequent bleedings, or “to push the calomel,” without appropriately modifying our treatment of the case according to individual circumstances. In many cases, where the child is of a very weak and delicate constitution, and more disposed to excessive irritation than inflammatory action, we must seek rather for assistance from the soothing effects of the milder sedatives, and cold applications to

the head, with sinapisms or blisters to the feet.

If the child is robust and of a plethoric constitution, with the head hot, and disproportionately large, the carotids throbbing, the countenance flushed, the eyes sparkling and projecting from the orbit; if he sinks into a state nearly approaching to coma, after any unusual agitation, we have reason to fear a hazardous determination of blood to the head, and must proceed accordingly. Under such circumstances, a state very nearly resembling that of apoplexy in adults may follow. The symptoms may be analogous between the two diseases; but the appearances on dissection will rarely be found the same. Baumes was of opinion, that every child who died during a paroxysm of convulsions, died from apoplexy. If the term Apoplexy, however, is to be limited to ex-

travasation of blood in the brain, it is a very uncommon disease in children: but if it is extended to every case of cerebral compression, it is of very frequent occurrence; for the same phenomena will often be the result of inflammation of the membranes of the brain,—of effusion of water into the ventricles, &c. Local or general bleeding, or perhaps both, may be required according to the intensity of the symptoms and the constitution of the patient. The mode in which we abstract blood is of considerable importance. I must be allowed to declare my utter want of confidence in the practice which is recommended by almost every authority. I allude to the application of a few leeches to the temples. I have never seen well-marked symptoms of determination of blood to the head in children removed by leeches, however freely they were applied. Their application never

fails to annoy the little patient considerably, and their effect is not to be relied on. Blood should be taken from the jugular vein, or we should have recourse to cupping upon the temples, or behind the ears. Cupping is at once an elegant and efficient mode of abstracting blood, provided, indeed, the operation is adroitly performed, which it most assuredly will not be, unless it is entrusted to those who are constantly employed in that particular branch of surgery.

Great difference of opinion exists amongst practitioners as to the facility of opening the veins of the arm in very young children. It is considered by many to evince a want of common dexterity not to bleed an infant in the arm with almost the same ease as an adult. Others, on the contrary, look upon this operation in infants to be always difficult, and very frequently impossible. It would of course be gratifying to me to state

the adroitness with which I myself have succeeded. Candour, however, obliges me to confess that I have very frequently failed, and seen others fail, in the attempt to open a vein in the arm of fat children up to two or three years of age. That physicians should speak of the performance of the operation with confidence is not a matter of astonishment. Their part of the duty is not difficult; they order, but have not to act.

It is impossible to determine by any abstract rules the quantity of blood we shall be called upon to take away. The attempt has been made in reference to the diseases of children by the late Dr. Clarke; and as general rules, to which, however, exceptions will be constantly arising, his observations are entitled to our attention. He observes, that children "bear very well the loss of blood, even to fainting, once or twice; but they ill bear a more frequent

repetition of bleeding.” “ From a child of seven or eight months old, two ounces and a half of blood may be taken, and one and a half or two more in sixteen hours afterwards. Three ounces may be taken from a child of a year old, and two and a half or three afterwards, if the symptoms do not yield. At this age, two or more may be taken in twelve hours after the second bleeding, if it should be necessary, and the patient has not been too much weakened already\*.” It is true, these observations upon the subject of bleeding are made in reference to inflammation of the brain; but they will apply with equal propriety to other affections in which depletion may be demanded. After all that has, or can be said upon the subject, it must be confessed

---

\* Dr. Clarke's Commentaries on the Diseases of Children.

that it is the same with children as with adults. The quantity of blood drawn must be always in relation to the effect produced, and must therefore be determined according to the judgement of the practitioner, unshackled by any precise and dogmatic rules. It is of much importance to remember, that we are not to infer, because the pulsations of the radial artery are weak and trembling, or even intermitting, that we have drawn as much blood as is consistent with the safety of the child, or as the disease may require. We are to be guided rather by the action of the carotids, the violent and continued throbbing of which, at the moment that the pulse at the wrist is almost imperceptible, will be a sufficient proof of the necessity of still further depletion. The practice recommended by Baumes, in his work on the Convulsive Diseases of Children, is surely to be depre-

cated as utterly inefficient. "When," says he, "there is a sanguineous congestion towards the head, the eyes prominent, the light avoided; the arteries of the head beating with considerable force, the neck appearing as if swelled, the face flushed and hot, the forehead burning, the mouth dry, the lips cracked, bleeding is the best remedy; and it is to be effected by the application of leeches '*aux lieux convenables.*'"

In my opinion, it would indeed be difficult to find the *lieu convenable* for a few leeches in such a case. Blood should be drawn from the jugular vein or from the temples by cupping. It is of the utmost consequence that children should be kept as quiet as possible after bleeding, as a state of great nervous irritation frequently succeeds, which by the slightest exertion is aggravated into a repetition of the convulsions.



The bowels should be freely acted upon by proper doses of calomel combined with jalap. Laxative glysters are to be considered as useful auxiliaries. I entirely disapprove of the practice of administering in such cases large and repeated doses of calomel every two or three hours, from some hitherto undefined, and, I believe, imaginary notion, that this remedy is capable of acting as a specific in convulsive affections, independent of its purgative properties. I am confident that the constitutions of children are frequently ruined by the heedless and indiscriminate manner in which this powerful medicine is employed. The practice requires to be more strongly deprecated as it is not only pursued, but taught, by very high authority in this country. For what purpose, it may be asked, can calomel in two- or three-grain doses every three or four hours be prescribed

in a case of convulsions? I presume, the intention must be to stimulate the lymphatics, and to remove any fluid that may have been effused into the cerebral cavities. But the occurrence of convulsions, it is to be remembered, is no proof of any effusion of water, or of any disposition to such effusion in a great majority of cases.

Dr. Brachet\* is the only French physician I find employing calomel in these "heroic" doses against convulsions: he however usually combines Extract of Henbane with it. The treatment described at page 89 of his work shows, that to a child of two days old attacked with hereditary convulsions, he exhibited two grains of calomel every two hours, and one grain and a half of Extract of Black Henbane every half hour. The

---

\* Loco citato.

practice was here successful: the patient recovered.

It is true, that in most instances calomel does not effect an evident action upon the salivary glands of children: it produces, nevertheless, very powerful effects upon the system. In adults, that state of general irritation to which the term of mercurial fever is applied, is frequently produced by the free use of calomel; and I have known many instances in which the most destructive excitement has been kept up in children by the same means. Without reference to its effects as a purgative, by which offending matter may frequently be removed from the intestines more completely than by the use of any other medicine, and thus convulsions, which were symptomatic of derangement of the bowels, be relieved, it would appear from the views which are generally entertained of mercurial medicines,

that calomel, in frequently repeated doses, would be more proper, if it were our object to increase the action of all the irritable fibres, and to rouse the patient from a state of approaching torpor, than to give it in cases where there was already a state of high excitement and disposition to convulsions. Some practitioners prefer the milder purgatives to calomel. I confess I should rarely be inclined to trust to their operation in cases of the kind now under consideration. The milder purgatives may, it is true, produce free evacuations, but they do not guard against the intestinal irritation, which is so common in young children from the quick accumulation of acrid mucus; nor do they restore a deficient secretion of bile when it is scanty, or tend to remove any torpidity of the liver, which may produce unhealthy bile. The operation of this class of purgatives has with justice been likened to

different fruits, which may even produce diarrhœa without acting upon the alimentary canal in such a manner as to remove any cause of irritation.

The best effects may be expected from the proper and assiduous application of cold to the head, where the above symptoms of determination of blood to the brain are present. It is to no purpose that a damp rag, which has perhaps been intentionally *warmed* by the hands of the over-officious nurse, who is fearful of giving the child cold, should be applied to the forehead: this is, however, the mode of applying cold which is generally adopted. The whole of the head should be completely wetted with a large sponge soaked in spring-water, which should be changed frequently; or pounded ice put into a large bladder should be applied. If under the continued application of cold the child becomes pale

and the head cool, it should be immediately desisted from, and again renewed when the flushing of the cheeks and heat of the head indicate a return of the vascular excitement of the part. At the same time that we apply cold to the head, the natural heat of the other parts of the body should be carefully kept up. It is a common, and I have no doubt a very judicious, plan with the French physicians, to put the little patient into a warm bath, while ice is still applied to the head\*. In many instances I believe I have rescued children from a state of great danger by the incessant application of cold to the head, where, if it had been left to the nurse, with the usual passing direction of "Keep the head wet,"

---

\* The perusal of a little work by Dr. Piorry, "De l'Irritation Encéphalique des Enfants," is particularly recommended. It contains many practical remarks of considerable value.

no benefit would have been derived. Perhaps, indeed, more harm than good is to be expected from the intermitted application of cold, when the symptoms appear to demand its continued use ; as an evident and violent reaction ensues.

I am far from partial to the application of blisters to children ; but I apprehend that the principle of counter-irritation, upon which they have been recommended to be applied to the lower extremities, has been unjustly ridiculed. In many cases where there was evident determination of blood to the head, *without any general excitement*, which is a state we constantly observe in children, I have seen the best effects produced by following the advice of Dr. John Clarke, and applying blisters to the calves of the legs or between the shoulders. Blisters to the head are decidedly prejudicial, although they are not unfrequently applied

by practitioners of experience. They certainly keep up a discharge from the integuments of the head; but this effect can only be produced by increasing the arterial action within the cranium.

The French and German physicians are well aware of the mal-practice with which the English practitioners are frequently chargeable, of applying blisters as counter-irritants upon the head, when any affection of the brain is to be apprehended. They judiciously prefer the use of sinapisms or stimulating poultices, or perhaps small blisters to the inferior extremities. In my opinion, we have too little confidence in the powers of mustard sinapisms applied to the feet where there is a state of great cerebral excitement to be contended with. In many cases both of children and adults I have found them to be very powerful auxiliaries.

In the kind of convulsive affections we



are now considering, it is of the utmost consequence that the diet of the child should be as light as possible: it should consist only of milk and water, or thin gruel, or arrow-root; and even these articles should be given in small quantities. Even with this scanty regimen I have frequently seen children retain their flesh and high-coloured cheeks, and exhibit every symptom of general plethora. Baumes tells us, that our prophylactick treatment against the recurrence of convulsions in children of a very plethoric habit, consists principally in a proper regulation of the diet. He recommends “*les viandes blanches, les poissons de rivière;*” but I conceive that animal food should be entirely prohibited. It can be to no purpose that the practitioner exerts himself to stem the disposition to a rapid circulation, and to local determination of blood to the head, by purgatives, bleeding, &c., if from

the ignorance and obstinacy of nurses and parents the child is crammed with stimulating food, and that sovereign remedy of the people "tent wine" is frequently given. However obvious may be the impropriety of such conduct to the professional observer, and however pregnant it may be with danger, we shall have much difficulty in many instances to oppose it with success. The infant should be kept in a darkened chamber, and neither its mind nor body should be stimulated by exertion.

If we have to contend with a train of symptoms as well defined as those above enumerated, but little discrepancy of opinion can obtain as to the general principles upon which the treatment is to be founded: but when we have abstracted a quantity of blood in proportion to the age of the child, and have acted freely upon the bowels; when a simple and spare diet

has been enforced, and all suitable precautions adopted to remove every internal and external stimulus, we shall frequently find the child strongly disposed to a return of the paroxysms of convulsions. The local determination to the head may have been removed, the too great and general momentum of the circulation may have been reduced, and no apprehension can be entertained from increased vascular action. There arises however, very frequently, a general state of irritation, in which the brain particularly participates. We shall have in fact to contend with a modification of that condition to which Dr. Whitlock Nicholl has applied the term of "cerebral erethism." This state is very nearly allied to, if it is not essentially the same as, "the watchings" of the older writers, or to the "*pavor nocturnus, et vigiliæ immodicæ*" of Lazernu. The child will be sleepless, ex-

ceedingly fretful, the pulse rapid and small, and slight twitchings of different muscles and tendons will be detected, if strict attention is paid. For a moment or two the carotids will beat violently, but this increased force will suddenly be followed by a very languid action of them. The countenance is generally pale and distressed, and the brows are wrinkled. Pain in the head is rarely complained of, if the child is old enough to express its feelings. In this state further depletion is certainly not demanded, although it is frequently practised: it will not only be unnecessary, but absolutely prejudicial. The severity of the symptoms will increase in an equal ratio with the employment of debilitating measures. What are the means, then, which we are called upon to pursue under such circumstances? In my opinion, the exhibition of sedative medicines is imperiously demanded;

and I believe small doses of the *Pulv. Ipecac. Comp.* is the best remedy. I have frequently given the Extract of Hemlock or Henbane in conjunction with alkalies with much advantage. These medicines, however, sometimes fail to relieve the irritable state above mentioned, when Dover's powder will succeed. Dr. Brachet\*, whose experience and acute observation render his opinion worthy of attention, has almost entirely confined himself to the use of the henbane. He has always combined it with the oxyd of zinc, varying the doses according to the intensity of the attack and the constitution of the child. He has never carried the dose of either medicine beyond ten grains in the day, and of course commences with a much smaller quantity. Two grains of the zinc and four of the Extract of Henbane,

---

\* Loco citato.

divided into different doses, and one given every two or three hours, are the mean quantities to young children. The oxyd of bismuth is a favourite remedy with many practitioners in the convulsive affections of children. I have never employed it. In dyspeptic complaints of adults I have thought it serviceable. Dr. Brachet, without regret, "*le réléguerais volontiers sur la toilette des dames.*"

I am aware of the strong objection that exists to the employment of opiates in the diseases of children. To a great extent I admit that these objections are well founded; but I am convinced that the popular abuse of narcotic medicines, the mischievous effects of which are so frequently presented to our view, has led to their too general and exclusive prohibition among practitioners themselves. Every thing is now expected from bleeding and purging

and calomel; and not unfrequently these remedies are pushed to a destructive extent, when much more benefit would be gained by the tranquillizing effects of sedatives. We are not to deprive ourselves of a powerful weapon because in the hands of the unskilful it may have proved the means of destruction rather than of defence. To manage the use of opium or other medicines of the same class adroitly, either in adults or children, when it is our object to subdue nervous irritability, is by no means an easy task. The effects of these remedies depend greatly upon the state of the constitution when they are exhibited, and upon the dose in which they are given. No abstract rules can determine the precise dose of a medicine; but with respect to the state of the constitution, it may perhaps be assumed as a general axiom,—that if there is any local disturbance or disease

upon which the general irritability and restlessness of the little patient depend, we should endeavour to remove the local affection by proper means, before we venture to exhibit sedatives. In the administration of sedatives to children, we should always *commence* with the utmost caution, and progressively increase the dose. So variable are the effects of this class of medicines, particularly in children, that in each case we can determine only from the operation of the remedy the propriety of its continuance, or the dose in which it is to be exhibited.

The German physicians extol very highly the oil of valerian, in cases of great infantile irritation which does not appear to be dependent upon local mischief. In this state the diet of the child should be nutritive. If he is kept too low, the nervous debility will be increased. Beef tea, chicken broth,



or similar slops are generally given ; but light solid food, in small quantities, if the child is of a sufficient age, will be preferable. The old writers, and particularly Harris who referred almost every infantile derangement of health to “ a predominating acid,” were of opinion, that in every case of “ watchings ” of children, (which I have before observed was the term applied to a condition of cerebral irritation,) we might expect relief from alkaline remedies alone. In some cases they are doubtless of much use, but only where there is gastric derangement and acidity of the primæ viæ. Light tonics will then also be required ; such as the Inf. Columbæ, or Gentian combined with Infusion of Rhubarb and Carbonate of Soda.

The Flores Zinci is with many practitioners a favourite remedy. I have frequently prescribed it, and in many in-

stances with much advantage. In different hands this medicine, like most others, seems to vary considerably in its virtues. This discrepancy of opinion as to the merits of the oxyd of zinc may be accounted for without difficulty. It has been seen that convulsions are frequently, nay generally, mere symptoms of some existing, and perhaps serious malady. It will be in vain that we seek assistance from this medicine in such cases. But where the convulsions return from the force of habit and from nervous irritability, and are not connected with any serious affection, the oxyd of zinc in combination with cicuta or henbane may be employed with much confidence\*. Dr. Brachet relates cases in which the long continuance of extract of henbane and the oxyd of zinc entirely prevented the repe-

---

\* Brachet, loco citato, passim.

tition of convulsive paroxysms, to which the children had been subject for a very considerable time. When the remedies were omitted before the disposition to convulsive action was entirely overcome, the attacks were renewed, and again dispelled by a return to the use of them. More satisfactory testimony than this will not be required. We are indebted to modern chemistry for the most elegant, and perhaps most efficient tonic that can be given either to adults or children: I allude to the sulphate of quinine. Even very young children will take it without difficulty; and in many cases of great disposition to convulsions, which appeared to be dependent upon considerable debility and irritability of the constitution, I have prescribed it in combination with Ext. Conii or Hyoscyami with evident benefit.

In most intermittent and many remittent

diseases, bark is considered nearly approaching to a specific ; and when the convulsive paroxysms return at regular intervals, a cure will sometimes be effected by the free exhibition of it. The same confidence, however, cannot be placed in the powers of this medicine to prevent the recurrence of convulsive affections as of paroxysms of fever. I may be allowed to make one observation respecting the sulphate of quinine, which may appear not altogether unimportant. It is, that our management of this preparation should not be regulated by the same notions which are entertained respecting the other preparations of bark. In many cases of fever I have given it, where the remissions were not well marked, and with evident advantage. But if in these instances the more common forms of bark had been employed, it is more than probable that some derange-

ment of the stomach would have been produced, from the bulk and nauseousness of the medicine, and that the febrile disturbance would have been exasperated instead of mitigated. I am induced to make this remark, as I have frequently heard it rather hastily inferred, that no benefit could be expected from the sulphate of quinine, because the other forms of bark had been given largely without any good effect, or perhaps even with disadvantage.

In two or three instances, when I have seen children in this state of weakness and irritation, with every symptom of approaching convulsions, I think the experiment of compressing the carotid arteries has been attended with a good effect. It is certainly to be regretted that this plan is not more frequently adopted in the cerebral derangements of children which threaten to produce convulsions, but which do not appear

either to demand or justify the abstraction of blood. Dr. Parry has mentioned the practice in the treatment of adults. Dr. Bland also has published some interesting cases in the *Medico-Chirurgical Journal* for April 1819, in which compression of the carotids was had recourse to in children with the most gratifying result.

If convulsions take place in a child that is suckled by a woman labouring under any disease of body or powerful affection of the mind, the necessity of procuring a healthy nurse needs scarcely be insisted on. It may be difficult, or perhaps impossible, to detect the alteration produced by disease upon the animal fluids: that they do, however, suffer very important changes cannot be doubted. Without advocating the obvious errors of the humoral pathology, which have long been consigned to

oblivion, it may be asked, Is it probable that the fluids secreted by a deranged or diseased organ, possess precisely the same qualities as if the secretory instrument were healthy? If we regard with attention the visible secretions, we shall perceive them to vary constantly, even from the most trifling cause, and without any apparent alteration of the secreting organ : it has experienced only “a modification of sensibility.” The tears are sometimes innocent and bland, at others they excoriate the cheeks. In certain coryzas, the nasal secretion, which is in health unirritating, produces most violent irritation of the upper lip. It is equally probable also, that the milk of the nurse undergoes a variety of changes, which may not be cognizable to us in its appearance, but which may be capable of producing great irritation in the stomach of the infant. In more than one instance I have

known great derangement of health, and convulsions of more or less severity, brought on in children who were suckled by nurses whose minds were much depressed by anxiety or misfortune, although they had a full breast of apparently healthy milk. Sudden sallies of passion in the nurse have been said to be productive of convulsions in the infant. When convulsions arise from unhealthy milk, there will generally be decided evidence of great derangement of the stomach. In such cases purgatives will first be necessary, followed by light tonics. Occasional friction upon the stomach and bowels with the warm hand will frequently assist our other efforts to relieve the distressing flatulence and pain which torment the child.

Emetics are freely given by many practitioners in the gastric derangements of children which appear to threaten convul-



sions. It is said that they not only free the stomach from any offending matter, but that they rouse the organ to more healthy action. As far as I can judge, more advantage will be derived in such cases from the judicious use of purgatives. It is in these instances, where so much benefit may be obtained by acting upon the bowels, and thus removing the source of the general restlessness and irritation of the child, that nurses, and even parents, particularly in the lower ranks of life, have recourse to the use of Poppy Tea, Godfrey's Cordial, or some other narcotic. Nothing can be more injurious than this custom under such circumstances, and nothing more difficult than to convince them of their error. But however great may be the advantages we frequently derive from the well-directed use of purgatives in infants, it is undeniable that much mischief

is frequently produced by their continued exhibition where they are not required. Dr. Whitlock Nicholl has adverted to this subject. He observes, that he has seen the erethismal state of the brain, which is so frequently the cause of convulsions, kept up, if not induced, by powerful purgatives, which in common practice are repeatedly given where there is no indication for their employment. There are doubtless cases in which it may be necessary for us to act freely and frequently upon the bowels of children. Let us, however, beware that we do not commit the common but important error, of considering the general irritability which is induced by purgatives when long employed, as a state which demands their still further use, or of regarding the unusual appearance of the stools which is dependent entirely upon their action, as a proof that the stomach and

bowels are yet in a state of derangement which is only to be relieved by further purgation. Either of these mistakes must obviously lead to the application of the very cause which is productive of the derangement of health, and of that disposition to convulsive affections which it is our wish to relieve.

We are informed by Capuron, that chronic convulsions have sometimes been cured by the appearance of the crusta lactea. It has been suggested by Professor Cettinger, that children might be inoculated with the humour of that disease. I know not whether the experiment has ever been tried.

If after repeated attacks of convulsions the strength of the child is broken down, and a recurrence of the paroxysms is to be apprehended rather from the force of habit and nervous irritability of the patient than

from any local source of irritation, the cold bath employed once a day, together with change of air, and tonic remedies, will be indicated. But however decided may be the benefits we frequently derive from the judicious use of the cold bath, it is a remedy which is often abused. Where the constitution of a child is much enfeebled, we shall rarely if ever be justified in plunging it into the cold bath without preparation. We should commence with tepid water, and gradually lower the temperature of it according to the effect it produces. Some children evince the greatest alarm when they approach the water into which they are to be plunged. If this dread continues to a great degree after the two or three first immersions, it is improper to make further trials. In more than one instance I have known children thrown into convulsions from the excessive agitation they

have suffered at the expectation of the cold bath.

During the process of dentition a diarrhœa frequently occurs in children; and that in many cases the almost universally received doctrine which urges the advantages of this symptom, induces the practitioner to allow it to proceed to an injurious extent, I think there can be no doubt. I have known many children fall into a state of almost irremediable debility and of high nervous susceptibility, during which convulsions have occurred from the slightest causes, from the exhausting effects of long-continued diarrhœa. We are not, it is true, hastily to check this symptom, particularly during the process of dentition, where it threatens to produce no mischief by its severity or continuance: but, on the other hand, we are not, from imaginary apprehensions, to allow it

to proceed to the extent above mentioned. Small doses of powder of rhubarb, with chalk mixture and aromatic confection, and a drop or two of laudanum, should be given.

Alkaline remedies may be relied upon to relieve the local and general irritation which is so frequently caused by the generation of acid in the stomach and intestines, and which so powerfully increases the natural aptitude of young children to convulsions.

Calomel is the remedy which is employed in most cases of habitual constipation, either alone or in combination with some other active purgative. If we have reason to believe the alimentary canal is loaded with viscid and acrid mucus, it will be prescribed with advantage. I conceive, however, that the application of this remedy is too indiscriminate even as a purgative, and that the

milder purgatives should be employed for the purpose of soliciting a regular action of the bowels, when the general powers of the child are much impaired: such as castor-oil, manna, magnesia, tartrate of soda, &c. The occasional employment of the warm bath, and a well-regulated diet, will materially assist our efforts to produce regular evacuations.

Tissot remarks, that convulsions not unfrequently arise in infants from retention of the meconium, caused by a spasmodic constriction of the sphincter ani. Sharp has recorded some similar cases. I have met with no such instances in my own practice. Purgatives would not be indicated in such cases: the warm bath and emollient applications should be had recourse to. Might not a small portion of Ext. Belladonnæ be smeared around the part with advantage?

Were I to attempt to enter into the consideration of every disease that may be attended by convulsions in children, I should be obliged to pass through the whole nosological catalogue of infantile maladies. When we have ascertained the exciting cause, we must endeavour to remove it by appropriate treatment: but we must not too confidently predict that the disappearance of the convulsive affection will be simultaneous with that of the disease which originally produced it. Convulsions having frequently occurred, may return by the force of habit alone, or from some change which is produced either in the brain or nervous system with which we are totally unacquainted.

Convulsions may occur in children of enfeebled constitutions from want of sufficient nourishment. The treatment must here be evident. Light and generous diet will be



absolutely necessary to repair the broken powers of the constitution: but we must carefully remember, that the excitability of the stomach is accumulated, and that we must proceed with much precaution in giving food even of a simple nature. Whatever nourishment is at first administered, must be simple in quality, and small in quantity, or gastric inflammation, convulsions, and probably death, would result. There are many cases on record, where the hand of charity has destroyed the objects of commiseration by giving at once stimulating articles of food, when for a considerable time scarcely a sufficient quantity of bread or vegetables had been taken to support existence.

If we have reason to believe that convulsions arise in children from the improper and habitual use of opiates, we must discontinue the use of them gradually. An

adult, who has been accustomed for a length of time to a bottle of wine a day, will not bear with impunity to be suddenly confined to water ; and neither will a child, who has been long kept under the influence of narcotics, which is not unfrequently the case in the lower classes of society, bear with impunity to be deprived at once of this artificial and destructive stimulus. In several instances, where it has been discovered that the nurse or mother had been in the habit of giving narcotics, I have seen the child pass rapidly into a state of great irritability and danger, with convulsive movements of the limbs, &c., in consequence of the want of judgement of the practitioner, who has peremptorily insisted upon the immediate and total abandonment of their use. It may be proper to give such directions to those who have the care of the child, while we ourselves prescribe a

similar medicine in gradually diminished doses.

A cool and pure air is essentially necessary to guard against convulsions in those children that appear predisposed to them, together with free exercise of the limbs. Infants should not, therefore, be cribbed and confined in short and narrow beds, where the natural play of their limbs and their constant disposition to move about is prevented. Frequent friction upon the surface of the body is by no means an ineffectual method of invigorating the strength of a child of lax fibre and great irritability. We may often by this means improve the powers of digestion and strengthen the general tone of the muscles.

In all cases of convulsive affections the strictest attention should be paid to the diet of the child. No peculiarity of constitution, no debility of body, can demand va-

rious articles of food for young children. Upon this subject we may refer to the authority of Struve with advantage. "One of the most important circumstances is, that of adhering to one species of nourishment. Food which has been prepared for many hours is unfit for children. When warmed up the second time, it is certainly more difficult of digestion than when it is prepared fresh each time it is required." Convulsions, it is true, may not be the immediate consequence of a want of attention to these, perhaps, apparently unimportant directions; but I appeal to those who have the most extensive experience in the management of infantile diseases, whether it is not by an uniform endeavour to avoid these frequent causes of trifling derangements of the stomach and bowels in children, that we prevent the occurrence of many serious complaints, and of convul-

sions among the number. It is not only the quality but the quantity of food that requires attention. Too large a quantity of simple food is as destructive to the health as a more moderate proportion of unwholesome aliment. For instance, a child at the breast is allowed to suck as much and as long as it can: it sucks and vomits, and vomits and sucks again. A little consideration must show the impropriety of this common custom. The stomach must necessarily suffer, and advances be made to diseases which are never suspected to arise from a cause which acts slowly but certainly. Some regularity should be adopted. The infant should be accustomed to take the breast at certain intervals; every three or four hours will be sufficient. When children are removed from the breast, we should follow the advice of Rousseau, notwithstanding the opposition that has been

offered to it, and confine the nourishment of healthy children to milk and vegetables. It is true, we have the authority of Hippocrates for the administration of "old and generous wine" to children disposed to convulsive affections. Galen, on the contrary, who lived in a warm Southern country, tells us, that children should never taste wine before the fourteenth year of their age. Wine can rarely be necessary for children of a tender age, unless it is given for the purpose of supporting the declining strength after severe diseases. I have yet to discover any symptoms which are particularly indicative of convulsive affections, which would lead me to adopt the Hippocratic practice of giving vinous stimuli. Nurses and mothers would at all times be delighted with the permission. A conscientious practitioner, however, will not comply with popular prejudices in

opposition to the dictates of his judgement.

It may be necessary to observe, that we are not hastily to infer, because a child has a pale countenance, and appears languid and enfeebled, that the use of stimuli is indicated. In connexion with such symptoms there is frequently a fulness about the vessels of the head or liver, which will most effectually be relieved by local bleeding and strict attention to the bowels and diet. Small doses of calomel and rhubarb, or the Hydrarg. c. Cretâ may also be required night and morning. Both in adults and children local plethora frequently exists, when the general condition of the body presents no evidence of vascular derangement. Such cases require much discrimination and attention, or we may be led to treat them as cases of mere debility, and thus aggravate the

local mischief which escapes our observation.

It has been stated, that convulsions frequently occur after accidental hemorrhage or copious depletion for the cure of any inflammatory disease. If the child is of an age to explain his sensations, he will complain of a sense of fulness and giddiness, and dull throbbing pain in the head. The same symptoms, without convulsions, occur very frequently in adults after free loss of blood, particularly in women who have suffered from uterine hemorrhage. In such cases cold should be applied to the head. The head should be raised much above the level of the body by means of pillows. The bowels should be acted upon, and we may then administer with much confidence small doses of the Carbonate of Ammonia with Ext. Conii or Hyoscyami, according to the age of the child. The most perfect



tranquillity of mind and body should be enforced, and the chamber should be darkened.

We should never attempt to repel any cutaneous eruptions of children, more particularly if they have been of long continuance and seated near the head, without keeping up an increased action upon the bowels for some time. With this precaution, I believe no apprehensions need be entertained from the sudden subsidence of cutaneous diseases. When topical discutients have been applied, and any eruptive disease, such as tinea capitis, crusta lactea, &c. has suddenly disappeared, and convulsions ensue, we should promptly produce artificial irritation upon the skin by means of blisters, stimulating embrocations, or the tartar emetic ointment.

It has been observed, that mere derangement of the digestive organs occasionally

produces paraplegia in infants, which is preceded by convulsions, and subsequently a comatose state. I have seen three such instances, and in each the symptoms were very similar. The stools were costive, and of a very dark colour. Calomel and Jalap were given as purgatives; repeated friction was made upon the stomach and bowels; the warm bath was employed; and a mixture of Infusion of Rhubarb and Gentian with Ammonia prescribed. Complete recovery took place.

It is true, that when either an adult or infant is affected with paraplegia, particularly the former, we have just reason to fear some formidable, and probably irremediable, affection of the brain or spinal marrow. If, however, we have clear evidence of great derangement of the digestive organs, relief may still be hoped for; and we should be cautious how we hazard our

reputation by giving prematurely a decidedly unfavourable prognosis. We should avoid a positive opinion as to the cause or termination of the attack, until we have put the digestive organs into a healthy state. If the patient does not then gradually show signs of amendment, the paralytic state must be referred to some other cause, and our best efforts may probably be unavailing.

Convulsions are sometimes hereditary in families, where no peculiar formation of the head nor any evident disposition to other disease is to be detected. The knowledge of this fact is always worthy of our attention. Astruc and Harris recommend us, when we are aware that several children in the same family have fallen victims to convulsions, to administer more active purgatives for the purpose of evacuating the meconium; to pay the strictest attention

to the diet ; and carefully to avoid the application of either external or internal stimuli. I am not aware that we can do more than adopt this precautionary plan. In such cases it will be doubly necessary not to permit the powers of the mind to be drawn upon by too early an attention even to the most trifling studies.

The opinions of Harris and other writers of the same date upon the diseases of children, that whatever might be the exciting cause of derangement of the stomach in children, the effect would be the same, namely, that an acid matter would be produced, has still considerable influence in general practice. It is true, we no longer prescribe pearls, red coral, or such other costly matters ; but alkalies of some kind are almost indiscriminately administered when the stomach of a child is out of order. The powers of digestion, however, may be

much impaired without the production of any acid matter ; and so far from deriving benefit in all cases from alkaline remedies, we shall frequently resort with considerable advantage to the use of the mineral acids in combination with light tonics. When an acid matter does exist in the stomach, it is not the cause, but the effect, of derangement of the functions of the stomach, in consequence of which the humours secreted are unhealthy.

It is a common popular error, and sometimes even a professional mistake, to regard convulsive affections as always dependent upon dentition, whatever may be the character of the accompanying symptoms. While, on the one hand, the practitioner avoids this error, and does not permit his attention to be directed solely to the teething, it will be incumbent upon him to watch this important process with care, and to remove the

distressing irritation which frequently accompanies it, by freely lancing the gums if they are swoln, or if there is any appearance of teeth. I confess I should have no confidence in the use of the oxyd of zinc for the relief of convulsive affections dependent upon dentition, although it has been highly extolled by Baumes. In some cases of painful dentition, where convulsions were threatened, I have seen much benefit derived from the application of mustard sinapisms to the feet. I may be allowed to deprecate the ridicule which has been cast upon this counter irritative treatment in such cases. I feel confident of the fact I state, and am not inclined to be smiled out of a mode of treatment I have known efficacious, by those who have probably never given it a trial.

It was the opinion of De Haen, that children who suffer from difficult dentition, and

who are threatened with convulsions, will require bleeding as frequently as adults who are afflicted with severe inflammatory affections. This doctrine is, I think, stated in too unlimited a manner. Many children suffer much from painful dentition, who neither require, nor would bear, loss of blood. Depletion is certainly sometimes necessary, not only as a means of preventing present suffering, but to guard against convulsions and serious cerebral affections, which are to be apprehended in children of full habit from the influence of local irritation of any kind.

Lind and Baumes advise us to produce ptyalism by means of mercurial fumigations, in cases of difficult and painful dentition. The latter writer records the success of this treatment. I know nothing of it from experience. Ptyalism however, it may be observed, can rarely be effected in

children by the use of mercurials, even if continued in considerable doses. But let it not be hence inferred, that we may proceed in perfect security to administer enormous doses of calomel to children, because the symptom which indicates the constitutional action of the remedy in the adult is not produced. Mr. Bedingfield, in his very useful Compendium of Medical Practice at the Bristol Infirmary, has mentioned some cases which it will be well to bear in mind, in which sloughing of the cheeks and gums ensued from the injudicious use of calomel. A single case of the kind has fallen under my own observation ; and many have been mentioned to me by professional friends, upon whose testimony I can rely. That the continued action of calomel upon the mucous membrane of the stomach and bowels frequently produces great irritation and ulceration, I have also no doubt.



Worms of different species in the intestinal canal are enumerated as common causes of convulsions. I believe, however, the cases are very rare in which convulsions can be satisfactorily traced to their presence. When they do occur, the treatment would be sufficiently clear, if we possessed any vermifuge medicine upon which we could place reliance. Such a remedy is yet to be discovered. Every anthelmintic remedy may sometimes succeed, but all very frequently fail. I must refer to other authorities for the detail of the worm remedies which are most likely to prove successful. When we have succeeded in removing these intruders from the intestines, light tonics should be given. Nothing is more common than for children to be put through a long course of drastic purgatives where the existence of worms is suspected. By this injudicious practice the intestines

are weakened, and a still greater disposition to worm diseases is produced.

Convulsions are not unfrequently symptoms of the various febrile diseases to which children are liable; and most practitioners have confirmed the accuracy of the observation left to us by Hippocrates, "*Febrim convulsioni supervenire melius est, quam convulsionem febr.*" (App. 26, sect. ii.) To enter into a formal consideration of the different species of fever, and of the many causes from which they may arise in children, would be foreign from the purpose of the present essay. As a general principle it may perhaps be assumed, that in children at least pure idiopathic fever never occurs. In nineteen cases out of twenty the febrile disturbance is either immediately or remotely dependent upon some derangement of the digestive organs. Like many other diseases, the fever, which

owes its origin to this cause, may become in its progress independent of it, and may continue, although we should succeed in removing the morbid condition which first produced it; or it may in its turn derange the functions of other parts, the brain particularly in children, and thus alter its characters, and present new indications of treatment. If convulsions occur during fever, we are advised by many authorities to apply blisters freely. I confess that I am ignorant of the principle upon which this practice is recommended. In many cases I have seen considerable distress and aggravation of symptoms arise from blistering children during a state of general irritation or fever. I have twice known infants destroyed in consequence of the sloughing of blisters, the progress of which could not be arrested. If I may venture to express an opinion which has been im-

pressed upon me by repeated observation, notwithstanding it is in direct opposition to all the doctrines I have heard maintained in the medical schools, I should say, that if blisters were never applied to children in any case whatever, much less evil would arise from the want of them, than is in common practice daily, or perhaps hourly, inflicted by this popular and painful practice. What can be more unjustifiable than the language which we constantly hear employed upon the subject of blistering children. It is in the mouth of every old woman, and of some practitioners too, that "a blister is a fine remedy, and that at least it can do no harm." Is the infliction of many hours torment no harm? When a remedy is evidently applied without any settled principle, it is a subject of fair inquiry to investigate the claim it has to our confidence. If a child is in a state of coma

from presumed oppression of the brain, and if the practitioner wishes to excite every organ to increased activity, and to rouse the nearly extinguished powers of life, he applies a blister, and perhaps with benefit. This is the only condition in which we can look with any degree of reliance upon blisters in infantile diseases, and in which we need not be apprehensive of any bad effects. But the very same practitioner, if he has to treat a case of local inflammation,—pneumonia, for example,—will seek assistance from the same remedy. The disease itself is productive of much general irritation, and of considerable local distress. Whatever is likely to act as a stimulus must be prejudicial, although we may be obedient to the instructions of allaying the severity of the attack by bleeding, &c. before we have recourse to blisters. In the latter case, the condition of the patient is totally

the reverse of the former. If in the comatose state a blister acts beneficially as an excitant; it must be prejudicial in the other, for the same reason. I confess I should leave entirely out of the question the benefit it is presumed we derive from the counter irritative effects of blisters, when applied to young children. Excepting in the particular cases I have referred to, I believe with much confidence that the advantage from blistering is rarely equivalent to the pain and general irritation it produces. The period at which we apply blisters in local inflammatory affections is not to be forgotten. We first subdue the severity of the disease by other and appropriate remedies: and when it is upon its decline; when in all probability the unassisted powers of nature would successfully perform the remainder of the task, a blister is applied. The patient gets well, notwithstanding the

additional pain thus inflicted ; and the fortunate result of the case, which is really to be attributed to the measures previously employed, is said to be owing to the good effects of counter irritation, &c. ; and the blister gains a character to which in point of fact it has no claim. It is to be regretted, that the opinions of Baglivi\* upon the application of blisters are not more attended to in practice, For the last ten years I have rarely if ever applied blisters to children for the purpose of relieving any local inflammation. I have had occasional opportunities of watching the progress of cases where they have been employed from the recommendation of higher authority ; and excepting in totally different conditions, where it was the object to excite a depressed state of the vital powers, I have never been

---

\* De Usu et Abusu Vesicantium.

able to satisfy myself of the benefit produced. In general practice, children are blistered with the same views and with as little precaution as adults. But he who acts upon this principle must forget the highly irritable nature of children, and cannot have had opportunities of witnessing the torment which they frequently endure from blisters. By some practitioners we are recommended to allow a blister to remain on for only two or three hours. By this means, it is true, less pain is usually inflicted, and the patient has a better chance of escaping the torment which would result from the common practice. It may perhaps be thought trifling to offer these observations upon the application of blisters: I confess I am of a different opinion. It is strictly incumbent upon us to examine the probability of affording relief, before we hasten to the use of a remedy which is sure



to inflict considerable suffering. The remarks I have made upon this subject refer exclusively to children ; although, perhaps, the conflicting views with which blisters are applied to adults are equally manifest and inexplicable. The freedom and frequency with which blisters are applied, either to children or adults, upon the mere principle of counter irritation, during the course of inflammatory affections, is a practice of modern introduction. The ancients made but little use of blisters, and confined the remedy to " cold diseases," in which no danger could be apprehended from their stimulating effects. In inflammatory affections of the throat particularly, I have frequently seen much harm arise from blistering children ; and if we take a survey of the opinions of the most respectable writers upon infantile diseases, we shall find that the general and almost indiscriminate practice

of blistering is not supported by their authority. In one of the fatal cases of inflammation of the mucous membrane of the larynx and trachea recorded by Dr. Baillie, it is observed, that "the blister occasioned so much irritation, that it was taken off before it produced its full effect." This will frequently be the case. The observations I have ventured upon the subject of blistering children are not irrelevant to the subject of convulsions, for I have frequently seen very severe paroxysms brought on in consequence of their injudicious and unnecessary application.

Convulsions, and even epilepsy, are not unfrequently produced by attacks of spasmodic colic. The treatment of such cases must vary according to circumstances. Sometimes the bowels will be obstinately constipated; in other instances there may be severe diarrhœa. In both states pur-

gatives will be required, but of different and appropriate powers. In the former case calomel and jalap should be administered with emollient glysters. The child should be put into the warm bath, and the bowels should be freely rubbed with anodyne embrocations. If, after we have acted sufficiently upon the bowels, the paroxysms of pain still continue severe and convulsions are threatened, a few drops of laudanum must be given, according to the age of the child. Warm fomentations must also be assiduously applied. The milder aperients must be selected, where diarrhœa constitutes a symptom. Rhubarb in combination with a grain or two of powder of ipecacuanha will be found an excellent remedy. However general may be the practice, it is highly injudicious to fly at once for assistance to chalk mixture and opium, which are considered the grand specifics for every

case of diarrhœa in children. In several instances I have known diarrhœa, which commenced with occasional paroxysms of severe pain, suddenly arrested in this manner, and an attack of convulsions speedily ensue. The free evacuations from the bowels, which sometimes accompany attacks of spasmodic colic, are to be regarded as efforts of nature to remove some offending matter from the intestines, and are consequently not to be hastily checked.

Hiccup is a form of convulsive action to which children are frequently liable. Both in infants and adults this symptom is almost always observed during the last hours of life, where any serious displacement has taken place in any of the viscera, as in the various kinds of ruptures; or where mechanical injury has been inflicted upon any important organ; or where mortification of any internal part has taken place. In many

cases, therefore, we have not the power of relieving this symptom : it can be looked upon only as the harbinger of approaching dissolution. Hiccup, however, not unfrequently exists in a very distressing, although perhaps not dangerous degree, in consequence of gastric or intestinal derangement. If it continues, general convulsions are always to be apprehended in children. However trifling, therefore, hiccup may appear in many instances, it is always worthy of our attention. To succeed in removing it, we must pay particular attention to the diet. Food should be given which is simple in quality : the quantity of it should also be sparing that is allowed at one time. Mild purgatives will be required ; and in every case of hiccup benefit may be expected from frequent frictions upon the epigastrium. Vinegar was the favourite remedy of Aristotle and

Hippocrates for obstinate hiccup in children. Hoffman recommends opiates combined with purgatives. If the child is old enough to be susceptible of moral impressions, we may no doubt remove very obstinate cases of hiccup by the sudden creation of fear or surprise. Such experiments, however, appear to me very unjustifiable.

Strabismus has been mentioned as occasionally occurring from irregular action of the motive muscles of the eye. When this unsightly symptom has existed for some time, attempts are rarely made to relieve it: a little perseverance, however, will frequently be rewarded with success. In two instances I have known strabismus much lessened, although in neither case was it entirely removed, by obliging the child to wear for two or three hours every day an ivory instrument over each eye, with a very minute aperture in the centre.

When this instrument is applied, it must be obvious that, unless the optic axes are both thrown into a straight direction, the patient cannot see. The voluntary effort to look through the small holes in the instrument, without which the power of vision cannot be enjoyed, will occasionally restore the natural action of the muscles, and remove the deformity. Baumes recommends strengthening collyria. They may be tried by those who hope to derive benefit from them; but for my own part, I confess it would appear to me a waste of time to try the effect of lotions of any kind in cases of strabismus. The situation in which a child is laid is by no means unimportant. Squinting is not unfrequently caused in consequence of children being so laid in their cradle, that the light strikes obliquely into one of the eyes, whilst the other cannot see it; by which means one of the eyes only is

directed to the light, whilst the sensation of the other is disregarded. Here the remedy is obvious. We may sometimes remove this unsightly symptom by tying up the sound eye and using the distorted one. The latter will then be properly directed to the object. Dr. Jurin preferred the following method to the use of such instruments as I have described above: "Place the child before you, and let him close the undistorted eye, and look at you with the other. When you find the axis of this eye fixed directly upon you, bid him endeavour to keep it in that situation and open his other eye. You will now immediately see the distorted eye turn away from you towards his nose, and the axis of the other will be pointed at you: but with patience and repeated trials he will by degrees be able to keep his distorted eye fixed upon you, at least for some little time, after the other is



opened : and when you have brought him to continue the axis of both eyes fixed upon you as you stand directly before him, change his posture ; put him first to one side of you, and then to the other. When in these different situations he can perfectly and readily turn the axis of both eyes towards you, the cure is effected."

It may be worthy of observation, that M. Husson, in his researches upon the vaccine disease, has recorded two cases in which the appearance of the vaccine vesicles entirely freed the patients from convulsive paroxysms to which they had been subject for several months, and which had resisted all the ordinary methods of treatment. Similar instances may be found in the French Reports upon Vaccination for the years 1812, -13, -14, -15.

As much stress has been laid upon the increased susceptibility of children for con-

vulsive affections in consequence of various errors in their moral management, some observations upon the subject may be expected. To do it full justice would require a treatise ; and I shall content myself with quoting the remarks of Brachet, which are brief and pertinent : “ C’est une erreur bien grande et bien accreditée, de croire que les premières années de la vie ne doivent être consacrées qu’au développement du physique. L’éducation morale commence avec la vie, aussi bien que l’éducation physique, attendu, que nous la faisons point consister, selon l’acception vulgaire, dans l’étude de quelques mots Grec ou Latins, ou de quelques grimaces de société ; mais bien dans tout ce qui peut contribuer à former le caractère, en favorisant les heureuses qualités, et en réprimant les dispositions vicieuses. Celui qui sait calmer les petites colères d’un enfant, sans obéir à ses

caprices, qui sait à propos refuser ou accorder, sans l'irriter par une sévérité déplacée, ni le gêner par une indulgence et une tendresse mal entendues, fait l'éducation morale de l'enfant au berceau."

## CHAPTER III.

### ON INFANTILE EPILEPSY.

IT has been truly observed by Dr. G. Gregory\*, that “considerable difficulty has been found in contriving a definition of Epilepsy, which may include every form of the complaint; and not less, perhaps, in establishing the precise nosological distinction between it and the other varieties of convulsive disease.” In the adult, the resemblance between Hysteria, Tetanus, Epilepsy, and Apoplexy, is often so close, that the distinctions we admit in our nosological arrangements must in some cases be confessed to be rather arbitrary, than de-

---

\* Practice of Physic, vol. ii. p. 58. Ed. 1st.

rived from any essentially different appearances between these different maladies. In many cases, and perhaps in the majority, it is very true, that each of these forms of disease preserves a general character, which is easily recognized, and which materially influences our practice.

In children epilepsy is an extremely common disease. Both sexes are equally subject to it during the first four or five years of life ; but after the age of seven or eight it is certainly more common in females. Epilepsy is sometimes an hereditary disease, but it is much more frequently acquired after birth.

After the general view which has been taken of the various causes which may produce simple convulsions, it is not necessary to dwell at length upon the causes of epilepsy. It would indeed be a mere repetition : for every cause, capable of pro-

ducing a slight and even partial convulsive affection, may give rise under particular circumstances of predisposition, to a well-marked paroxysm of epilepsy. It is to be remembered, that however trifling may be the original convulsive affection, if it is frequently repeated, and the patient is of a highly susceptible disposition, it may gradually increase in severity, until it at length degenerates into pure epilepsy, and entails upon the patient the lamentable consequences which we shall shortly point out.

It has been said by some respectable authorities, that epilepsy and simple convulsions are reciprocally convertible into each other. From what I have myself observed, I should doubt this assumed fact. I never saw a case of epilepsy lose its distinctive characters and pass into simple convulsions.

In the opinion of Dr. Parry, epilepsy usually depends on excessive impetus of blood in the vessels of the brain, whatever may be its primary causes. We have often, however, no evidence of any such increased action in the cerebral vessels, even where the epileptic paroxysms have been frequent and severe. The treatment, too, that is generally considered capable of reducing "excessive impetus," either local or general, would in many cases rather aggravate the severity and increase the frequency of the attacks. This doctrine, which is not peculiar to Dr. Parry, but which was maintained by Hippocrates, is in many cases well founded. Repeated dissections of epileptic patients have discovered local affections of the brain, to which the disease has naturally been attributed. Preternatural formation and elongations of different parts within the cranium also producing pressure

upon the brain, have often been found. These appearances, however, have not unfrequently been detected on dissection both of children and adults, who have never suffered from epileptic or other convulsive maladies. It may also be asked,—if the epileptic disease had been dependent upon a cause which was constantly present, how can we account for its paroxysmal form? Without assuming an identity between infantile epilepsy and the disease as it attacks the adult, I may be permitted to observe, that much light has been thrown upon the subject by the labours of Dr. Esquirol. He found in nine cases out of ten, which terminated fatally at the Salpêtrière, the spinal marrow or its meninges in a diseased state. The former was softened in different portions of its length: on the latter were seen evident traces of previous inflammation. Hence Dr. Esquirol



was induced to apply four moxas along the spine of an epileptic girl sixteen years old, in whom the paroxysms recurred every eight or ten days, and always at the menstrual periods. So far did the result confirm his theory, that the patient had only three fits in two months, and both the menstrual periods passed without an attack.

Epilepsy is usually divided into idiopathic and symptomatic. It is considered to be an idiopathic affection when the cause is presumed to reside in the brain, or when the brain is immediately acted upon. The symptomatic species is infinitely more common; and in this variety a part distant from the brain is originally irritated.

In children, perhaps the most fertile source of symptomatic epilepsy may be traced to derangement of the stomach and bowels, from which at first slight attacks of simple convulsions may succeed, which ul-

timately degenerate into epilepsy; or an epileptic paroxysm at once occurs, without any previous convulsive malady of a milder nature. This fact has been recorded by the earliest medical writers, and has received the confirmation of almost all subsequent physicians. It is not surprising, when we consider that the stomach is so abundantly supplied with nerves derived from the eighth pair, and intercostal nerve, both of which have so striking an influence upon the animal economy. In every case of epilepsy the brain is affected either primarily or secondarily.

There is as much variety in the duration as in the severity of an epileptic paroxysm. In some cases the fit lasts only a few minutes; in others it may endure for several hours. The interval between the paroxysms is also very uncertain. The danger is certainly in proportion to the frequency of the

paroxysms. When epilepsy proves fatal, death usually takes place, after the paroxysm, in that state of coma and exhaustion both of mind and body which successive attacks of the disease almost invariably produce.

By some authors it has been said that epilepsy never occurs oftener than once a day. In children I have certainly seen several epileptic paroxysms in the course of twenty-four hours. Repeated attacks of this disease are occasionally suffered without permanent injury to the health of the patient; whilst in other instances he is quickly destroyed during the paroxysm, or is reduced to a state of idiotism. Epilepsy, when brought on by a very trifling cause, may assume a very aggravated form, and be extremely difficult of cure; and, as in simple convulsions, the severity of the paroxysm will be dependent more upon the

natural irritability of the child than upon the nature of the exciting cause. On the contrary, when the cause applied would appear likely to give rise to a very serious form of the disease, the paroxysms may be slight and transient.

Those cases which arise from the sudden sensation of fear, or from the sight of a patient in an epileptic paroxysm, are considered by every authority to be particularly difficult of cure. There are many curious cases on record, in which the patients were invariably seized with epilepsy from the influence of certain odours, from particular noises, or from the sight of certain colours. To mention one example of these idiosyncrasies may be sufficient. Dr. Haynes relates the case of a young child who always suffered an epileptic paroxysm at the sight of any red object.

The premonitory symptoms of simple

convulsions, which have been previously described, may also precede an epileptic seizure. If the child is capable of explaining his sensations, he will generally complain before the occurrence of the fit, of heaviness and pain of the head, giddiness, appearance of a light fluttering before the eye, buzzing in the ears, palpitation of the heart, nausea, a creeping sensation in various parts of the body, and of a general uneasiness. The countenance is usually dull and heavy; the natural colour of the cheeks vanishes; exertion of any kind is painful: sometimes the child falls suddenly without any warning symptoms.

A paroxysm of epilepsy is distinguished from an attack of simple convulsions by the total abolition of the senses, which attends it from the commencement to the termination of the attack. In simple convulsions, on the contrary, the senses of the

patient are only abolished during the violence of the paroxysm, and some degree of consciousness is manifested when the violence of the fit is mitigated, and long before the convulsions have entirely subsided. The feeling of the patient is also entirely suspended in most cases of epilepsy. That this is not the case in simple convulsions, may be proved by the application of irritants to the skin, which rarely fail to give considerable pain. Other diagnostic symptoms have been enumerated. It is said, that the epileptic paroxysm is always short, and that the paroxysm of simple convulsions may exist for several hours\*. This statement I conceive to be inaccurate. I have known well-marked paroxysms of epilepsy continue for many hours.

---

\* Rapport sur les Prix xxviii. prefixed to the work of Dr. Brachet, "Sur les Causes des Convulsions chez les Enfants." Paris 1824.

The following are the symptoms of a strongly marked epileptic paroxysm. The eyes appear to project unnaturally, and are fixed; the eye-lids tremble; the ball of the eye is thrown upwards, so that only the conjunctiva can be seen; the face is swelled, becomes red, livid, or black, and is sometimes apparently in a state of ecchymosis: the features are horribly distorted by the powerful and irregular action of the muscles of the face: the lower jaw is sometimes firmly closed; at others it is forcibly separated from the upper jaw, and luxation of it is to be feared: the tongue is frequently thrust from the mouth, from which is discharged a frothy saliva; and if proper precautions are not adopted, the tongue may be severely injured when thus protruded, from the alternate contraction and relaxation of the lower jaw: the blood-vessels of the head and neck are excessively turgid: the

head is thrown about in various directions, and sometimes becomes suddenly fixed: the whole body is agitated by the most violent convulsions, which may subside for a moment or two, to be again renewed with undiminished force. The same remission of the convulsive movements is also frequent during the paroxysms of simple convulsions. During this cessation, however, the expression of the countenance, and the gestures of even a very young child, lead to the conviction that it is sensible of its state of suffering. Not so in the abatement of the violence of a true epileptic paroxysm. The child either lies motionless and totally insensible, or rolls its eyes about with a wandering and unfixed gaze, without being attracted by the look of the mother or the nurse, and without the appearance of any degree of consciousness. The limbs of one side are commonly more affected than those



on the other. In most cases, the child when attacked staggers and falls instantly to the ground. Occasionally, however, he remains fixed in the position in which he happened to be at the moment of attack: the head is moved from side to side with great rapidity, all consciousness being destroyed. An attack of epilepsy is sometimes marked by a sudden barking noise, arising from a convulsive movement of the pharynx. In hysterical women this symptom is very common, and, from the similarity of the convulsive paroxysms in Hydrophobia and Hysteria, may have given rise to the popular supposition of hydrophobic patients barking like a dog. Sometimes there is a trembling of the whole body, without well-marked convulsions of any part, which is followed by rigidity of all the frame, and total privation of sense. I have myself never seen this form of attack

in infants. It is mentioned, however, by most authorities. The respiration is generally laborious. The breathing is sometimes stertorous; and the attack is then closely allied to, if it is not identically the same with, apoplexy in the adult.

Symptoms of internal disturbance are frequently joined to the external and evident convulsions. The child vomits: the stools and urine are passed involuntarily. In fact, the diaphragm, stomach, bladder, and intestines, appear to be under the dominion of the same irregular and involuntary contractions as the external parts.

After the termination of a paroxysm of epilepsy the patient is generally bathed in sweat. De Haen observes, that the perspiration has sometimes a very fetid smell, and is so abundant as to wet through the bed-clothes. Tissot states, that an involuntary and forcible evacuation of the urine

is occasionally the first symptom which indicates the approach of an epileptic attack in infants. The epileptic paroxysms of children are not usually marked by such violent symptoms as those above enumerated. If we are acquainted, however, with the appearances which characterize the disease in its more exquisite form, we shall have no difficulty in recognising the slighter modifications of it, which differ in degree, but not in kind, from the severest examples, and which are too varied and indefinite to be embraced by even the most laboured description. The disease is usually milder, and the paroxysms shorter, when it attacks children at the breast. The symptoms are at that period commonly confined to irregular and rapid motions of the eyes, convulsions of the face, blueness of the countenance, and contraction of the lower jaw and abolition of the senses.

Convulsions do not invariably constitute a part of the symptoms of epilepsy, either in children or adults. A patient may be suddenly struck down, and remain in a state of complete insensibility for an uncertain period, without convulsive actions of any part of the body, unless indeed a slight trembling of the eyes may be dignified with the term.

The fit having lasted for an uncertain period, the convulsions and other symptoms gradually vanish, and the exhausted child generally sinks into a profound sleep, from which he awakes debilitated in mind and body. Exercise of the slightest kind is for a time unpleasant to him: his playthings are neglected; he is incapable of bearing the excitement of his ordinary amusements. This state of languor may continue for several days. In some cases sleep does not follow the paroxysm. Children have some-

times been plunged at once into a state of fatuity from one violent paroxysm. Van Swieten says, that in every case of idiotism from infancy with which he was acquainted, paroxysms of epilepsy had preceded that distressing state.

From frequent attacks of epilepsy the expression of the countenance is much altered, and the faculties of the mind sooner or later are completely wrecked. The face becomes dull and heavy : all expression of youthful and untroubled happiness is lost : the child appears to be anxious and suffering. It has been said that epilepsy generally disappears at the age of seven years, or at the period of puberty. That the changes which occur at the latter period are sometimes serviceable, by alleviating or altogether removing previous diseases, there can be no doubt ; and epilepsy may probably be admitted among the number.

The accidental occurrence of severe fever and some other diseases has also occasionally appeared to remove the disposition to a recurrence of the epileptic paroxysms. This fact is not, however, to be too hastily admitted. It should be remembered, that epilepsy not unfrequently ceases to continue its attacks without any obvious cause, uninfluenced either by the administration of medicine, or the change which any other serious malady would produce in the constitution. Hippocrates has left us two aphorisms respecting the prognosis in epilepsy, which subsequent experience has proved to have many exceptions: "1st, Those who are attacked before the age of puberty recover: 2ndly, Those who are attacked after the age of twenty-five remain epileptic during the remainder of their lives." Hereditary epilepsy is rarely if ever a curable disease.

## CHAPTER IV.

### TREATMENT OF EPILEPSY.

FROM the description given of the causes of Epilepsy, it must be evident that the indications of cure must be various, and sometimes very uncertain. It must be confessed, that many cases of this disease are in our present state of knowledge totally irremediable. In spite of the most approved plans of regular treatment, and of the use of the various highly extolled specifics in the hands of empirics, the disease will still continue its course; neither the violence nor the frequency of the paroxysms appearing to be at all influenced by the powerful shocks which the constitution may endure from the operation of the

most violent remedies. No man, indeed, will announce a specific for every case of epilepsy, who is not either to be pitied for his ignorance of the disease he presumes to treat, or blamed for his knavery. If we had any means of positively determining, during the life of the patient, that epilepsy was dependent upon exostoses within the cranium, sharp spiculæ of bone, or tumours pressing upon the brain, &c. we should be justified in abandoning all hopes of effecting a cure, although we might still exert our art with success to alleviate the severity of the disease. It is only, however, from the failure of all the usual remedies, and from the continuance of the disease when we have succeeded in remedying any derangement of health of which the paroxysms might have been considered symptomatic, that we are led to suspect the existence of some cause residing within the



cranium, or affecting the spinal marrow or its coverings.

Confessing, therefore, that in many cases we have yet to ascertain in what manner epilepsy is to be cured, we may point out the mode of effecting the next most important duty of medicine,—that of alleviating the severity of the disease, when we find ourselves unable to conquer it altogether, and of procuring as long an interval as possible between the paroxysms. Whatever is capable of increasing the action of the heart and arteries, or of causing a determination of blood towards the head, should be carefully avoided. Violent moral impressions frequently induce a sudden and severe paroxysm of epilepsy, even in children who had previously exhibited no manifest disposition to convulsive affections. Where convulsions or epilepsy have once occurred, such mental emotions should

be guarded against with additional care. The same observations that have already been applied to impress the importance of paying strict attention to the diet of children particularly predisposed to simple convulsions, refer with equal force to epileptic patients. The same principles must also guide our practice in the selection and continuance of purgative medicines, and in our general mode of treatment; although, it must be confessed, we are much less likely to succeed in our efforts to relieve epilepsy, however judiciously they may be directed. With every suitable precaution, however, both with respect to diet and the general management of the child, a determination of blood towards the head will frequently require to be repressed by the abstraction of blood. I should prefer cupping from the temples or behind the mastoid process. The jugular vein may generally

be opened with facility and advantage. The quantity of blood drawn can only be determined by the effect produced. The head should be washed with cold water every morning, and on no account should the hair be allowed to grow either thick or long. Such is, in brief, the only treatment we can pursue,—the only precautions we can adopt in those cases of long standing and confirmed epilepsy, which we have reason to believe arise from causes over which we have no power, and which are accompanied by symptoms of determination of blood to the head. I have not spoken of the application of moxa to the spine, of blisters to various parts of the body, and of some other painful remedies, the use of which has been suggested by various authorities to prevent the return of epilepsy in children. In many instances of epileptic children I have known these ex-

periments tried (in my opinion very unjustifiably) without any advantage. To such an extent has the rashness of some writers proceeded, that they have advised us to trepan the cranium, in the hopes of finding hydatids in the brain. The actual cautery has also been applied to the head. It is an easy, although not a harmless amusement, to speculate in the closet, and to devise means for the removal of a disease, the origin and progress of which we picture to our minds according to the capricious influence of the moment.

In the general management of epileptic children the advice of De Haen is not sufficiently attended to. He particularly dwells upon the necessity of paying strict attention to the symptoms which precede the paroxysm. If we succeed in cutting them short, the fit is in most cases procrastinated for a time. The practitioner, however, has not

often the opportunity of combating these premonitory symptoms : they are common to so many derangements of health which do not require medical interference, that his assistance is rarely required until the moment when he can do but little,—until the paroxysm has actually occurred.

A paroxysm of epilepsy occasionally commences by a painful sensation, or rather a sense of heat at a remote part of the body, which passes rapidly from thence to the head, and appears to give the signal for the immediate occurrence of convulsions. A tourniquet has been applied between the place in which the sensation was at first experienced and the superior parts of the body, and the fit is said not to have occurred.

I must again refer to the observations which have been made upon the means to be adopted during a paroxysm of simple

convulsions. The same treatment will be required during the epileptic paroxysm. The object we have in view is not so much to cut short a single fit, as to prevent, if possible, its recurrence.

It would be a useless expenditure of time to enumerate the crowd of boasted specifics which have at different periods been vaunted for their power of curing epilepsy. To the sellers they may doubtless have been very valuable remedies: I wish, for the sake of suffering humanity, the same observation could be applied to the purchasers. In confirmed cases of epilepsy we are undoubtedly justified in trying any remedy that inflicts no suffering; but I should certainly not be inclined myself to add the torment of painful remedies to the severity of the disease, without more reasonable expectations of success than experience appears to promise.

If epileptic attacks have frequently occurred from trifling causes ; if the health of the child is destroyed by their violence ; if there is one particular part which appears to be constantly affected ; if the features betray a dulness of intellect ; and if the faculties are not developed in proportion to the age of the child ; it is to be feared that defeat will be the mortifying result of our best-directed efforts. In children epilepsy is so extremely common, that frequent opportunities present themselves of putting to the test the merit of the internal remedies that have been proposed, as well as the external counter irritants. I have tried many of them, but regret that I can boast of no very flattering success. In some cases, the oxyd of zinc given for a considerable time has appeared to render the paroxysms less frequent. If the child is of a sufficient age to express its feelings, and can describe the

peculiar sensations which indicate the approach of an epileptic paroxysm, I should in most cases recommend the exhibition of an emetic of Zinc. Sulph. The use of this remedy would not prevent the abstraction of blood, if the condition of the patient appeared to demand it.

By almost every authority, counter irritation excited in various ways has been strongly recommended. Were I to judge from the results of my own observation, I should infer that counter irritants have been extolled from speculative notions of the benefits they ought to produce, rather than from any practical proofs of their actual effect. In many cases I have seen both epileptic adults and children tormented for weeks and months by setons, blisters, tartar-emetic ointment, issues, &c. &c.; but in no one instance has either of these applications appeared to have any influence,



either in abating the severity of the subsequent paroxysms or diminishing their frequency. It is an ungrateful duty to lessen the number of our presumed remedies, when we have so few to depend upon. A confession of ignorance, however, is much better than an assumption of knowledge we do not possess.

As internal remedies against confirmed epilepsy,—musk, assafœtida, castor, valerian, &c. are enumerated. The former I have never tried. In an establishment the practice of which I have opportunities of knowing, it has been frequently given to epileptic children, and sometimes, I am informed, with success. The latter medicines have not appeared to me to possess any power over the disease. The administration of opium has been sometimes resorted to for the purpose of preventing the return of epileptic paroxysms. By former phy-

sicians, indeed, opium was considered a never-failing specific in cases of infantile epilepsy. I should think it could rarely be admissible. The effects resulting from frequent attacks of epilepsy both upon the mind and body of the patient, appear to be of the same nature with those which arise from the use of opium. If indeed a paroxysm of epilepsy were produced by severe local pain, opium might be given with advantage. Many cases, for example, are on record of children who have endured intense pain, and epileptic paroxysms as a consequence of their suffering, from the passage of calculi through the ureters. In such cases opium would be indicated: but even here it would be more judicious first to try the effects of the milder narcotics, such as henbane or hemlock, &c. together with the warm bath. Epilepsy, like simple convulsions, may be originally caused

by excessive weakness, arising either from loss of blood or want of proper nourishment. In either of these cases we must proceed very gradually in the application of invigorating remedies. In both, the excitability of the patient will be increased to a dangerous degree. At first, the simplest nourishment must be given in very small quantities. By slow degrees, we may venture upon a more generous diet; and if the attacks of epilepsy have not been frequent from these causes, we may probably succeed in effecting a permanent cure by the use of the carbonate of iron, sulphate of quinine, and the daily use of the cold bath, which can seldom be used with propriety without gradually reducing the temperature of the water from a tepid warmth. Small doses of the sulphate of zinc will occasionally prove beneficial. I have deprecated the experiment of endeavouring to remove

convulsive affections by exciting alarm in the patient. Perhaps, however, when epileptic paroxysms occur in children merely from imitation of others whom they have seen labouring under the malady, we may be called upon to try the effect of the fear of punishment. In the Hospital of Haarlem, we are told that Boerhaave prevented a repetition of the paroxysms which had originated from imitation, by threatening to apply a hot iron upon the arm of the first child who exhibited the slightest symptom of convulsive agitation.

In infants, epilepsy very frequently depends upon some local irritation, particularly painful dentition; or it may be symptomatic of disease affecting the whole system. Our means must of course be directed to the removal of the cause, and would not admit of a detailed consideration without entering into the description

of most of the diseases to which children are liable. Inunction of the brimstone ointment upon the abdomen has been very warmly recommended for the cure of infantile epilepsy by the German physicians\*.

---

\* Medicinisch-Chirurgische Zeitung, 1824.

## CHAPTER V.

ON A SPASMODIC AFFECTION OF THE CHEST AND  
LARYNX IN YOUNG CHILDREN, ACCOMPANIED  
BY GENERAL OR PARTIAL CONVULSIONS.

MANY instances of the very distressing variety of convulsive affections which I am about to describe have fallen under my notice. A disease very similar to it in its general character has been described by many writers, under different names, several of which are objectionable, as they refer only to some individual symptom which may or which may not occur. The "Acute Asthma" of Millar and Chalmers in many respects bears a strong resemblance to it. It is far, however, from being identified with it, either as to the mode of attack, the progress

of the symptoms, or the termination. I believe the term "Chronic Croup" has frequently been applied to it. This spasmodic affection of the chest and larynx is extremely common in young children; the symptoms of it are so severe, and the danger apparently so great, to a practitioner who has not had frequent opportunities of watching its progress, that it merits particular consideration.

I shall describe this affection as I have very frequently witnessed it, without any endeavour to wrest the symptoms from their real appearance, in order to adapt my sketch of the complaint to that which has been given by other writers.

The premonitory symptoms\* occur at an uncertain period; generally between the

---

\* Some of the following observations I have already published in the London Medical and Physical Journal.

third and seventh month. At first they may not be sufficiently striking to attract the particular attention of the friends, although the practitioner, who has met with similar cases, may with much confidence predict from them the series of symptoms which is subsequently to be developed. When the child wakes from its sleep, the breathing is for some moments unusually accelerated, and is accompanied by that kind of noise which an increased secretion of mucus in the air-passages would produce. If the little patient has previously enjoyed a good state of health, the characteristic rotundity of feature observable in infants quickly undergoes a remarkable change; the countenance becomes anxious; the sides of the nose are drawn in; the face is pallid and emaciated; the child frowns almost constantly: when put to the breast, it sucks greedily for a moment, but suddenly ceases to do so,



throwing back the head with violence. Whatever may have been the previous condition of the bowels, they now become constipated. A considerable time may elapse before any remarkable change takes place in these symptoms. A convulsive affection of the hand is usually the next morbid sign which excites attention. The child's thumb will be found constantly and firmly pressed upon the palm of the hand: the wrist and ankle-joints are bent rigidly inwards; the head is almost constantly thrown backwards, by which the anterior muscles of the neck are kept painfully upon the stretch. The inconvenience at the moment of waking is not now a mere acceleration of the breathing,—this symptom still continues in an aggravated degree,—but the noise accompanying the respiration has gradually assumed a very different character from that which at first marked it. Each inspi-

ration is now attended by a loud crouping noise, which may be heard in an adjoining apartment: the chest and larynx appear to be painfully constricted; the heart palpitates violently; the child sobs, but never cries in its natural manner, during these paroxysms of suffering. So great is the difficulty of breathing, that it sometimes appears to be almost totally suspended for a few seconds. The countenance is then, usually, pale as in a state of syncope. Sometimes, but more rarely, it is dark, and the vessels of the face turgid as in apoplexy. The child has frequent attacks of convulsions, during which the features are much distorted. The whole body is sometimes, but more rarely, implicated in the convulsive movements. The paroxysms vary in duration and violence. In the child of a M. Lambert, in whom the convulsions were very frequent and severe, the state of opi-

sthenosis was so complete, that for many days the head and heels were the only parts which touched the bed. If with difficulty this apparently painful position was altered by the mother, it was quickly resumed. The anxiety of the countenance, which was at first only occasional, becomes in the progress of the complaint constant and very strongly marked. The brow is constantly knit.

In the majority of cases no sustained febrile action is to be detected, nor is there usually any indication of particular determination of blood towards the head. I have lately, however, seen two cases in which were superadded to the above train of symptoms considerable febrile disturbance and much cerebral derangement, with evident determination of blood to the brain. In several instances I have known the firm contraction of the thumb, the rigidly bent posi-

tion of the hand and foot, and the crouping noise in respiration, continue for many weeks without intermission.

The child sometimes appears lively for a short period, and the countenance may be animated by a momentary gleam of cheerfulness; but it almost invariably awakens from its slumbers, however tranquil they may sometimes appear, with a convulsive paroxysm similar to that above described.

In many instances it may be difficult, and perhaps impossible, to assign the probable cause of this frequent variety of convulsive affection. I have no doubt that it is in many cases immediately connected with painful dentition. It may be objected, that the symptoms occur at too early a period to arise from the process of dentition. But we have yet to learn when that process first becomes sufficiently painful and distressing to the infant to produce sym-

ptoms of general disturbance. It is probable that the child may suffer considerable pain long before the occurrence of the swollen gum, or the approach of the projecting tooth to its surface, although our opinion, as to the probability of constitutional derangement from painful dentition, is estimated generally by the existence of these circumstances.

In several instances I have known all the above symptoms gradually disappear upon the appearance of teeth ; and instant relief will be frequently afforded if the teeth are sufficiently advanced to admit of the gums being freely divided.

In the first communication which I made to the London Medical Journal upon this, to me, interesting subject, I stated, that I had seen no instance in which this affection had terminated fatally. In a subsequent paper I related a case in which the child

was suddenly destroyed by a severe paroxysm of general convulsions after having suffered from the symptoms above detailed. Such an occurrence I believe to be very rare, considering the very great frequency of the complaint.

It seldom happens that the above symptoms subside until the appearance of teeth. I do not mean to assert that they vanish instantaneously, as if by magic, the moment a single tooth starts through the gum: they pass off gradually.

When convulsive affections have been once induced, they will continue as the effect of habit, even if the originally exciting cause be completely removed.

Much discrepancy of opinion obtains as to the degree in which the brain is affected in this complaint. I have heard it publicly contended, and it is the opinion of many practitioners of much celebrity, that

“if a child makes the crouping noise in breathing” which I have described, hydrocephalus will inevitably ensue, unless large doses of calomel and frequent bleeding are had recourse to. This doctrine probably originates from too exclusive an application of the opinion published by the late Dr. Clarke, upon which I have ventured in the first chapter, with I trust becoming deference, to offer a few comments. In connexion with the above symptoms, we may have sufficient evidence of cerebral derangement to justify a vigorous and prompt mode of treatment. But in a great majority of instances we have no proof of affection of the head; nor have we any right to assume that certain individual symptoms, such as the crouping noise or bent thumb, must necessarily be followed by affections of the brain.

It may perhaps be imagined that I am

protesting against an imaginary error, in order to claim the merit of pointing out its inaccuracy. But I appeal to the Profession generally, whether in the present day there does not exist a disposition in the disciples of some eminent teachers, to look upon every slight convulsive affection of children as a certain evidence of serious and alarming disease of the brain, and to institute a formidable, painful, and I fear frequently destructive, mode of treatment, for a malady which exists only in their own imagination. Hence we have a ready explanation of the great number of cures of "Hydrocephalus" which swell the common-place book of some practitioners, and which are presumed to do honour to their singular foresight and active practice.

Notwithstanding the endeavours of Hallé, Baumes, and a few other writers, to establish



a contrary doctrine, he who is at all conversant with the diseases and predispositions of children, will constantly bear in mind their tendency to head affections. He will not be justified, however, in rashly assuming the existence of cerebral disease upon the insufficient evidence of one or two symptoms, which we know from repeated experience will pass off without injury to the patient, in nineteen cases out of twenty, with appropriate treatment.

In the only fatal case of this disease, or, rather, fatal attack of convulsions subsequent to it, which has occurred in my own practice, the following appearances were observed upon dissection. My friend Mr. Stone was kind enough to assist me. I particularly wished him to be present at the examination, as I was aware we were rather at issue as to the original character of the affection. The vascular system of

the brain presented a highly turgid appearance: a small quantity of blood was effused under the dura mater in several parts: the ventricles contained a small quantity of fluid: the whole cerebral mass was particularly firm: the cerebellum was softer than usual at so short a period after death. The thorax was not examined. The only evidence of disease detected in the abdomen was seated in the liver: its whole substance was firm: upon the upper surface were three white spots, about the size of a sixpence, which felt on passing the scalpel over them like cartilage. The mesentery and intestines were healthy. During the life of this child no symptom of determination of blood to the head had been observed. The thumbs were almost constantly and rigidly bent towards the palm of the hand, but they were relaxed after lancing the gums. At the moment of

the fatal attack, which destroyed the child in less than ten minutes, he was considered by the parents, who were always anxiously watching him, to be in better health than usual. A violent and very passionate fit of crying was induced by some interruption to his amusement: a paroxysm of the crouping noise came on, with convulsive breathing: a livid hue was observed around the mouth; and the child died. Previous to this attack he had laboured under the particular train of symptoms I have described at the commencement of this chapter. In my opinion death took place from a sudden and overwhelming rush of blood to the head, differing but little from an attack of sanguineous apoplexy in an adult, and rendered very probable by the violent emotion which was accidentally excited. They who are inclined to support a contrary opinion, may contend that the sudden death of the

child was an occurrence to be expected from the previous symptoms. To this I should reply, that the child had been for a fortnight in apparently good health, and therefore it could not be inferred that any serious impression had been made upon the brain by previous symptoms. And, secondly, all the symptoms had more than once vanished by freely lancing the gums, which would not have been the case if they had arisen from any serious cerebral affection.

Capuron, who has described this disease more nearly than any other writer with whose works I am acquainted, observes, that upon dissection no trace of inflammation is to be discovered, neither is there any collection of mucus in the aërial passages or in the lungs. Happily, we have but few opportunities of *post mortem* examinations of this disease. When it is fully developed,

the symptoms clearly show that the chief seat of the convulsive affection is in the larynx and chest. From the great distress the child suffers in consequence of the disturbed functions of these important parts, general or local irritation of any other part may arise, according to particular circumstances or the predisposition of the child.

This disease is essentially different from croup, although I have known cases which have been confounded with it. After the detail of the symptoms which has been given, it cannot be necessary to dwell particularly upon the distinctions between the two diseases. But a moderate share of attention and practical knowledge will be sufficient to prevent the two maladies from being mistaken for each other. In the 12th volume of the Edinburgh Medical Journal, Dr. Kellie has given a very minute descrip-

tion of a particular "swelling of the tops of the hands and feet," described by Dr. Underwood as a symptom of painful dentition, and of a spasmodic affection of the thumbs and toes, which very commonly attends it. It does not appear, however, that there was any painful affection of the larynx, or the crouping breathing; for although Dr. Kellie observes that "this remarkable tumour of the hands and feet has appeared to constitute but a part of a disease of a somewhat more serious and striking nature," neither of those symptoms are mentioned: and from the minute accuracy with which the cases are related by Dr. Kellie, it is very improbable that such important and distressing features of the disease should have escaped his attention, or, if observed, that they should have been passed over in silence. I am induced to make this observation, in answer to a remark contained in

the Medico-Chirurgical Review for April 1825, in which it is, I think, erroneously stated, that the disease of which I had previously given cases in the London Medical Journal, had "ten years ago been minutely described by Dr. Kellie."

In my own practice I have never seen the state to which Dr. James Johnson has applied the term of the "carpopedal spasm" unconnected with symptoms of painful spasmodic action of the chest and larynx. A well-marked case of the affection I have described was published by Dr. Johnson in the 3rd volume of the Monthly Medico-Chirurgical Journal. Mr. Chapman has also lately related some instances of it in the Medical Repository. The pathology of this painful and obstinate affection is still doubtful. The great frequency of it certainly renders it a subject well worthy the mature consideration of every practi-

tioner who is engaged in the treatment of infantile diseases\*.

---

\* At the time these pages were passing through the press, another case of the above-described affection has been offered to my notice; from which it must be inferred, that the peculiar train of symptoms I have detailed are sometimes intimately connected with the derangement of the digestive organs.

A child about nine months old, whose previous health had been good, and whose bowels had always been very regular, became suddenly constipated. No motion was procured for about eighteen hours. The crouping noise, spasmodic breathing, and turning in of the feet, immediately attracted the attention of the parents. These symptoms, however, entirely ceased upon the desired effect being produced by the exhibition of a purgative.—It may be remarked, that two other children in this family had suffered very severe and long-continued attacks from the same convulsive affection.



## CHAPTER VI.

TREATMENT OF A SPASMODIC AFFECTION OF THE  
CHEST AND LARYNX IN YOUNG CHILDREN,  
ACCOMPANIED BY GENERAL OR PARTIAL CON-  
VULSIONS.

IN a great majority of cases, the peculiar affection I have just described is intimately connected with a painful and tardy process of dentition. A free division of the gums will consequently be necessary in every case where they are swoln or much expanded upon the surface. The advantage of dividing the gums has frequently been questioned. The benefits arising from this operation depend upon the time and manner in which it is performed. If the tooth has not passed through the alveolus it must

be useless. It is when the tooth approaches the gums, it is required. It has been said, indeed, that the division of the gums is not only unnecessary, but that it is absolutely improper, in consequence of the subsequent formation of cicatrices where the wound has been made. This objection, however, is answered by the fact, that newly-formed parts are much more easily absorbed than original parts, and consequently that a rising tooth will be more easily impelled through a cicatrix by the natural efforts, than through a gum which has never been divided. In many instances I have known the distressed and croaking respiration, and the spasms of the hand and feet, instantly subside upon freely lancing the gums. To many it may appear a mere loss of time to obtrude any observation upon so simple and common an operation. It is very certain, however, that neither the

simplicity nor the frequency of it is sufficient to insure its skilful execution; and as the life of a child is not uncommonly entirely dependent upon it, I shall hazard a few words upon the subject.—If the gum is not perfectly divided down to the projecting tooth, no benefit can be expected from the operation. In common practice, however, the term of “lancing the gums” implies nothing more than making an inefficient scratch upon the surface of the gum. If the lancet with which the gums are divided has been for some time in use, and has lost its edge, relief may be more confidently expected: the parts which are contused, rather than cut, by the almost blunt instrument, heal much less readily than if a smooth incision had been made with a fine-edged instrument. Harris recommends us to divide the gums with a common pen-knife: it is indeed a very convenient

instrument. In fact, this is perhaps the only surgical operation the success of which depends greatly upon the bad edge of the instrument. A simple and free incision of the gums may be sufficient for the incisores and canines; but we should always make a crucial incision, when it is our object to liberate the molares. Dr. Brachet\*, in some cases which he has detailed of convulsions from painful dentition, and in which the gums were much swoln and inflamed, omitted to lance them, because "*chez un enfant agité de convulsions, il n'est guère possible de diriger son instrument au gré de ses désirs.*" He first prescribed the use of the warm bath, oxyd of zinc, &c., and "*si enfin tous ces moyens échouent, il reste une ressource dans l'incision de la gencive.*" As far as I can judge, the remedy here last

---

\* Loco citato.

employed should in such cases always be the first; viz. lancing the gums. It is to no purpose to administer antispasmodic remedies, so long as the local irritation exists. I am persuaded that I have known the lives of many children saved, who would have perished if the practice recommended by Dr. Brachet had been adopted. The difficulty of lancing the gums of a child labouring under convulsions is trifling. I doubt, indeed, whether it is not easier to perform the operation during a paroxysm of convulsions, than when the child is capable of voluntary opposition.

Constipation forms a usual feature of this particular form of convulsive affection, and must necessarily be removed by purgatives. The milder purgatives, as magnesia, manna, or castor oil, are rarely if ever to be depended on. Calomel and jalap in com-

bination, or inf. sennæ with tr. of jalap, are to be preferred. Calomel should be administered only as a purgative, and not in large and repeated doses as some practitioners recommend. If we have evidence of hepatic derangement, and the stools are of an unnatural appearance, a grain of calomel each night may be given with much advantage. The hydr. c. cretâ is preferred by many practitioners, but calomel appears to me more capable of fulfilling the indication, and of restoring the healthy action of the liver.

In some cases we shall have reason to apprehend danger from cerebral derangement, in consequence of the particular disposition of the child, or the violence and frequency of the convulsive paroxysms. The treatment that will be demanded under these circumstances has already been mentioned. Blood must be taken from the

jugular vein, or by cupping upon the temples. Cold applications to the head, and the occasional use of purgatives ; strict attention to the appearance of the gums, and the greatest care to avoid all external or internal stimuli, are the chief points to be regarded.

We are not unfrequently urged by the importunities of friends, who are generally too well acquainted with the tranquillizing effects of sedatives, to employ some medicine of that class in order to relieve the spasmodic and difficult breathing which forms the principal and most distressing character of the affection. Relief is very rarely, I believe, obtained by their internal use. If I did employ a sedative, I should prefer the extr. conii or hyoscyami. I think it is to be lamented, that no careful experiments have yet been made to ascertain whether the black drop, or the

liquor sedativus of Battley might not be given to children with advantage when other narcotics are deemed inadmissible. Dr. Brachet\* mentions the acetate of morphine as the best preparation of opium, but does not distinctly say he has ever prescribed it to children. We are principally restrained from the use of such remedies in children, in consequence of the cerebral disturbance they are so apt to produce. It is a well-known fact, however, and one which has often been impressed upon my attention by actual observation, that adults will frequently derive the most soothing effects, and many hours of tranquil sleep, from the above preparations, who cannot bear any dose of common opium without suffering considerable headache and great restlessness.

---

\* Loco citato.



I hope I shall not be thought to have advocated too strongly, in the course of these pages, the employment of sedatives in infantile diseases. I am perfectly aware of their danger when they are unskilfully employed; but I am also of opinion, that children are not unfrequently bled and purged for the purpose of relieving great irritability, when much advantage might be gained by the judicious application of sedatives, under restrictions to which I have before adverted. In some cases, where the convulsive breathing and violent action of the diaphragm were very great, friction upon the chest with a liniment composed of laudanum, spirits of camphor, and soap liniment, three or four times a day, has certainly proved useful. I have seen blisters applied by other practitioners. I have never known them afford relief, and sometimes they have added considerably to the

general irritation and sufferings of the child. During the paroxysms of convulsions, which are so frequent in the course of this affection, the same treatment will be required as that which has been already detailed for the more simple form of convulsive affections. It has been stated that the attack generally commences the moment the little patient wakes from its slumbers ; and even after the more severe symptoms have passed off, we shall still find the child rising from its sleep with short and convulsive breathing, and with an appearance of much agitation. These slight remains of the affection may continue for several months ; and in more than one instance I have known the attack return with all its original severity, in consequence of the child being suddenly awakened either by accidental noise or the imprudence of the nurse. It is of consequence, then, that every child who

has suffered from this malady, should be roused from its sleep with gentleness and caution. The same precaution, indeed, is equally necessary in every form of nervous and convulsive diseases, more particularly those which affect the easily excited constitutions of infants and children.

THE END.

*In preparation, by the same AUTHOR,*

A TREATISE

ON

THE DISEASES OF FEMALES.

In preparation for the new edition

A TREATISE

ON  
THE DISEASES OF FEMALES.

