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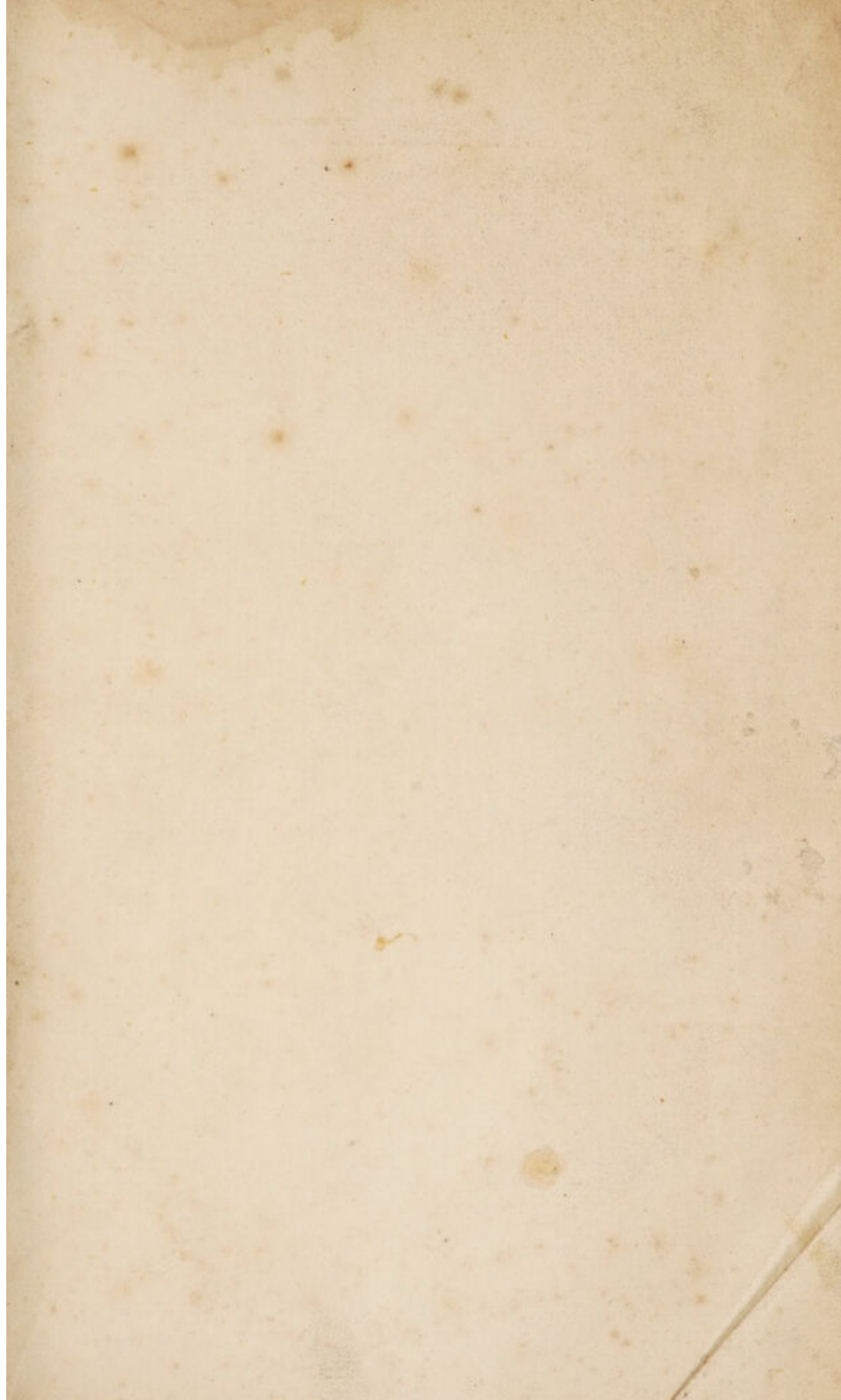
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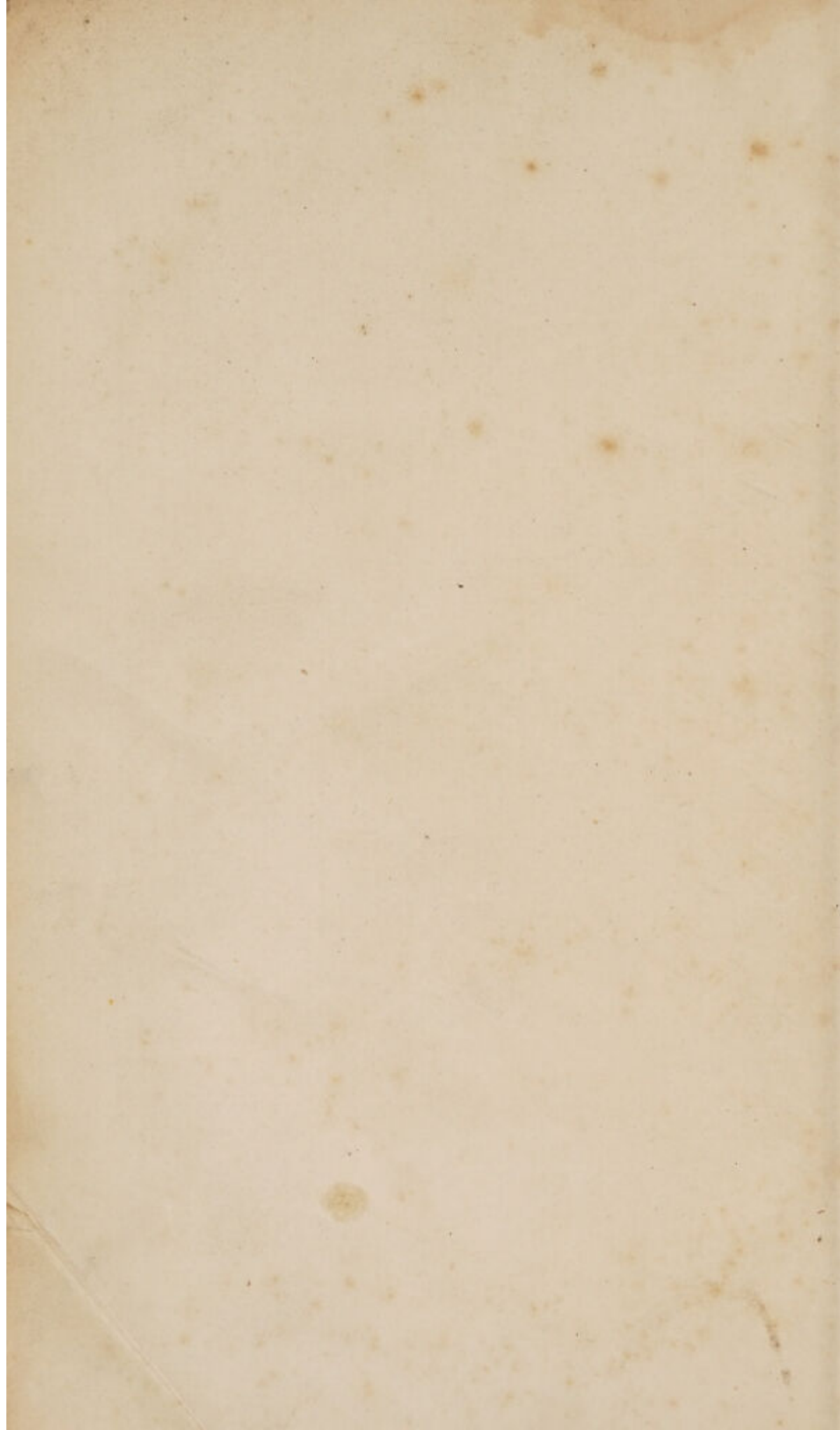


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FIRST LINES
OF THE
PRACTICE OF PHYSIC.

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OF THE

PRACTICE OF PHYSIC.

EDINBURGH :
PRINTED BY JAMES WALKER.

FIRST LINES
OF THE
PRACTICE OF PHYSIC,

BY
WILLIAM CULLEN, M. D.

FORMERLY PROFESSOR OF THE PRACTICE OF PHYSIC IN THE
UNIVERSITY OF EDINBURGH,
§c. §c. §c.

A NEW EDITION,
WITH AN APPENDIX,

CONTAINING
A VIEW OF THE MOST IMPORTANT FACTS WHICH HAVE BEEN
ASCERTAINED, AND PRINCIPLES WHICH HAVE BEEN ADOPTED, IN
REGARD TO THE NATURE AND TREATMENT OF DISEASES, SINCE
THE DEATH OF THE AUTHOR;

COMMENCED BY THE LATE
WILLIAM CULLEN, M. D.
§c. §c.

CONTINUED AND COMPLETED BY
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SOCIETY, AND ONE OF THE PHYSICIANS TO THE ROYAL INFIRMARY, AND TO
THE FEVER HOSPITAL, OF EDINBURGH.

IN TWO VOLUMES.

VOL. II.

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EDINBURGH; LONGMAN, REES, ORME, BROWN & GREEN,
AND JAMES DUNCAN, LONDON.

1829.

FIRST LINE

OF THE

PRACTICE OF PHYSIC

BY

WILLIAM CULLEN, M.D.

PROFESSOR OF THE PRACTICE OF PHYSIC IN THE

UNIVERSITY OF EDINBURGH

AND

PHYSICIAN IN CHIEF TO THE

ROYAL INFIRMARY



A TREATISE ON THE THEORY AND PRACTICE OF PHYSIC, IN WHICH THE NATURE AND TREATMENT OF DISEASES ARE EXPLAINED, AND THE EFFECTS OF MEDICINES DESCRIBED.

BY

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OF

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IN TWO VOLUMES.

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1820

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- Page 428, line 12, *for* stated, *read* seated
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FIRST LINES

OF THE

PRACTICE OF PHYSIC.

PART II.

OF NEUROSES, OR NERVOUS DISEASES.

CL. II. NEUROSES.

Sensus et motus læsi, sine pyrexia idiopathica, et sine morbo locali.

INTRODUCTION.

1090. **I**N a certain view, almost the whole of the diseases of the human body might be called NERVOUS: but there would be no use for such a general appellation; and, on the other hand, it seems improper to limit the term, in the loose inaccurate manner in which it has been hitherto applied, to hysteric and hypochondriacal disorders, which are themselves hardly to be defined with sufficient precision.

1091. In this place I propose to comprehend, under the title of NEUROSES, all those preternatural affections of sense or motion, which are without pyrexia as a part of the primary disease; and all those which do not depend upon a topi-

cal affection of the organs, but upon a more general affection of the nervous system, and of those powers of the system upon which sense and motion more especially depend.

1092. Of such diseases I have established a class, under the title of **NEUROSES, or NERVOUS DISEASES.** These I again distinguish, as they consist, either in the interruption and debility of the powers of sense and motion, or in the irregularity with which these powers are exercised; and have accordingly arranged them under the four orders of *Comata*, *Adynamia*, *Spasmi*, and *Vesania*, to be defined as we proceed to treat of them more particularly.

BOOK I.

OF COMATA, OR OF THE LOSS OF VOLUNTARY MOTION.

ORD. I. COMATA.

Motus voluntarii imminuti, cum sopore sive sensuum feriatiōne.

1093. UNDER this title are comprehended those affections which have been commonly called the Soporose diseases; but they are most properly distinguished by their consisting in some interruption or suppression of the powers of sense and voluntary motion, or of what are called the animal functions. These are indeed usually suspended in the time of natural sleep: but of all the diseases to be comprehended under our title, sleep, or even the appearance of it, is not constantly a symptom. Of such diseases I can mark and properly explain two genera only, which come under the titles of *Apoplexy* and *Palsy*.

CHAP. I.

OF APOPLEXY.

G. XLI. APOPLEXIA.—*Motus voluntarii fere omnes imminuti, cum sopore plus minus profundo, superstite motu cordis et arteriarum.*

Sp. 1. *Apoplexia (sanguinea) cum signis plethoræ universalis, et præcipue capitis.*

Sp. 2. *Apoplexia (serosa) in corpore, plerumque senum, leucophlegmatico.*

Sp. 3. *Apoplexia (hydrocephalica) paulatim adoriens; infantes et impuberes, primum lassitudine, febriculâ, et dolore capitis, dein pulsu tardiore, pupillæ dilatatione, et somnolentiâ afficiens.*

Sp. 4. *Apoplexia (atrabilaria) in corpore melancholico.*

Sp. 5. *Apoplexia (traumatica) a vi externâ mechanicâ, capiti illatâ.*

Sp. 6. *Apoplexia (venenata) a potentiis sedantibus interne vel externe adhibitis.*

Sp. 7. *Apoplexia (mentalis) a pathemate mentis.*

Sp. 8. *Apoplexia (cataleptica) musculis, sub artuum a vi externâ motu, contractilibus.*

Sp. 9. *Apoplexia (suffocata) a potentiâ externâ suffocante.*

1094. APOPLEXY is that disease in which the whole of the external and internal senses, and the whole of the voluntary motions, are in some degree abolished; while respiration and the action of the heart continue to be performed. By its being an affection of the *whole* of the powers of sense and of

voluntary motion, we distinguish it from *Palsy*; and by its being with the continuance of respiration and the action of the heart, it is distinguished from *Syncope*. I have further added to the ordinary definition of apoplexy, that the abolition of the powers of sense and motion is in *some degree* only: meaning by this to imply, that, under the title of Apoplexy, are here comprehended those diseases which, as differing from it in degree only, cannot, with a view either to pathology or practice, be properly distinguished from it. Such are the diseases sometimes treated of under the names of *Carus*, *Cataphora*, *Coma*, and *Lethargus*.

1095. Apoplexy, in all its different degrees, most commonly affects persons advanced in life, and especially those above sixty years of age. It most usually affects persons of large heads and short necks, persons of a corpulent habit, persons who have passed an indolent life and used a full diet, and especially those who have indulged in frequent intoxication. Men who have long laboured under a frequent and copious discharge of blood from the hæmorrhoidal vessels, upon either the suppression or spontaneous ceasing of that discharge, are particularly liable to be affected with apoplexy.

1096. This disease frequently comes on very suddenly: but in many cases it is preceded by various symptoms, such as frequent fits of giddiness, frequent headachs, a hæmorrhagy from the nose, some transitory interruptions of seeing and hearing, some false vision and hearing, some transitory degree of numbness or loss of motion in the extremities, some faltering of the tongue in speaking, a loss of memory, a frequent drowsiness, and frequent fits of incubus.

1097. An attention to these symptoms, and to the predisponent circumstances (1095.), will often enable us to foresee the more violent attacks of this disease.

1098. When the disease comes on suddenly to a considerable degree, it has been frequently observed to have been immediately induced by violent exercise; by a full and long-

continued inspiration ; by a fit of anger ; by much external heat, especially that arising from a crowded assembly of people ; by warm bathing ; by intoxication ; by long stooping with the head down ; and by a tight ligature about the neck. The disease has been remarked to make its attacks most frequently in the spring season, and especially when the vernal heat suddenly succeeds to the winter cold.

1099. The symptoms denoting the presence of this disease will be sufficiently known from the definition given 1094. Although the whole of the body is affected with the loss of sense and motion, it sometimes takes place more upon one side of the body than the other ; and, in that case, the side least affected with palsy, is sometimes affected with convulsions. In this disease there is often a stertorous breathing ; and this has been said to be a mark of the most violent state of the disease : but it is not always present even in the most complete form or most violent degree of the disease.

1100. The proximate cause of this disease may be, in general, whatever interrupts the motion of the nervous power from the brain to the muscles of voluntary motion ; or, in so far as sense is affected, whatever interrupts the motion of the nervous power from the sentient extremities of the nerves to the brain.

1101. Such an interruption of the motions of the nervous power may be occasioned, either *by some compression of the origin of the nerves, or by something destroying the mobility of the nervous power.* Both these causes we must treat of more particularly ; and, first, of that of compression, seemingly the most frequent occasion of apoplexy, and perhaps the occasion of all those apoplexies arising from internal causes.

1102. The lose of sense and motion in particular parts of the body may be occasioned by a compression, either of the origin of certain nerves only, or of the same nerves in some part of their course from the brain to the organs of sense and motion. Such cases of partial compression will be more pro-

perly considered hereafter; and the affection I am now to treat of being general, it must depend upon a very general compression of the origin of the nerves, or medullary portion of the brain; and, therefore, this more general compression only is to be considered here.

1103. This compression of the origin of the nerves, or medullary portion of the brain, may be produced in different ways; as,

1. By external violence fracturing and pressing in a part of the cranium.

2. By tumours, sometimes soft, sometimes bony, formed in different parts of the brain, or in its membranes, and becoming of such a bulk as to compress the medullary substance of the brain.

3. By the blood accumulated in the blood-vessels of the brain, and distending them to such a degree as to compress the medullary portion of the same.

4. By fluids effused in different parts of the brain, or into the cavity of the cranium, and accumulated in such quantity as to occasion the compression we treat of.

And, as to this last, it is to be remarked here, that the fluids effused may be of two kinds: that is, they may be either a portion of the common mass of blood, poured out from red vessels; or a portion of serum or colourless fluid, poured out chiefly by exhalants.

1104. Of these several causes of compression, the first is not to be considered here, because the removing it does not belong to our province; and the consideration of the second may be omitted, as in most instances it is neither to be discerned nor cured by any means yet known. The third and fourth causes of compression, as they are the most frequent, and are also most properly the subjects of our art, so they are those which deserve our particular attention; and we shall therefore endeavour to trace them further back in the series of causes which may produce them.

1105. Both the states of over-distention and of effusion may be produced by whatever increases the afflux and impetus of the blood in the arteries of the head; such as violent exercise, a violent fit of anger, external heat applied, or any strong pressure upon the descending aorta.

1106. But both these states of over-distention and of effusion may also and seem to be more frequently produced by causes that operate by preventing the free return of the venous blood from the vessels of the head to the right ventricle of the heart.

1107. The venous vessels of the brain are of a conformation and distribution so peculiar, as lead us to believe, that Nature intended to retard the motion of the blood, and accumulate it in these vessels; and therefore, even very small additional resistances to the motion of the blood from these towards the right ventricle of the heart may still more readily accumulate the blood in them. Such accumulation will most readily happen in advanced life, when the venous system in general is in a plethoric state, and when this plethora takes place especially in the venous vessels of the brain. It will, in like manner, be most apt to occur in persons whose heads are large with respect to the rest of the body; and in persons of a short neck, which is unfavourable to the return of the venous blood from the head.

The accumulation of blood in the venous vessels of the brain, will also be most likely to occur in persons of a corpulent habit, either because these may be considered to be in a plethoric state, or because obesity, by occasioning a compression of the blood-vessels in other parts of the body, more readily fills those of the brain, which are entirely free from any such compression.

1108. These are the circumstances in the constitution of the body, which, producing a slower motion and return of the venous blood from the vessels of the head, favour an accumulation and distention in them; and we now proceed to mention the several occasional causes, which, in every per-

son, may directly prevent the free return of the blood from the vessels of the head towards the heart. Such are,

1. Stooping down with the head, or other situations of the body in which the head is long kept in a depending state, and in which the gravity of the blood increases the afflux of it by the arteries, and opposes the return of it by the veins.

2. A tight ligature about the neck, which compresses the veins more strongly than the arteries.

3. Any obstruction of a considerable number of the veins carrying the blood from the head, and more especially any considerable obstruction of the ascending vena cava.

4. Any considerable impediment of the free passage of the blood from the veins into the right ventricle of the heart; and it is commonly by this, and the immediately preceding circumstance, that polypous concretions in the cava, or right ventricle, are found to occasion apoplexy.

5. The return of blood from the veins of the head towards the heart, is especially interrupted by every circumstance that produces a more difficult transmission of the blood through the vessels of the lungs. It is well known, that, at the end of every expiration, some interruption is given to the free transmission of the blood through the lungs; and that this at the same time gives an interruption to the motion of the blood from the veins into the right ventricle of the heart. This clearly appears from that regurgitation of the blood in the veins which occasions the alternate heaving and subsiding that is perceived in the brain of living animals when the cranium is removed, and which is observed to be synchronous with the alternate motions of respiration. From this we readily perceive, that whatever occasions a difficulty in the transmission of the blood through the lungs, must also interrupt the free return of the venous blood from the vessels of the head; and must therefore favour, and perhaps produce, an accumulation of blood, and an over-distention in these vessels.

It is further to be observed, that, as a very full inspiration, continued for any length of time, occasions such an interruption of the free transmission of the blood through the lungs, as produces a suffusion of face, and a manifest turgescence of the blood-vessels of the head and neck; so very full and long-continued inspiration may occasion an accumulation of blood in the vessels of the head, to a very considerable degree. Thus, as every strong exertion of the muscular force of the body requires, and is attended with, a very full and long-continued inspiration, we thence learn why the violent exertions of muscular force have been so often the immediate or exciting causes of apoplexy.

It may also be remarked, that corpulency and obesity seem to operate very much, by occasioning a more difficult transmission of the blood through the vessels of the lungs. It appears, that in fat persons, from the compression of the blood-vessels in many parts of the body, the vessels of the lungs are thereby kept very full; so that, upon the least increase of bodily motion, which sends the blood faster into the lungs, a more frequent and laborious respiration becomes in such persons immediately necessary. This shows, that in such persons, the blood is not freely transmitted through the lungs; a circumstance which, as in other instances, must give a constant resistance to the return of blood from the vessels of the head, and therefore favour or occasion an accumulation of blood in them.

Is the motion of the blood in the vessels of the head rendered slower by study, care and anxiety?

1109. It is to be observed further, that these several causes (1105.—1108.) of a preternatural fulness in the blood-vessels of the brain, may produce apoplexy in different ways, according as the fulness takes place in the arteries or in the veins.

1110. Accordingly, *first*, The increased afflux of blood into the arteries of the brain, and an increased action in

these, may either occasion a rupture of their extremities, and thereby an effusion of red blood producing compression; or the same afflux and increased action may occasion an increased exhalation from their extremities, of a serous fluid, which, if not as quickly re-absorbed, may soon accumulate in such quantity as to produce compression.

1111. *Secondly*, The plethoric state of the venous vessels of the brain may operate in three different ways:

1. The fulness of the veins may give such resistance to the blood flowing into them from the arteries, as to determine the impetus of the blood to be so much greater upon the extremities of the arteries as to occasion a rupture of these, and consequently an effusion of red blood, or the *Hæmorrhagia cerebri*, which HOFFMAN considers as a frequent cause of apoplexy, and which we have before explained in 772.

2. Whilst the same resistance to the blood flowing from the arteries into the veins, increases the impetus of the blood in the former, this may, without occasioning rupture, increase the exhalation from their exhalant extremities, and produce an effusion of a serous fluid; in the same manner as such resistance in the veins produces hydropic effusions in other parts of the body.

3. If we may suppose, as no lymphatics have been yet discovered in the brain, that the ordinary absorbents are not present there, and that the exhaled fluids are absorbed or taken up by the extremities of the veins; this will show still more clearly, that a resistance to the motion of the blood in the veins of the brain may readily produce an accumulation of serous fluid in its cavities, and consequently a compression producing apoplexy.

1112. Besides these cases of apoplexy from afflux in the arteries, or resistance in the veins, an effusion of serum may happen from two other causes. The one is a relaxation of the exhalants, as in other cases of hydropic diathesis prevail-

ing in the body ; and it is not unusual for a general dropsy to end in apoplexy. The second is an over-proportion of watery parts in the mass of blood, which is therefore ready to run off by the exhalants, as in the case of an *ischuria renalis* ; which, when it proves incurable, very commonly terminates in apoplexy.

1113. We have now mentioned the several causes of apoplexy depending upon compression ; and from the whole it will appear, that the most frequent of all these causes is a plethoric state, or an accumulation and congestion of blood in the venous vessels of the head, operating, according to its degree, in producing over-distention or effusion. The frequent operation of such a cause will especially appear from a consideration of the predisponent circumstances (1095.), and from the antecedent symptoms (1096.).

1114. From the view I have now given of the causes of apoplexy arising from compression, it will readily appear that there is a foundation for the common distinction of this disease into the two kinds of Sanguine and Serous. But this distinction cannot be very usefully applied in practice, as both kinds may often depend on the same cause, that is, a venous plethora, and therefore requiring very nearly the same method of cure. The only distinction that can be properly made of apoplexies from compression, is perhaps the distinction of serous apoplexy, into that depending on the plethora mentioned (1113.); and that depending upon hydropic diathesis, or an over-proportion of water in the blood (1112.); the former causes giving a proper idiopathic, the latter only a symptomatic disease.

1115. Besides the causes now mentioned, occasioning apoplexy by compression, I allege there are other causes producing the same disease, by directly destroying the mobility of the nervous power. Such causes seem to be the mephitic air arising from fermenting liquors, and from many other sources ; the fumes arising from burning charcoal ; the fumes

of mercury, of lead, and of some other metallic substances ; opium, alcohol, and many other narcotic poisons : To all which I would add the power of cold, of concussion, of electricity, and of certain passions of the mind.

1116. None of these poisons, or noxious powers, seem to kill, by acting first upon the organs of respiration, or upon the sanguiferous system ; and I believe their immediate and direct action to be upon the nervous power, destroying its mobility, because the same poisons show their power in destroying the irritability of muscles and of the nerves connected with them, when both these are entirely separated from the rest of the body.

1117. It appears to me probable, that the apoplectic state in some degree accompanying, and almost always succeeding an epileptic paroxysm, does not depend upon compression, but upon a certain state of immobility of the nervous power, produced by certain circumstances in the nervous system itself, which sometimes seem to be communicated from one part of the body to another, and at length to the brain.

1118. The same observation may be made with respect to many instances of hysteric paroxysm ; and the circumstances, both of epileptic and hysteric paroxysms, ending in coma, or a degree of apoplexy, lead me to think, that also the apoplexy proceeding from retrocedent or atonic gout is of the same kind, or that it depends upon an immobility of the nervous power, rather than upon compression.

1119. It may indeed happen, that as the apoplectic and gouty predispositions do often concur in the same person ; so it may consequently happen, that the apoplexy coming upon gouty persons may sometimes depend upon compression ; and dissections may accordingly discover that the circumstances of such a cause had preceded. But, in many cases of apoplexy following a retrocedent or atonic gout, no such antecedent or concomitant circumstances, as commonly oc-

cur in cases of compression, do distinctly or clearly appear; while others present themselves, which point out an affection of the nervous power alone.

1120. With respect, however, to the circumstances which may appear upon the dissection of persons dead of apoplexy, there may be some fallacy in judging, from those circumstances, of the cause of the disease. Whatever takes off or diminishes the mobility of the nervous power, may very much retard the motion of the blood in the vessels of the brain; and that perhaps to the degree of increasing exhalation, or even of occasioning rupture and effusion: so that, in such cases, the marks of compression may appear upon dissection, though the disease had truly depended on causes destroying the mobility of the nervous power. This seems to be illustrated and confirmed from what occurs in many cases of epilepsy. In some of these, after a repetition of fits, recovered from in the usual manner, a fatuity is induced, which commonly depends upon a watery inundation of the brain: And in other cases of epilepsy, when fits have been often repeated without any permanent consequence, there happens at length a fatal paroxsym: and upon dissection, it appears that an effusion of blood had happened. This, I think, is to be considered as a cause of death, not as a cause of the disease: for in such cases, I suppose that the disease had diminished the action of the vessels of the brain, and thereby given occasion to a stagnation, which produced the appearances mentioned. And I apprehend the same reasoning will apply to the cases of retrocedent gout, which, by destroying the energy of the brain, may occasion such a stagnation as will produce rupture, effusion, and death; and, in such a case, the appearances upon dissection might lead us to think that the apoplexy had depended entirely upon compression.

1121. The several causes mentioned in 1115. are often of such power as to occasion immediate death, and therefore

have not commonly been taken notice of as affording instances of apoplexy ; but as the operation of the whole of these causes is similar and analogous, and as in most instances of the operation of these causes an apoplectic state is manifestly produced, there can be little doubt in considering most of the instances of their effects as cases of apoplexy, and therefore such as fall properly under our consideration here.

1122. This disease of apoplexy is sometimes entirely recovered from ; but more frequently it ends in death, or in a hemiplegia. Even when an attack of the disease is recovered from, we generally find it disposed to return ; and the repeated attacks of it almost always, sooner or later, bring on the events we have mentioned.

1123. The several events of this disease, in health, death, or another disease, may be expected and foreseen, from a consideration of the predisponent circumstances (1095.) ; of the antecedent symptoms (1096.) ; of the exciting causes (1098.) ; of the violence and degree of the symptoms when the disease has come on (1094.) ; of the duration of the disease ; and of the effects of the remedies employed.

1124. From the great danger attending this disease when it has come on (1122.), it will readily appear, that our care should be chiefly directed to the prevention of it. This, I think, may be often done, by avoiding the remote and exciting causes ; and how this may be accomplished, will be obvious from the enumeration of those causes given above (1098.). But it will also appear from what is said above, that the prevention of this disease will especially depend upon obviating the predisponent cause ; which, in most cases, seems to be a plethoric state of the blood-vessels of the brain. This, I think, may be obviated by different means ; and, in the first place, by a proper management of exercise and diet.

1125. The exercise ought to be such as may support the perspiration, without heating the body or hurting respiration ; and therefore commonly by some mode of gestation,

In persons not liable to frequent fits of giddiness, and who are accustomed to riding on horseback, this exercise is of all others the best. Walking, and some other modes of bodily exercise, may be employed with the restrictions just now mentioned; but in old men, and in men of corpulent habits, bodily exercise ought always to be very moderate.

1126. In persons who pretty early in life show the predisposition to apoplexy, it is probable that a low diet, with a good deal of exercise, might entirely prevent the disease; but in persons who are advanced in life before they think of taking precautions, and are at the same time of a corpulent habit, which generally supposes their having been accustomed to full living, it might not be safe to put them upon a low diet: and it may be enough that their diet be rendered more moderate than usual, especially with respect to animal food; and that at supper such food should be abstained from altogether.

In drinking, all heating liquors are to be abstained from, as much as former habits will allow; and the smallest approach to intoxication is to be carefully shunned. For ordinary draught, small beer is to be preferred to plain water, as the latter is more ready to occasion costiveness, which in apoplectic habits is to be carefully avoided. The large use of tobacco, in any shape, may be hurtful: and except in cases where it has been accustomed to occasion a copious excretion from the head, the interruption of which might not be safe, the use of tobacco should be avoided; and even in the circumstance mentioned, where it may be in some measure necessary, the use of it should at least be rendered as moderate as possible.

1127. Evacuations by stool may certainly contribute to relieve the plethoric state of the vessels of the head; and upon an appearance of any unusual turgescence in these, purging will be very properly employed: but when no such turgescence appears, the frequent repetition of large pur-

ging might weaken the body too much; and for preventing apoplexy, it may for the most part be enough to keep the belly regular, and rather open, by gentle laxatives. In the summer season, it may be useful to drink every morning, of a gentle laxative mineral water, but never in large quantity.

1128. In the case of a plethoric state of the system, it might be supposed that blood-letting would be the most effectual means of diminishing the plethora, and of preventing its consequences: and when an attack of apoplexy is immediately threatened, blood-letting is certainly the remedy to be depended upon; and blood should be taken largely, if it can be done, from the jugular vein, or temporal artery. But when no threatening turgescence appears, the obviating plethora is not judiciously attempted by blood-letting, as we have endeavoured to demonstrate above (787.). In doubtful circumstances, leeches applied to the temples, or scarifications of the hind-head, may be more safe than general bleedings.

1129. When there are manifest symptoms of a plethoric state in the vessels of the head, a seton, or pea-issue, near the head, may be very useful in obviating any turgescence of the blood.

1130. These are the means to be employed for preventing the apoplexy which might arise from a plethoric state of the vessels of the brain; and if, at the same time, great care is taken to avoid the exciting causes (1098.), these means will be generally successful.

In the cases proceeding from other causes (1115.), as their application is so immediately succeeded by the disease, they hardly allow any opportunity for prevention.

1131. For the CURE of apoplexies from internal causes, and which I suppose to be chiefly those from compression, the usual violence and fatality of it require that the proper remedies be immediately and largely employed.

The patient is to be kept as much as possible in somewhat of an erect posture, and in cool air; and therefore neither in a warm chamber, nor covered with bed-clothes, nor surrounded with a crowd of people.

1132. In all cases of a full habit, and where the disease has been preceded by marks of a plethoric state, blood-letting is to be immediately employed, and very largely. In my opinion, it will be most effectual when the blood is taken from the jugular vein; but if that cannot be properly done, it may be taken from the arm. The opening of the temporal artery, when a large branch can be opened, so as suddenly to pour out a considerable quantity of blood, may also be an effectual remedy; but, in execution, it is more uncertain, and may be inconvenient. It may be in some measure supplied, by cupping and scarifying on the temples or hind-head. This, indeed, should seldom be omitted; and these scarifications are always preferable to the application of leeches.

With respect to every mode of blood-letting, this is to be observed, that when, in any case of apoplexy, it can be perceived that one side of the body is more affected with the loss of motion than the other, the blood-letting, if possible, should be made on the side opposite to that most affected.

1133. Another remedy to be employed is purging, to be immediately attempted by acrid glysters, and, at the same time, if any power of swallowing remain, by drastic purgatives given by the mouth. These, however, lest they may excite vomiting, should be given in divided portions at proper intervals.

1134. Vomiting has been commended by some practitioners and writers: but, apprehending that this might impel the blood with too much violence into the vessels of the head, I have never employed it.

1135. Another remedy to be immediately employed is

blistering; and I judge that this is more effectual when applied to the head, or near to it, than when it is applied to the lower extremities. This remedy I do not consider as a stimulant, or capable of making any considerable revulsion: but, applied to the head, I suppose it useful in taking off the hæmorrhagic disposition so often prevailing there.

1136. It has been usual with practitioners, together with the remedies already mentioned, to employ stimulants of various kinds; but I am disposed to think them generally hurtful; and they must be so, wherever the fulness of the vessels, and the impetus of the blood in these, is to be diminished. Upon this principle it is therefore agreed, that stimulants are absolutely improper in what is supposed to be a sanguine apoplexy; but they are commonly supposed to be proper in the serous. If, however, we be right in alleging that this also commonly depends upon a plethoric state of the blood-vessels of the brain, stimulants must be equally improper in the one case as in the other.

1137. It may be argued from the almost universal employment of stimulants, and sometimes with seeming advantage, that they may not be so hurtful as my notions of the causes of apoplexy lead me to suppose. But this argument is, in several respects, fallacious; and particularly in this, that in a disease which, under every management, often proceeds so quickly to a fatal termination, the effects of remedies are not to be easily ascertained.

1138. I have now mentioned the several remedies which I think adapted to the cure of apoplexy arising from compression, and should next proceed to treat of the cure of apoplexy arising from those causes that directly destroy the mobility of the nervous power. But many of those causes are often so powerful, and thereby so suddenly fatal in their effects, as hardly to allow of time for the use of remedies; and such cases therefore have been so seldom the subjects of practice, that the proper remedies are not so well ascertained as to enable me to say much of them here.

1139. When, however, the application of the causes (1115.) is not so powerful as immediately to kill, and induces only an apoplectic state, some efforts are to be made to obviate the consequences, and to recover the patient; and even in some cases where the causes referred to, from the ceasing of the pulse and of respiration, and from a coldness coming upon the body, have induced an appearance of death; yet, if these appearances have not continued long, there may be means of recovering the persons to life and health. I cannot, indeed, treat this subject completely; but for the cure of apoplexy from several of the causes mentioned 1115. shall offer the following general directions.

1. When a poison capable of producing apoplexy has been recently taken into the stomach, if a vomiting spontaneously arises, it is to be encouraged; or if it does not spontaneously come on, a vomiting is to be immediately excited by art, in order that the poison may be thrown out as quickly as possible. If, however, the poison has been taken into the stomach long before its effects have appeared, we judge that, upon their appearance, the exciting of vomiting will be useless, and may perhaps be hurtful.

2. When the poison taken into the stomach, or otherwise applied to the body, has already induced an apoplectic state, as those causes do commonly at the same time occasion a stagnation or slower motion of the blood in the vessels of the brain and of the lungs, so it will generally be proper to relieve this congestion by taking some blood from the jugular vein, or from the veins of the arm.

3. Upon the same supposition of a congestion in the brain or lungs, it will generally be proper to relieve it by means of acrid glysters producing some evacuation from the intestines.

4. When these evacuations by blood-letting and purging have been made, the various stimulants which have been commonly proposed in other cases of apoplexy may be employed here with more probability and safety. One of the

most effectual means of rousing apoplectics of this kind seems to be throwing cold water on several parts of the body, or washing the body all over with it.

5. Although the poison producing apoplexy happens to be so powerful as very soon to occasion the appearances of death above mentioned, yet if this state has not continued long, the patient may often be recoverable, and the recovery is to be attempted by the same means that are directed to be employed for the recovery of drowned persons, and which are now commonly known.

CHAP. II.

OF PALSY.

G. XLII. PARALYSIS.—*Motus voluntarii nonnulli tantum immixti, sæpe cum sopore.*

Sp. 1. *Paralysis (partialis) quorundam musculorum tantum.*

Sp. 2. *Paralysis (hemiplegica) alterius corporis lateris.*

Sp. 3. *Paralysis (paraplegica) dimidii corporis transversim sumpti.*

Sp. 4. *Paralysis (venenata) a potentiis sedantibus externe vel interne adhibitis.*

1140. **P**ALSY is a disease consisting in a loss of the power of voluntary motion, but affecting certain parts of the body only, and by this it is distinguished from apoplexy (1094.). One of the most frequent forms of palsy is when it affects the whole of the muscles on one side of the body, and then the disease is named a *Hemiplegia*.

1141. The loss of the power of voluntary motion may be owing either to a morbid affection of the muscles or organs of motion, by which they are rendered unfit for motion ; or to an interruption of the influx of the nervous power into them, which is always necessary to the motions of those that are under the power of the will. The disease, from the first of these causes, as consisting in an organic and local affection, we refer entirely to the class of local diseases. I am here to consider that disease only which depends upon the interrupted influx of the nervous power ; and it is to this disease alone I would give the appellation of *Palsy*. A disease depending on an interrupted influx of the nervous power, may indeed often appear as merely a local affection ; but as it depends upon an affection of the most general powers of the system, it cannot be properly separated from the systematic affections.

1142. In palsy, the loss of motion is often accompanied with a loss of sense : but as this is not constantly the case, and as therefore the loss of sense is not an essential symptom of palsy, I have not taken it into my definition (1140.) ; and I shall not think it necessary to take any further notice of it in this treatise ; because, in so far as it is in any case a part of the paralytic affection, it must depend upon the same causes, and will be cured also by the very same remedies as the loss of motion.

1143. The palsy, then, or loss of motion, which is to be treated of here, may be distinguished as of two kinds ; one of them depending upon an affection of the origin of the nerves in the brain, and the other depending upon an affection of the nerves in some part of their course between the brain and the organs of motion. Of the latter, as appearing in a very partial affection, I am not to speak particularly here ; I shall only treat of the more general paralytic affections, and especially of the hemiplegia (1140.). At the same time I expect, that what I shall say upon this subject will readily

apply to both the pathology and practice in the cases of affections more limited.

1144. The hemiplegia (1140.) usually begins with or follows a paroxysm of apoplexy; and when the hemiplegia, after subsisting for some time, becomes fatal, it is commonly by passing again into the state of apoplexy. The relation therefore or affinity between the two diseases, is sufficiently evident; and is further strongly confirmed by this, that the hemiplegia comes upon persons of the same constitution (1095.), and is preceded by the same symptoms (1098.) that have been taken notice of with respect to apoplexy.

1145. When a fit of apoplexy has gone off, and there remains a state of palsy appearing as a partial affection only, it might perhaps be supposed that the origin of the nerves is in a great measure relieved; but in so far as commonly there still remain the symptoms of the loss of memory, and of some degree of fatuity, these I think show that the organ of intellect, or the common origin of the nerves, is still considerably affected.

1146. Thus, the hemiplegia, from its evident connection with, and near relation to apoplexy, may be properly considered as depending upon like causes; and, consequently, either upon a compression preventing the flow of the nervous power from the brain into the organs of motion, or upon the application of narcotic or other powers (1115.) rendering the nervous power unfit to flow in the usual and proper manner.

1147. We begin with considering the cases depending upon compression.

The compression occasioning hemiplegia may be of the same kind, and of all the different kinds that produce apoplexy, and therefore either from tumour, over-distention, or effusion. The existence of tumour giving compression may often be better discerned in the case of palsy than in that of

apoplexy, as its effects often appear at first in a very partial affection.

1148. The other modes of compression, that is, of over-distention and effusion, may, and commonly do take place, in hemiplegia; and when they do, their operation here differs from that producing apoplexy, by its effects being partial, and on one side of the body only.

It may seem difficult to conceive that an over-distention can take place in the vessels on one side of the brain only; but it may be understood: and in the case of a palsy, which is both partial and transitory, it is perhaps the only condition of the vessels of the brain that can be supposed. In a hemiplegia, indeed, which subsists for any length of time, there is probably always an effusion, either sanguine or serous: but it is likely that even the latter must be supported by a remaining congestion in the blood-vessels.

1149. That a sanguine effusion can happen without becoming very soon general, and thereby occasioning apoplexy and death, may also seem doubtful: but dissections prove that in fact it does happen, occasioning palsy only: though it is true that this more commonly depends upon an effusion of serous fluid, and of this only.

1150. Can a palsy occasioned by a compression remain, though the compression be removed?

1151. From what has been said (1144.) it will be obvious, that the hemiplegia may be prevented by all the several means proposed 1125. *et seq.* for the prevention of apoplexy.

1152. Upon the same grounds, the CURE of palsy must be very much the same with that of apoplexy (1130. *et seq.*); and when palsy has begun as an apoplexy, it is presumed, that, before it is to be considered as palsy, all those several remedies have been employed. Indeed, even when it happens that on the first attack of the disease the apoplectic state is not very complete, and that the very first appearance

of the disease is as a hemiplegia, the affinity between the two diseases (1144.) is such as to lead to the same remedies in both cases. This is certainly proper in all those cases in which we can with much probability impute the disease to compression; and it is indeed seldom that a hemiplegia from internal causes comes on but with a considerable affection of the internal and even of the external senses, together with other marks of a compression of the origin of the nerves.

1153. Not only, however, where the disease can be imputed to compression, but even where it can be imputed to the application of narcotic powers, if the disease come on with the appearances mentioned at the end of last paragraph, it is to be treated in the same manner as an apoplexy by 1131. —1139.

1154. The cure of hemiplegia, therefore, on its first attack, is the same, or very nearly the same with that of apoplexy; and it seems requisite that it should be different only, 1. When the disease has subsisted for some time; 2. When the apoplectic symptoms, or those marking a considerable compression of the origin of the nerves, are removed; and particularly, 3. When there are no evident marks of compression, and it is at the same time known that narcotic powers have been applied.

1155. In all these cases, the question arises, Whether stimulants may be employed, or how far the cure may be entirely trusted to such remedies? Upon this question, with respect to apoplexy, I have offered my opinion in 1136. And, with respect to hemiplegia, I am of opinion, that stimulants are almost always equally dangerous as in the cases of complete apoplexy; and particularly, 1. In all the cases of hemiplegia succeeding to a paroxysm of complete apoplexy; 2. In all the cases coming upon persons of the temperament mentioned in 1095, and after the same antecedents as those of apoplexy (1096.); and, 3. In all the cases coming on with symptoms of apoplexy from compression.

1156. It is, therefore, in the cases 1154. only, that stimulants are properly admissible : And even in the two first of these cases, in which a plethoric state of the blood-vessels of the brain may have brought on the disease; in which a disposition to that state may still continue; and in which even some degree of congestion may still remain; the use of stimulants must be an ambiguous remedy; so that perhaps it is in the third of these cases only that stimulants are clearly indicated and admissible.

1157. These doubts with respect to the use of stimulants may perhaps be overlooked or disregarded by those who allege that stimulants have been employed with advantage even in those cases (1155.) in which I have said they ought to be avoided.

1158. To compromise this contrariety of opinion, I must observe, that even in the cases of hemiplegia depending upon compression, although the origin of the nerves be so much compressed as to prevent so full a flow of the nervous power as is necessary to muscular motion, yet it appears from the power of sense still remaining, that the nerves are, to a certain degree, still pervious; and therefore it is possible that stimulants applied may excite the energy of the brain so much, as in some measure to force open the compressed nerves, and to show some return of motion in paralytic muscles. Nay, further, it may be allowed, that if these stimulants be such as act more upon the nervous than upon the sanguiferous system, they may possibly be employed without any very hurtful consequence.

1159. But still it will be obvious, that although certain stimulants act chiefly upon the nervous system, yet they also act always in some measure upon the sanguiferous; so that, when they happen to have the latter effect in any considerable degree, they may certainly do much harm; and in a disease which they do not entirely cure, the mischief arising from them may not be discerned.

1160. Whilst the employment of stimulants is so often an ambiguous practice, we may perhaps go some length towards ascertaining the matter, by considering the nature of the several stimulants which may be employed, and some of the circumstances of their administration. With this view, therefore, I shall now mention the several stimulants that have been commonly employed, and offer some remarks upon their nature and use.

1161. They are in the first place to be distinguished as external and internal. Of the first kind, we again distinguish them, as they are applied to particular parts of the body only, or as they are more generally applied to the whole system. Of the first kind are,

1. The concentrated acids of vitriol or nitre; involved, however, in oily or unctuous substances, which may obviate their corrosive, without destroying their stimulant power.

2. The volatile alkaline spirits, especially in their caustic state; but involved also in oils, for the purpose just now mentioned.

3. The same volatile spirits are frequently employed by being held to the nose, when they prove a powerful stimulus to the nervous system; but it is at the same time probable, that they may also prove a strong stimulant to the blood-vessels of the brain.

4. A brine, or strong solution of sea-salt.

5. The essential oils of aromatic plants, or of their parts.

6. The essential oils of turpentine, or of other such resinous substances.

7. The distilled oils of amber, or of other bituminous fossils.

8. The rectified empyreumatic oils of animal or vegetable substances.

9. Various vegetable acrids, particularly mustard.

10. The acrid matter found in several insects, particularly cantharides.

Some of these stimulants may be either applied in substance, or may be dissolved in ardent spirits, by which their stimulant power may be increased, or more conveniently applied.

1162. The greater part of the substances now enumerated show their stimulant power by inflaming the skin of the part to which they are applied; and when their application is so long continued as to produce this effect, it interrupts the continuance of their use, and the inflammation of the part does not seem to do so much good as the frequent repetition of a more moderate stimulus.

1163. Analogous to these stimulants is the stinging of nettles, which has been frequently commended.

Among the external stimulants, the mechanical one of friction with the naked hand, the flesh-brush, or flannel, is justly to be reckoned. Can the impregnation of the flannels to be employed, with the fumes of burning mastic, olibanum, &c. be of any service?

1164. With respect to the whole of these external stimulants, it is to be observed, that they affect the part to which they are applied much more than they do the whole system, and they are therefore indeed safer in ambiguous cases; but, for the same reason, they are of less efficacy in curing a general affection.

1165. The external applications which may be applied to affect the whole system, are the powers of heat and cold, and of electricity.

Heat, as one of the most powerful stimulants of the animal economy, has been often employed in palsies, especially by warm bathing. But as, both by stimulating the solids and rarefying the fluids, this proves a strong stimulus to the sanguiferous system, it is often an ambiguous remedy; and has frequently been manifestly hurtful in palsies depending upon a congestion of blood in the vessels of the brain. The most certain, and therefore the most proper use of warm

bathing in palsies, seems to be in those that have been occasioned by the application of narcotic powers. Are the natural baths more useful by the matters with which they may be naturally impregnated?

1166. Cold applied to the body for any length of time is always hurtful to paralytic persons; but if it be not very intense, nor the application long continued, and if, at the same time, the body be capable of a brisk reaction, such an application of cold is a powerful stimulant of the whole system, and has often been useful in curing palsy. But, if the power of reaction in the body be weak, any application of cold may prove very hurtful.

1167. Electricity, in a certain manner applied, is certainly one of the most powerful stimulants that can be employed to act upon the nervous system of animals; and therefore much has been expected from it in the cure of palsy. But, as it stimulates the sanguiferous as well as the nervous system, it has been often hurtful in palsies depending upon a compression of the brain; and especially when it has been so applied as to act upon the vessels of the head. It is safer when its operation is confined to particular parts somewhat remote from the head: and, further, as the operation of electricity, when very strong, can destroy the mobility of the nervous power, I am of opinion, that it is always to be employed with caution, and that it is only safe when applied with moderate force, and when confined to certain parts of the body remote from the head. It is also my opinion, that its good effects are to be expected from its repetition rather than from its force, and that it is particularly suited to the cure of those palsies which have been produced by the application of narcotic powers.

1168. Amongst the remedies of palsy, the use of exercise is not to be omitted. In a hemiplegia, bodily exercise cannot be employed; and in a more limited affection, if depending upon a compression of some part of the brain, it would

be an ambiguous remedy: but, in all cases where the exercises of gestation can be employed, they are proper; as, even in cases of compression, the stimulus of such exercise is moderate, and therefore safe; and, as it always determines to the surface of the body, it is a remedy in all cases of internal congestion.

1169. The internal stimulants employed in palsy are various, but chiefly the following.

1. The volatile alkaline salts, or spirits, as they are called, are very powerful and diffusive stimulants, operating especially on the nervous system; and even although they operate on the sanguiferous, yet, if given in frequently repeated small, rather than in large doses, their operation being transitory, is tolerably safe.

2. The vegetables of the class named Tetradinamia, are many of them powerful diffusive stimulants: and at the same time, as quickly passing out of the body, and therefore of transitory operation, they are often employed with safety. As they commonly prove diuretic, they may in this way also be of service in some cases of serous palsy.

3. The various aromatics, whether employed in substance, in tincture, or in their essential oils, are often powerful stimulants; but being more adhesive and inflammatory than those last mentioned, they are therefore in all ambiguous cases less safe.

4. Some other acrid vegetables have been employed; but we are not well acquainted with their peculiar virtues, or proper use.

5. Some resinous substances, as guaiacum, and the terebinthinate substances, or their essential oils, have been, with some probability, employed; but they are apt to become inflammatory. Decoctions of guaiacum, and some other sudorifics, have been directed to excite sweating by the application of the fumes of burning spirit of wine in the laconicum, and have in that way been found useful.

6. Many of the fetid antispasmodic medicines have been frequently employed in palsy; but I do not perceive in what manner they are adapted to the cure of this disease, and I have not observed their good effects in any cases of it.

7. Bitters and the Peruvian bark, have also been employed; but with no propriety or advantage that I can perceive.

1170. With respect to the whole of these internal stimulants, it is to be observed, that they seldom prove very powerful: and wherever there is any doubt concerning the nature or state of the disease, they may readily do harm, and are often therefore of ambiguous use.

BOOK II.

OF ADYNAMIÆ,

OR DISEASES CONSISTING IN A WEAKNESS OR LOSS OF
MOTION IN EITHER THE VITAL OR NATURAL FUNC-
TIONS.

ORD. II. ADYNAMIÆ.

Motus involuntarii, sive vitales, sive naturales, imminuti.

G. XLIII. SYNCOPE.—*Motus cordis imminutus, vel aliquandiu quiescens.*

Sp. 1. *Syncope (cardiaca) sine causâ manifestâ sæpe rediens, cum palpitatione cordis vehementi in intervallis: Ex vitio cordis vel vasorum vicinorum.*

Sp. 2. *Syncope (occasionalis) a causâ manifestâ oriens: Ex affectione totius systematis.*

CHAP. I.

OF SYNCOPE, OR FAINTING.

1171. **T**HIS is a disease in which the action of the heart and respiration become considerably weaker than usual, or in which, for a certain time, these functions cease altogether.

1172. Physicians having observed that this affection occurs in different degrees, have endeavoured to distinguish these by different appellations; but as it is not possible to ascertain these different degrees with any precision, so there can be no strict propriety in employing those different names,

and I shall here comprehend the whole of the affections of this kind under the title of Syncope.

1173. This disease sometimes comes on suddenly to a considerable degree, but sometimes also it comes on gradually; and, in the latter case, it usually comes on with a sense of languor, and of anxiety about the heart, accompanied, at the same time, or immediately after, with some giddiness, dimness of sight and sounding in the ears. Together with these symptoms, the pulse and respiration become weak; and often so weak, that the pulse is scarcely to be felt, or the respiration to be perceived; and sometimes these motions, for a certain time, cease altogether. While these symptoms take place, the face and whole surface of the body become pale, and more or less cold according to the degree and duration of the paroxysm. Very commonly, at the beginning of this, and during its continuance, a cold sweat appears, and perhaps continues on the fore-head, as well as on some other parts of the body. During the paroxysm, the animal functions, both of sense and motion, are always in some degree impaired, and very often entirely suspended. A paroxysm of syncope is often, after some time, spontaneously recovered from; and this recovery is generally attended with a sense of much anxiety about the heart.

Fits of syncope are frequently attended with or end in vomiting, and sometimes with convulsions, or an epileptic fit.

1174. These are the phenomena in this disease; and from every view of the greatest part of them, there cannot be a doubt that the proximate cause of this disease is a very weak, or a total ceasing of the action of the heart. But it will be a very difficult matter to explain in what manner the several remote causes operate in producing the proximate cause. This, however, I shall attempt, though with that diffidence which becomes me in attempting a subject that has not hitherto been treated with much success.

1175. The remote causes of syncope may, in the first

place, be referred to two general heads. The one is, of those causes existing and acting in the brain, or in parts of the body remote from the heart, but acting upon it by the intervention of the brain. The other general head of the remote causes of syncope is, of those existing in the heart itself, or in parts very immediately connected with it, and thereby acting more directly upon it in producing this disease.

1175. In entering upon the consideration of the first set of those causes (1174.), I must assume a proposition which I suppose to be fully established in Physiology. It is this: That, though the muscular fibres of the heart be endowed with a certain degree of inherent power, they are still, for such action as is necessary to the motion of the blood, very constantly depending upon a nervous power sent into them from the brain. At least this is evident, that there are certain powers acting primarily, and perhaps only in the brain, which influence and variously modify the action of the heart. I suppose, therefore, a force very constantly during life exerted in the brain, with respect to the moving fibres of the heart, as well as of every part of the body; which force I shall call the Energy of the brain, and which I suppose may be, on different occasions, stronger or weaker with respect to the heart.

1176. Admitting these propositions, it will be obvious, that if I can explain in what manner the first set of remote causes (1174.) diminish the energy of the brain, I shall, at the same time, explain in what manner these causes occasion a syncope.

1177. To do this, I observe, that one of the most evident of the remote causes of syncope is a hæmorrhagy, or an evacuation of blood, whether spontaneous or artificial. And as it is very manifest that the energy of the brain depends upon a certain fulness and tension of its blood-vessels, for which nature seems to have industriously provided by such

a conformation of those blood-vessels as retards the motion of the blood both in the arteries and veins of the brain; so we can readily perceive that evacuations of blood, by taking off the fulness and tension of the blood-vessels of the brain, and thereby diminishing its energy with respect to the heart, may occasion a syncope. In many persons, a small evacuation of blood will have this effect; and in such cases there is often a clear proof of the manner in which the cause operates, from this circumstance, that the effect can be prevented by laying the body in a horizontal posture; which, by favouring the afflux of the blood by the arteries, and retarding the return of it by the veins, preserves the necessary fulness of the vessels of the brain.

It is farther to be remarked here, that not only an evacuation of blood occasions syncope, but that even a change in the distribution of the blood, whereby a larger portion of it flows into one part of the system of blood-vessels, and consequently less into others, may occasion a syncope. It is thus I explain the syncope that readily occurs upon the evacuation of hydropic waters, which had before filled the cavities of the abdomen or thorax. It is thus also I explain the syncope that sometimes happens on blood-letting, but which does not happen till the ligature which had been employed is untied, and admits a larger afflux of blood into the blood-vessels of the arm. Both these cases of syncope show, that an evacuation of blood does not always occasion the disease by any general effect on the whole system, but often merely by taking off the requisite fulness of the blood-vessels of the brain.

1178. The operation of some others of the remote causes of syncope may be explained on the following principles: Whilst the energy of the brain is, upon different occasions, manifestly stronger or weaker, it seems to be with this condition, that a stronger exertion of it is necessarily followed by a weaker state of the same. It seems to depend upon

this law in the constitution of the nervous power, that the ordinary contraction of a muscle is always alternated with a relaxation of the same; that, unless a contraction proceeds to the degree of spasm, the contracted state cannot be long continued: and it seems to depend upon the same cause that the voluntary motions, which always require an unusual increase of exertion, occasion fatigue, debility, and at length irresistible sleep.

From this law, therefore, of the nervous power, we may understand why a sudden and violent exertion of the energy of the brain is sometimes followed by such a diminution of it as to occasion a syncope; and it is thus I suppose that a violent fit of joy produces syncope, and even death. It is upon the same principle also, I suppose, that an exquisite pain may sometimes excite the energy of the brain more strongly than can be supported, and is therefore followed by such a diminution as must occasion fainting. But the effect of this principle appears more clearly in this, that a fainting readily happens upon the sudden remission of a considerable pain; and thus I have seen a fainting occur upon the reduction of a painful dislocation.

1179. It seems to be quite analogous when a syncope immediately happens on the finishing of any great and long continued effort, whether depending on the will, or upon a propensity; and in this way a fainting sometimes happens to a woman on the bearing of a child. This may be well illustrated by observing, that in persons already much weakened, even a very moderate effort will sometimes occasion fainting.

1180. To explain the operation of some other causes of syncope, it may be observed, that as the exertions of the energy of the brain are especially under the influence of the will, so it is well known that those modifications of the will which are named Passions and Emotions, have a powerful influence on the energy of the brain in its actions upon the

heart, either in increasing or diminishing the force of that energy. Thus anger has the former, and fear the latter effect; and thence it may be understood how terror often occasions a syncope sometimes of the most violent kind, named Asphyxia, and sometimes death itself.

1181. As, from what I have just mentioned, it appears that the emotions of desire increase, and those of aversion diminish the energy of the brain; so it may be understood, how a strong aversion, a horror, or the feeling which arises upon the sight of a very disagreeable object, may occasion fainting. As an example of this, I have known more than one instance of a person's fainting at the sight of a sore in another person.

1182. To this head of horror and disgust, I refer the operation of those odours which in certain persons occasion syncope. It may be supposed, that those odours are endowed with a directly sedative power, and may thereby occasion syncope; but they are, many of them, with respect to other persons, evidently of a contrary quality: and it appears to me, that those odours occasion syncope in those persons only to whom they are extremely disagreeable.

1183. It is however very probable, that among the causes of syncope, there are some which, analogous to all those we have already mentioned, act by a directly sedative power: and such may either be diffused in the mass of blood, and thereby communicated to the brain, or may be only taken into the stomach, which so readily and frequently communicates its affections to the brain.

1184. Having now enumerated, and, as I hope, explained the most part of the remote causes of syncope, that either operate immediately upon the brain, or whose operation upon other parts of the body is communicated to the brain, it is proper to observe, that the most part of these causes operate upon certain persons more readily and more powerfully than upon others; and this circumstance, which may be

considered as the predisponent cause of syncope, deserves to be inquired into.

It is, in the first place, obvious, that the operation of some of those causes depends entirely upon an idiosyncrasy in the persons upon whom they operate; which, however, I cannot pretend to explain. But, in the next place, with respect to the greater part of the other causes, their effects seem to depend upon a temperament which is in one degree or other in common to many persons. This temperament seems to consist in a great degree of sensibility and mobility, arising from a state of debility, sometimes depending upon original conformation, and sometimes produced by accidental occurrences in the course of life.

1185. The second set of the remote causes of syncope (1174.), or those acting directly upon the heart itself, are certain organic affections of the heart itself, or of the parts immediately connected with it, particularly the great vessels which pour blood into, or immediately receive it from the cavities of the heart. Thus a dilatation, or aneurism of the heart, a polypus in its cavities, abscesses or ulcerations in its substance, a close adherence of the pericardium to the surface of the heart, aneurisms of the great vessels near to the heart, polypus in these, and ossifications in these or in the valves of the heart, are one or other of them conditions, which, upon dissection, have been discovered in those persons who had before laboured under frequent syncope.

1186. It is obvious, that these conditions are all of them, either such, as may, upon occasion, disturb the free and regular influx into, or the free egress of the blood from the cavities of the heart; or such as may otherwise disturb its regular action, by sometimes interrupting it, or sometimes exciting it to more violent and convulsive action. The latter is what is named the Palpitation of the heart, and it commonly occurs in the same persons who are liable to syncope.

1187. It is this, as I judge, that leads us to perceive in

what manner these organic affections of the heart and great vessels may occasion syncope; for it may be supposed, that the violent exertions made in palpitations may either give occasion to an alternate great relaxation (1178.), or to a spasmodic contraction; and in either way suspend the action of the heart, and occasion syncope. It seems to me probable, that it is a spasmodic contraction of the heart that occasions the intermission of the pulse so frequently accompanying palpitation and syncope.

1188. Though it frequently happens that palpitation and syncope arise, as we have said, from the organic affections above mentioned, it is proper to observe, that these diseases, even when in a violent degree, do not always depend on such causes acting directly on the heart, but are often dependent on some of those causes which we have mentioned above as acting primarily on the brain.

1189. I have thus endeavoured to give the pathology of syncope; and of the cure I can treat very shortly.

The cases of syncope depending on the second set of causes (1174.), and fully recited in 1185, I suppose to be generally incurable; as our art, so far as I know, has not yet taught us to cure any one of those several cases of syncope (1185.).

The cases of syncope depending on the first set of causes (1174.), and whose operations I have endeavoured to explain in 1177. *et seq.*, I hold to be generally curable, either by avoiding the several occasional causes there pointed out, or by correcting the predisponent causes (1184.). The latter, I think, may generally be done by correcting the debility or mobility of the system, by the means which I have already had occasion to point out in another place.

CHAP. II.

OF DYSPEPSIA, OR INDIGESTION.

G. XLV. DYSPEPSIA.—*Anorexia, nausea, vomitus, inflatio, ructus, ruminatio, cardialgia, gastrodynia, pauciora saltem vel plura horum simul concurrentia, plerumque cum alvo adstrictâ, et sine alio vel ventriculi ipsius, vel aliarum partium, morbo.*

1190. A WANT of appetite, a squeamishness, sometimes a vomiting, sudden and transient distentions of the stomach, eructations of various kinds, heartburn, pains in the region of the stomach, and a bound belly, are symptoms which frequently concur in the same person, and therefore may be presumed to depend upon one and the same proximate cause. In both views, therefore, they may be considered as forming one and the same disease, to which we have given the appellation of *Dyspepsia*, set at the head of this chapter.

1191. But as this disease is also frequently a secondary and sympathetic affection, so the symptoms above mentioned are often joined with many others; and this has given occasion to a very confused and undetermined description of it, under the general title of Nervous Diseases, or under that of Chronic Weakness. It is proper, however, to distinguish, and I apprehend the symptoms enumerated above are those essential to the idiopathic affection I am now to treat of.

1192. It is indeed to be particularly observed, that these symptoms are often truly accompanied with a certain state of mind which may be considered as a part of the idiopathic affection: but I shall take no farther notice of this symp-

tom in the present chapter, as it will be fully and more properly considered in the next, under the title of *Hypochondriasis*.

1193. That there is a distinct disease attended always with the greater part of the above symptoms is rendered very probable by this, that all these several symptoms may arise from one and the same cause; that is, from an imbecility, loss of tone, and weaker action in the muscular fibres of the stomach: and I conclude therefore that this imbecility may be considered as the proximate cause of the disease I am to treat of under the name of *Dyspepsia*.

1194. The imbecility of the stomach, and the consequent symptoms (1190.), may, however, frequently depend upon some organic affection of the stomach itself, as tumour, ulcer, or scirrhus: or upon some affection of other parts of the body communicated to the stomach, as in gout, amenorrhœa, and some others. In all these cases, however, the dyspeptic symptoms are to be considered as secondary or sympathetic affections, to be cured only by curing the primary disease. Such secondary and sympathetic cases cannot, indeed, be treated of here: but as I presume that the imbecility of the stomach may often take place without either any organic affection of this part, or any more primary affection in any other part of the body; so I suppose and expect it will appear, from the consideration of the remote causes, that the *dyspepsia* may be often an idiopathic affection, and that it is therefore properly taken into the system of methodical *Nosology*, and becomes the subject of our consideration here.

1195. There can be little doubt, that, in most cases, the weaker action of the muscular fibres of the stomach is the most frequent and chief cause of the symptoms mentioned in 1190; but I dare not maintain it to be the only cause of idiopathic *dyspepsia*. There is, pretty certainly, a peculiar fluid in the stomach of animals, or at least a peculiar quali-

ty in the fluids that we know to be there, upon which the solution of the aliments taken into the stomach chiefly depends: and it is at the same time probable, that the peculiar quality of the dissolving or digesting fluids may be variously changed, or that their quantity may be, upon occasion, diminished. It is therefore sufficiently probable, that a change in the quality or quantity of these fluids may produce a considerable difference in the phenomena of digestion, and particularly may give occasion to many of the morbid appearances mentioned in 1190.

1196. This seems to be very well founded, and points out another proximate cause of dyspepsia beside that we have already assigned: But, notwithstanding this, as the peculiar nature of the digestive fluid, the changes which it may undergo, or the causes by which it may be changed, are all matters so little known, that I cannot found any practical doctrine upon any supposition with respect to them; and as, at the same time, the imbecility of the stomach, either as causing the change in the digestive fluid, or as being induced by that change, seems always to be present, and to have a great share in occasioning the symptoms of indigestion; so I shall still consider the imbecility of the stomach as the proximate and almost sole cause of dyspepsia. And I more readily admit of this manner of proceeding, as, in my opinion, the doctrine applies very fully and clearly to the explaining the whole of the practice which experience has established as the most successful in this disease.

1197. Considering this, then, as the proximate cause of dyspepsia, I proceed to mention the several remote causes of this disease; as they are such as, on different occasions, seem to produce a loss of tone in the muscular fibres of the stomach. They may, I think, be considered under two heads. The *first* is, of those which act directly and immediately upon the stomach itself: The *second* is, of those which act upon the whole body, or particular parts of it,

but in consequence of which the stomach is chiefly or almost only affected.

1198. Of the first kind are,

1. Certain sedative or narcotic substances taken into the stomach ; such as tea, coffee, tobacco, ardent spirits, opium, bitters, aromatics, putrids, and acescents.

2. The large and frequent drinking of warm water, or of warm watery liquids.

3. Frequent surfeit, or immoderate repletion of the stomach.

4. Frequent vomiting, whether spontaneously arising, or excited by art.

5. Very frequent spitting, or rejection of saliva.

1199. Those causes which act upon the whole body, or upon particular parts and functions of it, are,

1. An indolent and sedentary life.

2. Vexation of mind, and disorderly passions of any kind.

3. Intense study, or close application to business too long continued.

4. Excess in venery.

5. Frequent intoxication ; which partly belongs to this head, partly to the former.

6. The being much exposed to moist and cold air when without exercise.

1200. Though the disease, as proceeding from the last set of causes, may be considered as a symptomatic affection only ; yet as the affection of the stomach is generally the first, always the chief, and often the only effect which these causes produce or discover, I think the affection of the stomach may be considered as the disease to be attended to in practice ; and the more properly so, as in many cases the general debility is only to be cured by restoring the tone of the stomach, and by remedies first applied to this organ.

1201. For the cure of this disease, we form three several indications ; a preservative, a palliative, and a curative.

The *first* is, to avoid or remove the remote causes just now enumerated.

The *second* is, to remove those symptoms which especially contribute to aggravate and continue the disease. And,

The *third* is, to restore the tone of the stomach; that is, to correct or remove the proximate cause of the disease.

1202. The propriety and necessity of the first indication is sufficiently evident, as the continued application, or frequent repetition of those causes, must continue the disease; may defeat the use of remedies; or, in spite of these, may occasion the recurrence of the disease. It is commonly the neglect of this indication which renders this disease so frequently obstinate. How the indication is to be executed, will be sufficiently obvious from the consideration of the several causes: but it is proper for the practitioner to attend to this, that the execution is often exceedingly difficult, because it is not easy to engage men to break in upon established habits, or to renounce the pursuit of pleasure; and particularly, to persuade men that those practices are truly hurtful, which they have often practised with seeming impunity.

1203. The symptoms of this disease which especially contribute to aggravate and continue it, and therefore require to be more immediately corrected or removed, are, *first*, the crudities of the stomach already produced by the disease, and discovered by a loss of appetite, by a sense of weight and uneasiness in the stomach, and particularly by the eructation of imperfectly digested matters.

Another symptom to be immediately corrected, is an unusual quantity, or a higher degree than usual, of acidity present in the stomach, discovered by various disorders in digestion, and by other effects to be mentioned afterwards.

The *third* symptom aggravating the disease, and otherwise in itself urgent, is costiveness, and therefore constantly requiring to be relieved.

1204. The *first* of these symptoms is to be relieved by exciting vomiting; and the use of this remedy, therefore, usually and properly begins the cure of this disease. The vomiting may be excited by various means, more gentle or more violent. The former may answer the purpose of evacuating the contents of the stomach; but emetics, and vomiting, may also excite the ordinary action of the stomach; and both, by variously agitating the system, and particularly by determining to the surface of the body, may contribute to remove the causes of the disease. But these latter effects can only be obtained by the use of emetics of the more powerful kind, such as the antimonial emetics especially are.

1205. The *second* symptom to be palliated, is an excess of acidity, either in quantity or quality, in the contents of the stomach. In man there is a quantity of acescent aliment almost constantly taken in, and, as I think, always undergoes an acetous fermentation in the stomach; and it is, therefore, that, in the human stomach, and in the stomachs of all animals using vegetable food, there is always found an acid present. This acid, however, is generally innocent, and occasions no disorder, unless either the quantity of it is very large, or the acidity proceeds to a higher degree than usual. But in either of these cases, the acid occasions various disorders, as flatulency, eructation, heartburn, gnawing pains of the stomach, irregular appetites and cravings, looseness, griping, emaciation, and debility. To obviate or remove these effects aggravating and continuing the disease, it is not only necessary to correct the acid present in the stomach; but, especially as this acid proves a ferment determining and increasing the acescency of the aliments afterwards taken in, it is proper also, as soon as possible, to correct the disposition to excessive acidity.

1206. The acidity present in the stomach may be corrected by the use of alkaline salts, or absorbent earths, or by such substances containing these which can be decomposed

by the acid of the stomach. Of the alkalis, the caustic is more effectual than the mild; and this accounts for the effects of lime water. By employing absorbents we avoid the excess of alkali which might sometimes take place. The absorbents are different, as they form a neutral more or less laxative; and hence the difference between magnesia alba and other absorbents. It is to be observed, that alkalis and absorbents may be employed to excess; as, when employed in large quantity, they may deprive the animal fluids of the acid necessary to their proper composition.

1207. The disposition to acidity may be obviated by avoiding acescent aliments, and using animal food little capable of acescency. This, however, cannot be long continued without corrupting the state of our blood: and as vegetable food cannot be entirely avoided, the excess of its acescency may, in some measure, be avoided, by choosing vegetable food the least disposed to a vinous fermentation, such as leavened bread and well-fermented liquors, and, instead of fresh native acids, employing vinegar.

1208. The acid arising from acescent matters in a sound state of the stomach does not proceed to any high degree, or is again soon evolved and made to disappear; but this does not always happen, and a more copious acidity, or a higher degree of it, may be produced, either from a change in the digestive fluids, become less fit to moderate fermentation and to cover acidity, or from their not being supplied in due quantity. How the former may be occasioned, we do not well understand; but we can readily perceive that the latter, perhaps the former also, may proceed from a weaker action of the muscular fibres of the stomach. In certain cases, sedative passions, immediately after they arise, occasion the appearance of acidity in the stomach which did not appear before; and the use of stimulants often corrects or obviates an acidity that would otherwise have appeared. From these considerations, we conclude, that the production and subsis-

tence of acidity in the stomach is to be especially prevented by restoring and exciting the proper action of it, by the several means to be mentioned hereafter.

1209. But it is also to be further observed, that though there are certain powers in the stomach for preventing a too copious acidity, or a high degree of it, they are not however always sufficient for preventing acescency, or for covering the acidity produced; and therefore, as long as vegetable substances remain in the stomach, their acescency may go on and increase. From hence we perceive, that a special cause of the excess of acidity may be, the too long retention of acescent matters in the stomach; whether this may be from these matters being of more difficult solution, or from the weakness of the stomach more slowly discharging its contents into the duodenum, or from some impediment to the free evacuation of the stomach, by the pylorus. The latter of these causes we are well acquainted with, in the case of a scirrhus pylorus, producing commonly the highest degree of acidity. In all the instances of this scirrhusity I have met with, I have found it incurable; but the first of those causes is to be obviated by avoiding such aliments as are of difficult solution; and the second is to be mended by the several remedies for exciting the action of the stomach, to be mentioned afterwards.

1210. The *third* symptom commonly accompanying dyspepsia, which requires to be immediately removed, is costiveness. There is so much connection between the several portions of the alimentary canal with respect to the peristaltic motion, that, if accelerated or retarded in any one part, the other parts of it are commonly affected in the same manner. Thus, as the brisker action of the stomach must accelerate the action of the intestines, so the slower action of the intestines must in some measure retard that of the stomach. It is, therefore, of consequence to the proper action of the stomach, that the peristaltic motion of the intestines

determining their contents downwards be regularly continued; and that all costiveness, or interruption of that determination, be avoided. This may be done by the various means of exciting the action of the intestines; but it is to be observed here, that as every considerable evacuation of the intestines weakens their action, and is ready, therefore, to induce costiveness when the evacuation is over; so those purgatives which produce a large evacuation are unfit for correcting the habit of costiveness. This, therefore, should be attempted by medicines which do no more than solicit the intestines to a more ready discharge of their present contents, without either hurrying their action, or increasing the excretions made into their cavity; either of which effects might produce a purging. There are, I think, certain medicines peculiarly proper on this occasion, as they seem to stimulate especially the great guts, and to act little on the higher parts of the intestinal canal.

1211. We have thus mentioned the several means of executing our second indication; and I proceed to the *third*, which is, as we have said, the proper curative; and it is to restore the tone of the stomach, the loss of which we consider as the proximate cause of the disease, or at least as the chief part of it. The means of satisfying this indication we refer to two heads. One is, of those means which operate directly and chiefly on the stomach itself; and the other is, of those means which, operating upon the whole system, have their tonic effects thereby communicated to the stomach.

1212. The medicines which operate directly on the stomach, are either stimulants or tonics.

The stimulants are saline or aromatic.

The saline are acids or neutrals.

Acids of all kinds seem to have the power of stimulating the stomach, and therefore often increase appetite: but the native acids, as liable to fermentation, may otherwise do

harm, and are therefore of ambiguous use. The acids, therefore chiefly and successfully employed, are the vitriolic, muriatic, and the distilled acid of vegetables, as it is found in tar-water, which are all of them antizymics.

The neutral salts answering this intention, are especially those which have the muriatic acid in their composition, though it is presumed that neutrals of all kinds have more or less of the same virtue.

1213. The aromatics, and perhaps some other acrids, certainly stimulate the stomach, as they obviate the acescency and flatulency of vegetable food: but their stimulus is transitory; and if frequently repeated, and taken in large quantities, they may hurt the tone of the stomach.

1214. The tonics employed to strengthen the stomach are bitters, bitters and astringents combined, and, chalybeates.

Bitters are undoubtedly tonic medicines, both with respect to the stomach and the whole system: but their long continued use has been found to destroy the tone of the stomach, and of the whole system; and whether this is from the mere repetition of their tonic operation, or from some narcotic power joined with the tonic in them, I am uncertain.

1215. Bitters and astringents combined, are, probably, more effectual tonics than either of them taken singly; and we suppose such a combination to take place in the Peruvian bark; which therefore proves a powerful tonic, both with respect to the stomach and to the whole system. But I have some ground to suspect, that the long continued use of this bark may, like bitters, destroy both the tone of the stomach and of the whole system.

1216. Chalybeates may be employed as tonics in various forms, and in considerable quantities, with safety. They have been often employed in the form of mineral waters, and seemingly with success: but whether this is owing to the chalybeate in the composition of these waters, or to some other circumstances attending their use, I dare not positive-

ly determine; but the latter opinion seems to me the more probable.

1217. The remedies which strengthen the stomach, by being applied to the whole body, are exercise and the application of cold.

As exercise strengthens the whole body, it must also strengthen the stomach; but it does this also in a particular manner, by promoting perspiration, and exciting the action of the vessels on the surface of the body, which have a particular consent with the muscular fibres of the stomach. This particularly explains why the exercises of gestation, though not the most powerful in strengthening the whole system, are, however, very powerful in strengthening the stomach; of which we have a remarkable proof in the effects of sailing. In strengthening the general system, as fatigue must be avoided, so bodily exercise is of ambiguous use; and perhaps it is thereby, that riding on horseback has been so often found to be one of the most powerful means of strengthening the stomach, and thereby of curing dyspepsia.

1218. The other general remedy of dyspepsia, is the application of cold: which may be in two ways; that is, either by the application of cold air, or of cold water. It is probable, that, in the atmosphere constantly surrounding our bodies, a certain degree of cold, considerably less than the temperature of our bodies themselves, is necessary to the health of the human body. Such a degree of cold seems to strengthen the vessels on the surface of the body, and therefore the muscular fibres of the stomach. But, further, it is well known, that if the body is in exercise sufficient to support such a determination to the surface, as to prevent the cold from producing an entire constriction of the pores; a certain degree of cold in the atmosphere, with such exercise, will render the perspiration more considerable. From the sharp appetite that in such circumstances is commonly pro-

duced, we can have no doubt, that by the application of such cold, the tone of the stomach is considerably strengthened. Cold air, therefore, applied with exercise, is a most powerful tonic with respect to the stomach: and this explains why, for that purpose, no exercises within doors, or in close carriages, are so useful as those in the open air.

1219. From the same reasoning, we can perceive, that the application of cold water, or cold bathing, while it is tonic with respect to the system in general, and especially as exciting the action of the extreme vessels, must in both respects be a powerful means of strengthening the tone of the stomach.

1220. These are the remedies to be employed towards a radical cure of idiopathic dyspepsia; and it might be, perhaps, expected here, that I should treat also of the various cases of the sympathetic disease. But it will be obvious that this cannot be properly done without treating of all the diseases of which the dyspepsia is a symptom, which cannot be proper in this place. It has been partly done already, and will be farther treated of in the course of this work. In the mean time, it may be proper to observe, that there is not so much occasion for distinguishing between the idiopathic and sympathetic dyspepsia, as there is in many other cases of idiopathic and sympathetic diseases. For, as the sympathetic cases of dyspepsia are owing to a loss of tone in some other part of the system, which is from thence communicated to the stomach; so the tone of the stomach restored, may be communicated to the part primarily affected; and therefore the remedies of the idiopathic may be often usefully employed, and are often the remedies chiefly employed, in sympathetic dyspepsia.

1221. Another part of our business here might be to say how some other of the urgent symptoms, beside those above mentioned, are to be palliated. On this subject, I think it is enough to say, that the symptoms chiefly requiring to be

immediately relieved, are flatulency, heartburn, other kinds of pain in the region of the stomach, and vomiting.

The dyspeptic are ready to suppose that the whole of their disease consists in a flatulency. In this it will be obvious that they are mistaken; but, although the flatulency is not to be entirely cured, but by mending the imbecility of the stomach by the means above mentioned, yet the flatulent distention of the stomach may be relieved by carminatives, as they are called, or medicines that produce a discharge of wind from the stomach; such are the various antispasmodics, of which the most effectual is the vitriolic æther.

The heartburn may be relieved by absorbents, antispasmodics, or demulcents.

The other pains of the stomach may be sometimes relieved by carminatives, but most certainly by opiates.

Vomiting is to be cured most effectually by opiates thrown by injection into the anus.

CHAP. III.

OF HYPOCHONDRIASIS, OR THE HYPOCHONDRIAC AFFECTION, COMMONLY CALLED VAPOURS OR LOW SPIRITS.

G. XLV. HYPOCHONDRIASIS.—*Dyspepsia cum languore, mæstitiâ, et metu, ex causis non æquis, in temperamento melancholico.*

1222. IN certain persons there is a state of mind distinguished by a concurrence of the following circumstances: A languor, listlessness, or want of resolution and activity with re-

spect to all undertakings; a disposition to seriousness, sadness, and timidity; as to all future events, an apprehension of the worst or most unhappy state of them; and therefore, often upon slight grounds, an apprehension of great evil. Such persons are particularly attentive to the state of their own health, to every the smallest change of feeling in their bodies; and from any unusual feeling, perhaps of the slightest kind, they apprehend great danger, and even death itself. In respect to all these feelings and apprehensions, there is commonly the most obstinate belief and persuasion.

1223. This state of mind is the Hypochondriasis of medical writers. See Linnæi Genera Morborum, Gen. 76. et Sagari Systema Symptomaticum, Class XIII. Gen. 5. The same state of mind is what has been commonly called *Vapours* and *Low Spirits*. Though the term *Vapours* may be founded on a false theory, and therefore improper, I beg leave, for a purpose that will immediately appear, to employ it for a little here.

1224. Vapours, then, or the state of mind described above, is, like every other state of mind, connected with a certain state of the body, which must be inquired into, in order to its being treated as a disease by the art of physic.

1225. This state of the body, however, is not very easily ascertained; for we can perceive, that on different occasions it is very different; vapours being combined sometimes with dyspepsia, sometimes with hysteria, and sometimes with melancholia, which are diseases seemingly depending on very different states of the body.

1226. The combination of vapours with dyspepsia is very frequent, and in seemingly very different circumstances. It is especially these different circumstances that I would wish to ascertain; and I remark that they are manifestly of two different kinds. First, as the disease occurs in young persons of both sexes, in persons of a sanguine temperament, and of a lax and flaccid habit. Secondly, as it occurs in el-

derly persons of both sexes, of a melancholic temperament, and of a firm and rigid habit.

1227. These two different cases of the combination of vapours and dyspepsia, I consider as two distinct diseases, to be distinguished chiefly by the temperament prevailing in the persons affected.

As the dyspepsia of sanguine temperaments is often without vapours; and as the vapours, when joined with dyspepsia in such temperaments, may be considered as perhaps always a symptom of the affection of the stomach; so to this combination of dyspepsia and vapours, I would still apply the appellation of *Dyspepsia*, and consider it as strictly the disease treated of in the preceding chapter.

But the combination of dyspepsia and vapours in melancholic temperaments, as the vapours or the turn of mind peculiar to the temperament, nearly that described above in 1222, are essential circumstances of the disease; and as this turn of mind is often with few, or only slight symptoms of dyspepsia, and even though the latter be attending, as they seem to be rather the effects of the general temperament, than of any primary or topical affection of the stomach; I consider this combination as a very different disease from the former, and would apply to it strictly the appellation of *Hypochondriasis*.

1228. Having thus pointed out a distinction between Dyspepsia and Hypochondriasis, I shall now, using these terms in the strict sense above mentioned, make some observations which may, I think, illustrate the subject, and more clearly and fully establish the distinction proposed.

1229. The dyspepsia often appears early in life, and is frequently much mended as life advances; but the Hypochondriasis seldom appears early in life, and more usually in more advanced years only; and more certainly still when it has once taken place, it goes on increasing as life advances to old age.

This seems to be particularly well illustrated, by our observing the changes in the state of the mind which usually take place in the course of life. In youth, the mind is cheerful, active, rash, and moveable; but as life advances, the mind by degrees becomes more serious, slow, cautious, and steady; till at length in old age, the gloomy, timid, distrustful, and obstinate state of melancholic temperaments is more exquisitely formed. In producing these changes, it is true that moral causes have a share; but it is at the same time obvious, that the temperament of the body determines the operation of these moral causes sooner or later, and in a greater or less degree, to have their effects. The sanguine temperament retains longer the character of youth, while the melancholic temperament brings on more early the manners of old age.

1230. Upon the whole, it appears, that the state of the mind which attends, and especially distinguishes hypochondriasis, is the effect of that same rigidity of the solids, torpor of the nervous power, and peculiar balance between the arterial and venous systems which occur in advanced life, and which at all times take place more or less in melancholic temperaments. If therefore there be also somewhat of a like state of mind attending the dyspepsia which occurs early in life in sanguine temperaments and lax habits, it must depend upon a different state of the body, and probably upon a weak and moveable state of the nervous power.

1231. Agreeable to all this, in dyspepsia there is more of spasmodic affection, and the affection of the mind (1222.) is often absent, and when present, is perhaps always of a slighter kind: while in hypochondriasis, the affection of the mind is more constant, and the symptoms of dyspepsia, or the affections of the stomach, are often absent, or when present are in a slighter degree.

I believe the affection of the mind is commonly different in the two diseases. In dyspepsia, it is often languor and

timidity only, easily dispelled ; while in hypochondriasis, it is generally the gloomy and rivetted apprehension of evil.

The two diseases are also distinguished by some other circumstances. Dyspepsia, as I have said, is often a symptomatic affection ; while hypochondriasis is perhaps always a primary and idiopathic disease.

As debility may be induced by many different causes, dyspepsia is a frequent disease ; while hypochondriasis, depending upon a peculiar temperament, is more rare.

1232. Having thus endeavoured to distinguish the two diseases, I suppose the peculiar nature and proximate cause of *hypochondriasis* will be understood ; and I proceed therefore to treat of its cure.

So far as the affections of the body, and particularly of the stomach, are the same here as in the case of *dyspepsia*, the method of cure might be supposed to be also the same ; and accordingly the practice has been carried on with little distinction ; but I am persuaded that a distinction is often necessary.

1233. There may be a foundation here for the same preservative indication as first laid down in the cure of *dyspepsia* (1202.) ; but I cannot treat this subject so clearly or fully as I could wish, because I have not yet had so much opportunity of observation as I think necessary to ascertain the remote causes ; and I can hardly make use of the observations of others, who have seldom or never distinguished between the two diseases. What indeed has been said with respect to the remote causes of *melancholia*, will often apply to the *hypochondriasis*, which I now treat of ; but the subject of the former has been so much involved in a doubtful theory, that I find it difficult to select the facts that might properly and strictly apply to the latter. I delay this subject, therefore, till another occasion ; but in the mean time trust, that what I have said regarding the nature of the disease, and some remarks I shall have occasion to offer in con-

sidering the method of cure, may in some measure supply my deficiency on this subject of the remote causes.

1234. The *second* indication laid down in the cure of dyspepsia (1201.) has properly a place here; but it is still to be executed with some distinction.

1235. An anorexia, and accumulation of crudities in the stomach, does not so commonly occur in hypochondriasis as in dyspepsia; and therefore vomiting (1204.) is not so often necessary in the former as in the latter.

1236. The symptom of excess of acidity, from the slow evacuation of the stomach in melancholic temperaments, often arises to a very high degree in hypochondriasis; and therefore, for the same reason as in 1205, it is to be obviated and corrected with the utmost care. It is upon this account that the several antacids, and the other means of obviating acidity, are to be employed in hypochondriasis, and with the same attentions and considerations as in 1206. and following; with this reflection, however, that the exciting the action of the stomach there mentioned, is to be a little differently understood, as shall be hereafter explained.

1237. As costiveness, and that commonly to a considerable degree, is a very constant attendant of hypochondriasis, so it is equally hurtful as in dyspepsia. It may be remedied by the same means in the former as in the latter, and they are to be employed with the same restrictions as in 1210.

1238. It is especially with respect to the *third* indication laid down in the cure of dyspepsia (1201.) that there is a difference of practice to be observed in the cure of hypochondriasis; and that often one directly opposite to that in the case of dyspepsia is to be followed.

1239. In dyspepsia, the chief remedies are the tonic medicines, which to me seem neither necessary nor safe in hypochondriasis; for in this there is not a loss of tone, but a want of activity, that is to be remedied.

Chalybeate mineral waters have commonly been employed

in hypochondriasis, and seemingly with success. But this is probably to be imputed to the amusement and exercise usually accompanying the use of these waters, rather than to the tonic power of the small quantity of iron which they contain. Perhaps the elementary water, by favouring the excretions, may have a share in relieving the disease.

1240. Cold bathing is often highly useful to the dyspeptic, and as a general stimulant may sometimes seem useful to the hypochondriac; but it is not commonly so to the latter: while, on the other hand, warm bathing, hurtful to the dyspeptic, is often extremely useful to the hypochondriac.

1241. Another instance of a contrary practice necessary in the two diseases, and illustrating their respective natures, is that the drinking tea and coffee is always hurtful to the dyspeptic, but is commonly extremely useful to the hypochondriac.

1242. Exercise, as it strengthens the system, and thereby the stomach, and more especially, as by increasing the perspiration it excites the action of the stomach, proves one of the most useful remedies in dyspepsia; and further, as by increasing the perspiration, it excites the activity of the stomach, it likewise proves an useful remedy in the hypochondriasis. However, in the latter case, as I shall explain presently, it is still a more useful remedy by its operation upon the mind than by that upon the body.

1243. It is now proper that we proceed to consider the most important article of our practice in this disease, and which is, to consider the treatment of the mind, an affection of which sometimes attends dyspepsia, but is always the chief circumstance in hypochondriasis. What I am to suggest here, will apply to both diseases; but it is the hypochondriasis that I am to keep most constantly in view.

1244. The management of the mind, in hypochondriacs, is often nice and difficult. The firm persuasion that generally prevails in such patients, does not allow their feelings to

be treated as imaginary, nor their apprehension of danger to be considered as groundless, though the physician may be persuaded that it is the case in both respects. Such patients, therefore, are not to be treated either by raillery or by reasoning,

It is said to be the manner of hypochondriacs to change often their physician, and indeed they often do it consistently; for a physician who does not admit the reality of the disease, cannot be supposed to take much pains to cure it, or to avert the danger of which he entertains no apprehension.

If in any case the pious fraud of a placebo be allowable, it seems to be in treating hypochondriacs; who, anxious for relief, are fond of medicines, and though often disappointed, will still take every new drug that can be proposed to them.

1245. As it is the nature of man to indulge every present emotion, so the hypochondriac cherishes his fears, and, attentive to every feeling, finds in trifles light as air a strong confirmation of his apprehensions. His cure therefore depends especially upon the interruption of his attention, or upon its being diverted to other objects than his own feelings.

1246. Whatever aversion to application of any kind may appear in hypochondriacs, there is nothing more pernicious to them than absolute idleness, or a vacancy from all earnest pursuit. It is owing to wealth admitting of indolence, and leading to the pursuit of transitory and unsatisfying amusements, or to that of exhausting pleasures only, that the present times exhibit to us so many instances of hypochondriacism.

The occupations of business suitable to their circumstances and situation in life, if neither attended with emotion, anxiety, nor fatigue, are always to be admitted, and persisted in by hypochondriacs. But occupations upon which a man's fortune depends, and which are always, therefore, objects of

anxiety to melancholic men; and more particularly where such occupations are exposed to accidental interruptions, disappointments, and failures, it is from these that the hypochondriac is certainly to be withdrawn.

1247. The hypochondriac, who is not necessarily, by circumstances or habits, engaged in business, is to be drawn from his attention to his own feelings by some amusement.

The various kinds of sport and hunting, as pursued with some ardour, and attended with exercise, if not too violent, are amongst the most useful.

All those amusements which are in the open air, joined with moderate exercise, and requiring some dexterity, are generally of use.

Within doors, company which engages attention, which is willingly yielded to, and is at the same time of a cheerful kind, will be always found of great service.

Play, in which some skill is required, and where the stake is not an object of much anxiety, if not too long protracted, may often be admitted.

In dyspeptics, however, gaming, liable to sudden and considerable emotions, is dangerous; and the long continuance of it, with night watching, is violently debilitating. But in melancholics, who commonly excel in skill, and are less susceptible of violent emotions, it is more admissible, and is often the only amusement that can engage them.

Music, to a nice ear, is a hazardous amusement, as long attention to it is very fatiguing.

1248. It frequently happens, that amusements of every kind are rejected by hypochondriacs; and, in that case, mechanical means of interrupting thought are the remedies to be sought for.

Such is to be found in brisk exercise, which requires some attention in the conduct of it.

Walking is seldom of this kind; though, as gratifying to the restlessness of hypochondriacs, it has sometimes been found useful.

The required interruption of thought is best obtained by riding on horseback, or in driving a carriage of any kind.

The exercise of sailing, except it be in an open boat, engaging some attention, does very little service.

Exercise in an easy carriage, in the direction of which the traveller takes no part, unless it be upon rough roads, or driven pretty quickly, and with long continuance, is of little advantage.

1249. Whatever exercise may be employed, it will be most effectual when employed in the pursuit of a journey: first, because it withdraws a person from many objects of uneasiness and care which might present themselves at home; secondly, as it engages in more constant exercise, and in a greater degree of it than is commonly taken in airings about home; and, lastly, as it is constantly presenting new objects which call forth a person's attention.

1250. In our system of Nosology, we have, next to Hypochondriasis, placed the Chlorosis, because I once thought it might be considered as a genus, comprehending, besides the Chlorosis of Amenorrhœa, some species of Cachexy: but, as I cannot find this to be well founded, and cannot distinctly point out any such disease, I now omit considering Chlorosis as a genus here; and, as a symptom of Amenorrhœa, I have endeavoured before to explain it under that title.

BOOK III.

OF SPASMODIC AFFECTIONS, WITHOUT
FEVER.

ORD. III. SPASMI.

Musculorum vel fibrarum muscularium motus abnormes.

INTRODUCTION.

1251. UNDER this title I am to comprehend all the diseases which consist in *motu abnormi*; that is, in a preternatural state of the contraction and motion of the muscular or moving fibres in any part of the body.

1252. It will hence appear, why, under this title, I have comprehended many more diseases than Sauvages and Sagar have comprehended under the title of Spasmi, or than Linnæus has done under the title of Motorii. But I expect it will be obvious, that, upon this occasion, it would not be proper to confine our view to the affections of voluntary motion only; and if those Nosologists have introduced into the class of Spasmi, Palpitatio and Hysteria, it will be, with equal propriety, that Asthma, Colica, and many other diseases, are admitted.

1253. It has been hitherto the method of our Nosologists to divide the Spasmi into the two orders of Tonici and Clonici, Spastici and Agitatorii; or, as many at present use the terms, into Spasms strictly so called, and Convulsions. I find, however, that many, and indeed most of the diseases to be considered under our title of Spasmodic Affections, in respect of Tonic or Clonic contractions, are of a mixed kind: and, therefore, I cannot follow the usual general di-

vision; but have attempted another, by arranging the several Spasmodic Diseases according as they affect the several functions, Animal, Vital, or Natural.

SECT. I.—*Of the Spasmodic Affections of the Animal Functions.*

1254. AGREEABLE to the language of the ancients, the whole of the diseases to be treated of in this section might be termed *Spasmi*; and many of the moderns continue to apply the term in the same manner: but I think it convenient to distinguish the terms of *Spasm* and *Convulsion*, by applying the former strictly to what has been called the *Tonic*, and the latter to what has been called the *Clonic* Spasm. There is certainly a foundation for the use of those different terms, as there is a remarkable difference in the state of contraction of moving fibres upon different occasions. This I have indeed pointed out before in my treatise of Physiology, but must also repeat it here.

1255. In the exercise of the several functions of the animal economy, the contractions of the moving fibres are excited by the will, or by certain other causes specially appointed by nature for exciting those contractions; and these other causes I name the *natural causes*. In a state of health the moving fibres are contracted by the power of the will, and by the *natural causes* only. At the same time, the contractions produced are in force and velocity regulated by the will, or by the circumstances of the natural causes; and the contractions, whether produced by the one or the other, are always soon succeeded by a state of relaxation, and are not repeated but when the power of the will or of the natural causes is again applied.

1256. Such are the conditions of the action of the moving fibres in a state of health; but in a morbid state, the con-

tractions of the muscles and moving fibres ordinarily depending upon the will, are excited without the concurrence of the will, or contrary to what the will intends; and in the other functions they are excited by the action of unusual and unnatural causes. In both cases, the contractions produced may be in two different states. The one is, when the contractions are to a more violent degree than is usual in health, and are neither succeeded by a spontaneous relaxation, nor even readily yield to an extension either from the action of antagonist muscles, or from other extending powers applied. This state of contraction is what has been called a *Tonic Spasm*, and is what I shall name simply and strictly a *Spasm*. The other morbid state of contractions is, when they are succeeded by a relaxation, but are immediately again repeated without the concurrence of the will or of the repetition of natural causes, and are at the same time commonly, with respect to velocity and force, more violent than in a healthy state. This state of morbid contraction is what has been named a *Clonic Spasm*, and what I shall name simply and strictly a *Convulsion*.

In this section I shall follow nearly the usual division of the spasmodic diseases, into those consisting in Spasm, and those consisting in Convulsion; but it may not perhaps be in my power to follow such division exactly.

CHAP. I.

OF TETANUS.

G. XLVII. TETANUS.—*Plurimum musculorum rigiditas spastica.*

1257. BOTH Nosologists and Practical Writers have distinguished tetanic complaints into the several species of Tetanus,

Opisthotonos, and Emprosthotonos; and I have in my Nology put the Trismus, or Locked Jaw, as a genus distinct from the Tetanus. All this, however, I now judge to be improper; and am of opinion, that all the several terms mentioned, denote, and are applicable only to different degrees of one and the same disease; the history and cure of which I shall endeavour to deliver in this chapter.

1258. Tetanic complaints may, from certain causes, occur in every climate that we are acquainted with: but they occur most frequently in the warmest climates, and most commonly in the warmest seasons of such climates. These complaints affect all ages, sexes, temperaments, and complexions. The causes from whence they commonly proceed are cold and moisture applied to the body while it is very warm, and especially the sudden vicissitudes of heat and cold. Or, the disease is produced by punctures, lacerations, or other lesions of nerves in any part of the body. There are, probably, some other causes of this disease; but they are neither distinctly known nor well ascertained. Though the causes mentioned do, upon occasion, affect all sorts of persons, they seem however to attack persons of a middle age more frequently than the older or younger, the male sex more frequently than the female, and the robust and vigorous more frequently than weaker.

1259. If the disease proceed from cold, it commonly comes on in a few days after the application of such cold; but if it arise from a puncture or other lesion of a nerve, the disease does not commonly come on for many days after the lesion has happened, very often when there is neither pain nor uneasiness remaining in the wounded or hurt part, and very frequently when the wound has been entirely healed up.

1260. The disease sometimes comes on suddenly to a violent degree, but more generally it approaches by slow degrees to its violent state. In this case it comes on with a sense

of stiffness in the back part of the neck, which gradually increasing, renders the motion of the head difficult and painful. As the rigidity of the neck comes on and increases, there is commonly at the same time a sense of uneasiness felt about the root of the tongue; which, by degrees, becomes a difficulty of swallowing, and at length an entire interruption of it. While the rigidity of the neck goes on increasing, there arises a pain, often violent, at the lower end of the sternum, and from thence shooting into the back. When this pain arises, all the muscles of the neck, and particularly those of the back part of it, are immediately affected with spasm, pulling the head strongly backwards. At the same time, the muscles that pull up the lower jaw, which upon the first approaches of the disease were affected with some spastic rigidity, are now generally affected with more violent spasm, and set the teeth so closely together, that they do not admit of the smallest opening.

This is what has been named the *Locked Jaw*, and is often the principal part of the disease. When the disease has advanced thus far, the pain at the bottom of the sternum returns very frequently, and with it the spasms of the hind-neck and lower jaw are renewed with violence and much pain. As the disease thus proceeds, a greater number of muscles come to be affected with spasms. After those of the neck, those along the whole of the spine become affected, bending the trunk of the body strongly backwards; and this is what has been named the *Opisthotonos*.

In the lower extremities, both the flexor and extensor muscles are commonly at the same time affected, and keep the limbs rigidly extended. Though the extensors of the head and back are usually the most strongly affected, yet the flexors, or those muscles of the neck that pull the head forwards, and the muscles that should pull down the lower jaw, are often at the same time strongly affected with spasm. During the whole of the disease, the abdominal muscles are

violently affected with spasm, so that the belly is strongly retracted, and feels hard as a piece of board.

At length the flexors of the head and trunk become so strongly affected as to balance the extensors, and to keep the head and trunk straight, and rigidly extended, incapable of being moved in any way: and it is to this state the term of *Tetanus* has been strictly applied. At the same time, the arms, little affected before, are now rigidly extended; the whole of the muscles belonging to them being affected with spasms, except those that move the fingers, which often to the last retain some mobility. The tongue also long retains its mobility; but at length it also becomes affected with spasms, which attacking certain of its muscles only, often thrust it violently out between the teeth.

At the height of the disease, every organ of voluntary motion seems to be affected; and, among the rest, the muscles of the face. The forehead is drawn up into furrows; the eyes, sometimes distorted, are commonly rigid, and immoveable in their sockets; the nose is drawn up, and the cheeks are drawn backwards towards the ears, so that the whole countenance expresses the most violent grinning. Under these universal spasms, a violent convulsion commonly comes on, and puts an end to life.

1261. These spasms are every where attended with most violent pains. The utmost violence of spasm is, however, not constant; but, after subsisting for a minute or two, the muscles admit of some remission of their contraction, although of no such relaxation as can allow the action of their antagonists. This remission of contraction gives also some remission of pain; but neither is of long duration. From time to time, the violent contractions and pain are renewed sometimes every ten or fifteen minutes, and that often without any evident exciting cause. But such evident exciting causes frequently occur; for almost every attempt to motion, as attempting a change of posture, endeavouring to swallow,

and even to speak, sometimes gives occasion to a renewal of the spasms over the whole body.

1262. The attacks of this disease are seldom attended with any fever. When the spasms are general and violent, the pulse is contracted, hurried, and irregular; and the respiration is affected in like manner; but, during the remission, both the pulse and respiration usually return to their natural state. The heat of the body is commonly not increased; frequently the face is pale, with a cold sweat upon it; and very often the extremities are cold, with a cold sweat over the whole body. When, however, the spasms are frequent and violent, the pulse is sometimes more full and frequent than natural; the face is flushed, and a warm sweat is forced out over the whole body.

1263. Although fever be not a constant attendant of this disease, especially when arising from a lesion of nerves; yet, in those cases proceeding from cold, a fever sometimes has supervened, and is said to have been attended with inflammatory symptoms. Blood has been often drawn in this disease, but it never exhibits any inflammatory crust: and all accounts seem to agree, that the blood drawn seems to be of a looser texture than ordinary, and that it does not coagulate in the usual manner.

1264. In this disease the head is seldom affected with delirium, or even confusion of thought, till the last stage of it; when, by the repeated shocks of a violent distemper, every function of the system is greatly disordered.

1265. It is no less extraordinary, that, in this violent disease, the natural functions are not either immediately or considerably affected. Vomitings sometimes appear early in the disease, but commonly they are not continued; and it is usual enough for the appetite of hunger to remain through the whole course of the disease; and what food happens to be taken down, seems to be regularly enough digested. The excretions are sometimes affected, but not

always. The urine is sometimes suppressed, or is voided with difficulty and pain. The belly is costive: but, as we have hardly any accounts, excepting of those cases in which opiates have been largely employed, it is uncertain whether the costiveness has been the effect of the opiates or of the disease. In several instances of this disease, a miliary eruption has appeared upon the skin; but whether this be a symptom of the disease, or the effect of a certain treatment of it, is undetermined. In the mean while, it has not been observed to denote either safety or danger, or to have any effect in changing the course of the distemper.

1266. This disease has generally proved fatal; and this indeed may be justly supposed to be the consequence of its nature: but, as we know that, till very lately, physicians were not well acquainted with a proper method of cure; and that since a more proper method has been known and practised, many have recovered from this disease; it may be therefore concluded, that the fatal tendency of it is not so unavoidable as has been imagined.

In judging of the tendency of this disease, in particular cases, we may remark, that, when arising from lesions of the nerves, it is commonly more violent, and of more difficult cure, than when proceeding from cold; that the disease which comes on suddenly, and advances quickly to a violent degree, is always more dangerous than that which is slower in its progress. Accordingly, the disease often proves fatal before the fourth day; and, when a patient has passed this period, he may be supposed to be in greater safety, and in general the disease is the safer the longer it has continued. It is, however, to be particularly observed, that, even for many days after the fourth, the disease continues to be dangerous; and, even after some considerable abatement of its force, it is ready to recur again with its former violence and danger. It never admits of any sudden, or what may be called a critical solution, but always recedes by degrees on-

ly, and it is often very long before the whole of the symptoms disappear.

1267. From the history of the disease now described, it will be evident, that there is no room for distinguishing the *tetanus*, *opisthotonos*, and *trismus* or *locked-jaw*, as different species of this disease, since they all arise from the same causes, and are almost constantly conjoined in the same person. I have no doubt that the *emprosthotonos* belongs also to the same genus; and as the ancients have frequently mentioned it, we can have no doubt of its having occurred: but, at the same time, it is certainly in these days a rare occurrence; and, as I have never seen it, nor find any histories in which this particular state of the spasms is said to have prevailed, I cannot mention the other circumstances which particularly attend it, and may distinguish it from the other varieties of tetanic complaints.

1268. This disease has put on still a different form from any of those above mentioned. The spasms have been sometimes confined to one side of the body only, bending it strongly to that side. This is what has been named by Sauvages the *Tetanus Lateralis*, and by some late writers the *Pleurosthotonos*. This form of the disease has certainly appeared very seldom; and, in any of the accounts given of it, I cannot find any circumstances that would lead me to consider it as any other than a variety of the species already mentioned, or to take further notice of it here.

1269. The pathology of this disease I cannot in any measure attempt, as the structure of moving fibres, the state of them under different degrees of contraction, and particularly the state of the sensorium, as variously determining the motion of the nervous power, are all matters very imperfectly, or not at all known to me. In such a situation, therefore, the endeavouring to give any rules of practice, upon a scientific plan, appears to be vain and fruitless; and towards directing the cure of this disease, we must be satisfied with ha-

ving learned something useful from analogy confirmed by experience.

1270. When the disease is known to arise from the lesion of a nerve in any part of the body, the first, and, as I judge, the most important step to be taken towards the cure, is, by every possible means to cut off that part from all communication with the sensorium, either by cutting through the nerves in their course, or perhaps by destroying, to a certain length, their affected part or extremity.

1271. When the cure of the disease is to be attempted by medicine, experience has taught us that opium has often proved an effectual remedy; but that, to render it such, it must be given in much larger quantities than have been employed in any other case; and in these larger quantities it may, in this disease, be given more safely than the body has been known to bear in any other condition. The practice has been to give the opium either in a solid or a liquid form, not in any very large dose at once, but in moderate doses, frequently repeated, at the interval of one, two, three, or more hours, as the violence of the symptoms seems to require. Even when large quantities have been given in this way, it appears that the opium does not operate here in the same manner as in most other cases; for, though it procure some remission of the spasms and pains, it hardly induces any sleep, or occasions that stupor, intoxication, or delirium, which it often does in other circumstances, when much smaller quantities only have been given. It is therefore very properly observed, that, in tetanic affections, as the opium shows none of those effects by which it may endanger life, there is little or no reason for being sparing in the exhibition of it; and it may be given, probably should be given, as largely and as fast as the symptoms of the disease may seem to demand.

It is particularly to be observed, that though the first exhibitions of the opium may have produced some remission

of the symptoms, yet the effects of opium do not long continue in the system; and this disease being for some time ready to recur, it is commonly very necessary, by the time that the effects of the opium given may be supposed to be wearing off, and especially upon the least appearance of a return of the spasms, to repeat the exhibition of the opium in the same quantities as before. This practice is to be continued while the disease continues to show any disposition to return; and it is only after the disease has already subsisted for some time, and when considerable and long-continued remissions have taken place, that the doses of the opium may be diminished, and the intervals of exhibiting them be more considerable.

1272. The administering of opium in this manner has in many cases been successful, and probably would have been equally so in many others, if the opium had not been too sparingly employed, either from the timidity of practitioners, or from its exhibition being prevented by that interruption of deglutition which so often attends this disease. This latter circumstance directs, that the medicine should be immediately and largely employed upon the first approach of the disease, before the deglutition becomes difficult; or that, if this opportunity be lost, the medicine, in sufficient quantity, and with due frequency, should be thrown into the body by glyster; which, however, does not seem to have been hitherto often practised.

1273. It is highly probable, that, in this disease, the intestines are affected with the spasm that prevails so much in other parts of the system; and, therefore, that costiveness occurs here as a symptom of the disease. It is probably also increased by the opium, which is here so largely employed; and, from whichever of these causes it arises, it certainly must be held to aggravate the disease, and that a relaxation of the intestinal canal will contribute to a relaxation of the spasms elsewhere. This consideration directs the fre-

quent exhibition of laxatives while the power of deglutition remains, or the frequent exhibition of glysters when it does not; and the good effects of both have been frequently observed.

1274. It has been with some probability supposed, that the operation of opium in this disease may be much assisted by joining with it some other of the most powerful antispasmodics. The most promising are musk and camphire; and some practitioners have been of opinion, that the former has proved very useful in tetanic complaints. But, whether it be from its not having been employed of a genuine kind, or in sufficient quantity, the great advantage and propriety of its use are not yet clearly ascertained. It appears to me probable, that analogous to what happens with respect to opium, both musk and camphire might be employed in this disease, in much larger quantities than they commonly have been in other cases.

1275. Warm bathing has been commonly employed as a remedy in this disease, and often with advantage; but, so far as I know, it has not alone proved a cure; and, in some cases, whether it be from the motion of the body here required, exciting the spasms, or from the fear of the bath, which some persons were seized with, I cannot determine: but it is allowed, that the warm bath hath in some cases done harm, and even occasioned death. Partial fomentations have been much commended, and, I believe, upon good grounds: And I have no doubt but that fomentations of the feet and legs, as we now usually apply them in fevers, might, without much stirring of the patient, be very assiduously employed with advantage.

1276. Unctuous applications were very frequently employed in this disease by the ancients; and some modern practitioners have considered them as very useful. Their effects, however, have not appeared to be considerable; and, as a weak auxiliary only, attended with some inconvenience,

they have been very much neglected by the British practitioners.

1277. Bleeding has been formerly employed in this disease ; but of late it has been found prejudicial, excepting in a few cases, where, in plethoric habits, a fever has supervened. In general, the state of men's bodies in warm climates is unfavourable to blood-letting : and, if we may form indications from the state of the blood drawn out of the veins, the state of this in tetanic diseases would forbid bleeding in them.

1278. Blistering, also, has been formerly employed in this disease ; but several practitioners assert, that blisters are constantly hurtful, and they are now generally omitted.

1279. These are the practices that hitherto have been generally employed ; but of late we are informed by several West-India practitioners, that in many instances they have employed mercury with great advantage. We are told, that it must be employed early in the disease ; that it is most conveniently administered by unction, and should be applied in that way in large quantities, so that the body may be soon filled with it, and a salivation raised, which is to be continued till the symptoms yield. Whether this method alone be generally sufficient for the cure of the disease, or if it may be assisted by the use of opium, and require this in a certain measure to be joined with it, I have not yet certainly learned.

1280. I have been further informed, that the Tetanus, in all its different degrees, has been cured by giving internally the *Pisselæum Barbádense*, or, as it is vulgarly called, the Barbadoes Tar. I think it proper to take notice of this here, although I am not exactly informed what quantities of this medicine are to be given, or in what circumstances of the disease it is most properly to be employed.

1280. In the former edition of this work, among the remedies of tetanus I did not mention the use of cold bathing ;

because, though I had heard of this, I was not informed of such frequent employment of it as might confirm my opinion of its general efficacy; nor was I sufficiently informed of the ordinary and proper administration of it. But now, from the information of many judicious practitioners who have frequently employed it, I can say, that it is a remedy which in numerous trials have been found to be of great service in this disease; and that, while the use of the ambiguous remedy of warm bathing is entirely laid aside, the use of cold bathing is over the whole of the West Indies commonly employed. The administration of it is sometimes by bathing the person in the sea, or more frequently by throwing cold water from a basin or bucket upon the patient's body, and over the whole of it: when this is done, the body is carefully wiped dry, wrapped in blankets, and laid abed, and at the same time a large dose of an opiate is given. By these means a considerable remission of the symptoms is obtained; but this remission at first does not commonly remain long, but returning again in a few hours, the repetition both of the bathing and the opiate becomes necessary. By these repetitions, however, longer intervals of ease are obtained, and at length the disease is entirely cured; and this even happens sometimes very quickly. I have only to add, that it does not appear to me, from any accounts I have yet had, that the cold bathing has been so frequently employed, or has been found so commonly successful in the cases of tetanus in consequence of wounds, as in those from the application of cold.

1281. Before concluding this chapter, it is proper for me to take some notice of that peculiar case of the tetanus, or trismus, which attacks certain infants soon after their birth, and has been properly enough named the *Trismus Nascensium*. From the subjects it affects, it seems to be a peculiar disease; for these are infants not above two weeks, and commonly before they are nine days old; insomuch that, in coun-

tries where the disease is frequent, if children pass the period now mentioned, they are considered as secure against its attacks. The symptom of it chiefly taken notice of, is the trismus or locked jaw, which is by the vulgar improperly named the Falling of the Jaw. But this is not the only symptom, as, for the most part, it has all the same symptoms of the Opisthotonos and Tetanus strictly so called, and which occur in the other varieties of tetanic complaints above described. Like the other varieties of tetanus, this is most frequent in warm climates; but is not, like those arising from the application of cold, entirely confined to such warm climates, as instances of it have occurred in most of the northern countries of Europe. In these latter it seems to be more frequent in certain districts than in others; but in what manner limited I cannot determine. It seems to be more frequent in Switzerland than in France. I am informed of its frequently occurring in the Highlands of Scotland; but I have never met with any instance of it in the low country. The particular causes of it are not well known; and various conjectures have been offered; but none of them are satisfying. It is a disease that has been almost constantly fatal; and this, also, commonly in the course of a few days. The women are so much persuaded of its inevitable fatality, that they seldom or never call for the assistance of our art. This has occasioned our being little acquainted with the history of the disease, or with the effects of remedies in it. Analogy, however, would lead us to employ the same remedies that have proved useful in the other cases of tetanus; and the few experiments that are yet recorded seem to approve of such a practice.

CHAP. II.

OF EPILEPSY.

G. LII. EPILEPSIA.—*Musculorum convulsio cum sopore.*

Sp. 1. *Epilepsia (cerebralis) sine causâ manifestâ subito adoriens ; prægressâ nullâ sensatione molestâ, nisi fortassis vertiginis vel Scotomiæ alicujus.*

Sp. 2. *Epilepsia (sympathica) sine causâ manifestâ ; sed prægressâ sensatione auræ cujusdam a parte corporis quâdam caput versus assurgentis.*

Sp. 3. *Epilepsia (occasionalis) ab irritatione manifestâ oriens, et ablatâ irritatione cessans.*

1282. IN what sense I use the term *Convulsion*, I have explained above in 1256.

The convulsions that affect the human body are in several respects various ; but I am to consider here only the chief and most frequent form in which they appear, and which is in the disease named *Epilepsy*. This may be defined, as consisting in convulsions of the greater part of the muscles of voluntary motion, attended with a loss of sense, and ending in a state of insensibility, and seeming sleep.

1283. The general form or principal circumstances of this disease, are much the same in all the different persons whom it affects. It comes by fits, which often attack persons seemingly in perfect health ; and, after lasting for some time, pass off, and leave the persons again in their usual state. These fits are sometimes preceded by certain symptoms, which to persons who have before experienced such a

fit, may give notice of its approach as we shall hereafter explain : but even these preludes do not commonly occur long before the formal attack, which in most cases comes on suddenly without any such warning.

The person attacked loses suddenly all sense and power of motion ; so that, if standing, he falls immediately, or perhaps, with convulsions, is thrown to the ground. In that situation he is agitated with violent convulsions, variously moving his limbs and the trunk of his body. Commonly the limbs on one side of the body are more violently or more considerably agitated than those upon the other. In all cases the muscles of the face and eyes are much affected, exhibiting various and violent distortions of the countenance. The tongue is often affected, and thrust out of the mouth ; while the muscles of the lower jaw are also affected ; and, shutting the mouth with violence while the tongue is thrust out between the teeth, that is often grievously wounded.

While these convulsions continue, there is commonly at the same time a frothy moisture issuing from the mouth. These convulsions have for some moments some remissions, but are suddenly again renewed with great violence. Generally, after no long time, the convulsions cease altogether ; and the person for some time remains without motion, but in a state of absolute insensibility, and under the appearance of a profound sleep. After some continuance of this seeming sleep, the person sometimes suddenly, but for the most part by degrees only, recovers his senses and power of motion ; but without any memory of what had passed from his being first seized with the fit. During the convulsions, the pulse and respiration are hurried and irregular ; but, when the convulsions cease, they return to their usual regularity and healthy state.

This is the general form of the disease ; and it varies only in different persons, or on different occasions in the same person, by the phenomena mentioned being more or less violent, or by their being of longer or shorter duration.

1284. With respect to the proximate cause of this disease, I might say, that it is an affection of the energy of the brain, which, ordinarily under the direction of the will, is here, without any concurrence of it, impelled by preternatural causes. But I could go no farther: For, as to what is the mechanical condition of the brain in the ordinary exertions of the will, I have no distinct knowledge; and therefore must be also ignorant of the preternatural state of the same energy of the brain under the irregular motions here produced. To form, therefore, the indications of a cure, from a knowledge of the proximate cause of this disease, I must not attempt; but, from a diligent attention to the remote causes which first induce and occasionally excite the disease, I think we may often obtain some useful directions for its cure. It shall therefore be my business now, to point out and enumerate these remote causes as well as I can.

1285. The remote causes of epilepsy may be considered as occasional or predisponent. There are, indeed, certain remote causes which act independently of any predisposition; but, as we cannot always distinguish these from the others, I shall consider the whole under the usual titles of *Occasional* or *Predisponent*.

1286. The occasional causes may, I think, be properly referred to two general heads; the *first* being of those which seem to act by directly stimulating and exciting the energy of the brain; and the *second*, of those which seem to act by weakening the same. With respect to both, for the brevity of expressing a fact, without meaning to explain the manner in which it is brought about, I shall use the terms of *Excitement* and *Collapse*. And, though it be true, that with respect to some of the causes I am to mention, it may be a little uncertain whether they act in the one way or the other, that does not render it improper for us to mark, with respect to others, the mode of their operating

wherever we can do it clearly, as the doing so may often be of use in directing our practice.

1287. First, then, of the occasional causes acting by excitement: They are either such as act immediately and directly upon the brain itself; or those which are first applied to the other parts of the body, and are from thence communicated to the brain.

1288. The causes of excitement immediately and directly applied to the brain, may be referred to the four heads of, 1. Mechanical Stimulants; 2. Chemical Stimulants; 3. Mental Stimulants; and 4. The peculiar Stimulus of Over-distention.

1289. The mechanical stimulants may be, wounding instruments penetrating the cranium, and entering the substance of the brain; or splinters of a fractured cranium, operating in the same manner; or sharp-pointed ossifications, either arising from the internal surface of the cranium, or formed in the membranes of the brain.

1290. The chemical stimulants (1288.) may be fluids from various causes lodged in certain parts of the brain, and become acrid by stagnation or otherwise.

1291. The mental irritations acting by excitement, are, all violent emotions of the active kind, such as joy and anger. The first of these is manifestly an exciting power, acting strongly and immediately, on the energy of the brain. The second is manifestly, also, a power acting in the same manner. But it must be remarked, that it is not in this manner alone anger produces its effects: for it acts, also, strongly on the sanguiferous system, and may be a means of giving the stimulus of over-distention; as under a fit of anger, the blood is impelled into the vessels of the head with violence, and in a larger quantity.

1292. Under the head of Mental Irritations, is to be mentioned the sight of persons in a fit of epilepsy, which has often produced a fit of the like kind in the spectator.

It may, indeed, be a question, Whether this effect be imputable to the horror produced by a sight of the seemingly painful agitations of the limbs, and of the distortions in the countenance of the epileptic person: or if it may be ascribed to the force of imitation merely? It is possible that horror may sometimes produce the effect; but certainly much may be imputed to that propensity to imitation, at all times so powerful and prevalent in human nature, and so often operating in other cases of convulsive disorders, which do not present any spectacle of horror.

1293. Under the same head of Mental Irritation, I think proper to mention as an instance of it, the *Epilepsia Simulata*, or the Feigned Epilepsy, so often taken notice of. Although this, at first, may be entirely feigned, I have no doubt but that the repetition renders it at length real. The history of Quietism and of Exorcisms leads me to this opinion; and which receives a confirmation from what we know of the power of imagination, in renewing epileptic and hysteric fits.

1294. I come now to the fourth head of the irritations applied immediately to the brain, and which I apprehend to be that of the over-distention of the blood-vessels in that organ. That such a cause operates in producing epilepsy is probable from this, that the dissection of persons dead of epilepsy has commonly discovered the marks of a previous congestion in the blood-vessels of the brain. This, perhaps, may be supposed the effect of the fit which proved fatal: but that the congestion was previous thereto, is probable from the epilepsy being so often joined with headach, mania, palsy, and apoplexy: all of them diseases depending upon a congestion in the vessels of the brain. The general opinion receives also confirmation from this circumstance, that in the brain of persons dead of epilepsy, there have been often found tumours and effusions, which, though seemingly not sufficient to produce those diseases which depend

on the compression of a considerable portion of the brain, may, however, have been sufficient to compress so many vessels as to render the others, upon any occasion, of a more than usual turgescence, or impulse of the blood into the vessels of the brain more liable to an over-distention.

1295. These considerations alone might afford foundation for a probable conjecture with respect to the effects of over-distention. But the opinion does not rest upon conjecture alone. That it is also founded in fact, appears from hence, that a plethoric state is favourable to epilepsy; and that every occasional turgescence, or unusual impulse of the blood into the vessels of the brain, such as a fit of anger, the heat of the sun, or of a warm chamber, violent exercise, a surfeit, or a fit of intoxication, are frequently the immediate exciting causes of epileptic fits.

1296. I venture to remark further, that a piece of theory may be admitted as a confirmation of this doctrine. As I have formerly maintained, that a certain fulness and tension of the vessels of the brain is necessary to the support of its ordinary and constant energy, in the distribution of the nervous power; so it must be sufficiently probable, that an over-distention of these blood-vessels may be a cause of violent excitement.

1297. We have now enumerated the several remote or occasional causes of epilepsy, acting by excitement, and acting immediately upon the brain itself. Of the causes acting by excitement, but acting upon other parts of the body, and from thence communicated to the brain, they are all of them impressions producing an exquisite or high degree either of pleasure or pain.

Impressions which produce neither the one nor the other have hardly any such effects; unless when such impressions are in a violent degree, and then their operation may be considered as a mode of pain. It is, however, to be remarked, that all strong impressions which are sudden and surprising,

or, in other words, unforeseen and unexpected, have frequently the effect of bringing on epileptic fits.

1298. There are certain impressions made upon different parts of the body, which, as they often operate without producing any sensation, so it is uncertain to what head they belong: but it is probable that the greater part of them act by excitement, and therefore fall to be mentioned here. The chief instances are, The teething of infants; worms; acidity, or other acrimony in the alimentary canal; calculi in the kidneys; acrid matter in abscesses or ulcers; or acrimony diffused in the mass of blood, as in the case of some contagions.

1299. Physicians have found no difficulty in comprehending how direct stimulants of a certain force may excite the action of the brain, and occasion epilepsy; but they have hitherto taken little notice of certain causes which manifestly weaken the energy of the brain, and act, as I speak, by collapse. These, however, have the effect of exciting the action of the brain in such a manner as to occasion epilepsy. I might, upon this subject, speak of the *vis medicatrix naturæ*; and there is a foundation for the term: but, as I do not admit the Stahlian doctrine of an administering soul, I make use of the term only as expressing a fact, and would not employ it with the view of conveying an explanation of the manner in which the powers of collapse mechanically produce their effects. In the mean time, however, I maintain, that there are certain powers of collapse, which in effect prove stimulants, and produce epilepsy.

1300. That there are such powers, which may be termed indirect Stimulants, I conclude from hence, that several of the causes of epilepsy are such as frequently produce syncope, which we suppose always to depend upon causes weakening the energy of the brain (1176.). It may give some difficulty to explain, why the same causes sometimes occasion syncope, and sometimes occasion the reaction that

appears in epilepsy; and I shall not attempt to explain it: but this, I think, does not prevent my supposing that the operation of these causes is by collapse. That there are such causes producing epilepsy, will, I think, appear very clearly from the particular examples of them I am now to mention.

1301. The first to be mentioned, which I suppose to be of this kind, is hæmorrhagy, whether spontaneous or artificial. That the same hæmorrhagy which produces syncope often at the same time produces epilepsy, is well known; and from many experiments and observations it appears, that hæmorrhagies occurring to such a degree as to prove mortal, seldom do so without first producing epilepsy.

1302. Another cause acting, as I suppose, by collapse, and therefore sometimes producing syncope and sometimes epilepsy, is terror; that is, the fear of some great evil suddenly presented. As this produces at the same time a sudden and considerable emotion (1180.), so it more frequently produces epilepsy than syncope.

1303. A third cause acting by collapse, and producing epilepsy, is horror; or a strong aversion suddenly raised by a very disagreeable sensation, and frequently arising from a sympathy with the pain or danger of another person. As horror is often a cause of syncope, there can be no doubt of its manner of operating in producing epilepsy; and it may perhaps be explained upon this general principle, That as desire excites action, and gives activity, so aversion restrains from action, that is, weakens the energy of the brain; and, therefore, that the higher degrees of aversion may have the effects of producing syncope or epilepsy.

1304. A fourth set of the causes of epilepsy, which I suppose also to act by collapse, are certain odours, which occasion either syncope or epilepsy; and, with respect to the former, I have given my reasons (1182.) for supposing odours in that case to act rather as disagreeable than as sedative. These reasons will, I think, also apply here; and

perhaps the whole affair of odours might be considered as instances of the effect of horror, and therefore belonging to the last head.

1305. A fifth head of the causes producing epilepsy by collapse, is the operation of many substances considered, and for the most part properly considered, as poisons. Many of these, before they prove mortal, occasion epilepsy. This effect, indeed, may in some cases be referred to the inflammatory operation which they sometimes discover in the stomach and other parts of the alimentary canal; but, as the greater part of the vegetable poisons show chiefly a narcotic, or strongly sedative power, it is probably by this power that they produce epilepsy, and therefore belong to this head of the causes acting by collapse.

1306. Under the head of the remote causes producing epilepsy, we must now mention that peculiar one whose operation is accompanied with what is called the *Aura Epileptica*. This is a sensation of something moving in some part of the limbs or trunk of the body, and from thence creeping upwards to the head; and when it arrives there, the person is immediately deprived of sense, and falls into an epileptic fit. This motion is described by the person's feeling it sometimes as a cold vapour, sometimes as a fluid gliding, and sometimes as the sense of a small insect creeping along their body; and very often they can give no distinct idea of their sensation, otherwise than as in general of something moving along. This sensation might be supposed to arise from some affection of the extremity or other part of a nerve acted upon by some irritating matter; and that the sensation, therefore, followed the course of such a nerve: but I have never found it following distinctly the course of any nerve; and it generally seems to pass along the teguments. It has been found in some instances to arise from something pressing upon or irritating a particular nerve, and that sometimes in consequence of contusion or wound: but in-

stances of these are more rare; and the more common consequence of contusions and wounds is a tetanus. This latter effect wounds produce, without giving any sensation of an aura, or other kind of motion proceeding from the wounded part to the head; while, on the other hand, the aura producing epilepsy often arises from a part which had never before been affected with wound or contusion, and in which part the nature of the irritation can seldom be discovered.

It is natural to imagine that this aura epileptica is an evidence of some irritation or direct stimulus acting on the part, and from thence communicated to the brain, and should therefore have been mentioned among the causes acting by excitement; but the remarkable difference that occurs in seemingly like causes producing tetanus, gives some doubt on this subject.

1307. Having now enumerated the occasional causes of epilepsy, I proceed to consider the predisponent. As so many of the above-mentioned causes act upon certain persons, and not at all upon others, there must be supposed in those persons a predisposition to this disease: But in what this predisposition consists, is not to be easily ascertained.

1308. As many of the occasional causes are weak impressions, and are applied to most persons with little or no effect, I conclude, that the persons affected by those causes are more easily moved than others; and therefore that, in this case, a certain mobility gives the predisposition. It will, perhaps, make this matter clearer, to show, in the first place, that there is a greater mobility of constitution in some persons than in others.

1309. This mobility appears most clearly in the state of the mind. If a person is readily elated by hope, and as readily depressed by fear, and passes easily and quickly from the one state to the other; if he is easily pleased, and prone to gaiety, and as easily provoked to anger, and rendered peevish; if liable, from slight impressions, to strong emo-

tions, but tenacious of none; this is the boyish temperament, *qui colligit ac ponit iram temere, et mutatur in horas*; this is the *varium et mutabile fœmina*; and, both in the boy and woman, every one perceives and acknowledges a mobility of mind. But this is necessarily connected with an analogous state of the brain; that is, with a mobility, in respect of every impression, and therefore liable to a ready alternation of excitement and collapse, and of both to a considerable degree.

1310. There is, therefore, in certain persons, a mobility of constitution, generally derived from the state of original stamina, and more exquisite at a certain period of life than at others; but sometimes arising from, and particularly modified by occurrences in the course of life.

1311. This mobility consists in a greater degree of either sensibility or irritability. These conditions, indeed, physicians consider as so necessarily connected, that the constitution, with respect to them, may be considered as one and the same: but I am of opinion that they are different; and that mobility may sometimes depend upon an increase of the one, and sometimes on that of the other. If an action excited is, by repetition, rendered more easily excited, and more vigorously performed, I consider this as an increase of irritability only. I go no farther on this subject here, as it was only necessary to take notice of the case just now mentioned, for the purpose of explaining why epilepsy, and convulsions of all kinds, by being repeated, are more easily excited, readily become habitual, and are therefore of more difficult cure.

1312. However we may apply the distinction of sensibility and irritability, it appears that the mobility, which is the predisponent cause of epilepsy, depends more particularly upon debility, or upon a plethoric state of the body.

1313. What share debility, perhaps by inducing sensibility, has in this matter, appears clearly from hence, that

children, women, and other persons of manifest debility, are the most frequent subjects of this disease.

1314. The effect of a plethoric state in disposing to this disease appears from hence, that plethoric persons are frequently the subjects of it; that it is commonly excited, as I have said above, by the causes of any unusual turgescence of the blood; and that it has been frequently cured by diminishing the plethoric state of the body.

That a plethoric state of the body should dispose to this disease, we may understand from several considerations. *1st*, Because a plethoric state implies, for the most part, a laxity of the solids, and therefore some debility in the moving fibres. *2dly*, Because, in a plethoric state, the tone of the moving fibres depends more upon their tension, than upon their inherent power: and as their tension depends upon the quantity and impetus of the fluids in the blood-vessels, which are very changeable, and by many causes frequently changed, so these frequent changes must give a mobility to the system. *3dly*, Because a plethoric state is favourable to a congestion of blood in the vessels of the brain, it must render these more readily affected by every general turgescence of the blood in the system, and therefore more especially dispose to this disease.

1315. There is another circumstance of the body disposing to epilepsy, which I cannot so well account for; and that is, the state of sleep; but whether I can account for it or not, it appears, in fact, that this state gives the disposition I speak of; for, in many persons liable to this disease, the fits happen only in the time of sleep, or immediately upon the person's coming out of it. In a case related by De Haen, it appeared clearly, that the disposition to epilepsy depended entirely upon the state of the body in sleep.

1316. Having thus considered the whole of the remote causes of epilepsy, I proceed to treat of its cure, as I have said it is from the consideration of these remote causes only,

that we can obtain any directions for our practice in this disease.

I begin with observing, that as the disease may be considered as sympathetic or idiopathic, I must treat of these separately, and judge it proper to begin with the former.

1317. When this disease is truly sympathetic, and depending upon a primary affection in some other part of the body, such as acidity or worms in the elementary canal, teething, or other similar causes, it is obvious, that such primary affections must be removed for the cure of the epilepsy; but it is not our business here to say how these primary diseases are to be treated.

1318. There is, however, a peculiar case of sympathetic epilepsy; that is, the case accompanied with the *aura epileptica*, as described in 1306, in which, though we can perceive by the *aura epileptica* arising from a particular part, that there is some affection of that part; yet, as in many such cases we cannot perceive of what nature the affection is, I can only offer the following general directions.

1st, When the part can with safety be entirely destroyed, we should endeavour to do so by cutting it out, or by destroying it by the application of an actual or potential caustery.

2dly, When the part cannot be properly destroyed, that we should endeavour to correct the morbid affection in it by blistering, or by establishing an issue upon the part.

3dly, When these measures cannot be executed, or do not succeed, if the disease seems to proceed from the extremity of a particular nerve which we can easily come at in its course, it will be proper to cut through that nerve, as before proposed on the subject of tetanus.

4thly, When it cannot be perceived that the *aura* arises from any precise place or point, so as to direct to the above-mentioned operations; but, at the same time, we can perceive its progress along the limb; it frequently happens

that the epilepsy can be prevented by a ligature applied upon the limb, above the part from which the *aura* arises : and this is always proper to be done, both because the preventing a fit breaks the habit of the disease, and because the frequent compression renders the nerves less fit to propagate the *aura*.

1319. The cure of idiopathic epilepsy, as I have said above, is to be directed by our knowledge of the remote causes. There are therefore two general indications to be formed : The first is, to avoid the occasional causes ; and the second is, to remove or correct the predisponent.

This method, however, is not always purely palliative ; as in many cases the predisponent may be considered as the only proximate cause, so our second indication may be often considered as properly curative.

1320. From the enumeration given above, it will be manifest, that for the most part the occasional causes, so far as they are in our power, need only to be known, in order to be avoided ; and the means of doing this will be sufficiently obvious. I shall here, therefore, offer only a few remarks.

1321. One of the most frequent of the occasional causes is that of over-distention (1314.), which, so far as it depends upon a plethoric state of the system, I shall say hereafter how it is to be avoided. But as, not only in the plethoric, but in every moveable constitution, occasional turgescence is a frequent means of exciting epilepsy, the avoiding therefore of such turgescence is what ought to be most constantly the object of attention to persons liable to epilepsy.

1322. Another of the most frequent exciting causes of this disease are, all strong impressions suddenly made upon the senses ; for, as such impressions, in moveable constitutions, break in upon the usual force, velocity, and order of the motions of the nervous system, they thereby readily produce epilepsy. Such impressions, therefore, and especially those

which are suited to excite any emotion or passion of the mind, are to be most carefully guarded against by persons liable to epilepsy.

1323. In many cases of epilepsy, where the predisponent cause cannot be corrected or removed, the recurrence of the disease can only be prevented by the strictest attention to avoid the occasional; and as the disease is often confirmed by repetition and habit, so the avoiding the frequent recurrence of it is of the utmost importance towards its cure.

These are the few remarks I have to offer with respect to the occasional causes; and must now observe, that, for the most part, the complete, or, as it is called, the Radical Cure, is only to be obtained by removing or correcting the predisponent cause.

1324. I have said above, that the predisponent cause of epilepsy is a certain mobility of the sensorium; and that this depends upon a plethoric state of the system, or upon a certain state of debility in it.

1325. How the plethoric state of the system is to be corrected, I have treated of fully above in 783. *et seq.*, and I need not repeat it here. It will be enough to say, that it is chiefly to be done by a proper management of exercise and diet; and, with respect to the latter, it is particularly to be observed here, that an abstemious course has been frequently found to be the most certain means of curing epilepsy.

1326. Considering the nature of the matter poured out by issues, these may be supposed to be a constant means of obviating the plethoric state of the system; and it is perhaps therefore that they have been so often found useful in epilepsy. Possibly also, as an open issue may be a means of determining occasional turgescences to such places, and therefore of diverting them in some measure from their action upon the brain, so, also, in this manner, issues may be useful in epilepsy.

1327. It might be supposed that blood-letting would be

the most effectual means of correcting the plethoric state of the system ; and such it certainly proves when the plethoric state has become considerable, and *immediately* threatens morbid effects. It is therefore, in such circumstances, proper and necessary ; but as we have said above, that blood-letting is not the proper means of obviating a recurrence of the plethoric state, and, on the contrary, is often the means of favouring it ; so it is a remedy not advisable in every circumstance of epilepsy. There is, however, a case of epilepsy in which there is a periodical or occasional recurrence of the fulness and turgescence of the sanguiferous system, giving occasion to a recurrence of the disease. In such cases, when the means of preventing plethora have been neglected, or may have proved ineffectual, it is absolutely necessary for the practitioner to watch the returns of these turgescences, and to obviate their effects by the only certain means of doing it, that is, by a large blood-letting.

1328. The second cause of mobility which we have assigned, is a state of debility. If this is owing, as it frequently is, to original conformation, it is perhaps not possible to cure it ; but when it has been brought on in the course of life, it possibly may admit of being mended ; and in either case, much may be done to obviate and prevent its effects.

1329. The means of correcting debility, so far as it can be done, are, The person's being much in cool air ; the frequent use of cold bathing ; the use of exercise, adapted to the strength and habits of the person ; and perhaps the use of astringent and tonic medicines.

These remedies are suited to strengthen the inherent power of the solids or moving fibres ; but as the strength of these depends also upon their tension, so when debility has proceeded from inanition, the strength may be restored, by restoring the fulness and tension of the vessels by a nourishing diet ; and we have had instances of the propriety and success of such a practice.

1330. The means of obviating the effects of debility, and of the mobility depending upon it, are the use of tonic and antispasmodic remedies.

The tonics are, Fear, or some degree of terror; astringents; certain vegetable and metallic tonics; and cold bathing.

1331. That fear, or some degree of terror, may be of use in preventing epilepsy, we have a remarkable proof in Boerhaave's cure of the epilepsy, which happened in the Orphan-house at Haerlem. See Kaau Boerhaave's treatise, entitled, *Impetum Faciens*, § 406. And we have met with several other instances of the same.

As the operation of horror is in many respects analogous to that of terror, several seemingly superstitious remedies have been employed for the cure of epilepsy; and, if they have ever been successful, I think it must be imputed to the horror they had inspired.

1332. Of the astringent medicines used for the cure of epilepsy, the most celebrated is the *viscus quercinus*, which, when given in large quantities, may possibly be useful; but I believe it was more especially so in ancient times, when it was an object of superstition. In the few instances in which I have seen it employed, it did not prove of any effect.

1333. Among the vegetable tonics, the bitters are to be reckoned; and it is by this quality that I suppose the orange-tree leaves to have been useful: but they are not always so.

1334. The vegetable tonic, which, from its use in analogous cases, is the most promising, is the Peruvian bark; this, upon occasion, has been useful, but has also often failed. It is especially adapted to those epilepsies which recur at certain periods, and which are at the same time without the recurrence of any plethoric state, or turgescence of the blood; and in such periodical cases, if the bark is employed some time before the expected recurrence, it may be

useful ; but it must be given in large quantity, and as near to the time of the expected recurrence as possible.

1335. The metallic tonics seem to be more powerful than the vegetable, and a great variety of the former have been employed.

Even arsenic has been employed in the cure of epilepsy ; and its use in intermittent fevers gives an analogy in its favour.

Preparations of tin have been formerly recommended in the cure of epilepsy, and in the cure of the analogous disease of hysteria ; and several considerations render the virtues of tin, with respect to these diseases, probable : but I have had no experience of its use in such cases.

A much safer metallic tonic is to be found in the preparations of iron : and we have seen some of them employed in the cure of epilepsy, but have never found them to be effectual. This, however, I think, may be imputed to their not having been always employed in the circumstances of the disease, and in the quantities of the medicine, that were proper and necessary.

1336. Of the metallic tonics, the most celebrated, and the most frequently employed, is copper, under various preparation. What preparation of it may be the most effectual, I dare not determine ; but of late the *cuprum ammoniacum* has been frequently found successful.

1337. Lately the flowers of zinc have been recommended by a great authority as useful in all convulsive disorders ; but in cases of epilepsy, I have not hitherto found that medicine useful.

1338. There have been of late some instances of the cure of epilepsy by the accidental use of mercury ; and if the late accounts of the cure of tetanus by this remedy are confirmed, it will allow us to think that the same may be adapted also to the cure of certain cases of epilepsy.

1339. With respect to the employment of any of the

above-mentioned tonics in this disease, it must be observed, that in all cases where the disease depends upon a constant or occasional plethoric state of the system, these remedies are likely to be ineffectual; and if sufficient evacuations are not made at the same time, these medicines are likely to be very hurtful.

1340. The other set of medicines which we have mentioned as suited to obviate the effects of the too great mobility of the system, are the medicines named *antispasmodics*. Of these there is a long list in the writers on the *Materia Medica*, and by these authors recommended for the cure of epilepsy. The greater part, however, of those taken from the vegetable kingdom, are manifestly inert and insignificant. Even the root of the wild valerian hardly supports its credit.

1341. Certain substances taken from the animal kingdom seem to be much more powerful: and of these the chief, and seemingly the most powerful, is musk: which employed in its genuine state, and in due quantity, has often been an effectual remedy.

It is probable also, that the *oleum animale*, as it has been named, when in its purest state, and exhibited at a proper time, may be an effectual remedy.

1342. In many diseases, the most powerful antispasmodic is certainly opium; but the propriety of its use in epilepsy has been disputed among physicians. When the disease depends upon a plethoric state, in which bleeding may be necessary, the employment of opium is likely to be very hurtful; but when there is no plethoric or inflammatory state present, and the disease seems to depend upon irritation, or upon increased irritability, opium is likely to prove the most certain remedy. Whatever effects in this and other convulsive disorders have been attributed to the *hyoscyamus*, must probably be attributed to its possessing a narcotic power similar to that of opium.

1343. With respect to the use of antispasmodics, it is to be observed, that they are always most useful, and perhaps only useful, when employed at a time when epileptic fits are frequently recurring, or near to the times of the accession of fits which recur after considerable intervals.

1344. On the subject of the cure of epilepsy, I have only to add, that as the disease in many cases is continued by the power of habit only, and that in all cases habit has a great share in increasing mobility, and therefore in continuing this disease; so the breaking in upon such habit, and changing the whole habits of the system, is likely to be a powerful remedy in epilepsy. Accordingly, a considerable change of climate, diet, and other circumstances in the manner of life, has often proved a cure of this disease.

1345. After treating of epilepsy, I might here treat of particular convulsions, which are to be distinguished from epilepsy by their being more partial; that is, affecting certain parts of the body only, and by their not being attended with a loss of sense, nor ending in such a comatose state as epilepsy always does.

1346. Of such convulsive affections, many different instances have been observed and recorded by physicians. But many of these have been manifestly sympathetic affections, to be cured only by curing the primary disease upon which they depend, and therefore not to be treated of here. Or, though they are such as cannot be referred to another disease, as many of them however have not any specific character, with which they occur in different persons, I must therefore leave them to be treated upon the general principles I have laid down with respect to epilepsy, or shall lay down with respect to the following convulsive disorder; which, as having very constantly in different persons a peculiar character, I think necessary to treat of more particularly.

CHAP. III.

OF THE CHOREA, OR DANCE OF ST VITUS.

G. L. CHOREA.—*Impuberes utriusque sexûs, ut plurimum intra decimum et decimum quartum ætatis annum adorientes; motus convulsivi, ex parte voluntarii, plerumque alterius lateris, in brachiorum et manuum motu, histrionum gesticulationes referentes; in gressu, pedum alterum sæpius trahentes quam attollentes.*

1347. **T**HIS disease affects both sexes, and almost only young persons. It generally happens from the age of ten to that of fourteen years. It comes on always before the age of puberty, and rarely continues beyond that period.

1348. It is chiefly marked by convulsive motions, somewhat varied in different persons, but nearly of one kind in all; affecting the leg and arm on the same side, and generally on one side only.

1349. These convulsive motions commonly first affect the leg and foot. Though the limb be at rest, the foot is often agitated by convulsive motions, turning it alternately outwards and inwards. When walking is attempted, the affected leg is seldom lifted as usual when walking, but is dragged along as if the whole limb were paralytic; and when it is attempted to be lifted, this motion is unsteadily performed, the limb becoming agitated by irregular convulsive motions.

1350. The arm of the same side is generally affected at the same time; and, even when no voluntary motion is attempted, the arm is frequently agitated with various convul-

sive motions. But, especially when voluntary motions are attempted, these are not properly executed, but are variously hurried or interrupted by convulsive motions in a direction contrary to that intended. The most common instance of this is in the person's attempting to carry a cup of liquor to his mouth, when it is only after repeated efforts, interrupted by frequent convulsive retractions and deviations, that the cup can be carried to the mouth.

1351. It appears to me, that the will often yields to these convulsive motions, as to a propensity, and thereby they are often increased, while the person affected seems pleased with increasing the surprise and amusement which his motions occasion in the bystanders.

1352. In this disease the mind is often affected with some degree of fatuity; and often shows the same varied, desultory, and causeless emotions which occur in hysteria.

1353. These are the most common circumstances of this disease: but at times, and in different persons, it is varied by some difference in the convulsive motions, particularly by those affecting the head and trunk of the body. As in this disease there seem to be propensities to motion, so various fits of leaping and running occur in the persons affected; and there have been instances of this disease, consisting of such convulsive motions, appearing as an epidemic in a certain corner of the country. In such instances, persons of different ages are affected, and may seem to make an exception to the general rule above laid down; but still the persons are, for the most part, the young of both sexes, and of the more manifestly moveable constitutions.

1354. The method of curing this disease has been variously proposed. Dr Sydenham proposed to cure it by alternate bleeding and purging. In some plethoric habits I have found some bleeding useful; but in many cases I have found repeated evacuations, especially by bleeding, very hurtful.

In many cases, I have found the disease, in spite of remedies of all kinds, continue for many months; but I have also found it often readily yield to tonic remedies, such as the Peruvian bark and chalybeates.

The late Dr De Haen found several persons labouring under this disease, cured by the application of electricity.

SECT. II.—*Of the Spasmodic Affections of the Vital Functions.*

CHAP. IV*.

OF THE PALPITATION OF THE HEART.

G. LIII. PALPITATIO.—*Motus cordis vehemens, abnormis.*

1355. **T**HE motion thus named is a contraction or systole of the heart, that is performed with more rapidity, and generally also with more force than usual; and when at the same time the heart strikes with more than usual violence against the inside of the ribs, producing often a considerable sound.

1356. This motion or palpitation is occasioned by a great variety of causes, which have been recited with great pains by Mr Senac and others, whom, however, I cannot follow in all the particulars with sufficient discernment, and there-

* Though I have thought it proper to divide this book into sections, I think it necessary, for the convenience of references, to number the chapters from the beginning.

fore shall here only attempt to refer all the several cases of this disease to a few general heads.

1357. The first is of those arising from the application of the usual stimulus to the heart's contraction; that is, the influx of the venous blood into its cavities, being made with more velocity, and therefore, in the same time, in greater quantity than usual. It seems to be in this manner that violent exercise occasions palpitation.

1358. A second head of the cases of palpitation, is of those arising from any resistance given to the free and entire evacuation of the ventricles of the heart. Thus a ligature made upon the aorta occasions palpitations of the most violent kind. Similar resistances, either in the aorta or pulmonary artery, may be readily imagined; and such have been often found in the dead bodies of persons who, during life, had been much affected with palpitations.

To this head are to be referred all those cases of palpitation arising from causes producing an accumulation of blood in the great vessels near to the heart.

1359. A third head of the cases of palpitation, is of those arising from a more violent and rapid influx of the nervous power into the muscular fibres of the heart. It is in this manner that I suppose various causes acting in the brain, and particularly certain emotions of the mind, occasion palpitation.

1360. A fourth head of the cases of palpitation, is of those arising from causes producing a weakness in the action of the heart, by diminishing the energy of the brain with respect to it. That such causes operate in producing palpitation, I presume from hence, that all the several causes mentioned above (1177. *et seq.*), as in this manner producing syncope, do often produce palpitation. It is on this ground that these two diseases are affections frequently occurring in the same person, as the same causes may occasion the one or the other, according to the force of the cause

and mobility of the person acted upon. It seems to be a law of the human economy, that a degree of debility occurring in any function, often produces a more vigorous exertion of the same, or at least an effort towards it, and that commonly in a convulsive manner.

I apprehend it to be the convulsive action, frequently ending in some degree of a spasm, that gives occasion to the intermittent pulse so frequently accompanying palpitation.

1361. A fifth head of the cases of palpitation may perhaps be of those arising from a peculiar irritability or mobility of the heart. This, indeed, may be considered as a predisponent cause only, giving occasion to the action of the greater part of the causes recited above. But it is proper to observe, that this predisposition is often the chief part of the remote cause; insomuch that many of the causes producing palpitation would not have this effect but in persons peculiarly predisposed. This head, therefore, of the cases of palpitation, often requires to be distinguished from all the rest.

1362. After thus marking the several cases and causes of palpitation, I think it necessary, with a view to the cure of this disease, to observe, that the several causes of it may be again reduced to two heads. The first is, of those consisting in, or depending upon, certain organic affections of the heart itself, or of the great vessels immediately connected with it. The second is, of those consisting in, or depending upon, certain affections subsisting and acting in other parts of the body, and acting either by the force of the cause, or in consequence of the mobility of the heart.

1363. With respect to the cases depending upon the first set of causes, I must repeat here what I said with respect to the like cases of syncope, that I do not know any means of curing them. They, indeed, admit of some palliation, *first*, by avoiding every circumstance that may hurry the circula-

tion of the blood; and, *secondly*, by every means of avoiding a plethoric state of the system, or any occasional turgescence of the blood. In many of these cases, blood-letting may give a temporary relief: but in so far as debility and mobility are concerned, in such cases this remedy is likely to do harm.

1364. With respect to the cases depending upon the other set of causes, they may be various, and require very different measures: but I can here say in general, that these cases may be considered as of two kinds; one depending upon primary affections in other parts of the body, and acting by the force of the particular causes; and another depending upon a state of mobility in the heart itself. In the first of these, it is obvious, that the cure of the palpitation must be obtained by curing the primary affection; which is not to be treated of here. In the second, the cure must be obtained, partly by diligently avoiding the occasional causes, partly and chiefly by correcting the mobility of the system, and of the heart in particular; for doing which we have treated of the proper means elsewhere.

CHAP. V.

OF DYSPNŒA, OR DIFFICULT BREATHING.

G. LV. DYSPNŒA.—*Spirandi difficultas perpetua, sine angustia, et potius cum repletionis et infarctûs in pectore, sensu. Tussis per totum morbi decursum frequens.*

Sp. 1. *Dyspnœa (catarrhalis) cum tussi frequente, mucum viscidum copiosum ejiciente.*

Sp. 2. *Dyspnœa (sicca) cum tussi plerumque sicca,*

Sp. 3. *Dyspnœa (aërea) a minima quavis tempestatum mutatione aucta.*

Sp. 4. *Dyspnœa (terrea) cum tussi materiem terream vel calculosam ejiciente.*

Sp. 5. *Dyspnœa (aquosa) cum urinâ parvâ et œdemate pedum, sine fluctuatione in pectore, vel aliis characteristicis hydrothoracis signis.*

Sp. 6. *Dyspnœa (pinguedinosa) in hominibus valde obesis.*

Sp. 7. *Dyspnœa (thoracica) a partibus thoracem cingentibus læsis, vel male conformatis.*

Sp. 8. *Dyspnœa (extrinseca) a causis externis manifestis.*

1365. THE exercise of respiration, and the organs of it, have so constant and considerable a connection with almost the whole of the other functions and parts of the human body, that upon almost every occasion of disease, respiration must be affected. Accordingly some difficulty and disorder in this function are in fact symptoms very generally accompanying disease.

1366. Upon this account the symptom of difficult breathing deserves a chief place and an ample consideration in the general system of Pathology; but what share of consideration it ought to have in a treatise of Practice, I find it difficult to determine.

1367. On this subject, it is, in the first place, necessary to distinguish between the symptomatic and idiopathic affections; that is, between those difficulties of breathing which are symptoms only of a more general affection, or of a disease subsisting primarily in other parts than the organs of respiration, and that difficulty of breathing which depends upon a primary affection of the lungs themselves. The various cases of symptomatic dyspnœa I have taken pains to enumerate in my Methodical Nosology, and it will be obvious they are such as cannot be taken notice of here.

1368. In my Nosology I have also taken pains to point out and enumerate the proper, or at least the greater part of the proper, idiopathic cases of dyspnœa; but from that enumeration it will, I think, readily appear, that few, and indeed hardly any, of these cases will admit or require much of our notice in this place.

1369. The Dyspnœa *Sicca*, species 2, the Dyspnœa *Aërea*, sp. 3, the Dyspnœa *Terrea*, sp. 4, and Dyspnœa *Thoracica*, sp. 7, are some of them with difficulty known, and are all of them diseases which in my opinion do not admit of cure. All, therefore, that can be said concerning them here is, that they may admit of some palliation; and this, I think, is to be obtained chiefly by avoiding a plethoric state of the lungs, and every circumstance that may hurry respiration.

1370. Of the Dyspnœa *Extrinseca*, sp. 8, I can say no more, but that those external causes marked in the Nosology, and perhaps some others that might have like effects, are to be carefully avoided; or, when they have been applied, and their effects have taken place, the disease is to be palliated by the means mentioned in the last paragraph.

1371. The other species, though enumerated as idiopathic, can hardly be considered as such, or as requiring to be treated of here.

The Dyspnœa *Catarrhalis*, sp. 1, may be considered as a species of catarrh, and is pretty certainly to be cured by the same remedies as that species of catarrh which depends rather upon the increased afflux of mucus to the bronchiæ, than upon any inflammatory state in them.

The Dyspnœa *Aquosa*, sp. 5, is certainly to be considered as a species of dropsy, and is to be treated by the same remedies as the other species of that disease.

The Dyspnœa *Pinguedinososa*, sp. 6, is in like manner to be considered as a symptom or local effect of the Polysarcia, and is only to be cured by correcting the general fault of the system.

1372. From this view of those idiopathic cases of dyspnœa, which are perhaps all I could properly arrange under this title, it will readily appear that there is little room for treating of them here: but there is still one case of difficult breathing, which has been properly distinguished from every other under the title of *Asthma*; and as it deserves our particular attention, I shall here separately consider it.

CHAP. VI.

OF ASTHMA.

G. LIV. ASTHMA.—*Spirandi difficultas per intervalla subiens; cum angustiae in pectore sensu, et respiratione cum sibilo strepente: tussis sub initio paroxysmi difficilis, vel nulla, versus finem libera, cum sputo mucî sæpe copioso.*

Sp. 1. *Asthma (spontaneum) sine causâ manifestâ, vel alio morbo comitante.*

Sp. 2. *Asthma (exanthematicum) a scabie vel aliâ acris effusione retropulsâ.*

Sp. 3. *Asthma (plethoricum) a suppressâ evacuatione sanguinis antea solitâ, vel a plethorâ spontaneâ.*

1373. THE term of *Asthma* has been commonly applied by the vulgar, and even by many writers on the Practice of Physic, to every case of difficult breathing, that is, to every species of *Dyspnœa*. The Methodical Nosologists, also, have distinguished *Asthma* from *Dyspnœa* chiefly, and almost solely, by the former being the same affection with the latter, but in a higher degree. Neither of these applications of the term seems to have been correct or proper. I am of

opinion, that the term Asthma may be most properly applied, and should be confined, to a case of difficult breathing that has peculiar symptoms, and depends upon a peculiar proximate cause, which I hope to assign with sufficient certainty. It is this disease I am now to treat of, and it is nearly what Practical Writers have generally distinguished from the other cases of difficult breathing, by the title of Spasmodic Asthma, or of *Asthma Convulsivum*; although, by not distinguishing it with sufficient accuracy from the other cases of Dyspnœa, they have introduced a great deal of confusion into their treatises on this subject.

1374. The disease I am to treat of, or the Asthma to be strictly so called, is often a hereditary disease. It seldom appears very early in life, and hardly till the time of puberty, or after it. It affects both sexes, but most frequently the male. I have not observed it to be more frequent in one kind of temperament than in another; and it does not seem to depend upon any general temperament of the whole body, but upon a particular constitution of the lungs alone. It frequently attacks persons of a full habit; but it hardly ever continues to be repeated for some length of time without occasioning an emaciation of the whole body.

1375. The attacks of this disease are generally in the nighttime, or towards the approach of night; but there are also some instances of their coming on in the course of the day. At whatever time they come on, it is for the most part suddenly, with a sense of tightness and stricture across the breast, and a sense of straitness in the lungs, impeding inspiration. The person thus attacked, if in a horizontal situation, is immediately obliged to get into somewhat of an erect posture, and requires a free and cool air. The difficulty of breathing goes on for some time increasing, and both inspiration and expiration are performed slowly, and with a wheezing noise. In violent fits, speaking is difficult and uneasy.

There is often some propensity to coughing, but it can hardly be executed.

1376. These symptoms often continue for many hours together, and particularly from midnight till the morning is far advanced. Then commonly a remission takes place by degrees : the breathing becomes less laborious and more full, so that the person can speak and cough with more ease ; and, if the cough brings up some mucus, the remission becomes immediately more considerable, and the person falls into a much wished-for sleep.

1377. During these fits, the pulse often continues in its natural state ; but, in some persons, the fits are attended with a frequency of pulse, and with some heat and thirst, as marks of some degree of fever. If urine be voided at the beginning of a fit, it is commonly in considerable quantity, and with little colour or odour ; but, after the fit is over, the urine voided is in the ordinary quantity, of a high colour, and sometimes deposits a sediment. In some persons, during the fit, the face is a little flushed and turgid ; but more commonly it is somewhat pale and shrunk.

1378. After some sleep in the morning, the patient, for the rest of the day, continues to have more free and easy breathing, but it is seldom entirely such. He still feels some tightness across his breast, cannot breathe easily in a horizontal posture, and can hardly bear any motion of his body, without having his breathing rendered more difficult and uneasy. In the afternoon, he has an unusual flatulency of his stomach, and an unusual drowsiness ; and, very frequently, these symptoms precede the first attacks of the disease. But whether these symptoms appear or not, the difficulty of breathing returns towards the evening, and then sometimes gradually increases, till it becomes as violent as in the night before ; or if, during the day, the difficulty of breathing has been moderate, and the person gets some sleep in the first part of the night, he is however waked about mid-

night, or at some time between midnight and two o'clock in the morning, and is then suddenly seized with a fit of difficult breathing, which runs the same course as the night before.

1379. In this manner, fits return for several nights successively; but generally, after some nights passed in this way, the fits suffer more considerable remissions. This especially happens when the remissions are attended with a more copious expectoration in the mornings, and that this continues from time to time throughout the day. In these circumstances, asthmatics, for a long time after, have not only more easy days, but enjoy also nights of entire sleep, without the recurrence of the disease.

1380. When this disease, however, has once taken place, in the manner above described, it is ready to return at times for the whole of life after. These returns, however, happen with different circumstances in different persons.

1381. In some persons, the fits are readily excited by external heat, whether of the weather or of a warm chamber, and particularly by warm bathing. In such persons, fits are more frequent in summer, and particularly during the dog days, than at other colder seasons. The same persons are also readily affected by changes of the weather, especially by sudden changes made from a colder to a warmer, or, what is commonly the same thing, from a heavier to a lighter atmosphere. The same persons are also affected by every circumstance straitening the capacity of the thorax, as by any ligature made, or even by a plaster laid upon it; and a like effect happens from any increased bulk of the stomach, either by a full meal, or by air collected in it. They are likewise much affected by exercise, or whatever else can hurry the circulation of the blood.

1382. As asthmatic fits seem thus to depend upon some fulness of the vessels of the lungs, it is probable that an obstruction of perspiration, and the blood being less determin-

ed to the surface of the body, may favour an accumulation in the lungs, and thereby be a means of exciting asthma. This seems to be the case of those asthmatics who have fits most frequently in the winter season, and who have commonly more of a catarrhal affection, accompanying the asthma; which, therefore, occurs more frequently in winter, and more manifestly from the application of cold.

1383. Beside these cases of asthma excited by heat or cold, there are others, in which the fits are especially excited by powers applied to the nervous system, as by passions of the mind, by particular odours, and by irritations of smoke and dust.

That this disease is an affection of the nervous system, and depending upon a mobility of the moving fibres of the lungs, appears pretty clearly from its being frequently connected with other spasmodic affections depending upon mobility; such as hysteria, hypochondriasis, dyspepsia, and atonic gout.

1384. From the whole of the history of asthma now delivered, I think it will readily appear, that the proximate cause of this disease is a preternatural, and in some measure a spasmodic constriction of the muscular fibres of the bronchiæ, which not only prevents the dilatation of the bronchiæ necessary to a free and full inspiration, but gives also a rigidity which prevents a full and free expiration. This preternatural constriction, like many other convulsive and spasmodic affections, is readily excited by a turgescence of the blood, or other cause of any unusual fulness and distention of the vessels of the lungs.

1385. This disease, as coming by fits, may be generally distinguished from most other species of dyspnœa, whose causes being more constantly applied, produce, therefore, a more constant difficulty of breathing. There may, however, be some fallacy in this matter, as some of these causes may be liable to have abatements and intensities, whereby the

dyspnœa produced by them may seem to come by fits: but I believe it is seldom that such fits put on the appearance of the genuine asthmatic fits described above. Perhaps, however, there is still another case that may give more difficulty; and that is, when several of the causes, which we have assigned as causes of several of the species of difficult breathing referred to the genus of Dyspnœa, may have the effect of exciting a genuine asthmatic fit. Whether this can happen to any but the peculiarly predisposed to asthma, I am uncertain; and, therefore, whether, in any such cases, the asthma may be considered as symptomatic, or if, in all such cases, the asthma may not still be considered and treated as an idiopathic disease.

1386. The asthma, though often threatening immediate death, seldom occasions it; and many persons have lived long under this disease. In many cases, however, it does prove fatal, sometimes very quickly, and perhaps always at length. In some young persons it has ended soon, by occasioning a phthisis pulmonalis. After a long continuance, it often ends in a hydrothorax; and commonly, by occasioning some aneurism of the heart or great vessels, it thereby proves fatal.

1387. As it is seldom that an asthma has been entirely cured, I therefore cannot propose any method of cure which experience has approved as generally successful. But the disease admits of alleviation in several respects from the use of remedies; and my business now shall be chiefly to offer some remarks upon the choice and use of the remedies which have been commonly employed in cases of asthma.

1388. As the danger of an asthmatic fit arises chiefly from the difficult transmission of the blood through the vessels of the lungs, threatening suffocation; so the most probable means of obviating this seems to be blood-letting; and, therefore, in all violent fits, practitioners have had recourse to this remedy. In first attacks, and especially in young and ple-

thoric persons, blood-letting may be very necessary, and is commonly allowable. But it is also evident, that, under the frequent recurrence of fits, blood-letting cannot be frequently repeated, without exhausting and weakening the patient too much. It is further to be observed, that blood-letting is not so necessary as might be imagined, as the passage of the blood through the lungs is not so much interrupted as has been commonly supposed. This I particularly conclude from hence, that, instead of the affusion of face, which is the usual effect of such interruption, the face, in asthmatic fits, is often shrunk and pale. I conclude the same also from this, that, in asthmatic fits, blood-letting does not commonly give so much relief as, upon the contrary supposition, might be expected.

1389. As I have alleged above, that a turgescence of the blood is frequently the exciting cause of asthmatic fits, so it might be supposed that a plethoric state of the system might have a great share in producing a turgescence of the blood in the lungs; and especially, therefore, that blood-letting might be a proper remedy in asthma. I allow it to be so in the first attacks of the disease; but as the disease, by continuing, generally takes off the plethoric state of the system; so, after the disease has continued for some time, I allege that blood-letting becomes less and less necessary.

1390. Upon the supposition of asthmatics being in a plethoric state, purging might be supposed to prove a remedy in this disease: but, both because the supposition is not commonly well founded, and because purging is seldom found to relieve the vessels of the thorax, this remedy has not appeared to be well suited to asthmatics, and large purging has always been found to do much harm. But as asthmatics are always hurt by the stagnation and accumulation of matters in the alimentary canal, so costiveness must be avoided, and an open belly proves useful. In the time of fits,

the employment of emollient and moderately laxative glysters has been found to give considerable relief.

1391. As a flatulency of the stomach, and other symptoms of indigestion, are frequent attendants of asthma, and very troublesome to asthmatics; so, both for removing these symptoms, and for taking off all determination to the lungs, the frequent use of gentle vomits is proper in this disease. In certain cases, where a fit was expected to come on in the course of the night, a vomit given in the evening has frequently seemed to prevent it.

1392. Blistering between the shoulders, or upon the breast, has been frequently employed to relieve asthmatics; but in the pure spasmodic asthma we treat of here, I have rarely found blisters useful, either in preventing or relieving fits.

1393. Issues are certainly useful in obviating plethora; but as such indications seldom arise in cases of asthma, so issues have been seldom found useful in this disease.

1394. As asthmatic fits are so frequently excited by a turgescence of the blood, so the obviating and allaying of this by acids and neutral salts, seems to have been at all times the object of practitioners. See FLOYER *on the Asthma*.

1395. Although a plethoric state of the system may seem to dispose to asthma, and the occasional turgescence of the blood may seem to be frequently the exciting cause of the fits; yet it is evident, that the disease must have arisen chiefly from a peculiar constitution in the moving fibres of the bronchiæ, disposing them, upon various occasions, to fall into a spasmodic constriction; and, therefore, that the entire cure of the disease can only be expected from the correcting of that predisposition, or from correcting the preternatural mobility or irritability of the lungs in that respect.

1396. In cases wherein this predisposition depends upon original conformation, the cure must be difficult, and perhaps impossible; but it may perhaps be moderated by the use of antispasmodics. Upon this footing, various remedies

of that kind have been commonly employed, and particularly the fetid gums; but we have not found them of any considerable efficacy, and have observed them to be sometimes hurtful by their heating too much. Some other antispasmodics which might be supposed powerful, such as musk, have not been properly tried. The vitriolic ether has been found to give relief, but its effects are not lasting.

1397. As in other spasmodic affections, so in this, the most certain and powerful antispasmodic is opium. I have often found it effectual, and generally safe; and if there have arisen doubts with respect to its safety, I believe they have arisen from not distinguishing between certain plethoric and inflammatory cases of dyspnœa, improperly named Asthma, and the genuine spasmodic asthma we treat of here.

1398. As in many cases this disease depends upon a predisposition which cannot be corrected by our art, so in such cases the patient can only escape the disease by avoiding the occasional or exciting causes, which I have endeavoured to point out above. It is however difficult to give any general rules here, as different asthmatics have their different idiosyncrasies with respect to externals. Thus, one asthmatic finds himself easiest living in the midst of a great city, while another cannot breathe but in the free air of the country. In the latter case, however, most asthmatics bear the air of a low ground, if tolerably free and dry, better than that of the mountain.

1399. In diet also, there is some difference to be made with respect to different asthmatics. None of them bear a large or full meal, or any food that is of slow and difficult solution in the stomach: but many of them bear animal food of the lighter kinds, and in moderate quantity. The use of vegetables, which readily prove flatulent, is always very hurtful. In recent asthma, and especially in the young and plethoric, a spare, light, and cool diet is proper, and com-

monly necessary; but after the disease has continued for years, asthmatics commonly bear, and even require a tolerably full diet, though in all cases a very full diet is very hurtful.

1400. In drinking, water, or cool watery liquors, is the only safe and fit drink for asthmatics; and all liquors ready to ferment, and become flatulent, are hurtful to them. Few asthmatics can bear any kind of strong drink; and any excess in such is always very hurtful to them. As asthmatics are commonly hurt by taking warm or tepid drink, so both upon that account, and upon account of the liquors weakening the nerves of the stomach, neither tea nor coffee is proper in this disease.

1401. Asthmatics commonly bear no bodily motion easily, but that of the most gentle kind. Riding, however, on horseback, or going in a carriage, and especially sailing, are very often useful to asthmatics.

CHAP. VII.

OF THE CHINCOUGH, OR HOOPING-COUGH.

G. LVI. PERTUSSIS.—*Morbus contagiosus; tussis convulsiva, strangulans, cum inspiratione sonorâ, iterata; sæpe vomitus.*

1402. **T**HIS disease is commonly epidemic, and manifestly contagious. It seems to proceed from a contagion of a specific nature, and of a singular quality. It does not, like most other contagions, necessarily produce a fever; nor does it, like most others, occasion any eruption, or produce otherwise any evident change in the state of the human fluids. It has,

in common with the catarrhal contagion, and with that of the measles, a peculiar determination to the lungs, but with particular effects there, very different from those of the other two; as will appear from the history of this disease now to be delivered.

1403. This contagion, like several others, affects persons but once in the course of their lives; and therefore, necessarily, children are most commonly the subjects of this disease: but there are many instances of it occurring in persons considerably advanced in life, though it is probable, that the farther that persons are advanced in life, they are the less liable to be affected with this contagion.

1404. The disease commonly comes on with the ordinary symptoms of a catarrh arising from cold; and often, for many days, keeps entirely to that appearance; and I have had instances of a disease which, though evidently arising from the chincough contagion, never put on any other form than that of a common catarrh.

This, however, seldom happens; for generally in the second, and at farthest in the third week after the attack, the disease puts on its peculiar and characteristic symptom, a convulsive cough. This is a cough in which the expiratory motions peculiar to coughing are made with more frequency, rapidity, and violence, than usual. As these circumstances, however, in different instances of coughing, are in very different degrees; so no exact limits can be put to determine when the cough can be strictly said to be convulsive; and it is therefore especially by another circumstance that the chincough is distinguished from every other form of cough. This circumstance is, when many expiratory motions have been convulsively made, and thereby the air is in great quantity thrown out of the lungs, a full inspiration is necessarily and suddenly made; which, by the air rushing in through the glottis with unusual velocity, gives a peculiar sound. This sound is somewhat different in different cases, but is in

general called a Hoop ; and from it the whole of the disease is called the Hooping-Cough. When this sonorous inspiration has happened, the convulsive coughing is again renewed, and continues in the same manner as before, till a quantity of mucus is thrown up from the lungs, or the contents of the stomach are thrown up by vomiting. Either of these evacuations commonly puts an end to the coughing, and the patient remains free from it for some time after. Sometimes it is only after several alternate fits of coughing and hooping that expectoration or vomiting takes place ; but it is commonly after the second coughing that these happen, and put an end to the fit.

1405. When the disease, in this manner, has taken its proper form, it generally continues for a long time after, and generally from one month to three ; but sometimes much longer, and that with very various circumstances.

1406. The fits of coughing return at various intervals, rarely observing any exact period. They happen frequently in the course of the day, and more frequently still in the course of the night. The patient has commonly some warning of their coming on ; and, to avoid that violent and painful concussion which the coughing gives to the whole body, he clings fast to any thing that is near to him, or demands to be held fast by any person that he can come at.

When the fit is over, the patient sometimes breathes fast, and seems fatigued for a little after : but in many this appears very little ; and children are commonly so entirely relieved, that they immediately return to their play, or what else they were occupied in before.

1407. If it happens that the fit of coughing ends in vomiting up the contents of the stomach, the patient is commonly immediately after seized with a strong craving and demand for food, and takes it in very greedily.

1408. At the first coming on of this disease, the expectoration is sometimes none at all, or of a thin mucus only ;

and while this continues to be the case, the fits of coughing are more violent, and continue longer: but commonly the expectoration soon becomes considerable, and a very thick mucus, often in great quantity, is thrown up; and as this is more readily brought up, the fits of coughing are of shorter duration.

1409. The violent fits of coughing frequently interrupt the free transmission of the blood through the lungs, and thereby the free return of blood from the vessels of the head. This occasions that turgescence and suffusion of face which commonly attends the fits of coughing, and seems to occasion also those eruptions of blood from the nose, and even from the eyes and ears, which sometimes happen in this disease.

1410. This disease often takes place in the manner we have now described, without any pyrexia attending it; but though Sydenham had seldom observed it, we have found the disease very frequently accompanied with pyrexia, sometimes from the very beginning, but more frequently only after the disease had continued for some time. When it does accompany the disease, we have not found it appearing under any regular intermittent form. It is constantly in some degree present; but with evident exacerbations towards evening, continuing till next morning.

1411. Another symptom very frequently attending the chincough, is a difficulty of breathing; and that not only immediately before and after fits of coughing, but as constantly present, though in different degrees in different persons. I have hardly ever seen an instance of a fatal chincough, in which a considerable degree of pyrexia and dyspnoea had not been for some time constantly present.

1412. When by the power of the contagion this disease has once taken place, the fits of coughing are often repeated, without any evident exciting cause: but in many cases, the contagion may be considered as giving a predisposition

only ; and the frequency of fits depends in some measure upon various exciting causes ; such as, violent exercise ; a full meal ; the having taken in food of difficult solution ; irritations of the lungs by dust, smoke, or disagreeable odours of a strong kind ; and especially any considerable emotion of the mind.

1413. Such are the chief circumstances of this disease, and it is of various event, which, however, may be commonly foreseen by attending to the following considerations :

The younger that children are, they are in the greater danger from this disease ; and of those to whom it proves fatal, there are many more under two years old than above it.

The older that children are, they are the more secure against an unhappy event ; and this I hold to be a very general rule, though I own there are many exceptions to it.

Children born of phthisical and asthmatic parents are in the greatest danger from this disease.

When the disease, beginning in the form of a catarrh, is attended with fever and difficult breathing, and with little expectoration, it often proves fatal, without taking on the form of the hooping-cough ; but in most of such cases, the coming on of the convulsive cough and hooping, bringing on at the same time a more free expectoration, generally removes the danger.

When the disease is fully formed, if the fits are neither frequent nor violent, with moderate expectoration, and the patient, during the intervals of the fits, is easy, keeps his appetite, gets sleep, and is without fever or difficult breathing, the disease is attended with no danger ; and these circumstances becoming daily more favourable, the disease very soon spontaneously terminates.

An expectoration, either very scanty or very copious, is attended with danger ; especially if the latter circumstance is attended with great difficulty of breathing.

Those cases in which the fits terminate by vomiting, and are immediately followed by a craving of food, are generally without danger.

A moderate hæmorrhagy from the nose often proves salutary, but very large hæmorrhagies are generally very hurtful.

This disease coming upon persons under a state of much debility, has very generally an unhappy event.

The danger of this disease sometimes arises from the violence of the fits of coughing, occasioning apoplexy, epilepsy, or immediate suffocation; but these accidents are very rare, and the danger of the disease seems generally to be in proportion to the fever and dyspnœa attending it.

1414. The cure of this disease has been always considered as difficult, whether the purpose be to obviate its fatal tendency when it is violent, or merely to shorten the course of it when it is mild. When the contagion is recent, and continues to act, we neither know how to correct, nor how to expel it; and therefore the disease necessarily continues for some time: but it is probable, that the contagion in this, as in other instances, ceases at length to act; and that then the disease continues, as in other convulsive affections, by the power of habit alone.

1415. From this view of the matter I maintain, that the practice must be different, and adapted to two different indications, according to the period of the disease. At the beginning of the disease, and for some time after, the remedies to be employed must be such as may obviate the violent effects of the disease, and the fatal tendency of it; but, after the disease has continued for some time, and is without any violent symptoms, the only remedies which can be required are those which may interrupt its course, and put an entire stop to it sooner than it would have spontaneously ceased.

1416. For answering the first indication. In plethoric subjects, or in others, when from the circumstances of the

cough and fits it appears that the blood is difficultly transmitted through the lungs, blood-letting is a necessary remedy; and it may be even necessary to repeat it, especially in the beginning of the disease: but, as spasmodic affections do not commonly admit of much bleeding, so it is seldom proper in the chincough to repeat this remedy often.

1417. As costiveness frequently attends this disease, so it is necessary to obviate or remove it by laxatives employed, and keeping an open belly is generally useful; but large evacuations in this way are commonly hurtful.

1418. To obviate or remove the inflammatory determination to the lungs that sometimes occurs in this disease, blistering is often useful, and even repeated blistering has been of service; but issues have not so much effect, and should by no means supersede the repeated blistering that may be indicated. When blisters are proper, they are more effectual when applied to the thorax than when applied to any distant parts.

1419. Of all other remedies, emetics are the most useful in this disease; both in general by interrupting the return of spasmodic affections, and in particular by determining very powerfully to the surface of the body, and thereby taking off determinations to the lungs. For these purposes, I think full vomiting is frequently to be employed; and in the intervals necessary to be left between the times of full vomiting, nauseating doses of the antimonial emetics may be useful. I have never found the *sulphur auratum*, so much praised by Clossius, to be a convenient medicine, on account of the uncertainty of its dose; and the tartar-emetic, employed in the manner directed by the late Dr Fothergill, has appeared to be more useful.

1420. These are the remedies to be employed in the first stage of the disease, for obviating its fatal tendency, and putting it into a safe train. But, in the second stage, when I suppose the contagion has ceased to act, and that the disease

continues merely by the power of habit, a different indication arises, and different remedies are to be employed.

1421. This disease, which often continues for a long time, does not, in my opinion, continue during the whole of that time in consequence of the contagion's remaining in the body, and continuing to act in it. That the disease does often continue long after the contagion has ceased to act, and that too by the power of habit alone, appears to me probable from hence, that terror has frequently cured the disease; that any considerable change in the state of the system, such as the coming on of the small-pox, has also cured it; and, lastly, that it has been cured by antispasmodic and tonic medicines; whilst none of all these means of cure can be supposed either to correct or to expel a morbid matter, though they are evidently suited to change the state and habits of the nervous system.

1422. From this view we are directed to the indication that may be formed, and in a great measure to the remedies which may be employed in what we suppose to be the second stage of the disease. It may perhaps be alleged, that this indication of shortening the course of the disease is not very important or necessary, as it supposes that the violence or danger is over, and, in consequence, that the disease will soon spontaneously cease. The last supposition, however, is not well founded; as the disease, like many other convulsive and spasmodic affections, may continue for a long time by the power of habit alone, and by the repetition of paroxysms, may have hurtful effects, more especially as the violence of paroxysms, and therefore their hurtful effects, may be much aggravated by various external causes that may be accidentally applied. Our indication, therefore, is proper; and we proceed to consider the several remedies which may be employed to answer it.

1423. Terror may possibly be a powerful remedy, but it is difficult to measure the degree of it that shall be produ-

ced; and, as a slight degree of it may be ineffectual, and a high degree of it dangerous, I cannot propose to employ it.

1424. The other remedies which we suppose suited to our second indication, and which indeed have been frequently employed in this disease, are antispasmodics or tonics.

Of the antispasmodics, castor has been particularly recommended by Dr Morris; but in many trials we have not found it effectual.

With more probability musk has been employed; but whether it be from our not having it of a genuine kind, or not employing it in sufficiently large doses, I cannot determine; but we have not found it commonly successful. Of antispasmodics, the most certainly powerful is opium; and when there is no considerable fever or difficulty of breathing present, opium has often proved useful in moderating the violence of the chincough; but I have not known it employed so as entirely to cure the disease.

If hemlock has proved a remedy in this disease, as we must believe from Dr Butter's accounts, I agree with that author, that it is to be considered as an antispasmodic. Upon this supposition, it is a probable remedy; and from the accounts of Dr Butter and some others, it seems to have been often useful; but, in our trials, it has often disappointed us, perhaps from the preparation of it not having been always proper.

1425. Of the tonics, I consider the cupmoss, formerly celebrated, as of this kind; as also the bark of the misletoe: but I have had no experience of either, as I have always trusted to the Peruvian bark. I consider the use of this medicine as the most certain means of curing the disease in its second stage; and when there has been little fever present, and a sufficient quantity of the bark has been given, it has seldom failed of soon putting an end to the disease.

1426. When convulsive disorders may be supposed to continue by the force of habit alone, it has been found that a

considerable change in the whole of the circumstances and manner of life has proved a cure of such diseases; and analogy has applied this in the case of the chincough so far, that a change of air has been employed, and supposed to be useful. In several instances I have observed it to be so; but I have never found the effects of it durable, or sufficient to put an entire stop to the disease.

SECT. III.—*Of the Spasmodic Affections in the Natural Functions.*

CHAP. VIII.

OF THE PYROSIS, OR WHAT IS NAMED IN SCOTLAND
THE WATER-BRASH.

G. LVII. PYROSIS.—*Epigastrii dolor urens, cum copiâ humoris aquei, plerumque insipidi, aliquando acris, eructatâ.*

1427. THE painful sensations referred to the stomach, and which are probably occasioned by real affections of this organ, are of different kinds. Probably they proceed from affections of different natures, and should therefore be distinguished by different appellations; but I must own that the utmost precision in this matter will be difficult. In my essay towards a methodical Nosology, I have, however, attempted it. For those pains which are either acute or pungent, or accompanied with a sense of distention, or with a

sense of constriction, if they are at the same time not attended with any sense of acrimony or heat, I employ the appellation of *Gastrodynia*. To express those painful or uneasy sensations which seem to arise from a sense of acrimony irritating the part, or from such a sense of heat as the application of acrids, whether externally or internally applied, often gives, I employ the term of *Cardialgia*; and by this I particularly mean to denote those feelings which are expressed by the term *Heartburn* in the English language. I think the term *Soda* has been commonly employed by practical writers to express an affection attended with feelings of the latter kind.

1428. Beside the pains denoted by the terms *Gastrodynia*, *Periadynia*, *Cardialgia*, and *Soda*, there is, I think, another painful sensation different from all of these, which is named by Mr Sauvages *Pyrosis Suecica*; and his account of it is taken from Linnæus, who names it *Cardialgia Sputatoria*. Under the title of *Pyrosis* Mr Sauvages has formed a genus, of which the whole of the species, except the eighth, which he gives under the title of *Pyrosis Suecica*, are all of them species of the *Gastrodynia* or of the *Cardialgia*; and if there is a genus to be formed under the title of *Pyrosis*, it can in my opinion comprehend only the species I have mentioned. In this case, indeed, I own that the term is not very proper; but my aversion to introduce new names has made me continue to employ the term of Mr Sauvages.

1429. The *Gastrodynia* and *Cardialgia* I judge to be for the most part symptomatic affections; and therefore have given them no place in this work; but the *Pyrosis*, as an idiopathic disease, and never before treated of in any system, I propose to treat of here.

1430. It is a disease frequent among people in lower life; but occurs also, though more rarely, in people of better condition. Though frequent in Scotland, it is by no means so frequent as Linnæus reports it to be in Lapland. It appears

most commonly in persons under middle age, but seldom in any persons before the age of puberty. When it has once taken place it is ready to recur occasionally for a long time after; but it seldom appears in persons considerably advanced in life. It affects both sexes, but more frequently the female. It sometimes attacks pregnant women, and some women only when they are in that condition. Of other women, it more frequently affects the unmarried; and of the married, most frequently the barren. I have had many instances of its occurring in women labouring under a fluor albus.

1431. The fits of this disease usually come on in the morning and forenoon, when the stomach is empty. The first symptom of it is a pain at the pit of the stomach, with a sense of constriction, as if the stomach was drawn towards the back; the pain is increased by raising the body into an erect posture, and therefore the body is bended forward. This pain is often very severe; and, after continuing for some time, it brings on an eructation of a thin watery fluid in considerable quantity. This fluid has sometimes an acid taste, but is very often absolutely insipid. The eructation is for some time frequently repeated; and does not immediately give relief to the pain which preceded it, but does so at length, and puts an end to the fit.

1432. The fits of this disease commonly come on without any evident exciting cause; and I have not found it steadily connected with any particular diet. It attacks persons using animal food, but I think more frequently those living on milk and farinacea. It seems often to be excited by cold applied to the lower extremities; and is readily excited by any considerable emotion of mind. It is often without any symptoms of dyspepsia.

1433. The nature of this affection is not very obvious; but I think it may be explained in this manner: It seems to begin by a spasm of the muscular fibres of the stomach; which

is afterwards, in a certain manner, communicated to the blood-vessels and exhalants, so as to increase the impetus of the fluids in these vessels, while a constriction takes place on their extremities. While therefore the increased impetus determines a greater quantity than usual of fluids into these vessels, the constriction upon their extremities allows only the pure watery parts to be poured out, analogous, as I judge, in every respect, to what happens in the diabetes hystericus.

1434. The practice in this disease is as difficult as the theory. The paroxysm is only to be certainly relieved by opium. Other antispasmodics, as vitriolic ether and volatile alkali, are sometimes of service, but not constantly so. Although opium and other antispasmodics relieve the fits, they have no effect in preventing their recurrence. For this purpose, the whole of the remedies of dyspepsia have been employed without success. Of the use of the nux vomica, mentioned as a remedy by Linnæus, I have had no experience.

CHAP. IX.

OF THE COLIC.

G. LVIII. COLICA.—*Dolor abdominis, præcipue circa umbilicum torquens ; vomitus ; alvus adstricta.*

Sp. 1. *Colica (spasmodica) cum retractione umbilici et spasmis musculorum abdominalium.*

Sp. 2. *Colica (pictorum) præeunte ponderis vel molestie in abdomine, præcipue circa umbilicum, sensu ; accedente dolore colico, primum levi, non continuo, et præcipue post pastum aucto ; tandem*

graviores et fere perpetuo ; cum dolore brachiorum, et dorsi, in paralysisin demum abeunte.

Sp. 3. *Colica (stercorea) in hominibus alvi tardæ, post diuturnam alvi obstipationem.*

Sp. 4. *Colica (accidentalis) a materie acri ingestâ.*

Sp. 5. *Colica (meconialis) neophytorum, a meconio retento.*

Sp. 6. *Colica (callosa) cum sensu in quâdam intestinorum parte stricturæ, et sæpe ante eam collecti flatus cum aliquo dolore, qui flatus etiam per eandem paulatim transiens evanescit ; alvo tardâ, et tandem non nisi fæces paucas liquidas egerente.*

Sp. 7. *Colica (calculosa) cum duritie in quâdam parte abdominis fixa ; calculis quondam per anum dejectis.*

1435. THE principal symptom of this disease, is a pain felt in the lower belly. It is seldom fixed and pungent in one part, but is a painful distention in some measure spreading over the whole of the belly ; and particularly with a sense of twisting or wringing round the navel. At the same time, with this pain, the navel and teguments of the belly are frequently drawn inwards, and often the muscles of the belly are spasmodically contracted, and this in separate portions, giving the appearance of a bag full of round balls.

1436. Such pains, in a certain degree, sometimes occur in cases of diarrhœa and cholera ; but these are less violent and more transitory, and are named Gripings. It is only when more violent and permanent, and attended with costiveness, that they constitute colic. This is also commonly attended with vomiting, which in many cases is frequently repeated, especially when any thing is taken down into the stomach ; and in such vomitings not only the contents of the stomach are thrown up, but also the contents of the duodenum, and therefore frequently a quantity of bile.

1437. In some cases of colic, the peristaltic motion is inverted through the whole length of the alimentary canal, in

such a manner that the contents of the great guts, and therefore stercoraceous matter, is thrown up by vomiting; and the same inversion appears still more clearly from this, that what is thrown into the rectum by glyster is again thrown out by the mouth. In those circumstances of inversion the disease has been named Ileus, or the Iliac Passion; and this has been supposed to be a peculiar disease distinct from colic; but to me it appears that the two diseases are owing to the same proximate cause, and have the same symptoms, only in a different degree.

1438. The colic is often without any pyrexia attending it. Sometimes, however, an inflammation comes upon the part of the intestine especially affected; and this inflammation aggravates all the symptoms of the disease, being probably what brings on the most considerable inversion of the peristaltic motion; and, as the stercoraceous vomiting is what especially distinguishes the ileus, this has been considered as always depending on an inflammation of the intestines. However, I can affirm, that as there are inflammations of the intestines without stercoraceous vomiting, so I have seen instances of stercoraceous vomiting without inflammation; and there is therefore no ground for distinguishing ileus from colic, but as a higher degree of the same affection.

1439. The symptoms of the colic, and the dissections of bodies dead of this disease, show very clearly, that it depends upon a spasmodic constriction of a part of the intestines; and that this therefore is to be considered as the proximate cause of the disease. In some of the dissections of persons dead of this disease, an intus-susception has been remarked to have happened; but whether this be constantly the case in all the appearances of ileus, is not certainly determined.

1440. The colic has commonly been considered as being of different species, but I cannot follow the writers on this subject in the distinctions they have established. So far, however, as a difference of the remote cause constitutes a

difference of species, a distinction may perhaps be admitted ; and accordingly, in my Nosology, I have marked seven different species : but I am well persuaded, that in all these different species the proximate cause is the same, that is, a spasmodic constriction of a part of the intestines ; and consequently, that in all these cases, the indication of cure is the same, that is, to remove the constriction mentioned. Even in the several species named *Stercorea*, *Callosa*, and *Calculosa*, in which the disease depends upon an obstruction of the intestine, I am persuaded that these obstructions do not produce the symptoms of colic, excepting in so far as they produce spasmodic constrictions of the intestines ; and therefore, that the means of cure in these cases, so far as they admit of cure, must be obtained by the same means which the general indication above mentioned suggests.

1441. The cure, then, of the colic universally, is to be obtained by removing the spasmodic constrictions of the intestines ; and the remedies suited to this purpose may be referred to three general heads ;

1. The taking off the spasm by various antispasmodic powers.
2. The exciting the action of the intestines by purgatives.
3. The employing mechanical dilatation.

1442. Before entering upon a more particular account of these remedies, it will be proper to observe, that in all cases of violent colic, it is advisable to practise blood-letting, both as it may be useful in obviating the inflammation which is commonly to be apprehended, and even as it may be a means of relaxing the spasm of the intestine. This remedy may perhaps be improper in persons of a weak and lax habit, but in all persons of tolerable vigour it will be a safe remedy ; and in all cases where there is the least suspicion of an inflammation actually coming on, it will be absolutely necessary. Nay, it will be even proper to repeat it perhaps several times, if, with a full and hard pulse, the appearance

of the blood drawn, and the relief obtained by the first bleeding, shall authorise such repetition.

1443. The antispasmodic powers that may be employed, are, the application of heat in a dry or humid form, the application of blisters, the use of opium, and the use of mild oils.

The application of heat in a dry form has been employed by applying to the belly of the patient a living animal, or bladders filled with warm water, or bags of substances which long retain their heat; and all these have sometimes been applied with success; but none of them seem to me so powerful as the application of heat in a humid form.

This may be employed either by the immersion of a great part of the body in warm water, or by fomenting the belly with cloths wrung out of hot water. The immersion has advantages from the application of it to a greater part of the body, and particularly to the lower extremities: but immersion cannot always be conveniently practised, and fomentation may have the advantage of being longer continued; and it may have nearly all the benefit of immersion, if it be at the same time applied both to the belly and to the lower extremities.

1444. From considering that the teguments of the lower belly have such a connection with the intestines, as at the same time to be affected with spasmodic contraction, we perceive that blisters applied to the belly may have the effect of taking off the spasms both from the muscles of the belly and from the intestines; and accordingly, blistering has often been employed in the colic with advantage. Analogous to this, rubefacients applied to the belly have been frequently found useful.

1445. The use of opium in colic may seem to be an ambiguous remedy. Very certainly it may for some time relieve the pain, which is often so violent and urgent, that it is difficult to abstain from the use of such a remedy. At the

same time, the use of opium retards or suspends the peristaltic motion so much, as to allow the intestines to fall into constrictions: and may therefore, while it relieves the pain, render the cause of the disease more obstinate. On this account, and further as opium prevents the operation of purgatives so often necessary in this disease, many practitioners are averse to the use of it, and some entirely reject the use of it as hurtful. There are, however, others who think they can employ opium in this disease with much advantage.

In all cases where the colic comes on without any previous costiveness, and arises from cold, from passions of the mind, or other causes which operate especially on the nervous system, opium proves a safe and certain remedy; but in cases which have been preceded by long costiveness, or where the colic, though not preceded by costiveness, has however continued for some days without a stool, so that a stagnation of fæces in the colon is to be suspected, the use of opium is of doubtful effect. In such cases, unless a stool has been first procured by medicine, opium cannot be employed but with some hazard of aggravating the disease. However, even in those circumstances of costiveness, when, without inflammation, the violence of the spasm is to be suspected, when vomiting prevents the exhibition of purgatives, and when with all this the pain is extremely urgent, opium is to be employed, not only as an anodyne, but also as an antispasmodic, necessary to favour the operation of purgatives; and may be so employed, when, either at the same time with the opiate, or not long after it, a purgative can be exhibited.

Is the hyoscyamus, as often showing, along with its narcotic, a purgative quality, better suited to this disease than opium?

1446. It is seemingly on good grounds that several practitioners have recommended the large use of mild oils in this

disease, both as antispasmodics and as laxatives; and, where the palate and stomach could admit them, I have found them very useful. But, as there are few Scottish stomachs that can admit a large use of oils, I have had few opportunities of employing them.

1447. The second set of remedies adapted to the cure of colic, are purgatives; which, by exciting the action of the intestines, either above or below the obstructed place, may remove the constriction; and therefore these purgatives may be given either by the mouth, or thrown by glyster into the anus. As the disease is often seated in the great guts; as glysters, by having a more sudden operation, may give more immediate relief; and as purgatives given by the mouth are ready to be rejected by vomiting; so it is common, and indeed proper, to attempt curing the colic in the first place by glysters. These may at first be of the mildest kind, consisting of a large bulk of water, with some quantity of mild oil; and such are sometimes sufficiently efficacious: however, they are not always so; and it is commonly necessary to render them more powerfully stimulant by the addition of neutral salts, of which the most powerful is the common or marine salt. If these saline glysters, as sometimes happens, are rendered again too quickly, and on this account or otherwise are found ineffectual, it may be proper, instead of these salts, to add to the glysters an infusion of senna, or of some other purgative that can be extracted by water. The antimonial wine may be sometimes employed in glysters with advantage. Hardly any glysters are more effectual than those made of turpentine properly prepared. When all other injections are found ineffectual, recourse is to be had to the injection of tobacco-smoke; and, when even this fails, recourse is to be had to the mechanical dilatation to be mentioned hereafter.

1448. As glysters often fail altogether in relieving this disease, and as even when they give some relief they are often

imperfect in producing a complete cure; so it is generally proper, and often necessary, to attempt a more entire and certain cure by purgatives given by the mouth. The more powerful of these, or, as they are called, the Drastic Purgatives, may be sometimes necessary; but their use is to be avoided, both because they are apt to be rejected by vomiting, and because when they do not succeed in removing the obstruction, they are ready to induce an inflammation. Upon this account it is usual, and indeed proper, at least in the first place, to employ the milder and less inflammatory purgatives. None have succeeded with me better than the crystals of tartar, because this medicine may be conveniently given in small but repeated doses, to a considerable quantity; and, under this management, it is the purgative least ready to be rejected by vomiting, and much less so than the other neutral salts. If a stronger purgative be required, jalap, properly prepared, is less offensive to the palate, and sits better upon the stomach, than most other powerful purgatives. On many occasions of colic, nothing is more effectually purgative than a large dose of calomel. Some practitioners have attempted to remove the obstruction of the intestines by antimonial emetics, exhibited in small doses, repeated at proper intervals; and when these doses are not entirely rejected by vomiting, they often prove effectual purgatives.

When every purgative has failed, the action of the intestines has been effectually excited by throwing cold water on the lower extremities.

1449. The third means of overcoming the spasm of the intestines in this disease, is by employing a mechanical dilatation; and it has been frequently supposed, that quicksilver given in large quantity might operate in this manner. I have not, however, found it successful; and the theory of it is with me very doubtful. Some authors have mentioned the use of gold and silver pills, or balls swallowed down;

but I have no experience of such practices, and I cannot suppose them a probable means of relief.

1450. Another means of mechanical dilatation, and a more probable measure, is by injecting a large quantity of warm water by a proper syringe, which may throw it with some force, and in a continued stream, into the rectum. Both from the experiments reported by the late Mr De Haen, and from those I myself have had occasion to make, I judge this remedy to be one of the most powerful and effectual.

1451. I have now mentioned all the several means that may be employed for the cure of the colic, considered as a genus; but before I quit this subject, it may be expected that I should take notice of some of the species which may seem to require a particular consideration. In this view, it may be expected that I should especially take notice of that species named the Colic of Poitou, and particularly known in England by the name of the Devonshire Colic.

1452. This species of the disease is certainly a peculiar one, both in respect of its cause and its effects; but, as to the first, it has been lately so much the subject of investigation, and is so well ascertained by the learned physicians Sir George Baker and Dr Hardy, that it is unnecessary for me to say any thing of it here.

With respect to the cure of it, so far as it appears in the form of a colic, my want of experience concerning it does not allow me to speak with any confidence on the subject; but, so far as I can learn from others, it appears to me, that it is to be treated by all the several means that I have proposed above for the cure of colic in general.

How far the peculiar effects of this disease are to be certainly foreseen and obviated, I have not properly learned; and I must leave the matter to be determined by those who have had sufficient experience in it.

CHAP. X.

OF THE CHOLERA.

G. LIX. CHOLERA.—*Humoris biliosi vomitus, ejusdem simul dejectio frequens ; anxietas ; tormina ; surarum spasmata.*

Sp. 1. *Cholera (spontanea) tempestate calidâ, sine causâ manifestâ oboriens.*

Sp. 2. *Cholera (accidentalis) a rebus acribus ingestis.*

1453. IN this disease, a vomiting and purging concurring together, or frequently alternating with one another, are the chief symptoms. The matter rejected both upwards and downwards appears manifestly to consist chiefly of bile.

1454. From this last circumstance I conclude, that the disease depends upon an increased secretion of bile, and its copious effusion into the alimentary canal ; and, as in this it irritates and excites the motions above mentioned, I infer, that the bile thus effused in larger quantity is, at the same time, also of a more acrid quality. This appears likewise from the violent and very painful gripings that attend the disease, and which we can impute only to the violent spasmodic contractions of the intestines that take place here. These spasms are commonly communicated to the abdominal muscles, and very frequently to those of the extremities.

1455. In the manner now described, the disease frequently proceeds with great violence, till the strength of the patient is greatly, and often suddenly, weakened ; while a

coldness of the extremities, cold sweats, and faintings coming on, an end is put to the patient's life sometimes in the course of one day. In other cases the disease is less violent, continues for a day or two, and then ceases by degrees, though such recoveries seldom happen without the assistance of remedies.

1456. The attacks of this disease are seldom accompanied with any symptoms of pyrexia; and though, during the course of it, both the pulse and respiration are hurried and irregular, yet these symptoms are generally so entirely removed by the remedies that quiet the spasmodic affections peculiar to the disease, as to leave no ground for supposing that it had been accompanied by any proper pyrexia.

1457. This is a disease attending a very warm state of the air; and in very warm climates, it may perhaps appear at any time of the year; but even in such climates it is most frequent during their warmest seasons; and in temperate climates, it appears only in the warm seasons. Dr Sydenham considered the appearances of this disease in England to be confined to the month of August; but he himself observed it to appear sometimes towards the end of summer, when the season was unusually warm; and that in proportion to the heat, the violence of the disease was greater. Others have observed that it appeared more early in summer, and always sooner or later according as the great heats sooner or later set in.

1458. From all these circumstances, it is, I think, very evident, that this disease is the effect of a warm atmosphere, producing some change in the state of the bile in the human body; and the change may consist either in the matter of the bile being rendered more acrid, and thereby fitted to excite a more copious secretion; or in the same matter its being prepared to pass off in larger quantity than usual.

1459. It has been remarked, that in warm climates and seasons, after extremely hot and dry weather, a fall of rain

cooling the atmosphere seems especially to bring on this disease ; and it is very probable that an obstructed perspiration may have also a share in this, though it is also certain that the disease does appear when no change in the temperature of the air nor any application of cold have been observed.

1460. It is possible that, in some cases, the heat of the season may give only a predisposition, and that the disease may be excited by certain ingesta or other causes ; but it is equally certain that the disease has occurred without any previous change or error, either in diet, or in the manner of life, that could be observed.

1461. The Nosologists have constituted a Genus under the title of Cholera, and under this have arranged as species every affection in which a vomiting and purging of any kind happened to concur. In many of these species, however, the matter evacuated is not bilious ; nor does the evacuation proceed from any cause in the state of the atmosphere. Further, in many of these species also, the vomiting which occurs is not an essential, but merely an accidental symptom, from the particular violence of the disease. The appellation of Cholera therefore should, in my opinion, be confined to the disease I have described above ; which, by its peculiar cause, and perhaps also by its symptoms, is very different from all the other species that have been associated with it. I believe that all the other species arranged under the title of Cholera by Sauvages or Sagar, may be properly enough referred to the genus of Diarrhœa ; which we are to treat of in the next chapter.

The distinction I have endeavoured to establish between the proper Cholera, and the other diseases that have sometimes got the same appellation, will, as I judge, supersede the question, Whether the Cholera, in temperate climates, happens at any other season than that above assigned ?

1462. In the case of a genuine cholera, the cure of it has been long established by experience.

In the beginning of the disease, the evacuation of the redundant bile is to be favoured by the plentiful exhibition of mild diluents, both given by the mouth and injected by the anus; and all evacuant medicines, employed in either way, are not only superfluous, but commonly hurtful.

1463. When the redundant bile appears to be sufficiently washed out, and even before that, if the spasmodic affections of the alimentary canal become very violent, and are communicated in a considerable degree to other parts of the body, or when a dangerous debility seems to be induced, the irritation is to be immediately obviated by opiates, in sufficiently large doses, but in small bulk, and given either by the mouth or by glyster.

1464. Though the patient be in this manner relieved, it frequently happens, that when the operation of the opium is over, the disease shows a tendency to return; and, for at least some days after the first attack, the irritability of the intestines, and their disposition to fall into painful spasmodic contractions, seem to continue. In this situation, the repetition of the opiates, for perhaps several days, may come to be necessary; and as the debility commonly induced by the disease favours the disposition to spasmodic affections, it is often useful and necessary, together with the opiates, to employ the tonic powers of the Peruvian bark.

CHAP. XI.

OF DIARRHŒA, OR LOOSENESS.

G. LX. DIARRHŒA.—*Dejectio frequens; morbus non contagiosus; pyrexia nulla primaria.*

Sp. 1. *Diarrhœa (crapulosa)* quâ stercora naturalibus liquidiora et majori copiâ dejiciuntur.

Sp. 2. *Diarrhœa (biliosa)* quâ fæces flavæ magnâ copiâ dejiciuntur.

Sp. 3. *Diarrhœa (mucosa)* quâ vel ab acribus ingestis, vel a frigore, præcipue pedibus applicato, mucus copiosus dejicitur.

Sp. 4. *Diarrhœa (cæliaca)* quâ humor lacteus specie chyli dejicitur.

Sp. 5. *Diarrhœa (lienteria)* quâ ingesta parum mutata celeriter dejiciuntur.

Sp. 6. *Diarrhœa (hepatirrhœa)* quâ materies seroso-cruenta, sine dolore dejicitur.

1465. **T**HIS disease consists in evacuations by stool, more frequent and of more liquid matter than usual. This leading and characteristic symptom is so diversified in its degree, in its causes, and in the variety of matter evacuated, that it is almost impossible to give any general history of the disease.

1466. It is to be distinguished from dysentery, by not being contagious; by being generally without fever, and by being with the evacuation of the natural excrements, which are, at least for some time, retained in dysentery. The two diseases have been commonly distinguished by the gripings being more violent in the dysentery; and they are commonly less violent and less frequent in diarrhœa: but as they frequently do occur in this also, and sometimes to a considerable degree, so they do not afford any proper distinction.

1467. A diarrhœa is to be distinguished from cholera chiefly by the difference of their causes; which, in cholera, is of one peculiar kind, but in diarrhœa is prodigiously diversified, as we shall see presently. It has been common to distinguish cholera, by the evacuation downwards being of bilious matter, and by this being always accompanied with

a vomiting of the same kind ; but it does not universally apply, as a diarrhœa is sometimes attended with vomiting, and even of bilious matter.

1468. The disease of diarrhœa, thus distinguished, is very greatly diversified ; but in all cases, the frequency of stools is to be imputed to a preternatural increase of the peristaltic motion in the whole, or at least a considerable portion, of the intestinal canal. This increased action is in different degrees, is often convulsive and spasmodic, and at any rate is a *motus abnormis* : for which reason, in the Methodical Nosology, I have referred it to the order of Spasmi, and accordingly treat of it in this place.

1469. Upon the same ground, as I consider the disease named Lientery to be an increased peristaltic motion over the whole of the intestinal canal, arising from a peculiar irritability, I have considered it as merely a species of diarrhœa. The idea of a laxity of the intestinal canal being the cause either of lientery, or other species of diarrhœa, appears to me to be without foundation, except in a single case of frequent liquid stools from a palsy of the *sphincter ani*.

1470. The increased action of the peristaltic motion, I consider as always the chief part of the proximate cause of diarrhœa ; but the disease is further, and indeed chiefly, diversified by the different causes of this increased action ; which we are now to inquire into.

1471. The several causes of the increased action of the intestines may be referred, I think, in the first place, to two general heads.

The *first* is, of the diseases of certain parts of the body, which, either from a consent of the intestines with these parts, or from the relation which the intestines have to the whole system, occasion an increased action in the intestines, without the transference of any stimulant matter from the primary diseased part to them.

The *second* head of the causes of the increased action of the intestines, is of the stimuli of various kinds, which are applied directly to the intestines themselves.

1472. That affections of other parts of the system may affect the intestines without the transference or application of any stimulant matter, we learn from hence, that the passions of the mind do in some persons excite diarrhœa.

1473. That diseases in other parts may in like manner affect the intestines, appears from the dentition of infants frequently exciting diarrhœa. I believe that the gout often affords another instance of the same kind; and probably there are others also, though not well ascertained.

1474. The stimuli (1471.) which may be applied to the intestines, are of very various kinds; and are either,

1. Matters introduced by the mouth.
2. Matters poured into the intestines by the several excretories opening into them.
3. Matters poured from certain preternatural openings made into them in certain diseases.

1475. Of those (1474. 1.) introduced by the mouth, the first to be mentioned are the aliments commonly taken in. Too great a quantity of these taken in often prevents their due digestion in the stomach; and by being thus sent in their crude, and probably acrid state, to the intestines, they frequently excite diarrhœa.

The same aliments, though in proper quantity, yet having too great a proportion, as frequently happens, of saline or saccharine matter along with them, prove stimulant to the intestines, and excite diarrhœa.

But our aliments prove especially the causes of diarrhœa, according as they, from their own nature, or from the weakness of the stomach, are disposed to undergo an undue degree of fermentation there, and thereby become stimulant to the intestines. Thus acescent aliments are ready to produce diarrhœa; but whether from their having any directly

purgative quality, or only as mixed in an over-proportion with the bile, is not well determined.

1476. Not only the acescent, but also the putrescent disposition of the aliments, seems to occasion a diarrhœa; and it appears that even the effluvia of putrid bodies, taken in any way, in large quantity, have the same effect.

Are oils or fats, taken in as a part of our aliments, ever the cause of diarrhœa? and if so, in what manner do they operate?

1477. The other matters introduced by the mouth, which may be causes of diarrhœa, are those thrown in either as medicines, or poisons that have the faculty of stimulating the alimentary canal. Thus, in the list of the *Materia Medica*, we have a long catalogue of those named purgatives; and in the list of poisons, we have many possessed of the same quality. The former, given in a certain quantity, occasion a temporary diarrhœa; and given in very large doses, may occasion it in excess, and continue it longer than usual, producing that species of diarrhœa named a *Hypercatharsis*.

1478. The matters (1474. 2.) poured into the cavity of the intestines from the excretories opening into them, and which may occasion diarrhœa, are either those from the pancreatic or biliary duct, or those from the excretories in the coats of the intestines themselves.

1479. What changes may happen in the pancreatic juice, I do not exactly know; but I suppose that an acrid fluid may issue from the pancreas, even while still entire in its structure; but more especially, when it is in a suppurated, scirrhous, or cancerous state, that a very acrid matter may be poured out by the pancreatic duct, and occasion diarrhœa.

1480. We know well, that from the biliary duct the bile may be poured out in greater quantity than usual; and there is little doubt of its being also sometimes poured out of a more than ordinary acrid quality. It is very proba-

ble, that in both ways the bile is frequently a cause of diarrhœa.

Though I have said above that diarrhœa may be commonly distinguished from cholera, I must admit here, that as the causes producing that state of the bile which occasions cholera, may occur in all the different possible degrees of force, so as, on one occasion, to produce the most violent and distinctly marked cholera, but, upon another, to produce only the gentlest diarrhœa; which, however, will be the same disease, only varying in degree; so I think it probable, that in warm climates, and in warm seasons, a *diarrhœa biliosa* of this kind may frequently occur, not to be always certainly distinguished from cholera.

However this may be, it is sufficiently probable, that, in some cases, the bile, without having been acted upon by the heat of the climate or season, may be redundant and acrid, and prove therefore a particular cause of diarrhœa.

1481. Beside bile from the several causes and in the conditions mentioned, the biliary duct may pour out pus, or other matter, from abscesses in the liver, which may be the cause of diarrhœa.

Practical writers take notice of a diarrhœa wherein a thin and bloody liquid is discharged; which they suppose to have proceeded from the liver, and have therefore given the disease the name of Hepatirrhœa: but we have not met with any instance of this kind; and therefore cannot properly say any thing concerning it.

1482. A second set of excretories, from which matter is poured into the cavity of the intestines, are those from the coats of the intestines themselves; and are either the exhalants proceeding directly from the extremities of arteries, or the excretories from the mucous follicles: and both these sources occur in prodigious number over the internal surface of the whole intestinal canal. It is probable that it is chiefly the effusion from these sources which, in most in-

stances, gives the matter of the liquid stools occurring in diarrhœa.

1483. The matter from both sources may be poured out in larger quantity than usual, merely by the increased action of the intestines, whether that be excited by the passions of the mind (1472.), by diseases in other parts of the system (1471. 1.), or by the various stimulants mentioned 1475. and following; or the quantity of matter poured out may be increased, not so much by the increased action of the intestines, as by an increased afflux of fluids from other parts of the system.

Thus, cold applied to the surface of the body, and suppressing perspiration, may determine a greater quantity of fluids to the intestines.

Thus, in the *ischuria renalis*, the urine taken into the blood-vessels is sometimes determined to pass off again by the intestines.

In like manner, pus or serum may be absorbed from the cavities in which they have been stagnant, and be again poured out into the intestines, as frequently happens, in particular with respect to the water of dropsies.

1484. It is to be observed here, that a diarrhœa may be excited, not only by a copious afflux of fluids from other parts of the system, but likewise by the mere determination of various acrid matters from the mass of blood into the cavity of the intestines. Thus it is supposed that the morbid matter of fevers is sometimes thrown out into the cavity of the intestines, and gives a critical diarrhœa: and whether I do, or do not admit the doctrine of critical evacuations, I think it is probable that the morbid matter of the exanthemata is frequently thrown upon the intestines and occasions diarrhœa.

1485. It is to me further probable, that the putrescent matter diffused over the mass of blood in putrid diseases, is frequently poured out by the exhalants into the intestines,

and proves there the cause, at least in part, of the diarrhœa so commonly attending these diseases.

1486. Upon this subject of the matters poured into the cavity of the intestines, I have chiefly considered them as poured out in unusual quantity: but it is probable, that for the most part they are also changed in their quality, and become of a more acrid and stimulant nature; upon which account especially it is that they excite, or at least increase a diarrhœa.

1487. How far, and in what manner the exhalant fluid may be changed in its nature and quality we do not certainly know: but with respect to the fluid from the mucous excretories, we know, that when poured out in unusual quantity, it is commonly, at the same time, in a more liquid and acrid form; and may prove therefore considerably irritating.

1488. Though the copious effusion of a more liquid and acrid matter from the mucous excretories be probably owing to the matter being poured out immediately as it is secreted from the blood into the mucous follicles, without being allowed to stagnate in the latter, so as to acquire that milder quality and thicker consistence we commonly find in the mucus in its natural state; and although we might suppose that the excretions of a thin and acrid fluid should always be the effect of every determination to the mucous follicles, and of every stimulant applied to them; yet it is certain that the reverse is sometimes the case; and that from the mucous follicles there is frequently an increased excretion of a mucus, which appears in its proper form, of a mild, viscid and thickish matter. This commonly occurs in the case of dysentery; and it has been observed to give a species of diarrhœa, which has been properly named the *Diarrhœa Mucosa*.

1489. A third source of matter poured into the cavity of the intestines, and occasioning diarrhœa (1474. 3.), is from

those preternatural openings produced by diseases in the intestines or neighbouring parts. Thus the blood-vessels on the internal surface of the intestines may be opened by erosion, rupture, or anastomosis, and pour into the cavity their blood, which, either by its quantity or by its acrimony, whether inherent, or acquired by stagnation, may sometimes give a diarrhœa evacuating bloody matter. This is what I think happens in that disease which has been called the *Melæna* or *Morbus Niger*.

1490. Another preternatural source of matter poured into the cavity of the intestines, is the rupture of abscesses seated either in the coats of the intestines themselves, or in any of the contiguous viscera, which, during an inflamed state, had formed an adhesion with some part of the intestines. The matter thus poured into their cavity may be various; purulent, or sanious, or both together, mixed at the same time with more or less of blood; and in each of these states may be a cause of diarrhœa.

1491. Amongst the stimuli that may be directly applied to the intestines, and which, by increasing their peristaltic motion, may occasion diarrhœa, I must not omit to mention worms, as having frequently that effect.

1492. I must also mention here a state of the intestines, wherein their peristaltic motion is preternaturally increased, and a diarrhœa produced; and that is, when they are affected with an erythematic inflammation. With respect to the existence of such a state, and its occasioning diarrhœa, see what is said above in 398. and following. Whether it is to be considered as a particular and distinct case of diarrhœa, or is always the same with some of those produced by one or other of the causes above mentioned, I have not been able to determine.

1493. Lastly, by an accumulation of alimentary or of other matter poured into the cavity of the intestines from several of the sources above mentioned, a diarrhœa may be

especially occasioned when the absorption of the lacteals, or of other absorbents, is prevented, either by an obstruction of their orifices, or by an obstruction of the mesenteric glands, through which alone the absorbed fluids can be transmitted.

In one instance of this kind, when the chyle prepared in the stomach and duodenum is not absorbed in the course of the intestines, but passes off in considerable quantity by the anus, the disease has been named *Morbus Cæliacus*, or simply and more properly *Cæliaca*; which accordingly I have considered as a species of diarrhœa.

1494. I have thus endeavoured to point out the various species of disease that may come under the general appellation of Diarrhœa; and from that enumeration it will appear, that many, and indeed the greater part of the cases of diarrhœa, are to be considered as sympathetic affections, and to be cured only by curing the primary disease upon which they depend; of which however I cannot properly treat here. From our enumeration it will also appear, that many of the cases of diarrhœa which may be considered as idiopathic, will not require my saying much of them here. In many instances the disease is ascertained, and also the cause assigned, by the condition of the matter evacuated; so that what is necessary to correct or remove it, will be sufficiently obvious to practitioners of any knowledge. In short, I do not find that I can offer any general plan for the cure of diarrhœa: and all that I can propose to do on this subject, is to give some general remarks on the practice that has been commonly followed in the cure of this disease.

1495. The practice in this disease has chiefly proceeded upon the supposition of an acrimony in the fluids, or of a laxity in the simple and moving fibres of the intestines; and the remedies employed have accordingly been correctors of particular acrimony, general demulcents, evacuants by vo-

miting or purging, astringents or opiates. Upon each of these kinds of remedy I shall now offer some remarks.

1496. An acrid acrimony is, upon several occasions, the cause of diarrhœa, particularly in children; and in such cases the absorbent earths have been very properly employed. The common, however, and promiscuous use of these has been very injudicious; and where there is any putrescency, they must be hurtful.

1497. The cases in which there is a putrid or putrescent acrimony prevailing, have been, I think, too seldom taken notice of; and therefore the use of acids too seldom admitted. The acrimony to be suspected in bilious cases, is probably of the putrescent kind.

1498. The general correctors of acrimony are the mild diluents and demulcents. The former have not been so much employed in diarrhœa as they ought; for, joined with demulcents, they very much increase the effects of the latter: and although the demulcents, both mucilaginous and oily, may by themselves be useful, yet without the assistance of diluents, they can hardly be introduced in such quantity as to answer the purpose.

1499. As indigestion and crudities present in the stomach are so often the cause of diarrhœa, vomiting must therefore be frequently very useful in this disease.

In like manner, when the disease proceeds, as it often does, from obstructed perspiration, and increased afflux of fluids to the intestines, vomiting is perhaps the most effectual means of restoring the determination of the fluids to the surface of the body.

It is possible also, that vomiting may give some inversion of the peristaltic motion, which is determined too much downwards in diarrhœa; so that upon the whole it is a remedy which may be very generally useful in this disease.

1500. Purging has been supposed to be more universally

necessary, and has been more generally practised. This, however, in my opinion, proceeds upon very mistaken notions with respect to the disease; and such a practice seems to me for the most part superfluous, and in many cases very hurtful. It goes upon the supposition of an acrimony present in the intestines that ought to be carried out by purging: but, if that acrimony has either been introduced by the mouth, or brought into the intestines from other parts of the body, purging can neither be a means of correcting nor of exhausting it; and must rather have the effect of increasing its afflux, and of aggravating its effects. From whatever source the acrimony which can excite a diarrhœa proceeds, it may be supposed sufficient to evacuate itself, so far as that can be done by purging; and as in cholera, so in the same kind of diarrhœa, it will be more proper to assist the evacuation by diluents and demulcents, than to increase the irritation by purgatives.

1501. If, then, the use of purgatives in diarrhœa may be considered, even when an acrimony is present, as superfluous, there are many other cases in which it may be extremely hurtful. If the irritability of the intestines shall, from affections in other parts of the system, or other causes, have been already very much increased, purgatives must necessarily aggravate the disease. In the case of lientery, nobody thinks of giving a purgative; and in many cases of diarrhœa approaching to that, they must be equally improper. I have already observed, that when diarrhœa proceeds from an afflux of fluids to the intestines, whether in too great quantity, or of an acrid quality, purgatives may be hurtful; and whoever, therefore, considers the numerous and various sources from which acrid matter may be poured into the cavity of the intestines, will readily perceive, that, in many cases of diarrhœa, purgatives may be extremely pernicious.

There is one case in particular to be taken notice of.

When, from a general and acrid dissolution of the blood, the serous fluids run off too copiously into the cavity of the intestines, and excite that diarrhœa which attends the advanced state of hectic fever, and is properly called a Colliquative Diarrhœa; I have, in such cases, often seen purgatives given with the most baneful effects.

There is still another case of diarrhœa in which purgatives are pernicious; and that is, when the disease depends, as we have alleged it sometimes may, upon an erythematic inflammation of the intestines.

I need hardly add, that if there be a case of diarrhœa depending upon a laxity of the solids, purgatives cannot there be of any service, and may do much harm. Upon the whole, it will, I think, appear, that the use of purgatives in diarrhœa is very much limited; and that the promiscuous use of them, which has been so common, is injudicious, and often pernicious. I believe the practice has been chiefly owing to the use of purgatives in dysenteric cases, in which they are truly useful; because, contrary to the case of diarrhœa, there is in dysentery a considerable constriction of the intestines.

1502. Another set of remedies employed in diarrhœa are astringents. There has been some hesitation about the employment of these in recent cases, upon the supposition that they might occasion the retention of an acrid matter that should be thrown out. I cannot, however, well understand or assign the cases in which such a caution is necessary; and I think that the power of astringents is seldom so great as to render their use very dangerous. The only difficulty which has occurred to me with respect to their use, has been to judge of the circumstances to which they are especially adapted. It appears to me to be only in those where the irritability of the intestines depends upon a loss of tone; and this, I think, may occur either from the debility of the whole system, or from causes acting on the intestines alone. All

violent or long-continued spasmodic and convulsive affections of the intestinal canal necessarily induce a debility there; and such causes often take place from violent irritation, in colic, dysentery, cholera, and diarrhœa.

1503. The last of the remedies of diarrhœa that remain to be mentioned are opiates. The same objections have been made to the use of these, in recent cases of diarrhœa, as to that of astringents; but on no good grounds: for the effect of opiates, as astringents, is never very permanent; and an evacuation depending upon irritation, though it may be for some time suspended by opiates, yet always returns very soon. It is only by taking off irritability that opiates are useful in diarrhœa; and therefore, when the disease depends upon an increase of irritability alone, or when, though proceeding from irritation, that irritation is corrected or exhausted, opiates are the most useful and certain remedy. And though opiates are not suited to correct or remove an irritation applied, they are often of great benefit in suspending the effects of that irritation whenever these are violent: and, upon the whole, it will appear, that opiates may be very frequently, and with great propriety, employed in the cure of diarrhœa.

CHAP. XII.

OF THE DIABETES.

G. LXI. DIABETES.—*Urinæ plerumque præternaturalis, copia immodica, profusio chronica.*

Sp. 1. *Diabetes (mellitus) cum urinâ odoris, coloris, et saporis mellei.*

Sp. 2. *Diabetes (insipidus) cum urinâ limpidâ non dulci.*

1504. **T**HIS disease consists in the voiding of an unusually large quantity of urine.

As hardly any secretion can be increased without an increased action of the vessels concerned in it, and as some instances of this disease are attended with affections manifestly spasmodic, I have had no doubt of arranging the diabetes under the order of Spasmi.

1505. This disease is always accompanied with a great degree of thirst, and therefore with the taking in of a great quantity of drink. This in some measure accounts for the very extraordinary quantities of urine voided; but still, independent of this, a peculiar disease certainly takes place, as the quantity of urine voided does almost always exceed the whole of the liquids, and sometimes the whole of both solids and liquids, taken in.

1506. The urine voided in this disease is always very clear, and at first sight appears entirely without any colour; but, viewed in a certain light, it generally appears to be slightly tinged with a yellowish green, and in this respect has been very properly compared to a solution of honey in a large proportion of water.

Examined by the taste, it is very generally found to be more or less sweet; and many experiments that have now been made in different instances of the disease, show clearly that such urine contains, in considerable quantity, a saccharine matter, which appears to be very exactly of the nature of common sugar.

1507. Doctor Willis seems to me to have been the first who took notice of the sweetness of the urine in diabetes, and almost every physician of England has since taken notice of the same. It is to be doubted, indeed, if there is any case of idiopathic diabetes in which the urine is of a different kind. Though neither the ancients, nor, in the other countries of Europe, the moderns, till the latter were directed to it by the English, have taken notice of the sweet-

ness of the urine, it does not persuade me, that either in ancient or in modern times the urine in diabetes was of another kind. I myself, indeed, think I have met with one instance of diabetes in which the urine was perfectly insipid; and it would seem that a like observation had occurred to Dr Martin Lister. I am persuaded, however, that such instances are very rare; and that the other is by much the more common, and perhaps the almost universal occurrence. I judge, therefore, that the presence of such a saccharine matter may be considered as the principal circumstance in idiopathic diabetes; and it gives at least the only case of that disease that I can properly treat of here, for I am only certain that what I am further to mention relates to such a case.

1508. The antecedents of this disease, and consequently the remote causes of it, have not been well ascertained. It may be true that it frequently happens to men who, for a long time before, had been intemperate in drinking; that it happens to persons of a broken constitution, or who, as we often express it, are in a cachectic state; that it sometimes follows intermittent fevers; and that it has often occurred from excess in drinking of mineral waters. But none of these causes apply very generally to the cases that occur: such causes are not always, nor even frequently, followed by diabetes; and there are many instances of diabetes which could not be referred to any of them. In most of the cases of this disease which I have met with, I could not refer it to any particular cause.

1509. This disease commonly comes on slowly, and almost imperceptibly, without any previous disorder. It often arises to a considerable degree, and subsists long without being accompanied with evident disorder in any particular part of the system. The great thirst which always, and the voracious appetite which frequently occurs in it, are often the only remarkable symptoms. Under the continu-

ance of the disease, the body is often greatly emaciated; and a great weakness also prevails. The pulse is commonly frequent; and an obscure fever is for the most part present. When the disease proves fatal, it generally ends with a fever, in many circumstances, particularly those of emaciation and debility, resembling a hectic.

1510. The proximate cause of this disease is not certainly or clearly known. It seems to have been sometimes connected with calculous affections of the kidneys; and it is possible, that an irritation applied there may increase the secretion of urine. It perhaps often does so; but how it should produce the singular change that takes place in the state of the urine, is not to be easily explained. It certainly often happens that calculous matters are long present in the urinary passages, without having any such effect as that of producing diabetes in any shape.

Some have supposed that the disease occurs from a relaxed state of the secretory vessels of the kidneys; and indeed the dissections of persons who had died of this disease have shown the kidneys in a very flaccid state. This, however, is probably to be considered as rather the effect than the cause of the disease.

That no topical affection of the kidneys has a share in producing this disease, and that a fault in the assimilation of the fluids is rather to be blamed, I conclude from hence, that even the solid food taken in, increases the quantity of the urine voided, at the same time with an increase of the saccharine matter above mentioned.

1511. The diabetes has been supposed to be owing to a certain state of the bile; and it is true, that this disease has sometimes occurred in persons who were at the same time affected with diseases of the liver: but this concurrence does not often take place; and the diabetes frequently occurs separately from any affection of the liver. In twenty instan-

ces of diabetes which I have seen, there was not in any one of them any evident affection of the liver.

The explanation that has been offered of the nature and operation of the bile, in producing diabetes, is very hypothetical, and nowise satisfying.

1512. As I have already said, I think it probable, that in most cases the proximate cause of this disease is some fault in the assimilatory powers, or in those employed in converting alimentary matters into the proper animal fluids. This I formerly hinted to Dr Dobson, and it has been prosecuted and published by him; but I must own that it is a theory embarrassed with some difficulties which I cannot at present very well remove.

1513. The proximate cause of diabetes being so little known or ascertained, I cannot propose any rational method of cure in the disease. From the testimony of several authors, I believe that the disease has been cured: but I believe also, that this has seldom happened: and when the disease has been cured, I doubt much if it was effected by the several remedies to which these cures have been ascribed. In all the instances of this disease which I myself have seen, and in several others of which I have been informed, no cure of it has ever been made in Scotland, though many instances of it have occurred, and in most of them the remedies recommended by authors have been diligently employed. I cannot therefore, with any advantage, enter into a detail of these remedies; and as the disease, together with its several circumstances, when they shall hereafter occur, is likely to become the subject of diligent investigation, I avoid going farther at present, and judge it prudent to suspend my opinion till I shall have more observations and experiments upon which I can form it more clearly.

CHAP. XIII.

OF THE HYSTERIA, OR THE HYSTERIC DISEASE.

G. LXII. HYSTERIA.—*Ventris murmura ; sensus globi in abdomine se volventis, ad ventriculum et fauces ascendentis, ibique strangulantis ; sopor ; convulsiones ; urinæ limpidæ copia profusa ; animus, nec sponte, varius et mutabilis.*

1514. **T**HE many and various symptoms which have been supposed to belong to a disease under this appellation, render it extremely difficult to give a general character or definition of it. It is, however, proper in all cases to attempt some general idea ; and therefore, by taking the most common form, and that concurrence of symptoms by which it is principally distinguished, I have formed a character in my system of Methodical Nosology, and shall here endeavour to illustrate it by giving a more full history of the phenomena.

1515. The disease attacks in paroxysms or fits. These commonly begin by some pain and fulness felt in the left side of the belly. From this a ball seems to move, with a grumbling noise, into the other parts of the belly, and, making as it were various convolutions there, seems to move into the stomach, and more distinctly still rises up to the top of the gullet, where it remains for some time, and by its pressure upon the larynx gives a sense of suffocation. By the time that the disease has proceeded thus far, the patient is affected with a stupor and insensibility, while at the same time the body is agitated with various convulsions. The

trunk of the body is writhed to and fro, and the limbs are variously agitated; commonly the convulsive motion of one arm and hand, is that of beating with the closed fist, upon the breast, very violently and repeatedly. This state continues for some time, and has during that time some remissions and renewals of the convulsive motions; but they at length cease, leaving the patient in a stupid and seemingly sleeping state. More or less suddenly, and frequently with repeated sighing and sobbing, together with a murmuring noise in the belly, the patient returns to the exercise of sense and motion, but generally without any recollection of the several circumstances that had taken place during the fit.

1516. This is the form of what is called an *hysteric paroxysm*, and is the most common form; but its paroxysms are considerably varied in different persons, and even in the same person at different times. It differs by having more or fewer of the circumstances above mentioned; by these circumstances being more or less violent; and by the different duration of the whole fit.

Before the fit, there is sometimes a sudden and unusually large flow of limpid urine. At the coming on of the fit, the stomach is sometimes affected with vomiting, the lungs with considerable difficulty of breathing, and the heart with palpitations. During the fit, the whole of the belly, and particularly the navel, is drawn strongly inwards; the sphincter ani is sometimes so firmly constricted as not to admit a small glyster-pipe, and there is at the same time an entire suppression of urine. Such fits are, from time to time, ready to recur; and during the intervals, the patients are liable to involuntary motions, to fits of laughing and crying, with sudden transitions from the one to the other; while sometimes false imaginations, and some degree of delirium, also occur.

1517. These affections have been supposed peculiar to the female sex; and indeed they most commonly appear in females; but they sometimes, though rarely, attack also the

male sex; never, however, that I have observed, in the same exquisite degree.

In the female sex, the disease occurs especially from the age of puberty to that of thirty-five years; and though it does sometimes, yet very seldom appears before the former or after the latter of these periods.

At all ages, the time at which it most readily occurs is that of the menstrual period.

The disease more especially affects the females of the most exquisitely sanguine and plethoric habits, and frequently affects those of the most robust and masculine constitutions.

It affects the barren more than the breeding women, and therefore frequently young widows.

It occurs especially in those females who are liable to the Nymphomania: and the Nosologists have properly enough marked one of the varieties of this disease by the title of *Hysteria Libidinosa*.

In the persons liable to the fits of this disease, it is readily excited by the passions of the mind, and by every considerable emotion, especially those brought on by surprise.

The persons liable to this disease acquire often such a degree of sensibility, as to be strongly affected by every impression that comes upon them by surprise.

1518. In this history, there appears to be a concurrence of symptoms and circumstances properly marking a very particular disease, which I think may be distinguished from all others. It seems to me to have been improperly considered by physicians as the same with some other diseases, and particularly with hypochondriasis. The two diseases may have some symptoms in common, but for the most part are considerably different.

Spasmodic affections occur in both diseases; but neither so frequently, nor to so great a degree in hypochondriasis as in hysteria.

Persons liable to hysteria are sometimes affected at the

same time with dyspepsia. They are often, however, entirely free from it; but I believe this never happens to persons affected with hypochondriasis.

These different circumstances mark some difference in the two diseases; but they are still more certainly distinguished by the temperament they attack, and by the time of life at which they appear to be most exquisitely formed.

It has been generally supposed, that the two diseases differ only in respect of their appearing in different sexes; but this is not well-founded: for although the hysteria appears most commonly in females, the male sex is not absolutely free from it, as I have observed above; and although the hypochondriasis may be most frequent in men, the instances of it in the female sex are very common.

1519. From all these considerations, it must, I think, appear, that the hysteria may be very well and properly distinguished from hypochondriasis.

Further, it seems to me to have been with great impropriety, that almost every degree of the irregular motions of the nervous system has been referred to the one or other of these two diseases. Both are marked by a peculiarity of temperament, as well as by certain symptoms commonly accompanying that; but some of these, and many others usually marked by the name of nervous symptoms, may, from various causes, arise in temperaments different from that which is peculiar to either hysteria or hypochondriasis, and without being joined with the peculiar symptoms of either the one or the other disease: so that the appellations of Hysteric and Hypochondriac are very inaccurately applied to them. Under what view these symptoms are otherwise to be considered, I am not ready to determine; but must remark, that the appellation of Nervous Diseases is too vague and undefined to be of any useful application.

1520. Having thus endeavoured to distinguish hysteria from every other disease, I shall now attempt its peculiar

pathology. With respect to this, I think it will, in the first place, be obvious, that its paroxysms begin by a convulsive and spasmodic affection of the alimentary canal, which is afterwards communicated to the brain, and to a great part of the nervous system. Although the disease appears to begin in the alimentary canal, yet the connection which the paroxysms so often have with the menstrual flux, and with the diseases that depend on the state of the genitals, shows, that physicians have at all times judged rightly in considering this disease as an affection of the uterus and other parts of the genital system.

1521. With regard to this, however, I can go no farther. In what manner the uterus, and in particular the ovaria, are affected in this disease; how the affection of these is communicated with particular circumstances to the alimentary canal; or how the affection of this, rising upwards, affects the brain, so as to occasion the particular convulsions which occur in this disease, I cannot pretend to explain.

But although I cannot trace this disease to its first causes, or explain the whole of the phenomena; I hope, that with respect to the general nature of the disease, I may form some general conclusions, which may serve to direct our conduct in the cure of it.

1522. Thus, from a consideration of the predisponent and occasional causes, it will, I think, appear, that the chief part of the proximate cause is a mobility of the system, depending generally upon its plethoric state.

1523. Whether this disease ever arises from a mobility of the system, independent of any plethoric state of it, I cannot positively determine: but in many cases that have subsisted for some time, it is evident that a sensibility, and consequently a mobility, are acquired, which often appear when neither a general plethora can be supposed to subsist, nor an occasional turgescence to have happened. However,

as we have shown above, that a distention of the vessels of the brain seems to occasion epilepsy, and that a turgescence of the blood in the vessels of the lungs seems to produce asthma: so analogy leads me to suppose, that a turgescence of blood in the uterus, or in other parts of the genital system, may occasion the spasmodic and convulsive motions which appear in hysteria. It will at the same time be evident, that this affection of the genitals must especially occur in plethoric habits: and every circumstance mentioned in the history of the disease serves to confirm this opinion with respect to its proximate cause.

1524. From this view of the subject the analogy of hysteria and epilepsy will readily appear; and why, therefore, I am to say that the indications of cure are the same in both.

As the indications, so the several means of answering them, are so much the same in both diseases, that the same observations and directions, with regard to the choice and employment of these remedies, that have been delivered above on the subject of epilepsy, will apply pretty exactly to hysteria; and therefore need not be repeated here.

CHAP. XVI.

OF CANINE MADNESS AND HYDROPHOBIA.

G. LXIII. HYDROPHOBIA.—*Potionis cujuslibet, utpote convulsionem pharyngis dolentem cientis, fastidium et horror; plerumque e morsu animalis rabidi.*

Sp. 1. *Hydrophobia (rabiosa) cum mordendi cupiditate, ex morsu animalis rabidi.*

Sp. 2. *Hydrophobia (simplex) sine rabie, vel mordendi cupiditate.*

1525. **T**HIS disease has been so exactly and fully described in books that are in every body's hands, that it is on no account necessary for me to give any history of it here; and with respect to the pathology of it, I find that I can say nothing satisfying to myself, or that I can expect to prove so to others. I find also, with respect to the cure of this disease, that there is no subject in which the fallacy of experience appears more strongly than in this. From the most ancient to the present times, many remedies for preventing and curing this disease have been recommended under the sanction of pretended experience, and have perhaps also kept their credit for some time: but succeeding times have generally, upon the same ground of experience, destroyed that credit entirely; and most of the remedies formerly employed are now fallen into absolute neglect. In the present age, some new remedies have been proposed, and have experience alleged to vouch for their efficacy; but many doubts still remain with respect to this: and though I cannot determine in this matter from my own experience, I think it incumbent on me to give the best judgment I can form with respect to the choice of the remedies at present recommended.

1526. I am, in the first place, firmly persuaded, that the most certain means of preventing the consequences of the bite, is to cut out, or otherwise destroy the part in which the bite has been made. In this every body agrees; but with this difference, that some are of opinion that it can only be effectual when it is done very soon after the wound has been made, and they therefore neglect it when this opportunity is missed. There have been, however, no experiments made proper to determine this matter; and there are many considerations which lead me to think that the poison is not immediately communicated to the system; and therefore, that this measure of destroying the part may be practised

with advantage, even many days after the bite has been given.

1527. Whilst the state of our experience, with respect to several remedies now in use, is uncertain, I cannot venture to assert that any of these is absolutely ineffectual; but I can give it as my opinion, that the efficacy of mercury, given very largely, and persisted in for a long time, both as a means of preventing the disease, and of curing it when it has actually come on, is better supported by experience than that of any other remedy now proposed, or commonly employed.

BOOK IV.
 OF VESANIÆ,
 OR OF THE DISORDERS OF THE INTELLECTUAL
 FUNCTIONS.

ORD. IV. VESANIÆ.

Mentis judicantis functiones læsæ sine pyrexia vel comate.

G. LXIV. AMENTIA.—*Mentis judicantis imbecillitas, quâ homines rerum relationes, vel non percipiunt, vel non reminiscuntur.*

Sp. 1. *Amentia (congenita) a nativitate constans.*

Sp. 2. *Amentia (senilis) ex perceptione et memoriâ, ingravescente ætate, imminutis.*

Sp. 3. *Amentia (acquisita) a causis externis, evidentibus, in hominibus sanæ mentis superveniens.*

CHAP. I.

OF VESANIÆ IN GENERAL.

1528. THE Nosologists, Sauvages and Sagar, in a class of diseases under the title of VESANIÆ, have comprehended the two orders of *Hallucinationes*, or False Perceptions, and of *Morositates*, or Erroneous Appetites and Passions; and in like manner, Linnæus, in his class of MENTALES, corresponding to the Vesaniæ of Sauvages, has comprehended the two

orders of *Imaginarii* and *Pathetici*, nearly the same with the *Hallucinationes* and *Morositates* of that author. This, however, from several considerations, appears to me improper; and I have therefore formed a class of *Vesaniæ*, nearly the same with the *Paranoïæ* of Vogel, excluding from it the *Hallucinationes* and *Morositates*, which I have referred to the *Morbi Locales*. Mr Vogel has done the like, in separating from the *Paranoïæ* the false perceptions and erroneous appetites; and has thrown these into another class, to which he has given the title of *Hyperæstheses*.

1529. It is indeed true, that certain hallucinationes and morositates are frequently combined with what I propose to consider as strictly a vesania, or an erroneous judgment; and sometimes the hallucinationes seem to lay the foundation of, and to form almost entirely the vesania. But as most part of the hallucinationes enumerated by the Nosologists are affections purely topical, and induce no other error of judgment beside that which relates to the single object of the sense or particular organ affected; so these are certainly to be separated from the diseases which consist in a more general affection of the judgment. Even when the hallucinationes constantly accompany or seem to induce the vesania, yet being such as arise from internal causes, and may be presumed to arise from the same cause as the more general affection of the judgment, they are therefore to be considered as symptoms of this only.

In like manner I judge with respect to the morositates, or erroneous passions, that accompany vesania; which, as consequences of a false judgment, must be considered as arising from the same causes, and as symptoms only of the more general affection.

There is, indeed, one case of a morositas which seems to induce a vesania, or more general affection of the judgment; and this may lead us to consider the vesania, in this case, as a symptom of an erroneous appetite, but will not afford any

good reason for comprehending the morositates in general under the *vesaniæ*, considered as primary diseases.

The limitation therefore of the class of *Vesaniæ* to the lesions of our judging faculty, seems from every consideration to be proper.

The particular diseases to be comprehended under this class, may be distinguished according as they affect persons in the time of waking or of sleeping. Those which affect men awake, may again be considered, as they consist in an erroneous judgment, to which I shall give the appellation of *Delirium*; or as they consist in a weakness or imperfection of judgment, which I shall name *Fatuity*. I begin with the consideration of delirium.

1530. As men differ greatly in the soundness and force of their judgment, so it may be proper here to ascertain more precisely what error or imperfection of our judging faculty is to be considered as morbid, and to admit of the appellations of *Delirium* and *Fatuity*. In doing this, I shall first consider the morbid errors of judgment, under the general appellation of *Delirium*, which has been commonly employed to denote every mode of such error.

1531. As our judgment is chiefly exercised in discerning and judging of the several relations of things, I apprehend that delirium may be defined to be,—In a person awake, a false or mistaken judgment of those relations of things, which, as occurring most frequently in life, are those about which the generality of men form the same judgment; and particularly when the judgment is very different from what the person himself had before usually formed.

1532. With this mistaken judgment of relations, there is frequently joined some false perception of external objects, without any evident fault in the organs of sense, and which seems therefore to depend upon an internal cause; that is, upon the imagination, arising from a condition in the brain, presenting objects which are not actually present. Such

false perceptions must necessarily occasion a delirium, or an erroneous judgment, which is to be considered as the disease.

1533. Another circumstance commonly attending delirium, is a very unusual association of ideas. As, with respect to most of the affairs of common life, the ideas laid up in the memory are, in most men, associated in the same manner; so a very unusual association, in any individual, must prevent his forming the ordinary judgment of those relations which are the most common foundation of association in the memory: and therefore this unusual, and commonly hurried, association of ideas, usually is, and may be considered as a part of delirium. In particular, it may be considered as a certain mark of a general morbid affection of the intellectual organs, it being an interruption or perversion of the ordinary operations of memory, the common and necessary foundation of the exercise of judgment.

1534. A third circumstance attending delirium, is an emotion or passion, sometimes of the angry, sometimes of the timid kind; and, from whatever cause in the perception or judgment, it is not proportioned to such cause, either in the manner formerly customary to the person himself, or in the manner usual with the generality of other men.

1535. Delirium, then, may be more shortly defined,—In a person awake, a false judgment arising from perceptions of imagination, or from false recollection, and commonly producing disproportionate emotions.

Such delirium is of two kinds; as it is combined with pyrexia and comatose affections, or as it is entirely without any such combination. It is the latter case that we name *Insanity*; and it is this kind of delirium only, that I am to treat of here.

1536. Insanity may perhaps be properly considered as a genus comprehending many different species, each of which may deserve our attention; but before proceeding to the

consideration of particular species, I think it proper to attempt an investigation of the cause of insanity in general.

1537. In doing this, I shall take it for granted, as demonstrated elsewhere, that although this disease seems to be chiefly, and sometimes solely, an affection of the mind; yet the connection between the mind and body in this life is such, that these affections of the mind must be considered as depending upon a certain state of our corporeal part. See Halleri Prim. Lin. Physiolog. § 570. See Boerhaavii Inst. Med. § 581. 696.

1538. Admitting this proposition, I must in the next place assume another, which I likewise suppose to be demonstrated elsewhere. This is, that the part of our body more immediately connected with the mind, and therefore more especially concerned in every affection of the intellectual functions, is the common origin of the nerves; which I shall, in what follows, speak of under the appellation of the brain.

1539. Here, however, in assuming this last proposition, a very great difficulty immediately presents itself. Although we cannot doubt that the operations of our intellect always depend upon certain motions taking place in the brain, (see Gaub. Path. Med. § 523); yet these motions have never been the objects of our senses, nor have we been able to perceive that any particular part of the brain has more concern in the operations of our intellect than any other. Neither have we attained any knowledge of what share the several parts of the brain have in that operation; and therefore, in this situation of our science, it must be a very difficult matter to discover those states of the brain that may give occasion to the various state of our intellectual functions.

1540. It may be observed, that the different state of the motion of the blood in the vessels of the brain has some share in affecting the operations of the intellect; and phy-

sicians, in seeking for the causes of the different states of our intellectual functions, have hardly looked further than into the state of the motion of the blood, or into the condition of the blood itself: but it is evident that the operations of the intellectual functions ordinarily go on, and are often considerably varied, without our being able to perceive any difference either in the motions or in the condition of the blood.

1541. Upon the other hand, it is very probable that the state of the intellectual functions depends chiefly upon the state and condition of what is termed the Nervous power, or, as we suppose, of a subtile very moveable fluid, included or inherent, in a manner we do not clearly understand, in every part of the medullary substance of the brain and nerves, and which, in a living and healthy man, is capable of being moved from every one part to every other of the nervous system.

1542. With respect to this power, we have pretty clear proof that it frequently has a motion from the sentient extremities of the nerves towards the brain, and thereby produces sensation; and we have the same proof, that in consequence of volition, the nervous power has a motion from the brain into the muscles or organs of motion. Accordingly, as sensation excites our intellectual operations, and volition is the effect of these, and as the connection between sensation and volition is always by the intervention of the brain, and of intellectual operations; so we can hardly doubt, that these latter depend upon certain motions, and the various modification of these motions in the brain.

1543. To ascertain the different states of these motions may be very difficult; and physicians have commonly considered it to be so very mysterious, that they have generally despaired of attaining any knowledge with regard to it: but I consider such absolute despair, and the negligence it inspires, to be always very blameable; and I shall now

venture to go some length in the inquiry, hoping that some steps made with tolerable firmness may enable us to go still further.

1544. To this purpose, I think it evident, that the nervous power, in the whole as well as in the several parts of the nervous system, and particularly in the brain, is at different times in different degrees of mobility and force. To these different states, I beg leave to apply the terms of *Excitement* and *Collapse*. To that state in which the mobility and force are sufficient for the exercise of the functions, or when these states are any way preternaturally increased, I give the name of *Excitement*; and to that state in which the mobility and force are not sufficient for the ordinary exercise of the functions, or when they are diminished from the state in which they had been before, I give the name of *Collapse*. I beg, however, it may be observed, that by these terms I mean to express matters of fact only; and without intending, by these terms, to explain the circumstance or condition, mechanical or physical, of the nervous power or fluid in these different states.

1545. That these different states of excitement and collapse take place on different occasions, must, I think, be manifest from numberless phenomena of the animal economy; but it is especially to our present purpose to observe, that the different states of excitement and collapse are in no instance more remarkable, than in the different states of waking and sleeping. In the latter, when quite complete, the motion and mobility of the nervous power, with respect to the whole of what are called the Animal Functions, entirely cease, or, as I would express it, are in a state of collapse; and are very different from the state of waking which, in healthy persons, I would call a state of general and entire excitement.

1546. This difference in the states of the nervous power in sleeping and waking being admitted, I must, in the next

place, observe, that when these states are changed from the one into the other, as commonly happens every day, the change is hardly ever made instantaneously, but almost always by degrees, and in some length of time only: and this may be observed with respect to both sense and motion. Thus, when a person is falling asleep, the sensibility is gradually diminished: so that, although some degree of sleep has come on, slight impressions will excite sensation, and bring back excitement; which the same, or even stronger impressions, will be insufficient to produce when the state of sleep has continued longer, and is, as we may say, more complete. In like manner, the power of voluntary motion is gradually diminished. In some members it fails sooner than in others; and it is some time before it becomes general and considerable over the whole.

The same gradual progress may be remarked in a person's coming out of sleep: The ears in this case are often awake before the eyes are opened or see clearly, and the senses are often awake before the power of voluntary motion is recovered; and it is curious to observe, that, in some cases, sensations may be excited without producing the ordinary association of ideas. See *Mém. de Berlin*, 1752.

1547. From all this, I think it will clearly appear, that not only the different states of excitement and collapse can take place in different degrees, but that they can take place in different parts of the brain, or, at least with respect to the different functions, in different degrees.

As I presume that almost every person has perceived the gradual approach of sleeping and waking, I likewise suppose every person has observed, that, in such intermediate state of unequal excitement, there almost always occurs more or less of delirium, or dreaming, if any body chooses to call it so. There are in this state false perceptions, false associations, false judgments, and disproportionate emotions; in

short, all the circumstances by which I have above defined delirium.

This clearly shows that delirium may depend, and I shall hereafter endeavour to prove that it commonly does depend, upon some inequality in the excitement of the brain; and that both these assertions are founded on this, that, in order to the proper exercise of our intellectual functions, the excitement must be complete, and equal in every part of the brain. For, though we cannot say that the vestiges of ideas are laid up in different parts of the brain, or that they are in some measure diffused over the whole, it will follow upon either supposition, that as our reasoning or intellectual operations always require the orderly and exact recollection or memory of associated ideas; so, if any part of the brain is not excited, or not excitable, that recollection cannot properly take place, while, at the same time, other parts of the brain, more excited and excitable, may give false perceptions, associations, and judgments.

1548. It will serve to illustrate this, that the collapse in sleep is more or less complete; or that the sleep, as we commonly speak, is more or less profound: and, therefore, that, in many cases, though sleep takes place to a considerable degree, yet certain impressions do still take effect, and excite motions, or, if you will, sensations, in the brain: but which sensations, upon account of the collapsed state of so great a part of the brain, are generally of the delirious kind, or dreams, consisting of false perceptions, associations, and judgments, that would have been corrected if the brain had been entirely excited.

Every one, I believe, has observed, that the most imperfect sleeps are those chiefly attended with dreaming; that dreams, therefore, most commonly occur towards morning, when the complete state of sleep is passing away; and, further, that dreams are most commonly excited by strong and uneasy impressions made upon the body.

I apprehend it may also be an illustration of the same thing, that, even in waking hours, we have an instance of an unequal state of excitement in the brain, producing delirium. Such, I think, occurs in the case of fever. In this it is manifest, that the energy of the brain, or its excitement, is considerably diminished with respect to the animal functions: and it is accordingly upon this ground that I have explained above, in 45, the delirium which so commonly attends fever. To what I have there said, I shall here only add, that it may serve to confirm my doctrine, that the delirium in fever comes on at a certain period of the disease only, and that we can commonly discern its approach by a more than usual degree of it appearing in the time of the patient's falling into or coming out of sleep. It appears, therefore, that delirium, when it first comes on in fever, depends upon an inequality of excitement; and it can hardly be doubted, that the delirium, which comes at length to prevail in the entirely weakened state of fevers, depends upon the same cause prevailing in a more considerable degree.

1549. From what has been now delivered, I hope it will be sufficiently evident, that delirium may be, and frequently is, occasioned by an inequality in the excitement of the brain.

How the different portions of the brain may at the same time be excited or collapsed in different degrees, or how the energy of the brain may be in different degrees of force, with respect to the several animal, vital, and natural functions, I cannot pretend to explain; but it is sufficiently evident in fact, that the brain may be at one and the same time in different conditions with respect to these functions. Thus, in inflammatory diseases, when by a stimulus applied to the brain the force of the vital functions is preternaturally increased, that of the animal is either little changed, or considerably diminished. On the contrary, in many cases of ma-

nia, the force of the animal functions depending always on the brain, is prodigiously increased, while the state of the vital function in the heart is very little or not at all changed. I must therefore say again, that how difficult soever it may be to explain the mechanical or physical condition of the brain in such cases, the facts are sufficient to show that there is such an inequality as may disturb our intellectual operations.

1550. I have thus endeavoured to explain the general cause of Delirium: which is of two kinds; according as it is with or without pyrexia. Of the first I take no further notice here, having explained it as well as I could above in 45.

I proceed now to consider that delirium which properly belongs to the class of *Vesaniæ*, and which I shall treat of under the general title of *Insanity*.

1551. In entering upon this subject, it immediately occurs, that in many instances of insanity, we find upon dissection after death, that peculiar circumstances had taken place in the general condition of the brain. In many cases, it has been found of a drier, harder, and firmer consistence, than what it is usually of in persons who had not been affected with that disease. In other cases, it has been found in a more humid, soft, and flaccid state; and in the observations of the late Mr Meckel *, it has been found considerably changed in its density or specific gravity. Whether these different states have been observed to be uniformly the same over the whole of the brain, I cannot certainly learn; and I suspect the dissectors have not always accurately inquired into this circumstance: but in several

* Mémoires de Berlin pour l'année 1764. It appeared in many instances of insane persons, that the medullary substance of the cerebrum was drier, and of a less specific gravity, than in persons who had been always of a sound judgment.

instances, it appears that these states had been different in different parts of the brain; and instances of this inequality will afford a confirmation of our general doctrine.

The accurate Morgagni has observed, that in maniacal persons the medullary portion of the brain is unusually dry, hard, and firm: And this he had so frequently observed, that he was disposed to consider it as generally the case. But in most of the particular instances which he has given, it appears, that, for the most part, while the cerebrum was of an unusually hard and firm consistence, the cerebellum was of its usual softness, and in many of the cases it was unusually soft and flaccid. In some other cases, Morgagni observes, that while a part of the cerebrum was harder and firmer than ordinary, other parts of it were preternaturally soft.

1552. These observations tend to confirm our general doctrine: and there are others which I think will apply to the same purpose.

Upon the dissection of the bodies of persons who had laboured under insanity, various organic affections have been discovered in particular parts of the brain; and it is sufficiently probable, that such organic affections might have produced a different degree of excitement in the free and affected parts, and must have interrupted in some measure the free communication between the several parts of the brain, and in either way have occasioned insanity.

There have occurred so many instances of this kind, that I believe physicians are generally disposed to suspect organic lesions of the brain to exist in almost every case of insanity.

1553. This, however, is probably a mistake; for we know that there have been many instances of insanity from which the persons have entirely recovered; and it is difficult to suppose that any organic lesions of the brain had in such case taken place. Such transitory cases, indeed, render it

probable, that a state of excitement, changeable by various causes, had been the cause of such instances of insanity.

1554. It is indeed further asserted, that in many instances of insane persons, their brain had been examined after death without showing that any organic lesions had before subsisted in the brain, or finding that any morbid state of the brain had then appeared. This, no doubt, may serve to show that organic lesions had not been the cause of the disease; but it does not assure us that no morbid change had taken place in the brain: for it is probable, that the dissectors were not always aware of its being the general condition of hardness and density, as different in different parts of the brain, that was to be attended to, in order to discover the cause of the preceding disease; and therefore many of them had not with this view examined the state of the brain, as Morgagni seems carefully to have done.

1555. Having thus endeavoured to investigate the cause of insanity in general, it were to be wished that I could apply the doctrine to the distinguishing the several species of it, according as they depend upon the different state and circumstances of the brain, and thereby to the establishing of a scientific and accurately adapted method of cure. These purposes, however, appear to me to be extremely difficult to be attained; and I cannot hope to execute them here. All I can do is, to make some attempts, and offer some reflections, which further observation, and greater sagacity, may hereafter render more useful.

1556. The ingenious Dr Arnold has been commendably employed in distinguishing the different species of insanity as they appear with respect to the mind; and his labours may hereafter prove useful, when we shall come to know something more of the different states of the brain corresponding to these different states of the mind; but at present I can make little application of his numerous distinctions. It appears to me that he has chiefly pointed out and

enumerated distinctions, that are merely varieties, which can lead to little or no variety of practice: and I am especially led to form the latter conclusion, because these varieties appear to me to be often combined together, and to be often changed into one another, in the same person; in whom we must therefore suppose a general cause of the disease, which, so far as it can be known, must establish the pathology, and especially direct the practice.

1557. In my limited views of the different states of insanity, I must go on to consider them under the two heads of Mania and Melancholia: and though I am sensible that these two genera do not comprehend the whole of the species of insanity, I am not clear in assigning the other species, which may not be comprehended under those titles. I shall, however, endeavour, on proper occasions, as I go along, to point them out as well as I can.

CHAP. II.

OF MANIA, OR MADNESS.

G. LXVI. MANIA.—*Insania universalis.*

Sp. 1. *Mania (mentalis) omnino a pathemate mentis.*

Sp. 2. *Mania (corporea) a vitio corporis evidente.*

Sp. 3. *Mania (obscura) prægresso nullo vel pathemate mentis vel vitio corporis evidente.*

1558. **T**HE circumstances which I have mentioned above in 1535. as constituting delirium in general, do more especial-

ly belong to that kind of it which I shall treat of here under the title of MANIA.

There is sometimes a false perception or imagination of things present that are not; but this is not a constant, nor even a frequent attendant of the disease. The false judgment is of relations long before laid up in the memory. It very often turns upon one single subject: but more commonly the mind rambles from one subject to another, with an equally false judgment concerning the most part of them; and as at the same time there is commonly a false association, this increases the confusion of ideas, and therefore the false judgments. What for the most part more especially distinguishes the disease, is a hurry of mind, in pursuing any thing like a train of thought, and in running from one train of thought to another. Maniacal persons are in general very irascible: but what more particularly produces their angry emotions is, that their false judgments lead to some action which is always pushed with impetuosity and violence; when this is interrupted or restrained, they break out into violent anger and furious violence against every person near them, and upon every thing that stands in the way of their impetuous will. The false judgment often turns upon a mistaken opinion of some injury supposed to have been formerly received, or now supposed to be intended: and it is remarkable, that such an opinion is often with respect to their former dearest friends and relations; and therefore their resentment and anger are particularly directed towards these. And although this should not be the case, they commonly soon lose that respect and regard which they formerly had for their friends and relations. With all these circumstances, it will be readily perceived, that the disease must be attended very constantly with that incoherent and absurd speech we call raving. Further, with the circumstances mentioned, there is commonly joined an unusual force in all the voluntary notions; and an in-

sensibility or resistance of the force of all impressions, and particularly a resistance of the powers of sleep, of cold, and even of hunger; though indeed in many instances a voracious appetite takes place.

1559. It appears to me, that the whole of these circumstances and symptoms point out a considerable and unusual excess and excitement of the brain, especially with respect to the animal functions; and it appears at the same time to be manifestly in some measure unequal, as it very often takes place with respect to these functions alone, while at the same time the vital and natural are commonly very little changed from their ordinary healthy state.

1560. How this excess of excitement is produced, it may be difficult to explain. In the various instances of what Sauvages has named the *Mania Metastatica*, and in all the instances I have mentioned in my Nosology under the title of the *Mania Corporea*, it may be supposed that a morbid organic affection is produced in some part of the brain; and how that may produce an increased or unequal excitement in certain parts of it, I have endeavoured to explain above in 1552. But I must at the same time acknowledge, that such remote causes of mania have very rarely occurred; and that therefore some other causes of the disease must be sought for.

The effects of violent emotions or passions of the mind have more frequently occurred as the remote causes of mania; and it is sufficiently probable, that such violent emotions, as they do often immediately produce a temporary increase of excitement, so they may, upon some occasions of their permanent adherence or frequent repetition, produce a more considerable and more permanent excitement, that is, a mania.

With respect to those causes of mania which arise in consequence of a melancholia which had previously long subsisted; whether we consider that melancholia as a partial

insanity, or as a long persisting attachment to one train of thinking, it will be readily perceived, that in either case such an increase of excitement may take place in so considerable a degree, and in so large a portion of the brain, as may give occasion to a complete mania.

1561. These considerations with regard to the remote causes, appear to me to confirm sufficiently our general doctrine of increased and unequal excitement in the mania which I have described above ; but I must own, that I have not exhausted the subject, and that there are cases of mania of which I cannot assign the remote causes : but, although I cannot in all cases explain in what manner the mania is produced, I presume, from the explanation given, and especially from the symptoms enumerated above, to conclude, that the disease described above depends upon an increased excitement of the brain ; an opinion in which I am the more confirmed, as I think it will point out the proper method of cure. At least I think it will most clearly explain the operation of those remedies, which, so far as I can learn from my own experience and that of others, have proved the most successful in this disease ; and, to illustrate this, I now enter upon the consideration of these remedies, and to make some remarks upon the proper manner of employing them.

1562. Restraining the anger and violence of madmen is always necessary for preventing their hurting themselves or others ; but this restraint is also to be considered as a remedy. Angry passions are always rendered more violent by the indulgence of the impetuous motions they produce ; and even in madmen the feeling of restraint will sometimes prevent the efforts which their passion would otherwise occasion. Restraint, therefore, is useful, and ought to be complete ; but it should be executed in the easiest manner possible for the patient, and the strait waistcoat answers every purpose better than any other that has yet been thought of.

The restraining madmen by the force of other men, as occasioning a constant struggle and violent agitation, is often hurtful. Although, on many occasions, it may not be safe to allow maniacs to be upon their legs or to walk about, it is never desirable to confine them to a horizontal situation; and whenever it can be admitted, they should be more or less in an erect posture. Although there may be no symptoms of any preternatural fulness or increased impetus of blood in the vessels of the brain, a horizontal posture always increases the fulness and tension of these vessels, and may thereby increase the excitement of the brain.

1563. The restraint mentioned requires confinement within doors, and it should be in a place which presents as few objects of sight and hearing as possible; and particularly, it should be removed from the objects that the patient was formerly acquainted with, as these would more readily call up ideas and their various associations. It is for this reason that the confinement of madmen should hardly ever be in their usual habitation; or if they are, that their apartment should be stripped of all its former furniture. It is also for the most part proper, that maniacs should be without the company of any of their former acquaintance; the appearance of whom commonly excites emotions that increase the disease. Strangers may at first be offensive; but in a little time they come to be objects either of indifference or of fear, and they should not be frequently changed.

1564. Fear being a passion that diminishes excitement, may therefore be opposed to the excess of it; and particularly to the angry and irascible excitement of maniacs. These being more susceptible of fear than might be expected, it appears to me to have been commonly useful. In most cases it has appeared to be necessary to employ a very constant impression of fear; and therefore to inspire them with the awe and dread of some particular persons, especially of those who are to be constantly near them. This awe

and dread is therefore, by one means or other, to be acquired; in the first place, by their being the authors of all the restraints that may be occasionally proper; but sometimes it may be necessary to acquire it even by stripes and blows. The former, although having the appearance of more severity, are much safer than strokes or blows about the head. Neither of them, however, should be employed further than seems very necessary, and should be trusted only to those whose discretion can be depended upon. There is one case in which they are superfluous; that is, when the maniacal rage is either not susceptible of fear, or incapable of remembering the objects of it; for in such instances, stripes and blows would be wanton barbarity. In many cases of a moderate disease, it is of advantage that the persons who are the authors of restraints and punishment should be upon other occasions the bestowers of every indulgence and gratification that is admissible; never, however, neglecting to employ their awe when their indulgence shall have led to any abuse.

1565. Although in mania no particular irritation nor fulness of the system seem to be present, it is plain, that the avoiding all irritation and means of fulness is proper; and therefore, that a diet neither stimulating nor nourishing is commonly to be employed. As it may even be useful to diminish the fulness of the system, so both a low and a spare diet is likely in most cases to be of service.

1566. Upon the same principle, although no unusual fulness of the body be present, it may be of advantage to diminish even its ordinary fulness by different evacuations.

Blood-letting, in particular, might be supposed useful; and in all recent cases of mania it has been commonly practised, and I think with advantage; but when the disease has subsisted for some time, I have seldom found blood-letting of service. In those instances in which there is any frequency or fulness of pulse, or any marks of an increased

impetus of the blood in the vessels of the head, blood-letting is a proper and even a necessary remedy. Some practitioners, in such cases, have preferred a particular manner of blood-letting, recommending arteriotomy, scarifying the hind-head, or opening the jugular vein; and where any fulness or inflammatory disposition in the vessels of the brain is to be suspected, the opening of the vessels nearest to them is likely to be of the greatest service. The opening, however, of either the temporal artery or the jugular vein in maniacal persons is very often inconvenient; and it may generally be sufficient to open a vein in the arm, while the body is kept in somewhat of an erect posture, and such a quantity of blood drawn as nearly brings on a *deliquium animi*, which is always a pretty certain mark of some diminution of the fulness and tension of the vessels of the brain.

1567. For the same purpose of taking off the fulness and tension of these vessels of the brain, purging may be employed; and I can in no other view understand the celebrated use of hellebore among the ancients. I cannot, however, suppose any specific power in hellebore; and can by no means find that, at least the black hellebore, is so efficacious with us as it is said to have been at Anticyra. As costiveness, however, is commonly a very constant and hurtful attendant of mania, purgatives come to be sometimes very necessary; and I have known some benefit obtained from the frequent use of pretty drastic purgatives. In this, however, I have been frequently disappointed; and I have found more advantage from the frequent use of cooling purgatives, particularly the soluble tartar, than from more drastic medicines.

1568. Vomiting has also been frequently employed in mania; and by determining powerfully to the surface of the body, it may possibly diminish the fulness and tension of the vessels, and thereby the excitement of the brain; but I have never carried the use of this remedy so far as might

enable me to judge properly of its effects. Whether it may do harm by impelling the blood too forcibly into the vessels of the brain, or whether, by its general agitation of the whole system, it may remove that inequality of excitement which prevails in mania, I have not had experience enough to determine.

1569. Frequent shaving of the head has been found of service in mania, and by promoting perspiration it probably takes off from the excitement of the internal parts. This, however, it is likely, may be more effectually done by blistering, which more certainly takes off the excitement of subjacent parts. In recent cases it has been found useful by inducing sleep; and when it has that effect, the repetition of it may be proper: but in maniacal cases that have lasted for some time, blistering has not appeared to me to be of any service; and in such cases also I have not found perpetual blisters, or any other form of issue, prove useful.

1570. As heat is the principal means of first exciting the nervous system, and establishing the nervous power and vital principle in animals; so in cases of preternatural excitement, the application of cold might be supposed a proper remedy: but there are many instances of maniacs who have been exposed for a great length of time to a considerable degree of cold without having their symptoms anywise relieved. This may render in general the application of cold a doubtful remedy; but it is at the same time certain, that maniacs have often been relieved, and sometimes entirely cured, by the use of cold bathing, especially when administered in a certain manner. This seems to consist, in throwing the madman into the cold water by surprise; by detaining him in it for some length of time; and pouring water frequently upon the head, while the whole of the body except the head is immersed in the water; and thus managing the whole process, so as that, with the assistance of some fear, a refrigerant effect may be produced. This, I can affirm,

has been often useful; and that the external application of cold may be of service, we know farther, from the benefit which has been received in some maniacal cases from the application of ice and snow to the naked head, and from the application of the noted Clay Cap.

Warm bathing also has been recommended by some practical writers, and in some rigid melancholic habits it may possibly be useful, or as employed in the manner prescribed by some, of immersing the lower parts of the body in warm water, while cold water is poured upon the head and upper parts. Of this practice, however, I have had no experience; and in the common manner of employing warm bathing I have found it rather hurtful to maniacs.

1571. According to my supposition, that the disease depends upon an increased excitement of the brain, especially with respect to the animal functions, opium, so commonly powerful in inducing sleep, or a considerable collapse as to these functions, should be a powerful remedy of mania. That it has truly proved such, I believe from the testimony of Bernard Huet, whose practice is narrated at the end of Wepferi *Historia Apoplecticorum*. I leave to my readers to study this in the work I have referred to, where every part of the practice is fully, and it appears to me, very judiciously delivered. I have never indeed carried the trial so far as seems to be requisite to an entire cure: but I have frequently employed in some maniacal cases large doses of opium; and when they had the effect of inducing sleep, it was manifestly with advantage. At the same time, in some cases, from doubts, whether the disease might not depend upon some organic lesions of the brain, when the opium would be superfluous; and in other cases, from doubts, whether there might not be some inflammatory affection joined with the mania, when the opium would be hurtful; I have never pushed this remedy to the extent that might be necessary to make an entire cure.

1572. Camphire has been recommended as a remedy of mania, and there are instances alleged of its having performed an entire cure. As it appears from the experiments of Beccaria that this substance is possessed of a sedative and narcotic virtue, these cures are not altogether improbable; but in several trials, and even in large doses, I have found no benefit from it; and excepting those in the Philosophical Transactions, No. 400, I have hardly met with any other testimonies in its favour.

1573. I have been informed that some maniacs have been cured by being compelled to constant and even hard labour; and as a forced attention to the conduct of any bodily exercise is a very certain means of diverting the mind from pursuing any train of thought, it is highly probable that such exercise may be useful in many cases of mania.

I must conclude this subject with observing, that even in several cases of complete mania, I have known a cure take place in the course of a journey carried on for some length of time.

1574. These are the remedies which have been chiefly employed in the mania that has been above described, and I believe they have been employed promiscuously, without supposing that the mania was to be distinguished into different species. Indeed I am not ready to say how far it is to be so distinguished, but I shall offer one observation, which may possibly merit attention.

It appears to me, that there are two different cases of mania that are especially different, according to the original temperament of the persons whom the disease affects. It perhaps occurs most frequently in persons of a melancholic or atrabilarian temperament: but it certainly does also often occur in persons of that very opposite temperament which physicians have named the Sanguine. According as the disease happens to occur in persons of the one or other of these temperaments, I apprehend it may be considered

as of a different nature; and I believe, that accurate observation, employed upon a sufficient number of cases, would discern some pretty constant difference, either of the symptoms or at least of the state of symptoms in the two cases. I imagine that false imaginations, particular aversions and resentments, are more fixed and steady in the melancholic than in the sanguine; and that somewhat inflammatory is more commonly joined with mania in the sanguine than in the melancholic. If such difference, however, does truly take place, it will be obvious that it may be proper to make some difference also in the practice. I am of opinion, that in the mania of sanguine persons, blood-letting, and other antiphlogistic measures are more proper, and have been more useful than in the melancholic. I likewise apprehend that cold bathing is more useful in the sanguine than in the melancholic: but I have not had experience enough to ascertain these points with sufficient confidence.

I have only to add this other observation, that maniacs of the sanguine temperament recover more frequently and more entirely than those of the melancholic.

CHAP. III.

OF MELANCHOLY, AND OTHER FORMS OF INSANITY.

G. LXV. MELANCHOLIA.—*Insania partialis sine dyspepsia.*

1575. MELANCHOLY has been commonly considered as a partial insanity; and as such it is defined in my Nosology:

but I now entertain doubts if this be altogether proper. By a partial insanity, I understand a false and mistaken judgment upon one particular subject, and what relates to it; whilst, on every other subject, the person affected judges as the generality of other men do. Such cases have certainly occurred; but I believe few in which the partial insanity is strictly limited. In many cases of general insanity, there is one subject of anger or fear upon which the false judgment more particularly turns, or which is at least more frequently than any other the prevailing object of delirium; and though, from the inconsistency which this principal object of delirium must produce, there is therefore also a great deal of insanity with regard to most other objects; yet this last is in very different degrees, both in different persons, and in the same person at different times. Thus, persons considered as generally insane, will, however, at times, and in some cases, pretty constantly judge properly enough of present circumstances and incidental occurrences; though, when these objects engaging attention are not presented, the operations of imagination may readily bring back a general confusion, or recall the particular object of the delirium. From these considerations, I am inclined to conclude, that the limits between general and partial insanity cannot always be so exactly assigned, as to determine when the partial affection is to be considered as giving a peculiar species of disease, different from a more general insanity.

1576. When insanity, neither strictly partial, nor entirely nor constantly general, occurs in persons of a sanguine temperament, and is attended with agreeable, rather than with angry or gloomy emotions, I think such a disease must be considered as different from the Mania described above; and also, though partial, must be held as different from the proper Melancholia to be mentioned hereafter.

1577. Such a disease, as different from those described

1554, requires, in my opinion, a different administration of remedies; and it will be proper for me to take particular notice of this here.

Although it may be necessary to restrain such insane persons as we have mentioned 1576. from pursuing the objects of their false imagination or judgment, it will hardly be requisite to employ the same force of restraint that is necessary in the impetuous and angry mania. It will be generally sufficient to acquire some awe over them, that may be employed, and sometimes even be necessary, to check the rambling of their imagination, and incoherency of judgment.

1578. The restraint just now mentioned as necessary, will generally require the patients being confined to one place, for the sake of excluding the objects, and more particularly the persons, that might excite ideas connected with the chief objects of their delirium. At the same time, however, if it can be perceived there are objects or persons that can call off their attention from the pursuit of their own disordered imagination, and can fix it a little upon some others, these last may be frequently presented to them: and, for this reason, a journey, both by its having the effect of interrupting all train of thought, and by presenting objects engaging attention, may often be useful. In such cases also, when the insanity, though more especially fixed upon one mistaken subject, is not confined to this alone, but is further apt to ramble over other subjects with incoherent ideas, I apprehend the confining or forcing such persons to some constant uniform labour may prove an useful remedy.

1579. When such cases as in 1576. occur in sanguine temperaments, and may therefore approach more nearly to Phrenitic Delirium; so, in proportion as the symptoms of this tendency are more evident and considerable, blood-letting and purging will be the more proper and necessary.

1580. To this species of insanity, when occurring in san-

guine temperaments, whether it be more or less partial, I apprehend that cold-bathing is particularly adapted; while, in the partial insanity of melancholic persons, as I shall show hereafter, it is hardly admissible.

1581. Having thus treated of a species of insanity, different, in my apprehension, from both the Mania and Melancholia, I proceed to consider what seems more properly to belong to this last.

1582. The disease which I name Melancholia is very often a partial insanity only. But as, in many instances, though the false imagination or judgment seems to be with respect to one subject only, yet it seldom happens that this does not produce much inconsistency in the other intellectual operations: And as, between a very general and a very partial insanity, there are all the possible intermediate degrees, so it will be often difficult, or perhaps improper, to distinguish Melancholia by the character of Partial Insanity alone. If I mistake not, it must be chiefly distinguished by its occurring in persons of a melancholic temperament, and by its being always attended with some seemingly groundless, but very anxious fear.

1583. To explain the cause of this, I must observe, that persons of a melancholic temperament are, for the most part, of a serious thoughtful disposition, and disposed to fear and caution, rather than to hope and temerity. Persons of this cast are less moveable than others by any impressions, and are, therefore, capable of a closer or more continued attention to one particular object or train of thinking. They are even ready to be engaged in a constant application to one subject, and are remarkably tenacious of whatever emotions they happen to be affected with.

1584. These circumstances of the melancholic character seem clearly to show, that persons strongly affected with it may be readily seized with an anxious fear, and that this,

when much indulged, as is natural to such persons, may easily grow into a partial insanity.

1585. Fear and dejection of mind, or a timid and desponding disposition, may arise in certain states, or upon certain occasions of mere debility; and it is upon this footing that I suppose it sometimes to attend dyspepsia. But, in these cases, I believe the despondent disposition hardly ever arises to a considerable degree, or proves so obstinately fixed as when it occurs in persons of a melancholic temperament. In these last, although the fear proceeds from the same dyspeptic feelings as in the other case, yet it will be obvious, that the emotion may rise to a more considerable degree; that it may be more anxious, more fixed, and more attentive; and, therefore, may exhibit all the various circumstances which I have mentioned in 1222, to take place in the disease named HYPOCHONDRIASIS.

1586. In considering this subject formerly, in distinguishing Dyspepsia from Hypochondriasis, although the symptoms affecting the body be very much the same in both, and even those affecting the mind be somewhat similar, I found no difficulty in distinguishing the latter disease, merely from its occurring in persons of a melancholic temperament. But I must now acknowledge, that I am at a loss to determine, how, in all cases, hypochondriasis and melancholia may be distinguished from one another, whilst the same temperament is common to both.

1587. I apprehend, however, that the distinction may be generally ascertained in the following manner.

The hypochondriasis I would consider as being always attended with dyspeptic symptoms; and, though there may be, at the same time, an anxious melancholic fear, arising from the feeling of these symptoms, yet, while this fear is only a mistaken judgment with respect to the state of the person's own health, and to the danger to be from thence apprehended, I would still consider the disease as an hy-

pochondriasis, and as distinct from the proper melancholia. But when an anxious fear and despondency arises from a mistaken judgment with respect to other circumstances than those of health, and more especially when the person is, at the same time, without any dyspeptic symptoms, every one will readily allow this to be a disease widely different from both dyspepsia and hypochondriasis, and it is what I would strictly name Melancholia.

1588. In this there seems little difficulty; but as an exquisitely melancholic temperament may induce a torpor and slowness in the action of the stomach, so it generally produces some dyspeptic symptoms, and from thence there may be some difficulty in distinguishing such a case from hypochondriasis. But I would maintain, however, that when the characters of the temperament are strongly marked, and more particularly when the false imagination turns upon other subjects than that of health; or when, though relative to the person's own body, it is of a groundless and absurd kind; then, notwithstanding the appearance of some dyspeptic symptoms, the case is still to be considered as that of a melancholia, rather than a hypochondriasis.

1589. The disease of melancholia, therefore, manifestly depends upon the general temperament of the body; and although, in many persons, this temperament is not attended with any morbid affection either of mind or body; yet when it becomes exquisitely formed, and is in a high degree, it may become a disease affecting both, and particularly the mind. It will therefore be proper to consider in what this melancholic temperament especially consists: and to this purpose, it may be observed, that in it there is a degree of torpor in the motion of the nervous power, both with respect to sensation and volition; that there is a general rigidity of the simple solids; and that the balance of the sanguiferous system is upon the side of the veins. But all these circumstances are the directly opposite of those of the

sanguine temperament; and must therefore also produce an opposite state of mind.

1590. It is this state of the mind, and the state of the brain corresponding to it, that is the chief object of our present consideration. But what that state of the brain is will be supposed to be difficult to explain; and it may perhaps seem rash in me to attempt it.

I will, however, venture to say, that it is probable the melancholic temperament of mind depends upon a drier and firmer texture in the medullary substance of the brain; and that this perhaps proceeds from a certain want of fluid in that substance, which appears from its being of a lesser specific gravity than usual. That this state of the brain in melancholia does actually exist, I conclude, *first*, from the general rigidity of the whole habit; and, *secondly*, from dissections, showing such a state of the brain to have taken place in mania, which is often no other than a higher degree of melancholia. It does not appear to me anywise difficult to suppose, that the same state of the brain may in a moderate degree give melancholia, and in a higher that mania which melancholia so often passes into; especially if I shall be allowed further to suppose, that either a greater degree of firmness in the substance of the brain may render it susceptible of a higher degree of excitement, or that one portion of the brain may be liable to acquire a greater firmness than others, and consequently give occasion to that inequality of excitement, upon which mania so much depends.

1591. I have thus endeavoured to deliver what appears to me most probable with respect to the proximate cause of melancholia; and although the matter should in some respects remain doubtful, I am well persuaded that these observations may often be employed to direct our practice in this disease, as I shall now endeavour to show.

1592. In most of the instances of melancholia, the mind is

to be managed very much in the same manner as I have advised above with regard to hypochondriasis ; but as in the case of proper melancholia, there is commonly a false imagination of judgment appearing as a partial insanity, it may be further necessary in such cases to employ some artifices for correcting such imagination or judgment.

1593. The various remedies for relieving the dyspeptic symptoms which always attend hypochondriasis, will seldom be either requisite or proper in melancholia.

There is only one of the dyspeptic symptoms, which, though there should be no other, is very constantly present in melancholia, and that is costiveness. This it is always proper and even necessary to remove ; and I believe it is upon this account that the use of purgatives has been found so often useful in melancholia. Whether there be any purgatives peculiarly proper in this case, I dare not positively determine ; but with respect to the choice of purgatives in melancholia, I am of the same opinion that I delivered above on this same subject with respect to mania.

1594. With respect to other remedies, I judge that blood-letting will more seldom be proper in melancholia than in mania ; but how far it may be in any case proper, must be determined by the same considerations as in the case of mania.

1595. The cold bathing that I judged to be so very useful in several cases of insanity, is, I believe, in melancholia, hardly ever fit to be admitted ; at least while this is purely a partial affection, and without any marks of violent excitement. On the contrary, upon account of the general rigidity prevailing in melancholia, it is probable that warm bathing may be often useful.

1596. With respect to opiates, which I have supposed might often be useful in cases of mania, I believe they can seldom be properly employed in the partial insanities of the melancholic, except in certain instances of violent excite-

ment, when the melancholia approaches nearly to the state of mania.

1597. In such cases of melancholia approaching to a state of mania, a low diet may sometimes be necessary; but as the employing a low diet almost unavoidably leads to the use of vegetable food, and as this in every torpid state of the stomach is ready to produce some dyspeptic symptoms, such vegetable food ought, in moderate cases of melancholia, to be used with some caution.

Though exercise, as a tonic power, is not proper either in hypochondriasis or melancholia; yet with respect to its effects upon the mind, it may be extremely useful in both, and in melancholia is to be employed in the same manner that I have advised above in the case of hypochondriasis.

1598. Having now delivered my doctrine with respect to the chief forms of insanity, I should in the next place proceed to consider the other genera of Amentia and Oneirodynia, which in the Nosology I have arranged under the order of Vesaniæ; but as I cannot pretend to throw much light upon these subjects, and as they are seldom the objects of practice, I think it allowable for me to pass them over at present; and the particular circumstances of this work in some measure requires that I should do so.

PART III.

OF CACHEXIES.

CL. III. CACHEXIÆ.

Totius vel magnæ partis corporis habitus depravatus ; sine pyrexia primariâ vel neurosi.

INTRODUCTION.

1599. UNDER this title I propose to establish a class of diseases, which consist in a depraved state of the whole, or of a considerable part of the habit of the body, without any primary pyrexia or neurosis combined with that state.

1600. The term *Cachexy* has been employed by Linnæus and Vogel, as it had been formerly by other authors, for the name of a particular disease ; but the disease to which these authors have affixed it comes more properly under another appellation ; and the term of *Cachexy* is more properly employed by Sauvages and Sagar for the name of a class. In this I have followed the last-mentioned Nosologists, though I find it difficult to give such a character of the class as will clearly apply to all the species I have comprehended under it. This difficulty would be still greater, if in the class I have established under the title of *Cachexies*, I were to comprehend all the diseases that those other nosologists have done ; but I am willing to be thought deficient rather than very incorrect. Those difficulties, however, which still remain in methodical nosology, must not affect us much in a treatise of practice. If I can here properly distinguish and describe the several species that truly and most commonly exist, I shall be the less concerned about the accuracy of my general classification ; though at the same time this, I think, is always to be attempted ; and I shall pursue it as well as I can.

BOOK I.

OF EMACIATIONS.

ORD. I. MARCORES.

Corporis totius macies.

G. LXVIII. TABES.—*Marcor ; asthenia ; pyrexia hectica.*

Sp. 1. *Tabes (purulenta) ex ulcere externo vel interno, vel ex vomica.*

Sp. 2. *Tabes (scrophulosa) in corporibus scrophulosis.*

Sp. 3. *Tabes (venenata) a veneno ingesto.*

G. LXIX. ATROPHIA.—*Marcor et asthenia, sine pyrexiâ hecticâ.*

Sp. 1. *Atrophia (inanitorum) ex evacuatione nimia.*

Sp. 2. *Atrophia (famelicorum) a nutrimento deficiente.*

Sp. 3. *Atrophia (cacochymica) a nutrimento corrupto.*

Sp. 4. *Atrophia (debilium) a nutritionis functione depravatâ, prægressâ nullâ vel evacuatione nimia, vel cacochymia.*

1601. EMACIATION, or a considerable diminution of the bulk or plumpness of the whole body, is for the most part only a symptom of disease, and very seldom to be considered as a primary and idiopathic affection. Upon this account, according to my general plan, such a symptom might perhaps have been omitted in the Methodical Nosology: but both the uncertainty of concluding it to be always symptomatic, and the consistency of system, made me introduce into the Nosology, as others had done, an order under the title of *Marcors*; and this renders it requisite now to take some notice of such diseases.

1602. Upon this occasion, therefore, I hope it may be useful to investigate the several causes of emaciation in all the different cases of disease in which it appears. And this I attempt, as the surest means of determining how far it is a primary, or a symptomatic affection only; and even in the latter view, the investigation may be attended with some advantage.

1603. The cause of emaciation may, I apprehend, be referred to two general heads; that is, either to a general deficiency of fluid in the vessels of the body, or to the particular deficiency of the oil in the cellular texture of it. These causes are frequently combined together; but it will be proper, in the first place, to consider them separately.

1604. As a great part of the body of animals is made up of vessels filled with fluids, the bulk of the whole must depend very much on the size of these vessels, and the quantity of fluids present in them: and it will therefore be sufficiently obvious, that a deficiency of the fluids in these vessels must, according to its degree, occasion a proportionate diminution of the bulk of the whole body. This, however, will appear still more clearly, from considering, that in the living and sound body the vessels every where seem to be preternaturally distended by the quantity of fluids present in them; but being at the same time elastic, and constantly endeavouring to contract themselves, they must, on the withdrawing of the distending force, or, in other words, upon a diminution of the quantity of fluids, be in proportion contracted, and diminished in their size: And it may be further observed, that as each part of the vascular system communicates with every other part of it; so every degree of diminution of the quantity of fluid, in any one part, must in proportion diminish the bulk of the vascular system, and consequently of the whole body.

1605. The diminution and deficiency of the fluids may be occasioned by different causes: such as, first, by a due

quantity of aliments not being taken in ; or by the aliment taken in not being of a sufficiently nutritious quality. Of the want of a due quantity of aliment not being taken into the body, there is an instance in the *Atrophia lactantium Sauvagesii*, species 3 ; and many other examples have occurred of emaciation from want of food, occasioned by poverty, and other accidental causes.

With respect to the quality of food, I apprehend it arises from the want of nutritious matter in the food employed, that persons living very entirely on vegetables are seldom of a plump and succulent habit.

1606. A second cause of the deficiency of fluids may be, the aliments taken in not being conveyed to the blood-vessels. This may occur from a person's being affected with a frequent vomiting ; which, rejecting the food soon after it had been taken in, must prevent the necessary supply of fluids to the blood-vessels.

Another cause, frequently interrupting the conveyance of the alimentary matter into the blood-vessels, is an obstruction of the conglobate or lymphatic glands of the mesentery, through which the chyle must necessarily pass to the thoracic duct. Many instances of emaciation, seemingly depending upon this cause, have been observed by physicians, in persons of all ages, but especially in the young. It has also been remarked that such cases have most frequently occurred in scrofulous persons, in whom the mesenteric glands are commonly affected with tumour or obstruction, and in whom, generally at the same time, scrofula appears externally. Hence the *Tabes scrophulosa Synop. Nosolog.* vol. ii. p. 266 : And under these I have put as synonymes, *Tabes glandularis*, sp. 10 ; *Tabes mesenterica*, sp. 9 ; *Scrophula mesenterica*, sp. 4 ; *Atrophia infantilis*, sp. 13 ; *Atrophia rachitica*, sp. 8 ; *Tabes rachialgica*, sp. 16. At the same time I have frequently found the case occurring in persons who did not show any external appearance of scrofula, but in

whom the mesenteric obstruction was afterward discovered by dissection. Such also I suppose to have been the case, in the disease frequently mentioned by authors under the title of the *Atrophia infantum*. This has received its name from the time of life at which it generally appears; but I have met with instances of it at fourteen years of age, ascertained by dissection. In several such cases which I have seen, the patients were without any scrofulous appearances at the time, or at any period of their lives before.

In the case of phthisical persons, I shall hereafter mention another cause of their emaciation; but it is probable that an obstruction of the mesenteric glands which so frequently happens in such persons, concurs very powerfully in producing the emaciation that takes place.

Although a scrofulous taint may be the most frequent cause of mesenteric obstructions, it is sufficiently probable that other kinds of acrimony may produce the same, and the emaciation that follows.

It may perhaps be supposed, that the interruption of the chyle's passing into the blood-vessels may be sometimes owing to a fault of the absorbents on the internal surface of the intestines. This, however, cannot be readily ascertained: but the interruption of the chyle's passing into the blood-vessels may certainly be owing to a rupture of the thoracic duct; which, when it does not prove soon fatal, by occasioning a hydrothorax, must in a short time produce a general emaciation.

1607. A third cause of the deficiency of the fluids may be a fault in the organs of digestion, as not duly converting the aliment into a chyle fit to form in the blood-vessels a proper nutritious matter. It is not, however, easy to ascertain the cases of emaciation which are to be attributed to this cause; but I apprehend that the emaciation which attends long subsisting cases of dyspepsia, or of hypochondriasis, is to be explained chiefly in this way. It is this which I have placed

in the Nosology under the title of the *Atrophia debiliū*; and of which the *Atrophia nervosa*, Sauv. sp. 1, is a proper instance, and therefore put there as a synonyme. But the other titles of *Atrophia lateralis*, Sauv, sp. 15, and *Atrophia senilis*, Sauv. sp. 11, are not so properly put there, as they must be explained in a different manner.

1608. A fourth cause of a deficiency of the fluids in the body, may be excessive evacuations made from it by different outlets: and Sauvages has properly enumerated the following species, which we have put as synonymes under the title of *Atrophia inanitorum*; as, *Tabes nutricum*, sp. 4; *Atrophia nutricum*, sp. 5; *Atrophia à leucorrhœa*, sp. 4; *Atrophia ab alvi fluxu*, sp. 6; *Atrophia à ptyalismo*, sp. 7; and, lastly, the *Tabes à sanguifluxu*; which, it is to be observed, may arise not only from spontaneous hæmorrhagies or accidental wounds, but also from blood-letting in too large a quantity, and too frequently repeated.

Upon this subject it seems proper to observe, that a meagre habit of body frequently depends upon a full perspiration being constantly kept up, though at the same time a large quantity of nutritious aliment is regularly taken in.

1609. Besides this deficiency of fluids from evacuations by which they are carried entirely out of the body, there may be a deficiency of fluid and emaciation in a considerable part of the body, by the fluids being drawn into one part, or collected into one cavity; and of this we have an instance in the *Tabes à hydrope*, Sauv. sp. 5.

1610. In the Methodical Nosology, among the other synonymes of the *Atrophia inanitorum*, I have set down the *Tabes dorsalis*; but whether properly or not, I at present very much doubt. In the evacuation considered as the cause of this tabes, as the quantity evacuated is never so great as to account for a general deficiency of fluids in the body, we must seek for another explanation of it. And whether the effects of the evacuation may be accounted for either

from the quality of the fluid evacuated, or from the singularly enervating pleasure attending the evacuation, or from the evacuation's taking off the tension of parts, the tension of which has a singular power in supporting the tension and vigour of the whole body, I cannot positively determine; but I apprehend that upon one or other of these suppositions the emaciation attending the *tabes dorsalis* must be accounted for; and therefore that it is to be considered as an instance of the *Atrophia debiliū*, rather than of the *Atrophia inanitorum*.

1611. A fifth cause of a deficiency of fluids and of emaciations in the whole or in a particular part of the body, may be the concretion of the small vessels, either not admitting of fluids, or of the same proportion as before; and this seems to me to be the case in the *Atrophia senilis*, Sauv. sp. 2. Or it may be a palsy of the larger trunks of the arteries rendering them unfit to propel the blood into the smaller vessels; as is frequently the case of paralytic limbs, in which the arteries are affected as well as the muscles. The *Atrophia lateralis*, Sauv. sp. 15, seems to be of this nature.

1612. A second general head of the causes of emaciation I have mentioned in 1602. to be a deficiency of oil. The extent and quantity of the cellular texture in every part of the body, and therefore how considerable a part it makes in the bulk of the whole, is now well known. But this substance, in different circumstances, is more or less filled with an oily matter; and therefore the bulk of it, and in a great measure that of the whole body, must be greater or less according as this substance is more or less filled in that manner. The deficiency of fluids, for a reason to be immediately explained, is generally accompanied with a deficiency of oil: but physicians have commonly attended more to the latter cause of emaciation than to the other, that being usually the most evident; and I shall now endeavour to as-

sign the several causes of the deficiency of oil as it occurs upon different occasions.

1613. The business of secretion in the human body is in general little understood, and in no instance less so than in that of the secretion of oil from blood, which does not appear previously to have contained it. It is possible, therefore, that our theory of the deficiency of oil may be in several respects imperfect; but there are certain facts that may in the mean time apply to the present purpose.

1614. First, it is probable, that a deficiency of oil may be owing to a state of the blood in animal bodies less fitted to afford a secretion of oil, and consequently to supply the waste of it that is constantly made. This state of the blood must especially depend upon the state of the aliments taken in, as containing less of oil or oily matter. From many observations made, both with respect to the human body and to that of other animals, it appears pretty clearly, that the aliments taken in by men and domestic animals, according as they contain more of oil, are in general more nutritious, and in particular are better fitted to fill the cellular texture of their bodies with oil. I might illustrate this, by a minute and particular consideration of the difference of alimentary matters employed; but it will be enough to give two instances. The one is, that the herbaceous part of vegetables does not fatten animals, so much as the seeds of vegetables, which manifestly contain in any given weight a greater proportion of oil; and a second instance is, that in general vegetable aliments do not fatten men so much as animal food, which generally contains a larger proportion of oil.

It will be obvious, that upon the same principles a want of food, or a less nutritious food, may not only occasion a general deficiency of fluids (1604.), but must also afford less oil to be poured out into the cellular texture. In such cases, therefore, the emaciation produced is to be attributed to both these general causes.

1615. A second case of the deficiency of oil may be explained in this manner. It is pretty manifest that the oil of the blood is secreted and deposited in the cellular texture in greater or less quantity, according as the circulation of the blood is faster or slower; and therefore that exercise, which hastens the circulation of the blood, is a frequent cause of emaciation. Exercise produces this effect in two ways. 1st, By increasing the perspiration, and thereby carrying off a greater quantity of the nutritious matter, it leaves less of it to be deposited in the cellular texture, thereby not only preventing an accumulation of fluids, but, as I have said above, causing a general deficiency of these, which must also cause a deficiency of oil in the cellular texture. 2dly, It is well known, that the oil deposited in the cellular texture is upon many occasions, and for various purposes of the economy, again absorbed, and mixed or diffused in the mass of blood, to be from thence perhaps carried entirely out of the body by the several excretions. Now, among other purposes of the accumulation and re-absorption of oil, this seems to be one, that the oil is requisite to the proper action of the moving fibres in every part of the body; and therefore that nature has provided for an absorption of oil to be made according as the action of the moving fibres may demand it. It will thus be obvious, that the exercise of the muscular and moving fibres every where must occasion an absorption of oil; and consequently that such exercise not only prevents the secretion of oil, as has been already said, but may also cause a deficiency of it, by occasioning an absorption of what had been deposited: and in this way, perhaps especially, does it produce emaciation.

1616. A third case of the deficiency of oil may occur from the following cause. It is probable, that one purpose of the accumulation of oil in the cellular texture of animals is, that it may, upon occasion, be again absorbed from thence, and carried into the mass of blood, for the purpose of enveloping

and correcting any unusual acrimony arising and existing in the state of the fluids. Thus, in most instances in which we can discern an acrid state of the fluids, as in scurvy, cancer, syphilis, poisons, and several other diseases, we find at the same time a deficiency of oil and an emaciation take place; which, in my apprehension, must be attributed to the absorption of oil, which the presence of acrimony in the body excites.

It is not unlikely that certain poisons introduced into the body may subsist there; and, giving occasion to an absorption of oil, may lay a foundation for the *Tabes à veneno*, Sauv. sp. 17.

1617. A fourth case of emaciation, and which I would attribute to a sudden and considerable absorption of oil from the cellular texture, is that of fever, which so generally produces emaciation. This may perhaps be in part attributed to the increased perspiration, and therefore to the general deficiency of fluids that may be supposed to take place: but whatever share that may have in producing the effect, we can, from the evident shrinking and diminution of the cellular substance, wherever it falls under our observation, certainly conclude, that there has been a very considerable absorption of the oil which had been before deposited in that substance. This explanation is rendered the more probable from this, that I suppose the absorption mentioned is necessarily made for the purpose of enveloping or correcting an acrimony, which manifestly does in many, and may be suspected to arise in all cases of fever. The most remarkable instance of emaciation occurring in fevers, is that which appears in the case of hectic fevers. Here the emaciation may be attributed to the profuse sweatings that commonly attend the disease: but there is much reason to believe, that an acrimony also is present in the blood, which, even in the beginning of the disease, prevents the secretion and accumulation of oil; and, in the more advanced

states of it, must occasion a more considerable absorption of it; which, from the shrinking of the cellular substance, seems to go farther than in almost any other instance.

Upon the subject of emaciations from a deficiency of fluids, it may be observed, that every increased evacuation excites an absorption from other parts, and particularly from the cellular texture; and it is therefore probable, that a deficiency of fluids, from increased evacuations, produces an emaciation, not only by the waste of the fluids in the vascular system, but also by occasioning a considerable absorption from the cellular texture.

1618. I have thus endeavoured to explain the several cases and causes of emaciation; but I could not prosecute the consideration of these here in the order they are set down in the Methodical Nosology. In that work I was engaged chiefly in arranging the species of Sauvages; but it is my opinion now, that the arrangement there given is erroneous, in both combining and separating species improperly: and it seems to me more proper here to take notice of diseases, and put them together according to the affinity of their nature, rather than by that of their external appearances. I doubt, if even the distinction of the *Tabes* and *Atrophia*, attempted in the Nosology, will properly apply; as I think there are certain diseases of the same nature, which sometimes appear with, and sometimes without fever.

1619. After having considered the various cases of emaciations, I should perhaps treat of their cure; but it will readily appear, that the greater part of the cases above mentioned are purely symptomatic, and consequently that the cure of them must be that of the primary diseases upon which they depend. Of those cases that can anywise be considered as idiopathic, it will appear that they are to be cured entirely by removing the remote causes; the means of accomplishing which must be sufficiently obvious.

BOOK II.

OF INTUMESCENTIÆ,

OR GENERAL SWELLINGS.

ORD. II. INTUMESCENTIÆ.

Totum vel magna corporis pars extrorsum tumens.

INTRODUCTION.

1620. **T**HE swellings to be treated of in this place, are those which extend over the whole, or a great part of the body: or such at least, as, though of small extent, are however of the same nature with those that are more generally extended.

The swellings comprehended under this artificial order are hardly to be distinguished from one another, otherwise than by the matter they contain or consist of: and, in this view, I have divided the order into four sections, as the swelling happens to contain, 1st, Oil; 2^d, Air; 3^d, A watery fluid; or, 4th, As the increased bulk depends upon the enlargement of the whole substance of certain parts, and particularly of one or more of the abdominal viscera.

CHAP. I.

OF ADIPOSE SWELLINGS.

G. LXX. POLYSARCIA.—*Corporis pinguedinosa intumescencia molesta.*

1621. **T**HE only disease to be mentioned in this chapter, I have, with other nosologists, named *Polysarcia*; and in English it may be named Corpulency, or, more strictly, Obesity; as it is placed here upon the common supposition of its depending chiefly upon the increase of oil in the cellular texture of the body. This corpulency, or obesity, is in very different degrees in different persons, and is often considerable without being considered as a disease. There is, however, a certain degree of it, which will be generally allowed to be a disease; as, for example, when it renders persons, from a difficult respiration, uneasy in themselves, and from the inability of exercise, unfit for discharging the duties of life to others: and, for that reason, I have given such a disease a place here. Many physicians have considered it as an object of practice, and as giving, even in no very high degree, a disposition to many diseases; I am of opinion, that it should be an object of practice more frequently than it has been, and therefore that it merits our consideration here.

1622. It may perhaps be alleged, that I have not been sufficiently correct, in putting the disease of corpulency as an *intumescencia pinguedinosa*, and therefore implying its being an increase of the bulk of the body, from an accumulation of oil in the cellular texture only. I am aware of this

objection: and, as I have already said that emaciation (1602.) depends either upon a general deficiency of fluids in the vascular system, or upon a deficiency of oil in the cellular texture; so I should perhaps have observed farther, that the corpulency, or general fulness of the body may depend upon the fulness of the vascular system as well as upon that of the cellular texture. This is true; and for the same reasons I ought, perhaps, after Linnæus and Sagar, to have set down plethora as a particular disease, and as an instance of morbid intumescence. I have, however, avoided this, as Sauvages and Vogel have done; because I apprehend that plethora is to be considered as a state of temperament only, which may indeed dispose to disease; but not as a disease in itself, unless, in the language of the Stahlians, it be a *plethora commota*, when it produces a disease accompanied with particular symptoms, which give occasion to its being distinguished by a different appellation. Further, it appears to me, that the symptoms which Linnæus, and more particularly those which Sagar employs in the character of plethora, never do occur but when the *intumescencia pinguedinosa* has a great share in producing them. It is, however, necessary to observe here, that plethora and obesity are generally combined together; and that in some cases of corpulency it may be difficult to determine which of the causes has the greatest share in producing it. It is indeed very possible, that a plethora may occur without great obesity; but I apprehend, that obesity never happens to a considerable degree, without producing a *plethora ad spatium* in a great part of the system of the aorta, and therefore a *plethora ad molem* in the lungs, and in the vessels of the brain.

1623. In attempting the cure of polysarcia, I am of opinion, that the conjunction of plethora and obesity, in the manner just now mentioned, should be constantly attended to; and when the morbid effects of the plethoric habit are threatened, either in the head or lungs, that blood-letting

is to be practised; but, at the same time, it is to be observed, that persons of much obesity do not bear blood-letting well; and when the circumstances I have mentioned do not immediately require it, the practice, upon account of obesity alone, is hardly ever to be employed. The same remark is to be made with respect to any other evacuations that may be proposed for the cure of corpulency: for, without the other means I am to mention, they can give but a very imperfect relief; and in so far as they either empty or weaken the system, they may favour the return of plethora, and the increase of obesity.

1624. Polysarcia, or corpulency, whether it depend upon plethora or obesity, whenever it can either be considered as a disease, or threatens to induce one, is to be cured, or the effects of it are to be obviated, by diet and exercise. The diet must be sparing; or rather what is more admissible, it must be such as affords little nutritious matter. It must therefore be chiefly, or almost only, of vegetable matter, and at the very utmost of milk. Such a diet should be employed, and generally ought to precede exercise: for obesity does not easily admit of bodily exercise; which is, however, the only mode that can be very effectual. Such, indeed, in many cases, may seem difficult to be admitted; but I am of opinion, that even the most corpulent may be brought to bear it, by at first attempting it very moderately, and increasing it by degrees very slowly, but at the same time persisting in such attempts with great constancy.

1625. As these, though the only effectual measures, are often difficult to be admitted or carried into execution, some other means have been thought of and employed for reducing corpulency. These, if I mistake not, have all been certain methods of inducing a saline state in the mass of blood; for such I suppose to be the effects of vinegar and of soap, which have been proposed. The latter, I believe, hardly passes into the blood-vessels, without being resolved and formed into a neutral salt with the acid which it meets with in the sto-

mach. How well acrid and saline substances are fitted to diminish obesity, may appear from what has been said above in 1616. What effects vinegar, soap, or other substances employed have had in reducing corpulency, there have not proper opportunities of observing occurred to me: but I am well persuaded, that the inducing a saline and acrid state of the blood may have worse consequences than the corpulency it was intended to correct; and that no person should hazard these, while he may have recourse to the more safe and certain means of abstinence and exercise.

CHAP. II.

OF FLATULENT SWELLINGS.

G. LXXI. PNEUMATOSIS.—*Corporis intumescencia tensa, elastica, sub manu crepitans.*

Sp. 1. *Pneumatosi (spontanea) sine causâ manifestâ.*

Sp. 2. *Pneumatosi (traumatica) a vulnere thoracis.*

Sp. 3. *Pneumatosi (venenata) a veneno injecto vel applicato.*

Sp. 4. *Pneumatosi (hysterica) cum hysteriâ.*

G. LXXII. TYMPANITES.—*Abdominis intumescencia tensa, elastica, sonora; alvus adstricta; cæterarum partium macies.*

Sp. 1. *Tympanites (intestinalis) cum tumore abdominis sæpe inæquali, et cum rejectione aëris frequenti, tensionem et dolorem levante.*

Sp. 2. *Tympanites (abdominalis) cum resonitu evidentiore, tumore magis æquabili, et emissionem flatuum rariore et minus levante.*

1626. THE cellular texture of the human body very readily admits of air, and allows the same to pass from any one to

every other part of it. Hence Emphysemata have often appeared from air collected in the cellular texture under the skin, and in several other parts of the body. The flatulent swellings under the skin have indeed most commonly appeared in consequence of air immediately introduced from without: but in some instances of flatulent swellings, especially those of the internal parts not communicating with the alimentary canal, such an introduction cannot be perceived or supposed; and therefore, in these cases, some other cause of the production and collection of air must be looked for, though it is often not to be clearly ascertained.

In every solid, as well as every fluid substance which makes a part of the human body, there is a considerable quantity of air, in a fixed state, which may be again restored to its elastic state, and separated from those substances, by the power of heat, putrefaction, and perhaps other causes: but which of these may have produced the several instances of pneumatosis and flatulent swellings that have been recorded by authors, I cannot pretend to ascertain. Indeed, upon account of these difficulties, I cannot proceed with any clearness on the general subject of pneumatosis; and, therefore, with regard to flatulent swellings, I find it necessary to confine myself to the consideration of those of the abdominal region alone; which I shall now treat of under the general name of Tympanites.

1627. The tympanites is a swelling of the abdomen; in which the teguments appear to be much stretched by some distending power within, and equally stretched in every posture of the body. The swelling does not readily yield to any pressure; and in so far as it does, very quickly recovers its former state upon the pressure being removed. Being struck, it gives a sound like a drum, or other stretched animal membranes. No fluctuation within is to be perceived; and the whole feels less weighty than might be expected from its bulk. The uneasiness of the distention is common-

ly relieved by the discharge of air from the alimentary canal, either upwards or downwards.

1628. These are the characters by which the tympanites may be distinguished from the ascites or physconia; and many experiments show, that the tympanites always depends upon a preternatural collection of air, somewhere within the teguments of the abdomen: but the seat of the air is in different cases somewhat different; and this produces the different species of the disease.

One species is, when the air collected is entirely confined within the cavity of the alimentary canal, and chiefly in that of the intestines. This species, therefore, is named the *Tympanites intestinalis*, Sauv. sp. 1. It is, of all others, the most common; and to it especially belong the characters given above.

A second species is, when the air collected is not entirely confined to the cavity of the intestines, but is also present between their coats; and such is that which is named by Sauvages *Tympanites enterophysodes*, Sauv. sp. 3. This has certainly been a rare occurrence; and has probably occurred only in consequence of the *tympanites intestinalis*, by the air escaping from the cavity of the intestines into the interstices of the coats. It is, however, possible, that an erosion of the internal coat of the intestines may give occasion to the air, so constantly present in their cavity, to escape into the interstices of their coats, though in the whole of their cavity there has been no previous accumulation.

A third species is, when the air is collected in the sac of the peritonæum, or what is commonly called the cavity of the abdomen, that is, the space between the peritonæum and viscera; and then the disease is named *Tympanites abdominalis*, Sauv. sp. 2. The existence of such a tympanites, without any *tympanites intestinalis*, has been disputed; and it certainly has been a rare occurrence: but from several

dissections, it is unquestionable that such a disease has sometimes truly occurred.

A fourth species of tympanites, is, when the *tympanites intestinalis* and *abdominalis* are joined together, or take place at the same time. With respect to this, it is probable that the *tympanites intestinalis* is the primary disease; and the other only a consequence of the air escaping, by an erosion or rupture of the coats of the intestines, from the cavity of these, into that of the abdomen. It is indeed possible, that in consequence of erosion or rupture, the air which is so constantly present in the intestinal canal may escape from thence in such quantity into the cavity of the abdomen, as to give a *tympanites abdominalis*, whilst there was no previous considerable accumulation of air in the intestinal cavity itself; but I have not facts to ascertain this matter properly.

A fifth species has also been enumerated. It is when a *tympanites abdominalis* happens to be joined with the *hydrops ascites*; and such a disease therefore is named by Sauvages *Tympanites asciticus*, Sauv. sp. 4. In most cases of tympanites, indeed, some quantity of serum has, upon dissection, been found in the sac of the peritonæum: but that is not enough to constitute the species now mentioned; and when the collection of serum is more considerable, it is commonly where, both from the causes which have preceded, and likewise from the symptoms which attend, the ascites may be considered as the primary disease; and therefore that this combination does not exhibit a proper species of the tympanites.

1629. As this last is not a proper species, and as some of the others are not only extremely rare, but even, when occurring, are neither primary, nor to be easily distinguished, nor, as considered in themselves, admitting of any cure, I shall here take no farther notice of them; confining myself, in what follows, to the consideration of the most frequent

case, and almost the only object of practice, the *tympanites intestinalis*.

1630. With respect to this, I cannot perceive that it arises in any peculiar temperament, or depends upon any predisposition, which can be discerned. It occurs in either sex, at every age, and frequently in young persons.

1631. Various remote causes of it have been assigned: but many of these have not commonly the effect of producing this disease; and although some of them have been truly antecedents of it, I can in few instances discover the manner in which they produce the disease, and therefore cannot certainly ascertain them to have been causes of it.

1632. The phenomena of this disease in its several stages are the following.

The tumour of the belly sometimes grows very quickly to a considerable degree, and seldom in the slow manner the ascites commonly comes on. In some cases, however, the tympanites comes on gradually, and is introduced by an unusual flatulency of the stomach and intestines, with frequent borborygmi, and an uncommonly frequent expulsion of air upwards and downwards. This state is also frequently attended with colic pains, especially felt about the navel, and upon the sides towards the back; but generally as the disease advances, these pains become less considerable. As the disease advances, there is a pretty constant desire to discharge air, but it is accomplished with difficulty; and when obtained, although it gives some relief from the sense of distention, this relief is commonly transient and of short duration. While the disease is coming on, some inequality of tumour and tension may be perceived in different parts of the belly; but the distention soon becomes equal over the whole, and exhibits the phenomena mentioned in the character. Upon the first coming on of the disease, as well as during its progress, the belly is bound, and the fæces discharged are commonly hard and dry. The urine, at the begin-

ning, is usually very little changed in quantity or quality from its natural state; but as the disease continues, it is commonly changed in both respects, and at length sometimes a strangury, and even an ischuria, comes on. The disease has seldom advanced far, before the appetite is much impaired, and digestion ill performed; and the whole body, except the belly, becomes considerably emaciated. Together with these symptoms, a thirst and uneasy sense of heat at length comes on, and a considerable frequency of pulse occurs, which continues throughout the course of the disease. When the tumour of the belly arises to a considerable bulk, the breathing becomes very difficult, with a frequent dry cough. With all these symptoms the strength of the patient declines; and the febrile symptoms daily increasing, death at length ensues, sometimes probably in consequence of a gangrene coming upon the intestines.

1633. The tympanites is commonly of some duration, and to be reckoned a chronic disease. It is very seldom quickly fatal, except where such an affection suddenly arises in fevers. To this Sauvages has properly given a different appellation, that of *Meteorismus*; and I judge it may always be considered as a symptomatic affection, entirely distinct from the tympanites we are now considering.

1634. The tympanites is generally a fatal disease, seldom admitting of cure; but what may be attempted in this way, I shall try to point out, after I shall have endeavoured to explain the proximate cause, which alone can lay the foundation of what may be rationally attempted towards its cure.

1635. To ascertain the proximate cause of tympanites, is somewhat difficult. It has been supposed in many cases to be merely an uncommon quantity of air present in the alimentary canal, owing to the extrication and detachment of a greater quantity of air than usual from the alimentary matters taken in. Our vegetable aliments, I believe, always undergo some degree of fermentation; and, in consequence, a

quantity of air is extricated and detached from them in the stomach and intestines: but it appears, that the mixture of the animal fluids which our aliments meet with in the alimentary canal, prevents the same quantity of air from being detached from them that would have been in their fermentation without such mixture, and it is probable that the same mixture contributes also to the reabsorption of the air that had been before in some measure detached. The extrication, therefore, of an unusual quantity of air from the aliments, may, in certain circumstances, be such, perhaps, as to produce a tympanites; so that this disease may depend upon a fault of the digestive fluids, whereby they are unfit to prevent the too copious extrication of air, and unfit also to occasion that reabsorption of air which in sound persons commonly happens. An unusual quantity of air in the alimentary canal, whether owing to the nature of the aliments taken in, or to the fault of the digestive fluid, does certainly sometimes take place; and may possibly have, and in some measure certainly has, a share in producing certain flatulent disorders of the alimentary canal; but cannot be supposed to produce the tympanites, which often occurs when no previous disorder had appeared in the system. Even in those cases of tympanites which are attended at their beginning with flatulent disorders in the whole of the alimentary canal, as we know that a firm tone of the intestines both moderates the extrication of air, and contributes to its reabsorption or ready expulsion, so the flatulent symptoms which happen to appear at the coming on of a tympanites, are, in my opinion, to be referred to the loss of tone in the muscular fibres of the intestines, rather than to any fault in the digestive fluids.

1636. These, and other considerations, lead me to conclude, that the chief part of the proximate cause of tympanites, is a loss of tone in the muscular fibres of the intestines. But further, as air of any kind accumulated in the cavity of the intestines should, even by its own elasticity, find its way

either upwards or downwards, and should also, by the assistance of inspiration, be entirely thrown out of the body; so, when neither the reabsorption nor the expulsion takes place, and the air is accumulated so as to produce tympanites, it is probable that the passage of the air along the course of the intestines is in some places of these interrupted. This interruption, however, can hardly be supposed to proceed from any other cause than spasmodic constrictions in certain parts of the canal, and I conclude, therefore, that such constrictions concur as part in the proximate cause of tympanites. Whether these spasmodic constrictions are to be attributed to the remote cause of the disease, or may be considered as the consequence of some degree of atony first arising, I cannot with certainty, and do not find it necessary to determine.

1637. Having thus endeavoured to ascertain the proximate cause of tympanites, I proceed to treat of its cure; which indeed has seldom succeeded, and almost never but in a recent disease. I must, however, endeavour to say what may be reasonably attempted; what has commonly been attempted; and what attempts have sometimes succeeded in the cure of this disease.

1638. It must be a first indication to evacuate the air accumulated in the intestines: and for this purpose it is necessary that those constrictions, which had especially occasioned its accumulation, and continue to interrupt its passage along the course of the intestines, should be removed. As these, however, can hardly be removed but by exciting the peristaltic motion in the adjoining portions of the intestines, purgatives have been commonly employed; but it is at the same time agreed, that the more gentle laxatives only ought to be employed, as the more drastic, in the overstretched and tense state of the intestines, are in danger of bringing on inflammation.

It is for this reason, also, that glysters have been frequent-

ly employed; and they are the more necessary, as the *fæces* collected are generally found to be in a hard and dry state. Not only upon account of this state of the *fæces*, but, farther, when glysters produce a considerable evacuation of air, and thus show that they have some effect in relaxing the spasms of the intestines, they ought to be repeated very frequently.

1639. In order to take off the constrictions of the intestines, and with some view also to the carminative effects of the medicines, various antispasmodics have been proposed, and commonly employed; but their effects are seldom considerable, and it is alleged that their heating and inflammatory powers have sometimes been hurtful. It is, however, always proper to join some of the milder kinds with both the purgatives and glysters that are employed; and it has been very properly advised to give always the chief of antispasmodics, that is, an opiate, after the operation of purgatives is finished.

1640. In consideration of the overstretched, tense, and dry state of the intestines, and especially of the spasmodic constrictions that prevail, fomentations and warm bathing have been proposed as a remedy, and are said to have been employed with advantage: but it has been remarked, that very warm baths have not been found so useful as tepid baths long continued.

1641. Upon the supposition that this disease depends especially upon an atony of the alimentary canal, tonic remedies seem to be properly indicated. Accordingly chalybeates, and various bitters, have been employed; and, if any tonic, the Peruvian bark might probably be useful.

1642. But as no tonic remedy is more powerful than cold applied to the surface of the body, and cold drink thrown into the stomach; so such a remedy has been thought of in this disease. Cold drink has been constantly prescribed, and cold bathing has been employed with advantage; and

there have been several instances of the disease being suddenly and entirely cured by the repeated application of snow to the lower belly.

1643. It is hardly necessary to remark, that, in the diet of tympanitic persons, all sorts of food ready to become flatulent in the stomach are to be avoided; and it is probable, that the fossil acids and neutral salts, as antizymics, may be useful.

1644. In obstinate and desperate cases of tympanites, the operation of the paracentesis has been proposed: but it is a very doubtful remedy, and there is hardly any testimony of its having been practised with success. It must be obvious, that this operation is a remedy suited especially, and almost only, to the *tympanites abdominalis*; the existence of which, separately from the *intestinalis*, is very doubtful, at least not easily ascertained. Even if its existence could be ascertained, yet it is not very likely to be cured by this remedy: and how far the operation might be safe in the *tympanites intestinalis*, is not yet determined by any proper experience.

CHAP. III.

OF WATERY SWELLINGS, OR DROPSIES.

1645. A PRETERNATURAL collection of serous or watery fluids is often formed in different parts of the human body; and although the disease thence arising be distinguished according to the different parts which it occupies, yet the whole of such collections come under the general appellation of Dropsies. At the same time, although the particular instances of such collection are to be distinguished from each

other according to the parts they occupy, as well as by other circumstances attending them; yet all of them seem to depend upon some general causes, very much in common to the whole. Before proceeding, therefore, to consider the several species, it may be proper to endeavour to assign the general cause of dropsy.

1646. In persons in health, a serous or watery fluid seems to be constantly poured out, or exhaled in vapour, into every cavity and interstice of the human body capable of receiving it; and the same fluid, without remaining long or being accumulated in these spaces, seems constantly to be soon again absorbed from thence by vessels adapted to the purpose. From this view of the animal economy, it will be obvious, that if the quantity poured out into any space happens to be greater than the absorbents can at the same time take up, an unusual accumulation of serous fluid will be made in such parts; or though the quantity poured out be not more than usual, yet if the absorption be anywise interrupted or diminished, from this cause also an unusual collection of fluids may be occasioned.

Thus, in general, dropsy may be imputed to an increased effusion, or to a diminished absorption; and I therefore proceed to inquire into the several causes of these.

1647. An increased effusion may happen, either from a preternatural increase of the ordinary exhalation, or from the rupture of vessels carrying, or of sacs containing serous or watery fluids.

1648. The ordinary exhalation may be increased by various causes, and particularly by an interruption given to the free return of the venous blood from the extreme vessels of the body to the right ventricle of the heart. This interruption seems to operate by resisting the free passage of the blood from the arteries into the veins, thereby increasing the force of the arterial fluids in the exhalants, and consequently the quantity of fluid which they pour out.

1649. The interruption of the free return of the venous blood from the extreme vessels, may be owing to certain circumstances affecting the course of the venous blood; very frequently, to certain conditions in the right ventricle of the heart itself, preventing it from receiving the usual quantity of blood from the vena cava; or to obstructions in the vessels of the lungs preventing the entire evacuation of the right ventricle, and thereby hindering its receiving the usual quantity of blood from the cava. Thus, a polypus in the right ventricle of the heart, and the ossification of its valves, as well as all considerable and permanent obstructions of the lungs, have been found to be causes of dropsy.

1650. It may serve as an illustration of the operation of these general causes, to remark, that the return of the venous blood is in some measure resisted when the posture of the body is such as gives occasion to the gravity of the blood to oppose the motion of it in the veins, which takes effect when the force of the circulation is weak; and from whence it is that an upright posture of the body produces or increases serous swellings in the lower extremities.

1651. Not only those causes interrupting the motion of the venous blood more generally, but, farther, the interruption of it in particular veins, may likewise have the effect of increasing exhalation and producing dropsy. The most remarkable instance of this is, when considerable obstructions of the liver prevent the blood from flowing freely into it from the vena portarum and its numerous branches; and hence these obstructions are a frequent cause of dropsy.

1652. Scirrhusities of the spleen and other viscera, as well as the scirrhusity of the liver, have been considered as causes of dropsy; but the manner in which they can produce the disease, I do not perceive, except it may be, where they happen to be near some considerable vein, by the compression of which they may occasion some degree of ascites; or, by compressing the vena cava, may produce an anasarca of the

lower extremities. It is indeed true, that scirrhusities of the spleen and other viscera have been frequently discovered in the bodies of hydropic persons : but I believe they have been seldom found, unless when scirrhusities of the liver were also present ; and I am inclined to think, that the former have been the effects of the latter, rather than the cause of the dropsy ; or that, if scirrhusities of the other viscera have appeared in hydropic bodies when that of the liver was not present, they must have been the effects of some of those causes of dropsy to be hereafter mentioned ; and consequently to be the accidental attendants, rather than the causes of such dropsies.

1653. Even in smaller portions of the venous system, the interruption of the motion of the blood in particular veins has had the same effect. Thus, a polypus formed in the cavity of a vein, or tumours formed in its coats, preventing the free passage of the blood through it, have had the effect of producing dropsy in parts towards the extremity of such veins.

1654. But the cause most frequently interrupting the motion of the blood through the veins, is the compression of tumours existing near to them ; such as aneurisms in the arteries, abscesses, and scirrhus or steatomatous tumours in the adjoining parts.

To this head may be referred, the compression of the descending cava by the bulk of the uterus in pregnant women, and the compression of the same by the bulk of water in the ascites ; both of which compressions frequently produce serious swellings in the lower extremities.

1655. It may be supposed, that a general preternatural plethora of the venous system may have the effect of increasing exhalation ; and that this plethora may happen from the suppression of fluxes, or evacuations of blood, which had for some time taken place in the body, such as the menstrual and hæmorrhoidal fluxes. A dropsy, however, from

such a cause has been at least a rare occurrence ; and when it seems to have happened, I should suppose it owing to the same causes as the suppression itself, rather than to the plethora produced by it.

1656. One of the most frequent causes of an increased exhalation, I apprehend to be the laxity of the exhalant vessels. That such a cause may operate, appears probable from this, that paralytic limbs, in which such a laxity is to be suspected, are frequently affected with serous, or, as they are called, œdematous swellings.

But a much more remarkable and frequent example of its operation occurs in the case of a general debility of the system, which is so often attended with dropsy. That a general debility does induce dropsy, appears sufficiently from its being so commonly the consequence of powerfully debilitating causes ; such as fevers, either of the continued or intermittent kind, which have lasted long ; long continued and somewhat excessive evacuations of any kind ; and, in short, almost all diseases that have been of long continuance, and have at the same time induced the other symptoms of a general debility.

Among other causes inducing a general debility of the system, and thereby dropsy, there is one to be mentioned as frequently occurring, and that is, intemperance in the use of intoxicating liquors ; from whence it is that drunkards of all kinds, and especially dram-drinkers, are so affected with this disease.

1657. That a general debility may produce a laxity of the exhalants, will be readily allowed : and that by this especially it occasions dropsy, I judge from hence, that while most of the causes already mentioned are suited to produce dropsies of particular parts only, the state of general debility gives rise to an increased exhalation into every cavity and interstice of the body, and therefore brings on a general disease. Thus, we have seen effusions of a serous fluid made,

at the same time, into the cavity of the cranium, into that of the thorax and of the abdomen, and likewise into the cellular texture almost over the whole of the body. In such cases, the operation of a general cause discovered itself, by these several dropsies increasing in one part as they diminished in another, and this alternately in the different parts. This combination, therefore, of the different species of dropsy, or rather, as it may be termed, this universal dropsy, must, I think, be referred to a general cause; and, in most instances, hardly any other can be thought of, but a general laxity of the exhalants. It is this, therefore, that I call the *hydropic diathesis*; which frequently operates by itself; and frequently, in some measure, concurring with other causes, is especially that which gives them their full effect.

This state of the system, in its first appearance, seems to be what has been considered as a particular disease under the name of *Cachexy*; but in every instance of it that has occurred to me, I have always considered, and have always found it, to be the beginning of general dropsy.

1658. The several causes of dropsy already mentioned may produce the disease, although there be no preternatural abundance of serous or watery fluid in the blood-vessels; but it is now to be remarked, that a preternatural abundance of that kind may often give occasion to the disease, and more especially when such abundance concurs with the causes above enumerated.

One cause of such preternatural abundance may be an unusual quantity of water taken into the body. Thus, an unusual quantity of water taken in by drinking, has sometimes occasioned a dropsy. Large quantities of water, it is true, are upon many occasions taken in; and being as readily thrown out again by stool, urine, or perspiration, have not produced any disease. But it is also certain, that, upon some occasions, an unusual quantity of watery liquors taken in, has run off by the several internal exhalants, and produced

a dropsy. This seems to have happened, either from the excretories not being fitted to throw out the fluids so fast as it had been taken in, or from the excretories having been obstructed by accidentally concurring causes. Accordingly, it is said, that the sudden taking in of a large quantity of very cold water has produced dropsy, probably from the cold producing a constriction of the excretories.

The proportion of watery fluid in the blood may be increased, not only by the taking in a large quantity of water by drinking, as now mentioned, but it is possible that it may be increased also by water taken in from the atmosphere by the skin in an absorbing or imbibing state. It is well known, that the skin may be, at least occasionally, in such a state; and it is probable, that in many cases of beginning dropsy, when the circulation of the blood on the surface of the body is very languid, that the skin may be changed from a perspiring, to an imbibing state; and thus, at least, the disease may be very much increased.

1659. A second cause of a preternatural abundance of watery fluids in the blood-vessels may be, an interruption of the ordinary watery excretions; and accordingly it is alleged, that persons much exposed to a cold and moist air are liable to dropsy. It is also said, that an interruption, or considerable diminution, of the urinary secretion, has produced the disease: and it is certain, that in the case of an *ischuria renalis*, the serosity retained in the blood-vessels has been poured out into some internal cavities, and has occasioned dropsy.

1660. A third cause of an over proportion of serous fluid in the blood ready to run off by the exhalants, has been very large evacuations of blood, either spontaneous or artificial. These evacuations, by abstracting a large proportion of red globules and gluten, which are the principal means of retaining serum in the red vessels, allow the serum to run off more

readily by the exhalants; and hence dropsies have been frequently the consequence of such evacuations.

It is possible also, that large and long continued issues, by abstracting a large proportion of gluten, may have the same effect.

An over-proportion of the serous parts of the blood may not only be owing to the *spoliation* just now mentioned, but may, I apprehend, be likewise owing to a fault in the digesting and assimilating powers in the stomach and other organs; whereby they do not prepare and convert the aliments taken in, in such a manner as to produce from them the due proportion of red globules and gluten; but still continuing to supply the watery parts, occasion these to be in an over-proportion, and consequently ready to run off into too large quantity by the exhalants. It is in this manner that we explain the dropsy, so often attending chlorosis; which appears always at first by a pale colour of the whole body, showing a manifest deficiency of red blood; which in that disease can only be attributed to an imperfect digestion and assimilation.

Whether a like imperfection take place in what has been called a *Cachexy*, I dare not determine. This disease indeed has been commonly and very evidently owing to the general causes of debility above mentioned: and it being probable that the general debility may affect the organs of digestion and assimilation; so the imperfect state of these functions, occasioning a deficiency of red globules and gluten, may often concur with the laxity of the exhalants in producing dropsy.

1661. These are the several causes of increased exhalation which I have mentioned as the chief cause of the effusion producing dropsy; but I have likewise observed in 1647, that with the same effect, an effusion may also be made by the rupture of vessels carrying watery fluids.

In this way, a rupture of the thoracic duct has given occasion to an effusion of chyle and lymph into the cavity of

the thorax ; and a rupture of the lacteals has occasioned a like effusion into the cavity of the abdomen ; and in either case, a dropsy has been produced.

It is sufficiently probable that a rupture of lymphatics, in consequence of strains, or the violent compression of neighbouring muscles, has occasioned an effusion ; which, being diffused in the cellular texture, has produced considerable dropsy.

It belongs to this head of causes, to remark, that there are many instances of a rupture or erosion of the kidneys, ureters, and bladder of urine ; whereby the urine has been poured into the cavity of the abdomen, and produced an ascites.

1662. Upon this subject, of the rupture of vessels carrying, or of vesicles containing watery fluids, I must observe, that the dissection of dead bodies has often shewn vesicles formed upon the surface of many of the internal parts ; and it has been supposed, that the rupture of such vesicles, commonly named *Hydatids*, together with their continuing to pour out a watery fluid, has been frequently the cause of dropsy. I cannot deny the possibility of such a cause, but suspect the matter must be explained in a different manner.

There have been frequently found, in almost every different part of animal bodies, collections of spherical vesicles, containing a watery fluid ; and in many cases of supposed dropsy, particularly in those called the preternatural encysted dropsies, the swelling has been entirely owing to a collection of such hydatids. Many conjectures have been formed with regard to the nature and production of these vesicles ; but the matter at last seems to be ascertained. It seems to be certain, that each of these vesicles has within it, or annexed to it, a living animal of the worm kind ; which seems to have the power of forming a vesicle for the purpose of its own economy, and of filling it with a watery fluid drawn from the neighbouring parts : and this animal has

therefore been properly named by late naturalists, the *Tænia hydatigena*. The origin and economy of this animal, or an account of the several parts of the human body which it occupies, I cannot prosecute further here; but it was proper for me, in delivering the causes of dropsy, to say thus much of hydatids: and I must conclude with observing, I am well persuaded, that most of the instances of preternatural encysted dropsies which have appeared in many different parts of the human body, have been truly collections of such hydatids; but how the swellings occasioned by these are to be distinguished from other species of dropsy, or how they are to be treated in practice, I cannot at present determine.

1663. After having mentioned these, I return to consider the other general cause of dropsy, which I have said in 1646. may be an interruption or diminution of the absorption that should take up the exhaled fluids from the several cavities and interstices of the body; the causes of which interruption, however, are not easily ascertained.

1664. It seems probable, that absorption may be diminished, and even cease altogether, from a loss of tone in the absorbent extremities of the lymphatics. I cannot indeed doubt that a certain degree of tone or active power is necessary in these absorbent extremities; and it appears probable, that the same general debility which produces that laxity of the exhalant vessels, wherein I have supposed the hydropic diathesis to consist, will at the same time occasion a loss of tone in the absorbents; and therefore that a laxity of the exhalants will generally be accompanied with a loss of tone in the absorbents; and that this will have a share in the production of dropsy. Indeed it is probable that the diminution of absorption has a considerable share in the matter; as dropsies are often cured by medicines which seem to operate by exciting the action of the absorbents.

1665. It has been supposed, that the absorption perform-

ed by the extremities of lymphatics may be interrupted by an obstruction of these vessels, or at least of the conglobate glands through which these vessels pass. This, however, is very doubtful. As the lymphatics have branches frequently communicating with one another, it is not probable that the obstruction of any one, or even several of these, can have any considerable effect in interrupting the absorption of their extremities.

And for the same reason, it is as little probable that the obstruction of conglobate glands can have such an effect: at least it is only an obstruction of the glands of the mesentery, through which so considerable a portion of the lymph passes, that can possibly have the effect of interrupting absorption. But even this we should not readily suppose, there being reason to believe that these glands, even in a considerable tumefied state, are not entirely obstructed: And accordingly I have known several instances of the most part of the mesenteric glands being considerably tumefied, without either interrupting the transmission of fluids to the blood-vessels, or occasioning any dropsy.

An hydropic swelling, indeed, seems often to affect the arm from a tumour of the axillary gland: but it seems to me doubtful, whether the tumour of the arm may not be owing to some compression of the axillary vein, rather than to an obstruction of the lymphatics.

1666. A particular interruption of absorption may be supposed to take place in the brain. As no lymphatic vessels have yet very certainly been discovered in that organ, it may be thought that the absorption which certainly takes place there, is performed by the extremities of veins, or by vessels that carry the fluid directly into the veins; so that any impediment to the free motion of the blood in the veins of the brain may interrupt the absorption there, and occasion that accumulation of serous fluid which so frequently occurs from a congestion of blood in these veins. But I give all this as a matter of conjecture only.

1667. Having thus explained the general causes of dropsy, I should proceed, in the next place, to mention the several parts of the body in which serous collections take place, and so to mark the different species of dropsy : but I do not think it necessary for me to enter into any minute detail upon this subject. In many cases, these collections are not to be ascertained by any external symptoms, and therefore cannot be the objects of practice ; and many of them, though in some measure discernible, do not seem to be curable by our art. I the more especially avoid mentioning very particularly the several species, because that has already been sufficiently done by Dr D. Monro, and other writers, in every body's hands. I must confine myself here to the consideration of those species which are the most frequently occurring, and the most common objects of our practice ; which are, the Anasarca, Hydrothorax, and Ascites ; and each of these I shall treat of in so many separate sections.

SECT. I.—Of *Anasarca*.

G. LXXIV. ANASARCA.—*Corporis totius vel partis ejus intumescencia mollis, inelastica.*

Sp. 1. *Anasarca (serosa) a retento sero ob evacuationes solitas suppressas, vel ab aucto sero ob ingestam aquam nimiam.*

Sp. 2. *Anasarca (oppilata) a compressione venarum.*

Sp. 3. *Anasarca (exanthematicum) post exanthemata, et præcipue post erysipelas, suborta.*

Sp. 4. *Anasarca (anæmia) a tenuitate sanguinis per hæmorrhagiam producta.*

Sp. 5. *Anasarca (debilium) in debilibus a morbis longis, vel ab aliis causis.*

1668. THE Anasarca is a swelling upon the surface of the body, at first commonly appearing in particular parts only, but at length frequently appearing over the whole. So far as it extends, it is an uniform swelling over the whole member at first, always soft, and readily receiving the pressure of the finger, which forms a hollow that remains for some little time after the pressure is removed, but at length rises again to its former fulness. This swelling generally appears, first, upon the lower extremities; and there too only in the evening, disappearing again in the morning. It is usually more considerable as the person has been more in an erect posture during the day; but there are many instances of the exercise of walking preventing altogether its otherwise usual coming on. Although this swelling appears at first only upon the feet and about the ancles; yet if the causes producing it continue to act, it gradually extends upwards, occupying the legs, thighs, and trunk of the body, and sometimes even the head. Commonly the swelling of the lower extremities diminishes during the night; and in the morning, the swelling of the face is most considerable, which again generally disappears almost entirely in the course of the day.

1669. The terms of *Anasarca* and *Leucophlegmatia* have been commonly considered as synonymous; but some authors have proposed to consider them as denoting distinct diseases. The authors who are of this last opinion employ the name of *Anasarca* for that disease which begins in the lower extremities, and is from thence gradually extended upwards in the manner I have just now described; while they term *Leucophlegmatia*, that in which the same kind of swelling appears even at first very generally over the whole body. They seem to think also, that the two diseases proceed from different causes; and that, while the anasarca may arise from the several causes in 1648—1659, the leucophlegmatia proceeds especially from a deficiency of red blood, as we have

mentioned in 1660. *et seq.* I cannot, however, find any proper foundation for this distinction; for although in dropsies proceeding from the causes mentioned in 1660. *et seq.*, the disease appears in some cases more immediately affecting the whole body; yet that does not establish a difference from the common case of anasarca: for the disease, in all its circumstances, comes at length to be entirely the same; and in the cases occasioned by a deficiency of red blood, I have frequently observed it to come on exactly in the manner of an anasarca, as above described.

1670. An *anasarca* is evidently a preternatural collection of serous fluid in the cellular texture immediately under the skin. Sometimes pervading the skin itself, it oozes out through the pores of the cuticle; and sometimes, too gross to pass by these, it raises the cuticle in blisters. Sometimes the skin, not allowing the water to pervade it, is compressed and hardened, and at the same time so much distended, as to give anasarcaous tumours an unusual firmness. It is in these last circumstances also that an erythematic inflammation is ready to come upon anasarcaous swellings.

1671. An *anasarca* may immediately arise from any of the several causes of dropsy which act more generally upon the system: and even when other species of dropsy, from particular circumstances, appear first, yet whenever these proceed from any causes more generally affecting the system, an *anasarca* sooner or later comes always to be joined with them.

1672. The manner in which this disease commonly first appears, will be readily explained by what I have said in 1650, respecting the effects of the posture of the body. Its gradual progress, and its affecting, after some time, not only the cellular texture under the skin, but probably also much of the same texture in the internal parts, will be understood partly from the communication that is readily made between the several parts of the cellular texture; but espe-

cially from the same general causes of the disease producing their effects in every part of the body. It appears to me that the water of anasarca swellings is more readily communicated to the cavity of the thorax, and to the lungs, than to the cavity of the abdomen, or to the viscera contained in it.

1673. An anasarca is almost always attended with a scarcity of urine; and the urine voided, is, from its scarcity, always of a high colour; and, from the same cause, after cooling, readily lets fall a copious reddish sediment. This scarcity of urine may sometimes be owing to an obstruction of the kidneys, but probably is generally occasioned by the watery parts of the blood running off into the cellular texture, and being thereby prevented from passing in the usual quantity to the kidneys.

The disease is also generally attended with an unusual degree of thirst; a circumstance I would attribute to a like abstraction of fluid from the tongue and fauces, which are extremely sensible to every diminution of the fluid in these parts.

1674. The cure of anasarca is to be attempted upon three general indications.

1. The removing the remote causes of the disease.
2. The evacuation of the serous fluid already collected in the cellular texture.
3. The restoring the tone of the system, the loss of which may be considered in many cases as the proximate cause of the disease.

1675. The remote causes are very often such as had not only been applied, but had also been removed, long before the disease came on. Although, therefore, their effects remain, the causes themselves cannot be the objects of practice; but if the causes still continue to be applied, such as intemperance, indolence, and some others, they must be removed. For the most part, the remote causes are certain

diseases previous to the dropsy, which are to be cured by the remedies particularly adapted to them, and cannot be treated of here. The curing of these indeed may be often difficult; but it was proper to lay down the present indication, in order to show, that when these remote causes cannot be removed, the cure of the dropsy must be difficult, or perhaps impossible. In many cases, therefore, the following indications will be to little purpose; and particularly, that often the execution of the second will not only give the patient a great deal of fruitless trouble, but commonly also hurry on his fate.

1676. The second indication for evacuating the collected serum, may sometimes be executed with advantage, and often, at least, with temporary relief. It may be performed in two ways. First, by drawing off the water directly from the dropsical part, by openings made into it for that purpose: Or, secondly, by exciting certain serous excretions; in consequence of which, an absorption may be excited in the dropsical parts, and thereby the serum absorbed and carried in to the blood-vessels, may afterwards be directed to run out, or may spontaneously pass out, by one or other of the common excretions.

1677. In an anasarca, the openings into the dropsical part are commonly to be made in some part of the lower extremities; and will be most properly made by many small punctures reaching the cellular texture. Formerly, considerable incisions were employed for this purpose: but as any wounds made in dropsical parts, which, in order to their healing, must necessarily inflame and suppurate, are liable to become gangrenous; so it is found to be much safer to make the openings by small punctures only, which may heal up by the first intention. At the same time, even with respect to these punctures, it is proper to observe, that they should be made at some distance from one another, and that

care should be taken to avoid making them in the most depending parts.

1678. The water of anasarcaous limbs may be sometimes drawn off by pea-issues, made by caustic a little below the knees: for as the great swelling of the lower extremities is chiefly occasioned by the serous fluid exhaled into the upper parts constantly falling down to the lower; so the issues now mentioned, by evacuating the water from these upper parts, may very much relieve the whole of the disease. Unless, however, the issues be put in before the disease is far advanced, and before the parts have very much lost their tone, the places of the issues are ready to become affected with gangrene.

Some practical writers have advised the employment of setons for the same purpose that I have proposed issues: but I apprehend that setons will be more liable than issues to the accident just now mentioned.

1679. For the purpose of drawing out serum from anasarcaous limbs, blisters have been applied to them, and sometimes with great success: but the blistered parts are ready to have a gangrene come upon them. Blistering is therefore to be employed with great caution; and perhaps only in the circumstances that I have mentioned above to be fit for the employment of issues.

1680. Colewort-leaves applied to the skin, readily occasion a watery exudation from its surface; and applied to the feet and legs affected with anasarca, have sometimes drawn off the water very copiously, and with great advantage.

Analogous, as I judge, to this, oiled silk-hose put upon the feet and legs, so as to shut out all communication with the external air, have been found sometimes to draw a quantity of water from the pores of the skin, and are said in this way to have relieved anasarcaous swellings: but in several trials made, I have never found either the application of these hose, or that of the colewort-leaves, of much service.

1681. The second means proposed in 1676. for drawing off the water from dropsical places, may be the employment of emetics, purgatives, diuretics, or sudorifics.

1682. As spontaneous vomiting has sometimes excited an absorption in hydropic parts, and thereby drawn off the waters lodged in them, it is reasonable to suppose, that vomiting excited by art may have the same effect; and accordingly it has been often practised with advantage. The practice however requires that the strong antimonial emetics be employed, and that they be repeated frequently after short intervals.

1683. Patients submit more readily to the use of purgatives than to that of emetics; and indeed they commonly bear the former more easily than the latter. At the same time, there are no means we can employ to procure a copious evacuation of serous fluids with greater certainty than the operation of purgatives; and it is upon these accounts that purging is the evacuation which has been most frequently, and perhaps with most success, employed in dropsy. It has been generally found necessary to employ purgatives of the more drastic kind; which are commonly known, and need not be enumerated here. I believe indeed, that the more drastic purgatives are the most effectual for exciting absorption, as their stimulus is most readily communicated to the other parts of the system; but of late, an opinion has prevailed, that some milder purgatives may be employed with advantage. This opinion has prevailed particularly with regard to the crystals vulgarly called the Cream of Tartar, which in large doses, frequently repeated, have sometimes answered the purpose of exciting large evacuations, both by stool and urine, and have thereby cured dropsies. This medicine, however, has frequently failed both in its operation and effects, when the drastic purgatives have been more successful.

Practitioners have long ago observed, that in the employ-

ment of purgatives, it is requisite they be repeated after as short intervals as the patient can bear; probably for this reason, that when the purging is not carried to the degree of soon exciting an absorption, the evacuation weakens the system, and thereby increases the afflux of fluids to the hydropic parts.

1684. The kidneys afford a natural outlet for a great part of the watery fluids contained in the blood-vessels; and the increasing the excretion by the kidneys to a considerable degree, is a means as likely as any other of exciting an absorption in dropsical parts. It is upon this account that diuretic medicines have been always properly employed in the cure of dropsy. The various diuretics that may be employed, are enumerated in every treatise of the *Materia Medica* and of the *Practice of Physic*, and therefore need not be repeated here. It happens, however, unluckily, that none of them are of very certain operation; neither is it well known why they sometimes succeed, and why they so often fail; nor why one medicine should prove of service when another does not. It has been generally the fault of writers upon the *Practice of Physic*, that they give us instances of cases in which certain medicines have proved very efficacious, but neglect to tell us in how many other instances the same have failed.

1685. It deserves to be particularly observed here, that there is hardly any diuretic more certainly powerful than a large quantity of common water taken in by drinking. I have indeed observed above, in 1658, that a large quantity of water, or of watery liquors, taken in by drinking, has sometimes proved a cause of dropsy; and practitioners have been formerly so much afraid, that watery liquors taken in by drinking might run off into dropsical places and increase the disease, that they have generally enjoined the abstaining as much as possible from such liquors. Nay, it has been further asserted, that by avoiding this supply of exhalation,

and by a total abstinence from drink, dropsies have been entirely cured. What conclusion is to be drawn from these facts is, however, very doubtful. A dropsy arising from a large quantity of liquids taken into the body, has been a very rare occurrence; and there are, on the other hand, innumerable instances of very large quantities of water having been taken in and running off again very quickly by stool and urine, without producing any degree of dropsy. With respect to the total abstinence from drink, it is a practice of the most difficult execution; and therefore has been so seldom practised, that we cannot possibly know how far it might prove effectual. The practice of giving drink very sparingly, has indeed been often employed; but in a hundred instances, I have seen it carried to a great length without any manifest advantage; while, on the contrary, the practice of giving drink very largely has been found not only safe, but very often effectual in curing the disease. The ingenious and learned Dr Millman has, in my opinion, been commendably employed in restoring the practice of giving large quantities of watery liquors for the cure of dropsy. Not only from the instances he mentions from his own practice, and from that of several eminent physicians in other parts of Europe, but also from many instances in the records of physic, of the good effects of drinking large quantities of mineral waters in the cure of dropsy, I can have no doubt of the practice recommended by Dr Millman being very often extremely proper. I apprehend it to be especially adapted to those cases in which the cure is chiefly attempted by diuretics. It is very probable, that these medicines can hardly be carried in any quantity to the kidneys without being accompanied with a large portion of water; and the late frequent employment of the crystals of tartar has often shown, that the diuretic effects of that medicine are almost only remarkable when accompanied with a large quantity of water; and that without this, the diuretic effects of the medicine sel-

dom appear. I shall conclude this subject with observing, that as there are so many cases of dropsy absolutely incurable, the practice now under consideration may often fail, yet in most cases it may be safely tried ; and if it appear that the water taken in passes readily by the urinary secretion, and especially that it increases the urine beyond the quantity of drink taken in, the practice may probably be continued with great advantage : but, on the contrary, if the urine be not increased, or be not even in proportion to the drink taken in, it may be concluded, that the water thrown in runs off by the exhalants, and will augment the disease.

1686. Another set of remedies which may be employed for exciting a serous excretion, and thereby curing dropsy, is that of sudorifics. Such remedies indeed have been sometimes employed : but however useful they may have been thought, there are few accounts of their having effected a cure ; and although I have had some examples of their success, in most instances of their trial they have been ineffectual.

Upon this subject it is proper to take notice of the several means that have been proposed and employed for dissipating the humidity of the body ; and particularly that of heat externally applied to the surface of it. Of such applications I have had no experience ; and their propriety and utility must rest upon the credit of the authors who relate them. I shall offer only this conjecture upon the subject : That if such measures have been truly useful, as it has seldom been by the drawing out of any sensible humidity, it has probably been by their restoring the perspiration, which is so often greatly diminished in this disease ; or perhaps by changing the state of the skin, from the imbibing condition which is alleged to take place, into that of perspiring.

1687. When, by the several means now mentioned, we shall have succeeded in evacuating the water of dropsies, there will then especially be occasion for our third indication ;

which is, to restore the tone of the system, the loss of which is so often the cause of the disease. This indication, indeed, may properly have place from the very first appearance of the disease; and certain measures adapted to this purpose may, upon such first appearance, be employed with advantage. In many cases of a moderate disease, I am persuaded that they may obviate any future increase of it.

1688. Thus, upon what is commonly the first symptom of anasarca, that is, upon the appearance of what are called *Œdematous Swellings* of the feet and legs, the three remedies of bandaging, friction, and exercise, have often been used with advantage.

1689. That some degree of external compression is suited to support the tone of the vessels, and particularly to prevent the effects of the weight of the blood in dilating those of the lower extremities, must be sufficiently evident; and the giving that compression by a bandage properly applied, has been often useful. In applying such a bandage, care is to be taken that the compression may never be greater on the upper than on the lower part of the limb; and this, I think, can hardly ever be so certainly avoided, as by employing a properly constructed laced stocking.

1690. Friction is another means by which the action of the blood-vessels may be promoted, and thereby the stagnation of fluids in their extremities prevented. Accordingly, the use of the flesh-brush has often contributed to discuss *œdematous swellings*. It appears to me that friction, for the purposes now mentioned, is more properly employed in the morning, when the swelling is very much gone off, than in the evening, when any considerable degree of it has already come on. I apprehend also, that friction being made from below upwards only, is more useful than when made alternately upwards and downwards. It has been common, instead of employing the flesh-brush, to make the friction by warm and dry flannels: and this may in some cases be the

most convenient: but I cannot perceive that the impregnation of these flannels with certain dry fumes is of any benefit.

1691. With respect to exercise, I must observe, that although persons being much in an erect posture during the day, may seem to increase the swelling which comes on at night; yet as the action of the muscles has a great share in promoting the motion of the venous blood, so I am certain, that as much exercise in walking, as the patient can easily bear, will often prevent that œdematous swelling which much standing, and even sitting, would have brought on.

1692. These measures, however, although they may be useful at the coming on of a dropsy, whose causes are not very powerful, will be often insufficient in a more violent disease; and such therefore will require more powerful remedies. These are exercise and tonic medicines; which may be employed both during the course of the disease, and especially after the water has been evacuated.

1693. Exercise is suited to assist in every function of the animal economy, particularly to promote perspiration, and thereby prevent the accumulation of watery fluids in the body. I apprehend also, that it may be the most effectual means for preventing the skin from being in an imbibing state; and, as has been hinted above on the subject of Emaciation (1607.), I am persuaded, that a full and large perspiration will always be a means of exciting absorption in every part of the system. Exercise, therefore, promises to be highly useful in dropsy; and any mode of it may be employed that the patient can most conveniently admit of. It should, however, always be as much as he can easily bear: and in anasarca, the share which the exercise of muscles has in promoting the motion of the venous blood, induces me to think that bodily exercise, to whatever degree the patient can bear it, will always be the most useful. From some experience also, I am persuaded, that by exercise alone, employed early in the disease, many dropsies may be cured.

1694. Besides exercise, various tonic remedies are properly employed to restore the tone of the system. The chief of these are, chalybeates, the Peruvian bark, and various bitters. These are not only suited to restore the tone of the system in general, but are particularly useful in strengthening the organs of digestion, which in dropsies are frequently very much weakened: and for the same purpose also aromatics may be frequently joined with the tonics.

1695. Cold bathing is upon many occasions the most powerful tonic we can employ; but at the beginning of dropsy, when the debility of the system is considerable, it can hardly be attempted with safety. After, however, the water of dropsies has been very fully evacuated, and the indication is to strengthen the system for preventing a relapse, cold bathing may perhaps have a place. It is, at the same time, to be admitted with caution; and can scarcely be employed till the system has otherwise recovered a good deal of vigour. When that indeed has happened, cold bathing may be very useful in confirming and completing it.

1696. In persons recovering from dropsy, while the several means now mentioned for strengthening the system are employed, it will be proper at the same time to keep constantly in view the support of the watery excretions, and consequently the keeping up the perspiration by a great deal of exercise, and continuing the full flow of the urinary excretions by the frequent use of diuretics.

SECT. II.—*Of the Hydrothorax, or Dropsy of the Breast.*

G. LXXVII. HYDROTHORAX.—*Dyspnœa ; faciei pallor ; pedum œdemata ; urina parca ; decubitus difficilis ; subita et spontanea ex somnio cum palpitatione excitatio ; aqua in pectore fluctuans.*

1697. THE preternatural collection of serous fluid in the thorax, to which we give the appellation of *Hydrothorax*, occurs more frequently than has been imagined. Its presence, however, is not always to be very certainly known; and it often takes place to a considerable degree before it be discovered.

1698. These collections of watery fluids in the thorax are found in different situations. Very often the water is found at the same time in both sacs of the pleura, but frequently in one of them only. Sometimes it is found in the pericardium alone; but for the most part it only appears there when at the same time a collection is present in one or both cavities of the thorax. In some instances, the collection is found to be only in that cellular texture of the lungs which surrounds the bronchiæ, without there being at the same time any effusion into the cavity of the thorax.

Pretty frequently the water collected consists chiefly of a great number of hydatids in different situations; sometimes seemingly floating in the cavity, but frequently connected with and attached to particular parts of the internal surface of the pleura.

1699. From the collection of water being thus in various situations and circumstances, symptoms arise which are different in different cases; and from thence it becomes often difficult to ascertain the presence and nature of the affection.

I shall, however, endeavour here to point out the most common symptoms, and especially those of that principal and most frequent form of the disease, when the serous fluid is present in both sacs of the pleura, or, as we usually speak, in both cavities of the thorax.

1700. The disease frequently comes on with a sense of anxiety about the lower part of the sternum. This, before it has subsisted long, comes to be joined with some difficulty of breathing; which at first appears only upon the person's moving a little faster than usual, upon his walking up an acclivity, or upon his ascending a staircase: but after some time, this difficulty of breathing becomes more constant and considerable, especially during the night, when the body is in a horizontal situation. Commonly, at the same time, lying upon one side is more easy than upon the other, or perhaps lying upon the back more easy than upon either side. These circumstances are usually attended with a frequent cough, that is at first dry, but which, after some time, is accompanied with an expectoration of thin mucus.

With all these symptoms, the hydrothorax is not certainly discovered, as the same symptoms often attend other diseases of the breast. When, however, along with these symptoms, there is at the same time an œdematous swelling of the feet and legs, a leucophlegmatic paleness of the face, and a scarcity of urine, the existence of a hydrothorax can be no longer doubtful. Some writers have told us, that sometimes in this disease, before the swelling of the feet comes on, a watery swelling of the scrotum appears; but I have never met with any instance of this.

1701. Whilst the presence of the disease is somewhat uncertain, there is a symptom which sometimes takes place, and has been thought to be a certain characteristic of it; and that is, when, soon after the patient has fallen asleep, he is suddenly awaked with a sense of anxiety and difficult breathing, and with a violent palpitation of the heart. These

feelings immediately require an erect posture; and very often the difficulty of breathing continues to require and to prevent sleep for a great part of the night. This symptom I have frequently found attending the disease; but I have also met with several instances in which this symptom did not appear. I must remark further, that I have not found this symptom attending the empyema, or any other disease of the thorax; and, therefore, when it attends a difficulty of breathing, accompanied with any the smallest symptom of dropsy, I have had no doubt in concluding the presence of water in the chest, and have always had my judgment confirmed by the symptoms which afterwards appeared.

1702. The hydrothorax often occurs with very few, or almost none, of the symptoms above mentioned; and is not, therefore, very certainly discovered till some others appear. The most decisive symptom is a fluctuation of water in the chest, perceived by the patient himself, or by the physician, upon certain motions of the body. How far the method proposed by Auenbrugger will apply to ascertain the presence of water and the quantity of it in the chest, I have not had occasion or opportunity to observe.

It has been said, that in this disease some tumour appears upon the sides or upon the back; but I have not met with any instance of this. In one instance of the disease, I found one side of the thorax considerably enlarged, the ribs standing out farther on that side than upon the other.

A numbness and a degree of palsy in one or both arms, has been frequently observed to attend a hydrothorax.

Soon after this disease has made some progress, the pulse commonly becomes irregular, and frequently intermitting: but this happens in so many other diseases of the breast, that unless when it is attended with some other of the above-mentioned symptoms, it cannot be considered as denoting the hydrothorax.

1703. This disease, as other dropsies, is commonly attend-

ed with thirst and a scarcity of urine, to be explained in the same manner as in the case of anasarca (1673.). The hydrothorax, however, is sometimes without thirst, or any other febrile symptom; although I believe this happens in the case of partial affections only, or when a more general affection is yet but in a slight degree. In both cases, however, and more especially when the disease is considerably advanced, some degree of fever is generally present: and I apprehend it to be in such case, that the persons affected are more than usually sensible to cold, and complain of the coldness of the air when that is not perceived by other persons.

1704. The hydrothorax sometimes appears alone, without any other species of dropsy being present at the same time: and in this case the disease, for the most part, is a partial affection, as being either of one side of the thorax only, or being a collection of hydatids in one part of the chest. The hydrothorax, however, is very often a part of more universal dropsy, and when at the same time there is water in all the three principal cavities, and in the cellular texture of a great part of the body, I have met with several instances, in which such universal dropsy began first by an effusion into the thorax. The hydrothorax, however, more frequently comes on from an anasarca gradually increasing: and, as I have said above, the general diathesis seems often to affect the thorax sooner than it does either the head or the abdomen.

1705. This disease seldom admits of a cure, or even of alleviation, from remedies. It commonly proceeds to give more and more difficulty of breathing, till the action of the lungs be entirely interrupted by the quantity of water effused; and the fatal event frequently happens more suddenly than was expected. In many of the instances of a fatal hydrothorax, I have remarked a spitting of blood come on several days before the patient died.

1706. The cause of hydrothorax is often manifestly one or other of the general causes of dropsy pointed out above: but what it is that determines these general causes to act more especially in the thorax, and particularly what it is that produces the partial collections that occur there, I do not find to be easily ascertained.

1707. From what has been said above, it will be evident, that the cure of hydrothorax must be very much the same with that of anasarca; and when the former is joined with the latter as an effect of the same general diathesis, there can be no doubt of the method of cure being the same in both. Even when the hydrothorax is alone, and the disease partial, from particular causes acting in the thorax only, there can hardly be any other measures employed, than the general ones proposed above. There is only one particular measure adapted to the hydrothorax; and that is, the drawing off the accumulated waters by a paracentesis of the thorax.

1708. To what cases this operation may be most properly adapted, I find it difficult to determine. That it may be executed with safety, there is no doubt; and that it has been sometimes practised with success, seems to be very well vouched. When the disease depends upon a general hydropic diathesis, it cannot alone prove a cure, but may give a temporary relief; and when other remedies seem to be employed with advantage, the drawing off the water may very much favour a complete cure. I have not, however, been so fortunate as to see it practised with any success; and even where it was most promising, that is, in cases of partial affection, my expectations have been disappointed from it.

SECT. III.—*Of Ascites, or Dropsy of the Lower Belly.*

G. LXXVIII. ASCITES.—*Abdominis intumescencia tensa, vix elastica, sed fluctuosa.*

Sp. 1. *Ascites (abdominalis) cum tumore totius abdominis æquali, et cum fluctuatione satis evidente.*

Sp. 2. *Ascites (saccatus) cum tumore abdominis, saltem initio, partiali, et cum fluctuatione minus evidente.*

1709. THE name of *Ascites* is given to every collection of waters causing a general swelling and distention of the lower belly; and such collections are more frequent than those which happen in the thorax.

1710. The collections in the lower belly, like those of the thorax, are found in different situations. Most commonly they are in the sac of the peritonæum, or general cavity of the abdomen: but they often begin by sacs formed upon, and connected with, one or other of the viscera; and perhaps the most frequent instances of this kind occur in the ovaria of females. Sometimes the water of ascites is found entirely without the peritonæum, and between this and the abdominal muscles.

1711. These collections connected with particular viscera, and those formed without the peritonæum, form that disease which authors have termed the *encysted dropsy*, or *hydrops saccatus*. Their precise seat, and even their existence, is very often difficult to be ascertained. They are generally formed by collections of hydatids.

1712. In the most ordinary case, that of abdominal drop-

sy, the swelling at first is in some measure over the whole belly, but generally appears most considerable in the epigastrium. As the disease, however, advances, the swelling becomes more uniform over the whole. The distention, and sense of weight, though considerable, vary a little according as the posture of the body is changed; the weight being felt the most upon the side on which the patient lies, while at the same time on the opposite side the distention becomes somewhat less. In almost all the instances of ascites, the fluctuation of the water within may be perceived by the practitioner's feeling, and sometimes by his hearing. This perception of fluctuation does not certainly distinguish the different states of dropsy; but serves very well to distinguish dropsy from tympanites, from cases of physconia, and from the state of pregnancy in women.

1713. An ascites frequently occurs when no other species of dropsy does at the same time appear; but sometimes the ascites is a part only of universal dropsy. In this case, it usually comes on in consequence of an anasarca, gradually increasing; but its being joined with anasarca does not always denote any general diathesis, as for the most part an ascites sooner or later occasions œdematous swellings of the lower extremities. When the collection of water in the abdomen, from whatever cause, becomes considerable, it is always attended with a difficulty of breathing; but this symptom occurs often when, at the same time, there is no water in the thorax. The ascites is sometimes unaccompanied with any fever; but frequently there is more or less of fever present with it. The disease is never considerable, without being attended with thirst and a scarcity of urine.

1714. In the diagnosis of ascites, the greatest difficulty that occurs, is in discerning when the water is in the cavity of the abdomen, or when it is in the different states of encysted dropsy above mentioned. There is, perhaps, no cer-

tain means of ascertaining this in all cases ; but in many we may attempt to form some judgment with regard to it.

When the antecedent circumstances give suspicion of a general hydropic diathesis ; when at the same time some degree of dropsy appears in other parts of the body ; and when, from its first appearance, the swelling has been equally over the whole belly, we may generally presume that the water is in the cavity of the abdomen. But when an ascites has not been preceded by any remarkably cachectic state of the system, and when at its beginning the tumour and tension had appeared in one part of the belly more than another, there is reason to suspect an encysted dropsy. Even when the tension and tumour of the belly have become general and uniform over the whole ; yet if the system of the body in general appear to be little affected ; if the patient's strength be little impaired ; if the appetite continue pretty entire, and the natural sleep be little interrupted ; if the menses in females continue to flow as usual ; if there be yet no anasarca ; or, though it may have already taken place, if it be still confined to the lower extremities, and there be no leucophlegmatic paleness or sallow colour in the countenance ; if there be no fever, nor so much thirst, or scarcity of urine, as occur in a more general affection ; then, according as more of these different circumstances take place, there will be the more stronger ground for supposing the ascites to be of the encysted kind.

The chief exception to be made from this as a general rule, will, in my opinion, be when the ascites may, with much probability, be presumed to have come on in consequence of a scirrhus liver ; which, I apprehend, may occasion a collection of water in the cavity of the abdomen, while the general system of the body may not be otherwise much affected.

1715. With respect to the cure of ascites when of the encysted kind, it does not, so far as I know, admit of any. When the collection of water is in the abdominal cavity a-

lone, without any other species of dropsy present at the same time, I apprehend the ascites will always be of difficult cure: for it may be presumed to depend upon a scirrhus of the liver, or other considerable affection of the abdominal viscera, which I conceive to be of very difficult cure, and therefore the ascites depending upon them. At the same time, such cases may often admit of a temporary relief by the paracentesis.

1716. When the ascites is a part of universal dropsy, it may, as far as other cases of that kind can, admit of a cure; and it will be obvious, that such a cure must be obtained by the same means as above proposed for the cure of general anasarca.

It frequently happens, that the ascites is attended with a diarrhoea, and, in that case, does not admit of the use of purgatives so freely as cases of anasarca commonly do. It is therefore often to be treated by diuretics almost alone.

The diuretics that may be employed are chiefly those above mentioned; but in ascites, a peculiar one has been found out. It is a long continued gentle friction of the skin over the whole of the abdomen by the fingers dipped in oil. This has sometimes been useful in exciting an increased flow of urine; but in most of the trials of it which I have known made, it has failed in producing that effect.

1717. The ascites admits of a particular means for immediately drawing off the collected waters; and that is the well-known operation of the paracentesis of the abdomen. In what circumstances of ascites this operation can most properly be proposed, it is difficult to determine; but, so far as I can judge, it must be regulated by very much the same considerations as those above mentioned with regard to the paracentesis of the thorax.

The manner of performing the paracentesis of the abdomen, and the precautions to be taken with respect to it, are now so commonly known, and delivered in so many books,

that it is altogether unnecessary for me to offer any directions upon that subject here; especially after the full and judicious information and directions given by Mr BELL, in the second volume of his *System of Surgery*.

CHAP. IV.

OF GENERAL SWELLINGS, ARISING FROM AN INCREASED BULK OF THE WHOLE SUBSTANCE OF PARTICULAR PARTS.

G. LXXXI. PHYSCONIA.—*Tumor quandam abdominis partem potissimum occupans, paulatim crescens, nec sonora, nec fluctuans.*

1718. UPON the subject of this chapter, several nosological difficulties occur, and particularly with respect to admitting the *Physconia* into the order of General Swellings. At present, however, it is not necessary for me to discuss this point, as I am here to omit entirely the consideration of *Physconia*; both because it can seldom admit of any successful practice, and because I cannot deliver any thing useful either with regard to the pathology or practice in such a disease.

1719. The only other genus of disease comprehended under the title of the present chapter, is the *Rachitis*; and this being both a proper example of the class of *Cachexy*, and of the order of *Intumescentiæ* or General Swellings, I shall offer some observations with regard to it.

Of Rachitis, or Rickets.

G. LXXXII. RACHITIS.—*Caput magnum anterius maxime tumens ; genicula tumida ; costæ depressæ ; abdomen tumidum ; cætera marcescentia.*

1720. THIS disease has been supposed to have appeared only in modern times, and not above two hundred years ago. This opinion, notwithstanding it has been maintained by persons of the most respectable authority, appears to me, from many considerations, improbable ; but it is a point of too little consequence to detain my readers here. The only application of it which deserves any notice is, that it has led to a notion of the disease having arisen from the lues venerea, which had certainly made its first appearance in Europe not very long before the date commonly assigned for the appearance of rachitis : but I shall hereafter show, that the supposed connection between the Syphilis and Rachitis is without foundation.

1721. In delivering the history of the *Rickets*, I must, in the first place, observe, that with respect to the antecedents of the disease, every thing to be found in authors upon this subject appears to me to rest upon a very uncertain foundation. In particular, with respect to the state of the parents whose offspring become affected with this disease, I have met with many instances of it in children from seemingly healthy parents ; and have met likewise with many instances of children who never became affected with it, although born of parents who, according to the common accounts, should have produced a rickety offspring ; so that, even making allowance for the uncertainty of fathers, I do not find the general opinion of authors upon this subject to be properly supported.

1722. The disease, however, may be justly considered as

proceeding from parents; for it often appears in a great number of the same family: and my observation leads me to judge, that it originates more frequently from mothers than from fathers. So far as I can refer the disease of the children to the state of the parents, it has appeared to me most commonly to arise from some weakness, and pretty frequently from a scrofulous habit in the mother. To conclude the subject, I must remark, that in many cases I have not been able to discern the condition of the parents, to which I could refer it.

When nurses, other than the mothers, have been employed to suckle children, it has been supposed that such nurses have frequently given occasion to the disease; and when nurses have both produced and have suckled children who became rickety, there may be ground to suspect their having occasioned the disease in the children of other persons: but I have had few opportunities of ascertaining this matter. It has in some measure appeared to me, that those nurses are most likely to produce this disease, who give infants a large quantity of very watery milk, and who continue to suckle them longer than the usual time. Upon the whole, however, I am of opinion, that hired nurses seldom occasion this disease, unless when a predisposition to it has proceeded from the parents.

1723. With regard to the other antecedents, which have been usually enumerated by authors as the remote causes of this disease, I judge the accounts given to be extremely fallacious; and I am very much persuaded, that the circumstances in the rearing of children have less effect in producing rickets than has been imagined. It is indeed not unlikely, that some of these circumstances mentioned as remote causes may favour, while other circumstances may resist the coming on of the disease; but, at the same time, I doubt if any of the former would produce it where there was no predisposition in the child's original constitution. This

opinion of the remote causes, I have formed from observing, that the disease comes on when none of these had been applied; and more frequently, that many of them had been applied without occasioning the disease. Thus the learned ZEVIANI alleges, that the disease is produced by an acid from the milk with which a child is fed for the first nine months of its life: but almost all children are fed with the same food, and in which also an acid is always produced; while, at the same time, not one in a thousand of the infants so fed becomes affected with the rickets. If, therefore, in the infants who become affected with this disease, a peculiarly noxious acid is produced, we must seek for some peculiar cause of its production, either in the quality of the milk, or in the constitution of the child; neither of which, however, Mr Zeviani has explained. I cannot indeed believe that the ordinary acid of milk has any share in producing this disease, because I have known many instances of the acid being produced and occasioning various disorders, without however its ever producing rickets.

Another of the remote causes commonly assigned, is the child's being fed with unfermented farinaceous food. But over the whole world children are fed with such farinacea, while the disease of rickets is a rare occurrence; and I have known many instances where children have been fed with a greater than usual proportion of fermented farinacea, and also a greater proportion of animal food, without these preventing the disease. In my apprehension, the like observations might be made with respect to most of the circumstances that have been mentioned as the remote cause of rickets.

1724. Having thus offered my opinion concerning the supposed antecedents of this disease, I proceed now to mention the phenomena occurring after it has actually come on.

The disease seldom appears before the ninth month, and seldom begins after the second year of a child's age. In the

interval between these periods, the appearance of the disease is sometimes sooner, sometimes later : and commonly at first the disease comes on slowly. The first appearances are a flaccidity of the flesh, the body at the same time becoming leaner, though food be taken in pretty largely. The head appears large with respect to the body ; with the fontanelle, and perhaps the sutures, more open than usual in children of the same age. The head continues to grow larger, in particular the forehead becoming unusually prominent ; and at the same time the neck continues slender, or seems to be more so, in proportion to the head. The dentition is slow, or much later than usual ; and those teeth which come out readily become black, and frequently again fall out. The ribs lose their convexity, and become flattened on the sides ; while the sternum is pushed outward, and forms a sort of ridge. At the same time, or perhaps sooner, the epiphyses at the several joints of the limbs become swelled ; while the limbs between the joints appear, or perhaps actually become more slender. The bones seem to be every where flexible, becoming variously distorted ; and particularly the spine of the back becoming incurvated in different parts of its length. If the child, at the time the disease comes on, had acquired the power of walking, it becomes daily more feeble in its motions, and more averse to the exertion of them, losing at length the power of walking altogether. Whilst these symptoms go on increasing, the abdomen is always full, and preternaturally tumid. The appetite is often good, but the stools are generally frequent and loose. Sometimes the faculties of the mind are impaired, and stupidity or fatuity prevails ; but commonly a premature sensibility appears, and they acquire the faculty of speech sooner than usual. At the first coming on of the disease, there is generally no fever attending it ; but it seldom continues long, till a frequent pulse, and other febrile symptoms, come to be constantly present. With these symptoms the disease proceeds, and

continues in some instances for some years; but very often, in the course of that time, the disease ceases to advance, and the health is entirely established, except that the distorted limbs produced during the disease continue for the rest of life. In other cases, however, the disease proceeds increasing till it has affected almost every function of the animal economy, and at length terminates in death. The variety of symptoms which in such cases appear, it does not seem necessary to enumerate, as they are not essential to the constitution of the disease, but are merely consequences of the more violent conditions of it. In the bodies of those who have died, various morbid affections have been discovered in the internal parts. Most of the viscera of the abdomen have been found to be preternaturally enlarged. The lungs have also been found in a morbid state, seemingly from some inflammation that had come on towards the end of the disease. The brain has been commonly found in a flaccid state, with effusions of a serous fluid into its cavities. Very universally the bones have been found very soft, and so much softened as to be readily cut with a knife. The fluids have been always found in a dissolved state, and the muscular parts very soft and tender; and the whole of the dead body without any degree of that rigidity which is so common in almost all others.

1725. From these circumstances of the disease, it seems to consist in a deficiency of that matter which should form the solid parts of the body. This especially appears in the faulty state of ossification, seemingly depending upon the deficiency of that matter which should be deposited in the membranes which are destined to become bony, and should give them their due firmness and bony hardness. It appears that this matter is not supplied in due quantity; but that, in place of it, a matter fitted to increase their bulk, particularly in the epiphyses, is applied too largely. What this deficiency of matter depends upon, is difficult to be ascer-

tained. It may be a fault in the organs of digestion and assimilation, which prevents the fluids in general from being properly prepared; or it may be a fault in the organs of nutrition, which prevents the secretion of a proper matter to be applied. With respect to the latter, in what it may consist, I am entirely ignorant, and cannot even discern that such a condition exists: but the former cause, both in its nature and existence, is more readily perceived; and it is propable that it has a considerable influence in the matter; as in rachitic persons a thinner state of the blood, both during life, and after death, so commonly appears. It is this state of the fluids, or a deficiency of bony matter in them, that I consider as the proximate cause of the disease; and which again may in some measure depend upon a general laxity and debility of the moving fibres of the organs that perform the functions of digestion and assimilation.

1726. There is however something still wanting to explain why these circumstances discover themselves at a particular time of life, and hardly ever either before or after a certain period: and as to this I would offer the following conjectures: Nature having intended that human life should proceed in a certain manner, and that certain functions should be exercised at a certain period of life only; so it has generally provided, that at that period, and no sooner, the body should be fitted for the exercise of the functions suited to it. To apply this to our present subject. Nature seems to have intended that children should walk only at twelve months old; and accordingly has provided, that against that age, and no sooner, a matter should be prepared fit to give that firmness to the bones which is necessary to prevent their bending too easily under the weight of the body. Nature, however, is not always steady and exact in executing her own purposes; and if therefore the preparation of bony matter shall not have been made against the time there is particular occasion for it, the disease of rickets, that is, of soft

and flexible bones, must come on: and will discover itself about the particular period we have mentioned. Further, it will be equally probable, that if at the period mentioned the bones shall have acquired their due firmness, and that nature goes on in preparing and supplying the proper bony matter, it may be presumed, that against the time a child is two years old, such a quantity of bony matter will be supplied, as to prevent the bones from becoming again soft and flexible, during the rest of life; unless it happen, as indeed it sometimes does, that certain causes occur to wash out again the bony matter from the membranes in which it had been deposited. The account I have now given of the period at which the rickets occur, seems to confirm the opinion of its proximate cause being a deficiency of bony matter in the fluids of the body.

1727. It has been frequently supposed, that a syphilitic taint has a share in producing rickets; but such a supposition is altogether improbable. If our opinion of the rickets having existed in Europe before the syphilis was brought into it, be well founded, it will then be certain that the disease may be occasioned without any syphilitic acrimony having a share in its production. But further, when a syphilitic acrimony is transmitted from the parent to the offspring, the symptoms do not appear at a particular time of life only, and commonly more early than the period of rickets; the symptoms also are very different from those of rickets, and unaccompanied with any appearance of the latter; and, lastly, the symptoms of syphilis are cured by means which, in the case of rickets, have either no effect or a bad one. It may indeed possibly happen, that syphilis and rickets may appear in the same person; but it is to be considered as an accidental complication: and the very few instances of it that have occurred, are by no means sufficient to establish any necessary connection between the two diseases.

1728. With respect to the deficiency of bony matter, which

I consider as the proximate cause of rickets, some further conjectures might be offered concerning its remote causes ; but none of them appear to me very satisfying ; and whatever they might be, it appears to me they must again be resolved into the supposition of a general laxity and debility of the system.

1729. It is upon this supposition almost alone that the cure of rickets has entirely proceeded. The remedies have been such especially as were suited to improve the tone of the system in general, or of the stomach in particular : and we know that the latter are not only suited to improve the tone of the stomach itself, but by that means to improve also the tone of the whole system.

1730. Of tonic remedies, one of the most promising seems to have been cold-bathing ; and I have found it the most powerful in preventing the disease. For a long time past, it has been the practice in this country, with people of all ranks, to wash their children from the time of their birth with cold water ; and from the time that children are a month old, it has been the practice with people of better rank to have them dipped entirely in cold water every morning : and wherever this practice has been pursued, I have not met with any instance of rickets. Amongst our common people, although they wash their children with cold water only, yet they do not so commonly practise immersion : and when amongst these I meet with instances of rickets, I prescribe cold bathing ; which accordingly has often checked the progress of the disease, and sometimes seems to have cured it entirely.

1731. The remedy of *Ens Veneris*, recommended by Mr Boyle, and since his time very universally employed, is to be considered as entirely a tonic remedy. That or some other preparation of iron I have almost constantly employed, though not indeed always with success. I have been persuaded, that the *ens veneris* of Mr Boyle, notwithstanding his giving it this appellation, was truly a preparation of iron, and no other

than what we now name the *Flores Martiales* : but it appears, that both Benevoli and Buchner have employed a preparation of copper ; and I am ready to believe it to be a more powerful tonic than the preparations of iron.

1732. Upon the supposition of tonic remedies being proper in this disease, I have endeavoured to employ the Peruvian bark : but from the difficulty of administering it to infants in any useful quantity, I have not been able to discover its efficacy ; but I am very ready to believe the testimony of De Haen upon this subject.

1733. Exercise, which is one of the most powerful tonics, has been properly recommended for the cure of rickets ; and as the exercise of gestation only can be employed, it should always be with the child laid in a horizontal situation, as the carrying them, or moving them in any degree of an erect posture, is very apt to occasion some distortion. It is extremely probable, that, in this disease, friction with dry flannels may be found an useful remedy.

1734. It is also sufficiently probable, that the avoiding of moisture is not only advisable, but may likewise be of service in the cure of this disease.

There is no doubt that a certain diet may contribute to the same end ; but what may be the most eligible, I dare not determine. I have no doubt that leavened bread may be more proper than unfermented farinacea ; but I cannot find any reason to believe that strong beer can ever be a proper remedy.

Practitioners have been divided in opinion concerning the use of milk in this disease. Zeviani, perhaps from theory, condemns the use of it ; but Benevoli employed it without its impeding the cure of the disease. This last I have often remarked in the course of my own practice. As it is difficult to feed children entirely without milk ; so I have commonly admitted it as a part of the diet of rickety children ; and in many instances I can affirm, that it did not prevent

the cure of the disease. In cases, however, of any appearance of rickets, and particularly of a slow dentition, I have dissuaded the continuance of a child upon the breast; because the milk of women is a more watery nourishment than that of cows: and I have especially dissuaded the continuing a child upon the breast, when I thought the nurse gave rather too much of such a watery nourishment; for, as has been above mentioned, I have had frequent occasion to suspect, that the milk of such nurses has a tendency to favour the coming on of rickets.

1735. Besides the remedies and regimen now mentioned, practitioners have commonly employed in this disease both emetics and purgatives. When the appetite and digestion are considerably impaired, vomiting, if neither violent, nor frequently repeated, seems to be of service; and, by a moderate agitation of the abdominal viscera, may in some measure obviate the stagnation and consequent swelling that usually occur in them.

As the tumid state of the abdomen, so constantly to be met with in this disease, seems to depend very much upon a tympanitic affection of the intestines; so, both by obviating this, and by deriving from the abdominal viscera, frequent gentle purgatives may be of service. Zeviani, perhaps properly, recommends in particular rhubarb; which, besides its purgative quality, has those also of bitter and astringent.

1736. I have now mentioned most of the remedies commonly employed by the practitioners of former times; but I must not omit mentioning some others that have been lately suggested. The late Mr De Haen recommends the testacea; and assures of their having been employed with success: but in the few trials which I have had occasion to make, their good effects did not appear.

The late Baron Van Swieten gives us one instance of rickets cured by the use of hemlock; but I do not know that the practice has been repeated.

BOOK III.

OF THE IMPETIGINES,

OR DEPRAVED HABIT, WITH AFFECTIONS OF THE SKIN.

ORD. III. IMPETIGINES.

Cachexiæ, cutem et externum corpus præcipue deformantes.

INTRODUCTION.

1737. I FIND it difficult to give any sufficiently correct and proper character of this order. The diseases comprehended under it depend, for the most part, upon a depraved state of the whole of the fluids, producing tumours, eruptions, or other preternatural affections of the skin. Although it be extremely difficult to find a general character of the order that will apply to each of the genera and species, I shall here treat of the principal genera which have been commonly comprehended under this order, and which I have enumerated in my Nosology.

CHAP. I.

OF SCROFULA, OR THE KING'S EVIL.

G. LXXXIII. SCROPHULA.—*Glandularum conglobatarum, præsertim in collo, tumores ; labium superius et columna nasi tumida ; facies florida, cutis lævis ; tumidum abdomen.*

Sp. 1. *Scrophula (vulgaris) simplex, externa, permanens.*

Sp. 2. *Scrophula (mesenterica) simplex, interna, cum pallore faciei, inappetentiâ, tumore abdominis, et fœtore fœcum insolito.*

Sp. 3. *Scrophula (fugax) simplicissima, et tantum circa collum, plerumque a resorptione ex ulceribus capitis proveniens.*

Sp. 4. *Scrophula (Americana) cum frambæsiâ conjuncta.*

1738. THE character of this disease I have attempted in my Nosology ; but it will be more properly taken from the whole of its history, now to be delivered.

1739. It is commonly, and very generally, a hereditary disease ; and although it sometimes may, yet it rarely appears, but in children whose parents had at some period of their lives been affected with it. Whether it may not fail to appear in the children of scrofulous parents, and discover itself afterwards in their offspring in the succeeding generations, I cannot certainly determine ; but believe that this has frequently happened. It appears to me to be derived more commonly from fathers than from mothers ; but whether this happens from their being more scrofulous men than scrofulous women married, I am not certain.

With respect to the influence of parents in producing this disease, it deserves to be remarked, that in a family of many children, when one of the parents has been affected with scrofula, and the other not; as it is usual for some of the children to be in constitution pretty exactly like the one parent, and others of them like the other; it commonly happens that those children who most resemble the scrofulous parent become affected with scrofula, while those resembling the other parent entirely escape.

1740. The scrofula generally appears at a particular period of life. It seldom appears in the first, or even in the second year of a child's life; and most commonly it occurs from the second, or, as some allege, and perhaps more properly, from the third to the seventh year. Frequently, however, it discovers itself at a later period; and there are instances of its first appearance, at every period till the age of puberty; after which, however, the first appearance of it is very rare.

1741. When it does not occur very early, we can generally distinguish the habit of body peculiarly disposed to it. It most commonly affects children of soft and flaccid habits, of fair hair and blue eyes; or at least affects these much more frequently than those of an opposite complexion. It affects especially children of smooth skins and rosy cheeks: and such children have frequently a tumid upper lip, with a chop in the middle of it; and this tumour is often considerable, and extended to the columna nasi and lower parts of the nostrils. The disease is sometimes joined with, or follows rickets; and although it frequently appears in children who have not had rickets in any great degree, yet it often attacks those who by a protuberant forehead, by tumid joints and a tumid abdomen, show that they had some rachitic disposition. In parents who, without having had the disease themselves, seem to produce scrofulous children, we can com-

monly perceive much of the same habit and constitution that has been just now described.

Some authors have supposed that the small-pox has a tendency to produce this disease; and Mr De Haen asserts its following the inoculated more frequently than the natural small-pox. This last position, however, we can confidently affirm to be a mistake; although it must be allowed, that in fact the scrofula does often come on immediately after the small-pox. It is however difficult to find any connection between the two diseases. According to my observation, the accident only happens in children who have pretty manifestly the scrofulous disposition; and I have had several instances of the natural small-pox coming upon children affected at the same time with scrofula, not only without this disease being anywise aggravated by the small-pox, but even of its being for some time after much relieved.

1742. The scrofula generally shows itself first at a particular season of the year; and at some time between the winter and summer solstice, but commonly long before the latter period. It is to be observed further, that the course of the disease is usually connected with the course of the seasons. Whilst the tumours and ulcerations peculiar to this disease appear first in the spring, the ulcers are frequently healed up in the course of the succeeding summer, and do not break out again till the ensuing spring, to follow again with the season the same course as before.

1743. Frequently the first appearance of the disease is the tumid and chopped lip above mentioned. Upon other occasions the first appearance is that of small spherical or oval tumours, moveable under the skin. They are soft, but with some elasticity. They are without pain; and without any change in the colour of the skin. In this state they often continue for a long time; even for a year or two, and sometimes longer. Most commonly they first appear upon the sides of the neck below the ears; but sometimes also under

the chin. In either case, they are supposed to affect in these places the conglobate or lymphatic glands only; and not at all the salivary glands, till the disease is very greatly advanced. The disease frequently affects, and even at first appears in other parts of the body. In particular, it affects the joints of the elbows and ancles, or those of the fingers and toes. The appearances above the joints are not commonly, as elsewhere, small moveable swellings; but a tumour almost uniformly surrounding the joint, and interrupting its motion.

1744. These tumours, as I have said, remain for some time little changed; and from the time they first appeared in the spring, they often continue in this way till the return of the same season in the next, or perhaps the second year after. About that time, however, or perhaps in the course of the season in which they first appear, the tumour becomes larger and more fixed; the skin upon it acquires a purple, seldom a clear redness: but growing redder by degrees, the tumour becomes softer, and allows the fluctuation of a liquid within to be perceived. All this process, however, takes place with very little pain attending it. At length some part of the skin becomes paler; and by one or more small apertures a liquid is poured out.

1745. The matter poured out has at first the appearance of pus, but it is usually of a thinner kind than that from phlegmonic abscesses; and the matter as it continues to be discharged, becomes daily less purulent, and appears more and more a viscid serum, intermixed with small pieces of a white substance resembling the curd of milk. By degrees the tumour almost entirely subsides, while the ulcer opens more, and spreads broader; unequally, however, in different directions, and therefore is without any regular circumscription. The edges of the ulcer are commonly flat and smooth, both on their outside and their inner edge, which seldom puts on a callous appearance. The ulcers, however, do not generally

spread much, or become deeper: but at the same time their edges do not advance, or put on any appearance of forming a cicatrix.

1746. In this condition the ulcers often continue for a long time; while new tumours, with ulcers succeeding them in the manner above described, make their appearance in different parts of the body. Of the first ulcers, however, some heal up, while other tumours and ulcers appear in their vicinity, or in other parts of the body: and in this manner the disease proceeds, some of the ulcers healing up, at least to a certain degree, in the course of summer, and breaking out again in the succeeding spring: or it continues, by new tumours and ulcers succeeding them, in the spring season, making their appearance successively for several years.

1747. In this way the disease goes on for several years; but very commonly in four or five years it is spontaneously cured, the former ulcers being healed up, and no new tumours appearing: and thus at length the disease ceases entirely, leaving only some indelible eschars, pale and smooth, but in some parts shrivelled; or, where it had occupied the joints, leaving the motion of these impaired, or entirely destroyed.

1748. Such is the most favourable course of this disease; and with us it is more frequently such than otherwise; but it is often a more violent, and sometimes a fatal malady. In these cases, more parts of the body are at the same time affected; the ulcers also seeming to be imbued with a peculiarly sharp acrimony, and therefore becoming more deep, eroding, spreading, as well as seldomer healing up. In such cases, the eyes are often particularly affected. The edges of the eyelids are affected with tumour and superficial ulcerations; and these commonly excite obstinate inflammation in the adnata, which frequently produces an opacity of the cornea.

When the scrofula especially affects the joints, it sometimes

produces there considerable tumours; in the abscesses following which, the ligaments and cartilages are eroded, and the adjoining bones are affected with a caries of a peculiar kind. In those cases, also, of more violent scrofula, while every year produces a number of new tumours and ulcers, their acrimony seems at length to taint the whole fluids of the body, occasioning various disorders; and particularly a hectic fever, with all its symptoms, which at length proves fatal, with sometimes the symptoms of a phthisis pulmonalis.

1749. The bodies of persons who have died of this disease show many of the viscera in a very morbid state; and particularly most of the glands of the mesentery very much tumefied, and frequently in an ulcerated state. Commonly also a great number of tubercles or cysts, containing matter of various kinds, appear in the lungs.

1750. Such is the history of the disease: and from thence it may appear, that the nature of it is not easily to be ascertained. It seems to be a peculiar affection of the lymphatic system; and this in some measure accounts for its connection with a particular period of life. Probably, however, there is a peculiar acrimony of the fluids that is the proximate cause of the disease; although of what nature this is, has not yet been discovered. It may perhaps be generally diffused in the system, and exhaled into the several cavities and cellular texture of the body; and therefore, being taken up by the absorbents, may discover itself especially in the lymphatic system. This, however, will hardly account for its being more confined to that system, than happens in the case of many other acrimonies which may be supposed to be as generally diffused. In short, its appearance in particular constitutions, and at a particular period of life, and even its being a hereditary disease, which so frequently depends upon the transmission of a peculiar constitution, are all of them circumstances which lead me to conclude, upon

the whole, that this disease depends upon *a peculiar constitution of the lymphatic system.*

1751. It seems proper to observe here, that the scrofula does not appear to be a contagious disease; at least I have known many instances of sound children having had frequent and close intercourse with scrofulous children without being infected with the disease. This certainly shows, that in this disease the peculiar acrimony of it is not exhaled from the surface of the body, but that it depends especially upon a peculiar constitution of the system.

1752. Several authors have supposed the scrofula to have been derived from the venereal disease; but upon no just grounds that I can perceive. In very many instances, there can hardly be any suspicion of the parents producing this disease having been imbued with syphilis, or with any syphilitic taint; and I have known several examples of parents conveying syphilis to their offspring, in whom, however, no scrofulous symptoms at any time afterwards appeared. Further, the symptoms of the two diseases are very different; and the difference of their natures appears particularly from hence, that while mercury commonly and readily cures the syphilis, it does no service in scrofula, and very often rather aggravates the disease.

1753. For the cure of scrofula, we have not yet learned any practice that is certainly or even generally successful.

The remedy which seems to be the most successful, and which our practitioners especially trust to and employ, is the use of mineral waters; and indeed the washing out, by means of these, the lymphatic system, would seem to be a measure promising success: but in very many instances of the use of these waters, I have not been well satisfied that they had shortened the duration of the disease more than had often happened when no such remedy had been employed.

1754. With regard to the choice of the mineral waters most fit for the purpose, I cannot with any confidence give

an opinion. Almost all kinds of mineral waters, whether chalybeate, sulphureous, or saline, have been employed for the cure of scrofula, and seemingly with equal success and reputation; a circumstance which leads me to think, that if they are ever successful, it is the elementary water that is the chief part of the remedy.

Of late, sea-water has been especially recommended and employed; but after numerous trials, I cannot yet discover its superior efficacy.

1755. The other remedies proposed by practical writers are very numerous; but upon that very account, I apprehend they are little to be trusted; and as I cannot perceive any just reason for expecting success from them, I have very seldom employed them.

Of late, the Peruvian bark has been much recommended; and as in scrofulous persons there are generally some marks of laxity and flaccidity, this tonic may possibly be of service: but in a great variety of trials, I have never seen it produce any immediate cure of the disease.

In several instances, the leaves of coltsfoot have appeared to me to be successful. I have used it frequently in a strong decoction, and even then with advantage; but have found more benefit from the expressed juice, when the plant could be had in somewhat of a succulent state, soon after its first appearance in the spring.

1756. I have also frequently employed the hemlock, and have sometimes found it useful in discussing obstinate swellings: but in this it has also often disappointed me; and I have not at any time observed that it disposed scrofulous ulcers to heal.

I cannot conclude the subject of internal medicines without remarking, that I have never found either mercury or antimony, in any shape, of use in this disease; and when any degree of a feverish state had come on, the use of mercury proved manifestly hurtful.

1757. In the progress of scrofula, several external medicines are requisite. Several applications have been used for discussing the tumours upon their first coming on; but hitherto my own practice, in these respects, has been attended with very little success. The solution of saccharum saturni has seemed to be useful; but it has more frequently failed: and I have had no better success with the spiritus Mindereri. Fomentations of every kind have been frequently found to do harm; and poultices seem only to hurry on a suppuration. I am doubtful if this last be ever practised with advantage; for scrofulous tumours sometimes spontaneously disappear, but never after any degree of inflammation has come upon them; and therefore poultices, which commonly induce inflammation, prevent that discussion of tumours, which might otherwise have happened.

Even when scrofulous tumours have advanced towards suppuration, I am willing to hasten the spontaneous opening, or to make it by the lancet, because I apprehend the scrofulous matter is liable to be rendered more acrid by communication with the air, and to become more eroding and spreading than when in its inclosed state.

1758. The management of scrofulous ulcers has, so far as I know, been as little successful as that of the tumours. Escharotic preparations, of either mercury or copper, have been sometimes useful in bringing on a proper suppuration, and thereby disposing the ulcer to heal; but they have seldom succeeded, and more commonly they have caused the ulcer to spread more. The escharotic from which I have received most benefit is burnt alum; and a portion of that mixed with a mild ointment has been as useful an application as any I have tried. The application, however, that I have found most serviceable, and very universally admissible, is that of linen cloths wetted with cold water, and frequently changed when they are becoming dry, it being inconvenient to let them be glued to the sore. They are there-

fore to be changed frequently during the day; and a cloth spread with a mild ointment or plaster may be applied for the night. In this practice I have sometimes employed seawater; but generally it proved too irritating; and neither that nor any mineral water has appeared to be of more service than common water.

1759. To conclude what I have to offer upon the cure of scrofula, I must observe, that cold bathing seems to have been of more benefit than any other remedy that I have had occasion to see employed.

CHAP. II.

OF SYPHILIS, OR THE VENEREAL DISEASE.

G. LXXXIV. SYPHILIS.—*Morbus contagiosus, post concubitum impurum et genitalium morbum, ulcera tonsillarum; cutis, præsertim ad marginem capillitii, papulæ corymbosæ, in crustas et in ulcera crustosa abeuntes; dolores osteocopi; exostoses.*

1760. AFTER practitioners have had so much experience in treating this disease, and after so many books have been published upon the subject, it does not seem necessary or even proper, for me to attempt any full treatise concerning it; and I shall therefore confine myself to such general remarks, as may serve to illustrate some parts of the pathology, or of the practice.

1761. It is sufficiently probable, that anciently, in certain parts of Asia, where the leprosy prevailed, and in Europe after that disease had been introduced into it, a disease of

the genitals, resembling that which now commonly arises from syphilis, had frequently appeared: but it is equally probable, that a new disease, and what we at present term *Syphilis*, was first brought into Europe about the end of the fifteenth century; and that the distemper now so frequently occurring has been very entirely derived from that which was imported from America at the period mentioned.

1762. This disease, at least in its principal circumstances, never arises in any person but from some communication with a person already affected with it. It is most commonly contracted in consequence of coition with an infected person; but in what manner the infection is communicated, is not clearly explained. I am persuaded, that in coition, it is communicated without there being any open ulcer, either in the person communicating, or in the person receiving the infection; but in all other cases, I believe it is never communicated in any other way than by a contact of ulcer, either in the person communicating, or in the person receiving the infection.

1763. As it thus arises from the contact of particular parts, so it always appears first in the neighbourhood of the parts to which the infecting matter had been immediately applied; and therefore, as most commonly contracted by coition, it generally appears first in the genitals.

1764. After its first appearance in particular parts, more especially when these are the genitals of either sex, its effects for some time seem to be confined to these parts; and indeed in many cases never extends farther. In other cases, however, the infecting matter passes from the parts first affected, and from the genitals therefore into the blood-vessels; and being there diffused, produces disorders in many other parts of the body.

From this view of the circumstances, physicians have very properly distinguished the different states of the disease, according as they are local or are more universal. To the for-

mer, they have adapted appellations suited to the manner in which the disease appears; and to the other, the general affection, they have almost totally confined the appellations of *Syphilis*, *Lues Venerea*, or *Pox*. In the remarks I am now to offer, I shall begin with considering the local affection.

1765. This local affection appears chiefly in the form of gonorrhœa or chancre.

The phenomena of gonorrhœa, either upon its first coming on, or in its after progress, or the symptoms of ardor urinæ, chordee, or others attending it, it is not necessary for me to describe. I shall only here observe, that the chief circumstance to be taken notice of, is the inflamed state of the urethra, which I take to be inseparable from the disease.

1766. In these well-known circumstances, the gonorrhœa continues for a time longer or shorter, according to the constitution of the patient; it usually remaining longest in the most vigorous and robust, or according to the patient's regimen, and the care taken to relieve or cure the disease. In many cases, if by a proper regimen the irritation of the inflamed state is carefully avoided, the gonorrhœa spontaneously ceases, the symptoms of inflammation gradually abating, the matter discharged becoming of a thicker and more viscid consistence, as well as of a whiter colour; till at length, the flow of it ceases altogether; and whether it be thus cured spontaneously, or by art, the disease often exists without communicating any infection to the other parts of the body.

1767. In other cases, however, the disease having been neglected, or by an improper regimen aggravated, it continues with all its symptoms for a long time; and produces various other disorders in the genital parts, which, as commonly taken notice of by authors, need not be described here. I shall only observe, that the inflammation of the urethra, which at first seems to be seated chiefly, or only, in

its anterior parts, is in such neglected and aggravated cases spread upwards along the urethra, even to the neck of the bladder. In these circumstances, a more considerable inflammation is occasioned in certain parts of the urethra: and consequently, suppuration and ulcer are produced, by which the venereal poison is sometimes communicated to the system, and gives rise to a general syphilis.

1768. It was some time ago a pretty general supposition, that the gonorrhœa depended always upon ulcers of the urethra, producing a discharge of purulent matter; and such ulcers do indeed sometimes occur in the manner that has been just now mentioned. We are now assured, however, from many dissections of persons who had died when labouring under a gonorrhœa, that the disease may exist, and from many considerations it is probable that it commonly does exist, without any ulceration of the urethra; so that the discharge which appears, is entirely that of a vitiated mucus from the mucous follicles of the urethra.

1769. Although most of the symptoms of gonorrhœa should be removed, yet it often happens that a mucous fluid continues to be discharged from the urethra for a long time after; and sometimes for a great part of a person's life. This discharge is what is commonly called a *Gleet*.

With respect to this, it is proper to observe, that in some cases, when it is certain that the matter discharged contains no venereal poison, the matter may, and often does put on that puriform appearance, and that yellow and greenish colour, which appears in the discharge at the beginning and during the course of a virulent gonorrhœa. These appearances in the matter of a gleet, which before had been of a less coloured kind, have frequently given occasion to suppose that a fresh infection had been received; but I am certain that such appearances may be brought on by perhaps various other causes; and particularly, by intemperance in venery and drinking concurring together. I believe, indeed,

that this seldom happens to any but those who had before frequently laboured under a virulent gonorrhœa, and have more or less of gleet remaining with them: but I must also observe, that in persons who at no period of their life had ever laboured under a virulent gonorrhœa, or any other symptom of syphilitic affection, I have met with instances of discharges from the urethra resembling those of a virulent gonorrhœa.

The purpose of these observations is, to suggest to practitioners what I have not found them always aware of, that in persons labouring under a gleet, such a return of the appearances of a virulent gonorrhœa may happen without any new infection having been received, and consequently not requiring the treatment which a new infection might perhaps demand. When in the cure of gonorrhœa it was the practice to employ purgatives very frequently, and sometimes those of the drastic kind, I have known the gleet, or spurious gonorrhœa, by such a practice much increased, and long continued, and the patient's constitution very much hurt. Nay, in order more certainly farther to prevent mistakes, it is to be observed, that the spurious gonorrhœa is sometimes attended with heat of urine, and some degree of inflammation; but these symptoms are seldom considerable, and, merely by the assistance of a cool regimen, commonly disappear in a few days.

1770. With respect to the cure of a virulent gonorrhœa, I have only to remark, that if it be true, as I have mentioned above, that the disease will often, under a proper regimen, be spontaneously cured; and that the whole of the virulent matter may be thus entirely discharged without the assistance of art; it would seem that there is nothing required of practitioners but to moderate and remove that inflammation which continues the disease, and occasions all the troublesome symptoms that ever attend it. The sole business therefore of our art in the cure of gonorrhœa, is to take

off the inflammation accompanying it: and this I think may commonly be done, by avoiding exercise, by using a low and cool diet, by abstaining entirely from fermented and spiritous liquors, and by taking plentifully of mild diluent drinks.

1771. The heat of urine, which is so troublesome in this disease, as it arises from the increased sensibility of the urethra in its inflamed state; so, on the other hand, the irritation of the urine has the effect of increasing the inflammation, and is therefore to be removed as soon as possible. This can be done most effectually by taking in a large quantity of mild watery liquors. Demulcents may be employed; but unless they be accompanied with a large quantity of water, they will have little effect. Nitre has been commonly employed as a supposed refrigerant; but, from much observation, I am convinced, that in a small quantity it is useless, and in a large quantity certainly hurtful; and, for this reason, that every saline matter passing with the urine generally gives some irritation to the urethra. To prevent the irritation of the urethra arising from its increased sensibility, the injection of mucilage or of mild oil into it has been practised; but I have seldom found this of much service.

1772. In gonorrhœa, as costiveness may be hurtful, both by an irritation of the system in general, and of the urethra in particular, as this is occasioned always by the voiding of hardened fæces; so costiveness is to be carefully avoided or removed; and the frequent use of large glysters of water and oil I have found of remarkable benefit in this disease. If glysters, however, do not entirely obviate costiveness, it will be necessary to give laxatives by the mouth; which, however, should be of the mildest kind, and should do no more than keep the belly regular and a little loose, without much purging.

The practice of frequent purging, which was formerly so much in use, and is not yet entirely laid aside, has always

appeared to me to be generally superfluous, and often very hurtful. Even what are supposed to be cooling purgatives, such as Glauber's salts, soluble tartar, and crystals of tartar, in so far as any part of them pass by urine, they, in the same manner as we have said of nitre, may be hurtful; and so far as they produce very liquid stools, the matter of which is generally acrid, they irritate the rectum, and consequently the urethra. This last effect, however, the acrid, and in any degree drastic purgatives, more certainly produce.

1773. In cases of gonorrhœa attended with violent inflammation, blood-letting may be of service; and in the case of persons of a robust and vigorous habit, in whom the disease is commonly the most violent, blood-letting may be very properly employed. As general bleedings, however, when there is no phlogistic diathesis in the system, have little effect in removing topical inflammation; so in gonorrhœa, when the inflammation is considerable, topical bleeding applied to the urethra by leeches is generally more effectual in relieving the inflammation.

1774. When there is any phymosis attending a gonorrhœa, emollient fomentations applied to the whole penis are often of service. In such cases it is necessary, and in all others useful, to keep the penis laid up to the belly, when the patient either walks about or is sitting.

1775. Upon occasion of frequent priapism and chordee, it has been found useful to apply to the whole of the penis a poultice of crumb of bread moistened with a strong solution of sugar of lead. I have, however, been often disappointed in this practice, perhaps by the poultice keeping the penis too warm, and thereby exciting the very symptoms I wished to prevent. Whether lotions of the external urethra, with a solution of the sugar of lead, might be useful in this case, I have not properly tried.

1776. With respect to the use of injections, so frequently

employed in gonorrhœa, I am persuaded, that the early use of astringent injections is pernicious; not by occasioning a syphilis, as has been commonly imagined, but by increasing and giving occasion to all the consequences of the inflammation, particularly to the very troublesome symptoms of swelled testicles. When, however, the disease has continued for some time, and the inflammatory symptoms have very much abated, I am of opinion, that by injections of moderate astringency, or at least of this gradually increased, an end may be sooner put to the disease than would otherwise have happened; and that a gleet, so readily occurring, may be generally prevented.

1777. Besides the use of astringent injections, it has been common enough to employ those of a mercurial kind. With respect to these, although I am convinced that the infection producing gonorrhœa, and that producing chancres and syphilis, are one and the same; yet I apprehend, that in gonorrhœa mercury cannot be of use by correcting the virulence of the infection; and therefore that it is not universally necessary in this disease. I am persuaded, however, that mercury applied to the internal surface of the urethra, may be of use in promoting the more full and free discharge of virulent matter from the mucous glands of it. Upon this supposition, I have frequently employed mercurial injections, and, as I judge, with advantage; those injections often bringing on such a state of consistence and colour of the matter discharged, as we know usually to precede its spontaneous ceasing. I avoid these injections, however, in recent cases, or while much inflammation is still present; but when that inflammation has somewhat abated, and the discharge notwithstanding still continues in a virulent form, I employ mercurial injections freely. I employ those only that contain mercury entirely in a liquid form, and avoid those which may deposit an acrid powder in the urethra. That which I have found most useful is a solution of the

corrosive sublimate in water ; so much diluted as not to occasion any violent smarting, but not so much diluted as to give no smarting at all. It is scarce necessary to add, that when there is reason to suspect there are ulcerations already formed in the urethra, mercurial injections are not only proper, but the only effectual remedy that can be employed.

1778. With regard to the cure of gonorrhœa, I have only one other remark to offer. As most of the symptoms arise from the irritation of a stimulus applied, the effects of this irritation may be often lessened by diminishing the irritability of the system ; and it is well known that the most certain means of accomplishing this is by employing opium. For that reason I consider the practice both of applying opium directly to the urethra, and of exhibiting it by the mouth, to be extremely useful in most cases of gonorrhœa.

1779. After thus offering some remarks with respect to gonorrhœa in general, I might proceed to consider particularly the various symptoms which so frequently attend it ; but it does not seem necessary for me to attempt this after the late publications of Dr Foart Simmons, and of Dr Swediaur, who have treated the subject so fully, and with so much discernment and skill.

1780. The other form of the local affection of Syphilis, is that of chancre. The ordinary appearance of this I need not describe, it having been already so often done. Of the few remarks I have to offer, the first is, that I believe chancres never appear in any degree without immediately communicating to the blood more or less of the venereal poison ; for I have constantly, whenever chancres had appeared, found, that unless mercury was immediately given internally, some symptoms of a general syphilis did certainly come on afterwards ; and though the internal use of mercury should prevent any such appearance, it is still to be presumed that the poison had been communicated, because

mercury could act upon it in no other manner than as diffused in the fluids.

1781. It has been a question among practitioners, upon the subject of chancres, Whether they may be immediately healed up by application made to the chancres, or if they should be left open for some time without any such application? It has been supposed, that the sudden healing up of chancres might immediately force into the blood a poison which might have been excluded by being discharged from the chancre. This, however, is a supposition that is very doubtful; and, upon the other hand, I am certain, that the longer a chancre is kept open, the more poison it perhaps generates, and certainly supplies it more copiously to the blood. And although the above-mentioned supposition were true, it will be of little consequence, if the internal use of mercury, which I judge necessary in every case of chancre, be immediately employed. I have often seen very troublesome consequences follow from allowing chancres to remain unhealed: and the symptoms of general syphilis have always seemed to me to be more considerable and violent in proportion as chancres had been suffered to remain longer unhealed. They should always, therefore, be healed as soon as possible; and that by the only very effectual means, the application of mercurials to the chancre itself. Those that are recent, and have not yet formed any considerable ulcer, may often be healed by the common mercurial ointment; but the most powerful means of healing them, has appeared to me to be the application of red precipitate in a dry powder.

1782. When, in consequence of chancres, or of the other circumstances above mentioned, by which it may happen the venereal poison has been communicated to the blood, it produces many different symptoms in different parts of the body, not necessary to be enumerated and described here, that having been already done by many authors with great accuracy.

1783. Whenever any of these symptoms do in any degree appear, or as soon as it is known that the circumstances which give occasion to the communication of the venereal poison have taken place, I hold the internal use of mercury to be immediately necessary; and I am well persuaded, that mercury employed without delay, and in sufficient quantity, will pretty certainly prevent the symptoms which would otherwise have soon appeared, or will remove those that may have already discovered themselves. In both cases, it will secure the person from any future consequences of syphilis from that infection.

1784. This advice for the early and full use of mercury, I take to be the most important that can be given with respect to the venereal disease: But although I must admit that the virulence of the poison may be greater in one case than in another, and even that one constitution may be more favourable than another, to the violence of the disease; yet I am thoroughly convinced, that most of the instances which have occurred of the violence and obstinacy of syphilis have been owing very entirely to the neglect of the early application of mercury.

1785. Whatever other remedies of syphilis may be known, or may hereafter be found out, I cannot pretend to determine; but I am well persuaded, that in most cases mercury properly employed will prove a very certain and effectual remedy. With respect to others that have been proposed, I shall offer this remark only, that I have found the decoction of the mezereon contribute to the healing of ulcers which seem to have resisted the power of mercury.

1786. With regard to the many and various preparations of mercury, I do not think it necessary to give any enumeration of them here, as they are commonly very well known, and have been lately well enumerated by Dr Swediaur. The choice of them seems to be for the most part a matter of indifference; as I believe cures have been, and still may

be effected by many different preparations, if properly administered. The proper administration seems to consist, *1st*, In the choosing those preparations which are the least ready to run off by stool : and therefore the applications externally by unction are in many cases the most convenient. *2dly*, In employing the unction, or in giving a preparation of mercury internally, in such quantity as may show its sensible effects in the mouth. And, *3dly*, Without carrying these effects to a greater length, in the continuing the employment of mercury for several weeks, or till the symptoms of the disease shall have for some time entirely disappeared. I say nothing of the regimen proper and necessary for patients during the employment of mercury, because I presume it to be very well known.

1787. Amongst the other preparations of mercury, I believe the corrosive sublimate has often been employed with advantage ; but I believe also, that it requires being continued for a longer time than is necessary in the employment of other preparations in the manner above proposed ; and I suspect it has often failed in making a cure, because employed while persons were at the same time exposed to the free air.

1788. Upon these points, and others relative to the administration of mercury, and the cure of this disease, I might offer some particular remarks ; but I believe they are generally understood ; and it is enough for me to say here, that if practitioners will attend, and patients will submit to the general rules given above, they will seldom fail of obtaining a certain and speedy cure of the disease.

CHAP. III.

OF SCURVY.

G. LXXXV. SCORBUTUS.—*In regione frigida post victum putrescentem, salitum, ex animalibus confectum, deficiente simul materia vegetabili recente ; asthenia ; stomacace ; in cute maculae diversi-colores, plerumque livescences, præsertim ad pilorum radices.*

1789. **T**HIS disease appears so frequently, and the effects of it are so often fatal in fleets and armies, that it has very properly engaged the particular attention of physicians. It is indeed surprising, that it had not sooner attracted the special notice both of statesmen and physicians, so as to have produced those measures and regulations that might prevent the havoc which it so often occasions. Within these last fifty years, however, it has been so much attended to and studied, that we might suppose every circumstance relating to it so fully and exactly ascertained, as to render all further labour upon the subject superfluous. This perhaps may be true ; but it appears to me, that there are still several circumstances regarding the disease not agreed upon among physicians, as well as different opinions formed, some of which may have a bad effect upon the practice ; and this seems to me to be so much the case, that I hope I shall be excused in endeavouring here to state the facts as they appear to me from the best authorities, and to offer remarks

upon opinions which may influence the practice in the prevention and cure of this disease.

1790. With respect to the phenomena of the disease, they have now been so fully observed, and so accurately described, that there is no longer any doubt in discerning the disease when it is present, or in distinguishing it from almost every other ailment. In particular, it seems now to be fully determined, that there is one disease only entitled to the appellation of Scurvy; that it is the same upon the land as upon the sea; that it is the same in all climates and seasons, as depending every where upon nearly the same causes; and that it is not at all diversified, either in its phenomena or its causes, as had been imagined some time ago.

1791. The phenomena of scurvy, therefore, are not to be described here, as it has been so fully and accurately done elsewhere; and I shall only endeavour to ascertain those facts with respect to the prevention and cure of the disease which seem not yet to be exactly agreed upon. And, first, with respect to the antecedents that may be considered as the remote causes of the disease.

1792. The most remarkable circumstance amongst the antecedents of this disease is, that it has most commonly happened to men living very much on salted meats; and whether it ever arise in any other circumstances, is extremely doubtful. These meats are often in a putrescent state; and to the circumstance of the long continued use of animal food in a putrescent and somewhat indigestible state, the disease has been especially attributed. Whether the circumstance of the meat's being salted, has any effect in producing the disease, otherwise than by being rendered more indigestible, is a question that remains still in dispute.

1793. It seems to me, that the salt concurs in producing the effect; for there is hardly any instance of the disease appearing unless where salted meats had been employed, and scarcely an example where the long-continued use of these

did not produce it : besides all which, there are some instances where, by avoiding salted meats, or by diminishing the proportion of them in diet, while other circumstances remained much the same, the disease was prevented from appearing. Further, if it may be admitted as an argument upon this subject, I shall hereafter endeavour to show, that the large use of salt has a tendency to aggravate and increase the proximate cause of scurvy.

1794. It must however be allowed, that the principal circumstance in causing scurvy, is the living very much and very long upon animal food, especially when in a putrescent state; and the clear proof of this is, that a quantity of fresh vegetable food will always certainly prevent the disease.

1795. While it has been held, that in those circumstances in which scurvy is produced, the animal food employed was especially hurtful by its being of difficult digestion, this opinion has been attempted to be confirmed, by observing, that the rest of the food employed in the same circumstances was also of difficult digestion. This is supposed to be especially the case of unfermented farinacea, which so commonly makes a part of the sea-diet: but I apprehend this opinion to be very ill founded; for the unfermented farinacea, which are in a great proportion the food of infants, of women, and of the greater part of mankind, can hardly be supposed to be food of difficult digestion; and with respect to the production of scurvy, there are facts which show, that unfermented farinacea, employed in large proportion, have had a considerable effect in preventing the disease.

1796. It has been imagined, that a certain impregnation of the air upon the sea had an effect in producing scurvy. But it is altogether improbable; for the only impregnations which could be suspected, are those of inflammable or mephitic air; and it is now well known, that these impregnations are much less in the air upon the sea than in that upon the land; besides, there are otherwise many proofs

of the salubrity of the sea-air. If therefore sea-air have any effect in producing scurvy, it must be by its sensible qualities of cold or moisture.

1797. That cold has an effect in favouring the production of scurvy, is manifest from hence, that the disease is more frequent and more considerable in cold than in warm climates and seasons; and that even warm clothing has a considerable effect in preventing it.

1798. Moisture may in general have an effect in favouring the production of scurvy, where that of the atmosphere in which men are placed is very considerable: but the ordinary moisture of the sea-air is far from being such. Probably it is never considerable, except in the case of unusual rains; and even then, it is perhaps by the application of moisture to the bodies of men in damp clothing only that it has any share in the production of scurvy. At the same time, I believe there is no instance of either cold or moisture producing scurvy, without the concurrence of the faulty sea-diet.

1799. Under those circumstances which produce scurvy, it commonly seems to occur most readily in the persons who are the least exercised; and it is therefore probable, that confinement and want of exercise may have a great share in producing the disease.

1800. It appears that weakness, in whatever manner occasioned, is favourable to the production of scurvy. It is therefore probable that unusual labour and fatigue may often have some share in bringing it on: and upon the same account, it is probable, that sadness and despondency may induce a weakness of the circulation, and be thereby, as has been remarked, favourable to the production of scurvy.

1801. It has also been observed, that persons negligent in keeping their skin clean by washing and change of clothing, are more liable than others to be affected with scurvy.

1802. Several of these causes, now mentioned, concurring together, seem to produce scurvy; but there is no proper

evidence that any one of them alone will produce it, or that all the others uniting together will do it, without the particular concurrence of the sea diet. Alongst with this, however, several of the other circumstances mentioned have a great effect in producing it sooner, and in a more considerable degree, than would otherwise have happened from the diet alone.

1803. From this view of the remote causes it will readily appear, that the prevention of the disease may in some measure depend upon the avoiding of those circumstances which we have enumerated as contributing to bring on the disease sooner than it would otherwise come on. At the same time, the only effectual means will be, by avoiding the diet of salted meats; at least by lessening the proportion of these, and using meat preserved otherwise than by salt; by using in diet any kind of esculent vegetable matter that can be obtained; and especially by using vegetable matters the most disposed to acescency, such as malt; and by drinking a large quantity of pure water.

1804. The cure of scurvy seems now to be very well ascertained; and when the necessary means can be obtained, the disease is commonly removed very quickly. The chief means is a food of fresh and succulent vegetables, and those almost of any kind that are at all esculent. Those most immediately effectual are the acid fruits, and, as being of the same nature, all sorts of fermented liquors.

1805. The plants named *alkalescent*, such as those of the garlic tribe and of the *tetradynamiæ*, are also particularly useful in the cure of this disease; for notwithstanding their appellation, they in the first part of their fermentation undergo an acescency, and seem to contain a great deal of acescent matter. At the same time, they have generally in their composition an acrid matter that readily passes by urine, probably by perspiration; and, by promoting both excretions, are useful in the disease. It is probable, that

some plants of the coniferous tribe, such as the spruce fir, and others possessed of diuretic power, may likewise be of some use.

1806. It is sufficiently probable, that milk of every kind, and particularly its productions, whey and butter-milk, may prove a cure of this disease.

1807. It has been common in this disease to employ the fossil acids; but there is reason to doubt if they be of any service, and it is certain that they are not effectual remedies. They can hardly be thrown in, in such quantity as to be useful antiseptics; and as they do not seem to enter into the composition of the animal fluids, and probably pass off unchanged by the excretions, so they can do little in changing the state of the fluids.

1808. The great debility which constantly attends scurvy, has naturally led physicians to employ tonic and strengthening medicines, particularly the Peruvian bark: but the efficacy of it seems to me very doubtful. It is surprising how soon the use of a vegetable diet restores the strength of scorbutic persons; which seems to shew that the preceding debility had depended upon the state of the fluids; and consequently till the sound state of these can be restored, no tonic remedy can have much effect: but as the Peruvian bark has little power in changing the state of the fluids, so it can have little effect in scurvy.

1809. I shall conclude my observations upon the medicines employed in scurvy, with remarking, that the use of mercury is always manifestly hurtful.

1810. After having observed that both the prevention and cure of this disease are now very well known, it may seem unnecessary to enter into much discussion concerning its proximate cause: but as such discussions can hardly be avoided, and as false opinions may in some measure corrupt the practice, I shall venture to suggest here what appears to me most probable upon the subject.

1811. Notwithstanding what has been asserted by some eminent persons, I trust to the concurring testimony of the most part of the authors upon the subject, that in scurvy, the fluids suffer a considerable change.

From these authors we learn, that in the blood drawn from the veins of persons labouring under the scurvy, the crassamentum is different both in colour and consistence from what it is in healthy persons; and that at the same time the serum is commonly changed both in colour and taste. The excretions also, in scorbutic persons, show a change in the state of the fluids. The breath is foetid; the urine is always high-coloured, and more acrid than usual; and if that acrid exudation from the feet, which Dr Hulme takes notice of, happens especially in scorbutic persons, it will be a remarkable proof to the same purpose. But however this may be, there is evidence enough that in scurvy the natural state of the fluids is considerably changed. Further, I apprehend it may be confidently presumed from this, that the disease is brought on by a particular nourishment introduced into the body, and is as certainly cured by the taking in of a different diet. In the latter case, the diet used has no other evident operation, than that of giving a particular state and condition to the fluids.

1812. Presuming, therefore, that the disease depends upon a particular condition of the fluids of the body, the next subject of inquiry is, What that condition may be?

With this view, I must observe, that the animal economy has a singular power of changing acescent aliments, in such a manner as to render them much more disposed to putrefaction: and although, in a living state, they hardly ever proceed to an actually putrid state, yet in man, whose aliment is of a mixed kind, it is pretty certain, that if he were to live entirely upon animal food, without a frequent supply of vegetable aliment, his fluids would advance farther towards putrefaction than is consistent with health. This ad-

vance towards putrefaction seems to consist in the production and evolution of a saline matter which did not appear in the vegetable aliment, and could not be produced or evolved in it, but by carrying on its fermentation to a putrefactive state. That this saline state is constantly in some measure produced and evolved by the animal process, appears from this, that certain excretions of saline matter are constantly made from the human body, and are therefore presumed necessary to its health.

From all this, it may readily be understood, how the continual use of animal food, especially when already in a putrescent state, without a mixture of vegetable, may have the effect of carrying the animal process too far, and particularly of producing and evolving a larger proportion of saline matter. That such a preternatural quantity of saline matter does exist in the blood of scorbutic persons, appears from the state of the fluids above mentioned. It will be a confirmation of all this to observe, that every interruption of perspiration, that is, the retention of saline matter, contributes to the production of scurvy; and this interruption is especially owing to the application of cold, or to whatever else weakens the force of the circulation, such as the neglect or want of exercise, fatigue, and despondency of the mind. It deserves indeed to be remarked here, that one of the first effects of the scurvy once induced, is very soon to occasion a great debility of the system, which occasions of course a more rapid progress of the disease. How the state of the fluids may induce such a debility is not well understood; but that it does depend upon such a state of the fluids, is rendered sufficiently presumable from what has been said above with regard to both the causes and the cure of scurvy.

1813. It is possible, that this debility may have a great share in producing several of the phenomena of scurvy; but a preternaturally saline, and consequently dissolved state of

the blood, will account for them with more probability; and I do not think it necessary to persons who are at all accustomed to reason upon the animal economy, to explain this matter more fully. I have only to add, that if my opinion in supposing the proximate cause of scurvy to be a preternaturally saline state of the blood be at all founded, it will be sufficiently obvious, that the throwing into the body, along with the aliment, an unusual quantity of salt, may have a great share in producing the disease. Even supposing such salt to suffer no change in the animal body, the effect of it may be considerable; and this will be rendered still more probable, if it may be presumed, that all neutral salts, consisting of a fixed alkali, are changed in the animal body into an ammoniacal salt; which I apprehend to be that especially prevailing in scurvy. If I be at all right in concluding, that meats, from being salted, contribute to the production of scurvy, it will readily appear, how dangerous it may be to admit the conclusion from another theory, that they are perfectly innocent.

1814. Having thus endeavoured to explain what relates to the cure of scurvy in general, I judge it proper to leave to other authors what relates to the management of those symptoms, which require a particular treatment.

CHAP. IV.

OF JAUNDICE.

G. XC. ICTERUS.—*Flavedo cutis et oculorum; facies albidæ; urina obscure rubra, immissa colore luteo tingens.*

Sp. 1. *Icterus (calculosus) cum dolore in regione epigastrica acuto, post pastum aucto, et cum dejectione concretionum biliosarum.*

Sp. 2. *Icterus (spasmodicus) sine dolore, post morbos spasmodicos et pathemata mentis.*

Sp. 3. *Icterus (hepaticus) sine dolore, post morbos hepatis.*

Sp. 4. *Icterus (gravidarum) sub graviditate oriens, et post partum abiens.*

Sp. 5. *Icterus (infantum) in infantibus haud diu post natales oriens.*

1815. I HAVE here passed over several of the titles in my Nosology, because they are diseases not of this island. In these, therefore, I have no experience; and without that, the compiling from other writers is always extremely fallacious. For these reasons I omit them; and shall now only offer some remarks upon the subject of jaundice, the last in order that I can possibly introduce in my course of Lectures.

1816. The jaundice consists in a yellow colour of the skin over the whole body, and particularly of the adnata of the eyes. This yellow colour may occur from different causes: but in the jaundice, hereafter to be more exactly characterized, I judge it to depend upon a quantity of bile present in the mass of blood, and which, thrown out upon the surface, gives its own proper colour to the skin and eyes.

1817. That the disease depends upon this, we know particularly and certainly from the cause by which it is produced. In order to explain these, I must observe, that bile does not exist in its proper form in the mass of blood, and cannot appear in this form till it has passed the secretory organ of the liver. The bile therefore cannot appear in the mass of blood, or upon the surface of the body, that is, produce jaundice from any interruption of its secretion; and accordingly, if jaundice does appear, it must be in consequence of the bile, after it had been secerned, being again taken into the blood-vessels.

This may happen in two ways; either by an interruption of its excretion, that is, of its passage into the duodenum, which by accumulating it in the biliary vessels, may give occasion to its passing again into the blood-vessels; or it may

pass into these, by its being absorbed from the alimentary canal when it happens to be accumulated there in an unusual quantity. How far the latter cause can take place, or in what circumstances it does occur, I cannot clearly ascertain, and I apprehend that jaundice is seldom produced in that manner.

1818. The former cause of stopped excretion may be understood more clearly; and we have very certain proof of its being the ordinary, and indeed almost the universal cause of this disease. Upon this subject it will be obvious, that the interrupted excretion of the bile must depend upon an obstruction of the *ductus communis choledochus*; the most common cause of which is a biliary concretion formed in the gall-bladder, and from thence fallen down into the ductus communis, it being at the same time of such a size as not to pass readily through that duct into the duodenum. This duct may likewise be obstructed by a spasmodic constriction affecting it; and such spasm may happen, either in the duct itself, which we suppose to be contractile; or in the duodenum pressing the sides of the duct close together; or, lastly, the duct may be obstructed by a tumour compressing it, and that arising either in the coats of the duct itself, or in any of the neighbouring parts that are or may come to be contiguous to it.

1819. When such obstruction happens, the secreted bile must be accumulated in the biliary ducts; and from thence it may either be absorbed and carried by the lymphatics into the blood-vessels, or it may regurgitate in the ducts themselves, and pass from them directly into the ascending cava. In either way, it comes to be diffused in the mass of blood; and from thence may pass by every exhalant vessel, and produce the disease in question.

1820. I have thus shortly explained the ordinary production of jaundice; but it must be observed further, that it is at all times accompanied with certain other symptoms, such

as a whiteness of the *faeces alvinæ*, which we readily account for from the absence of bile in the intestines; and generally also, with a certain consistence of the *faeces*, the cause of which is not so easy to explain. This disease is always accompanied also with urine of a yellow colour, or at least with urine that tinges a linen cloth with a yellow colour. These are constantly attending symptoms: and though not always, yet there is commonly a pain felt in the epigastrium, corresponding, as we suppose, to the seat of the ductus communis. This pain is often accompanied with vomiting; and even when the pain is not considerable, a vomiting sometimes occurs. In some cases, when the pain is considerable, the pulse becomes frequent, full, and hard, and some other symptoms of pyrexia appear.

1821. When the jaundice is occasioned by tumours of the neighbouring parts compressing the biliary duct, I believe the disease can very seldom be cured. That such is the cause of jaundice may with some probability be supposed, when it has come on in consequence of other diseases which had subsisted long before, and more especially such as had been attended with symptoms of obstructed viscera. Even when the jaundice has subsisted long without any intermission, and without any pain in the epigastrium, an external compression is to be suspected.

1822. In such circumstances, I consider the disease as incurable; and it is almost only when the disease is occasioned by biliary concretions obstructing the biliary duct, that we may commonly expect relief, and that our art may contribute to the obtaining it. Such cases may be generally known, by the disease frequently disappearing and returning again; by our finding, after the former accident, biliary concretions amongst the *faeces*; and by the disease being frequently accompanied with pain of the epigastrium, and with vomitings arising from such pain.

1823. In these cases, we know of no certain and immediate means of expediting the passage of the biliary concretions.

This is generally a work of time, depending upon the gradual dilatation of the biliary duct ; and it is surprising to observe, from the size of the stones which sometimes pass through, what dilatation the duct will admit of. It proceeds, however, faster or slower upon different occasions ; and therefore the jaundice, after a various duration, often ceases suddenly and spontaneously. It is this which has given rise to the belief, that the jaundice has been cured by such a number, and such a variety of different remedies. Many of these, however, are perfectly inert, and many others of them such as cannot be supposed to have any effect in expediting the passage of a biliary concretion. I shall here, therefore, take no notice of the numerous remedies of jaundice mentioned by the writers on the *Materia Medica*, or even of those to be found in practical authors : but shall confine myself to the mention of those that may with probability be supposed to favour the passage of the concretion, or remove the obstacles to it which may occur.

1824. In the treatment of this disease, it is, in the first place, to be attended to, that as the distention of the biliary duct, by a hard mass that does not easily pass through it, may excite inflammation there ; so in persons of tolerable vigour, blood-letting may be an useful precaution ; and when much pain, together with any degree of pyrexia occurs, it becomes an absolutely necessary remedy. In some instances of jaundice accompanied with these symptoms, I have found the blood drawn covered with an inflammatory crust as thick as in cases of pneumonia.

1825. There is no means of pushing forward a biliary concretion that is more probable than the action of vomiting ; which, by compressing the whole abdominal viscera, and particularly the full and distended gall-bladder, and biliary vessels, may contribute, sometimes gently enough, to the dilatation of the biliary duct. Accordingly vomiting has often been found useful for this purpose : but at the same time it is possible, that the force exerted in the act of vo-

miting may be too violent, and therefore gentle vomits ought only to be employed. And either when, by the long continuance of the jaundice, it may be suspected that the size of the concretion then passing is large, or more especially when pain attending the disease gives apprehension of inflammation, it may be prudent to avoid vomiting altogether.

1826. It has been usual in the jaundice to employ purgatives: and it is possible that the action of the intestines may excite the action of the biliary ducts, and thus favour the expulsion of the biliary concretion: but this, I think, cannot be of much effect; and the attempting it by the frequent use of purgatives may otherwise hurt the patient. For this reason, I apprehend that purgatives can never be proper, excepting when there is a slow and bound belly.

1827. As the relaxation of the skin contributes to relax the whole system, and particularly to relieve the constriction of subjacent parts; so, when the jaundice is attended with pain, fomentations of the epigastrium may be of service.

1828. As the solids of the living body are very flexible and yielding; so it is probable, that biliary concretions would in many cases find the biliary duct readily admit of such dilatation as to render their passage through it easy, were it not that the distention occasions a preternatural spasmodic contraction of the parts below. Upon this account, opium is often of great benefit in jaundice; and the benefit resulting from its use proves sufficiently the truth of the theory upon which the using of it has been founded.

1829. It were much to be wished, that a solvent of biliary concretions, which might be applied to them in the gall-bladder, or biliary ducts, was discovered: but none such, so far as I know, has yet been found; and the employment of soap in this disease I consider as a frivolous attempt. Dr White of York has found a solvent of biliary concretions when these are out of the body; but there is not the least probability that it could reach them while lodged within.

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APPENDIX.

NOTES AND ILLUSTRATIONS.

SECT. 1099. *Apoplexy*.—Some cases occur in which there is contraction and rigidity, with occasional violent tonic spasms of one or more limbs. This symptom has been considered by some of the French Pathologists as pathognomonic of the softening of the substance of the brain, which will be presently mentioned, but this is certainly incorrect. It exists in many such cases, but is also observed where no softening is found. It occurs occasionally in the course of fever, and is sometimes speedily recovered from.

There is a form of apoplexy which, in its mode of attack, resembles more or less a fit of syncope. It generally commences with sudden pain in the head, followed by faintness and paleness; there is generally nausea or vomiting; the pulse becomes very feeble, usually frequent, and the body cold. Slight convulsions sometimes occur; and complete syncope frequently, but not uniformly, supervenes. These symptoms, with the exception of the headach, which is sometimes violent, generally pass off in a short time; but after an interval, which varies considerably, flushing and tendency to stupor, with loss of memory and incoherence, come on, and soon pass into coma, which is very generally fatal. It appears

to be seldom accompanied with paralysis. These symptoms appear to depend uniformly upon the rupture of a blood-vessel, causing extravasation of blood either in the substance and ventricles, or on the surface of the brain, and are frequently found connected with disease of the coats of the arteries. The rapidity of the progress of the disease probably depends upon the size of the ruptured vessel, and the part in which the extravasation takes place. The substance of the hemispheres appears to be the most frequent origin of the hæmorrhage in these cases. Their symptoms and progress appear to be analogous to those of extravasation on the surface of the brain, caused by external injury*.

1101. In this and the subsequent sections, Dr Cullen lays much stress on the notion of *compression* of the medullary substance being the proximate cause of apoplexy. But strong objections to this doctrine have been brought forward, particularly by Dr Abercrombie and Dr Kellie†. The brain being nearly incompressible, and being inclosed within an unyielding cavity, which it exactly fills, and in which it is not subjected to the direct pressure of the atmosphere, the absolute quantity of fluids conveyed to it, by means of the blood-vessels, from other parts of the body always under the influence of this force, cannot be either greater or less at one time than another, as a portion equivalent to that introduced by the arteries will constantly pass out by the veins. This point has been particularly illustrated by Dr Kellie's experiments. But although the quantity of fluids in the brain at one time is scarcely susceptible of alteration, yet the impetus with which the blood is propelled,

* For further details, and cases illustrating this form of apoplexy, see Dr Abercrombie, *Pathological and Practical Researches on Diseases of the Brain*, &c. Edinburgh, 1828, p. 221.

† On Death from Cold, and on Congestion of the Brain, *Edinburgh Medico-Chirurgical Transactions*, vol. i. p. 84.

and the degree of pressure which it exerts on the medullary matter, may be much increased, either locally or generally, by alterations in the action of vessels, and in the condition of different parts within the cranium*.

Much difficulty has been also felt by many Pathologists in reconciling the frequent existence of a cause of injury or compression of the brain in apoplectic cases, with a number of cases recorded, where large portions of brain have been compressed and disorganised by injury, effusion, or disease, attended by no loss of sense or voluntary power†. But the experiments of modern Physiologists enable us nearly to surmount this difficulty, at least in so far as the external senses and voluntary motion are concerned; in as much as they shew, that the parts necessarily connected with these functions are confined to the very origins of the nerves; and that pressure on the brain of a living animal only necessarily causes loss of sense or voluntary motion, when it is so exerted as to act on the *cerebro-spinal axis*; which effect we may easily suppose to result from some injuries or diseases of the upper parts of the brain, and not from others‡. The pathological facts here referred to are in reality more important in relation to the question of the supposed connection of the intellectual faculties with the different parts of the brain.

1103. To these causes may be added suppuration in the substance of the brain, and that peculiar alteration of its texture which has lately attracted attention, and been more particularly described by some of the French Pathologists,

* See *Monro on the Nervous System*, pp. 5. and 6.

† For a collection of such cases, see *Edinburgh Review*, vol. xxiv. Article on the Functions of the Nervous System, p. 439.

‡ See particularly *Lorry, Mémoires des Savans Etrangers, présentés à l'Académie des Sciences*, vol. iii. 1760, p. 344.—*Fodéra, Recherches Experimentales sur le Système Nerveux; Journal de Physiologie de Magendie*, tome iii. p. 191, 1823.—*Magendie, Id. op.*; and *Dr Wilson Philip on the Vital Functions*, p. 105.

under the name of *Ramollissement du cerveau* *. This morbid appearance is often found in apoplectic cases, especially when febrile symptoms have been present. It consists of a disorganization of the substance of the brain to a greater or less extent, without the peculiar foetor of pus, taking place sometimes very rapidly, apparently in connection with inflammation within the head, and at other times, especially in persons advanced in life, according to M. Rostan, more slowly, and unconnected with any inflammatory symptoms during life or appearances after death. In these cases, the colour of the softened portion is whiter than natural; and partial and minute effusions of blood, or spots of ecchymosis of a purple or livid colour, are frequently observed in its substance. In those cases which have been accompanied by febrile symptoms during life, the softened portion is sometimes of a red or rose colour, or brown, and at other times yellow or greenish, apparently from the admixture of purulent matter. The consistence of the part affected is sometimes not greater than that of cream; and it is commonly reduced to that of a pulpy mass, by the slightest pressure. The substance of the brain surrounding a coagulum of effused blood, or an abscess, is frequently found in a state of complete *ramollissement blanc*; and in this last case the difference between this affection and ordinary supuration is very well marked. In other cases, a yellow softening, evidently from purulent infiltration, surrounds a coagulum. It occurs in any part of the brain, and may be either superficial or deep seated; but is most frequently met with, according to M. Rostan, in the thalami nervorum op-

* Bayle et Cayol, Dictionnaire des Sciences Médicales, tom. iii. Article *Cancer*.—Rochoux, Recherches sur l'Apoplexie, pp. 88, 111, 175, Paris, 1814.—Rostan, Recherches sur une Maladie encore peu connue, qui a reçu le nom du Ramollissement du cerveau, 2d edit. Paris, 1823.—Lallemand, Recherches Anatomico-Pathologiques sur l'Encéphale et ses dependances, Lettres 1^{me} et 2^{de}, Paris, 1820.

ticorum, the corpora striata, and the middle lobe*. Dr Abercrombie states, that he has found it most commonly seated in the corpus callosum, the fornix, the septum lucidum, or the parts immediately surrounding the ventricles†. In cases which came under his observation, it occurred chiefly in young persons and children. "It was in many cases distinctly combined with appearances of an inflammatory kind, such as deep redness of the cerebral matter surrounding it, suppuration bordering upon it, and deposition of false membrane in the membranous parts most nearly connected with it." From these and other circumstances, Dr Abercrombie considers this form of the affection as the result of inflammation, and as one of primary importance in the pathology of acute affections of the brain. A similar opinion is entertained by M. Lallemand, who states, that the cineritious substance, which receives larger and more numerous vessels, is peculiarly liable to that variety of *ramollissement* which is accompanied with infiltration or effusion of blood; while that occurring in the medullary substance, where the vessels are fewer and more minute, is rarely accompanied by well-marked vascular injection, and is generally pale, yellow, or of a greenish colour‡. In his later publications, M. Rostan, who previously considered it as a disorganization *sui generis*, admits that the *ramollissement* is very often the result of inflammation§.

1108. (4.) Organic disease of the right side of the head is comparatively rare; but apoplexy is often found combined with diseases of the left side, or of the aorta. The act in two ways, by the obstructed motion of the

* Cours de Médecine Clinique, tom. ii. p. 311, Paris,

† Pathological and Practical Researches on Disease—25, Edinburgh, 1828.

‡ Lallemand, Op. cit. Lettre première, p. 81.—of *Ramollissement*, see Dr Abercrombie, Op. cit. dical, Dictionnaire de Médecine, tom xviii. Art.

§ Cours de Médecine Clinique, tome ii.

through the lungs, and the consequent stagnation in the great veins, alluded to by Dr Cullen in the next section; and also by the increased impetus given to the blood in consequence of hypertrophy of the left ventricle. Although there may be a degree of obstruction to the flow of the blood at the commencement of the aorta, yet the impetus with which it enters into the vessels most nearly on a line with the ascending arch may be morbidly increased. This will occur more especially if the natural elasticity of the aorta be diminished, as it generally is, by such disease, as in that case the blood does not undergo the usual modification in its impetus after it leaves the heart *.

But it is to be observed, that organic disease of the heart is connected with apoplexy, especially in advanced life, in another way which has not been noticed by Dr Cullen. The same kind of disease of the arteries which leads to enlargement of the heart may exist also in the vessels of the brain, and predispose them to rupture. In a large proportion of apoplectic cases, even when no disease of the heart exists, an altered condition of the arteries of the brain is found. The most frequent diseased appearance, perhaps, is the ossification or earthy brittleness described by Scarpa, as predisposing them to aneurism, which will be noticed under the head of palpitation †. Dr Abercrombie suggests, that this condition of the arteries of the brain may be a

* See Bricheteau, *De l'Influence de la Circulation sur les Fonctions Cérébrales, et de la connexion de l'hypertrophie du cœur avec quelques lésions du système vasculaire*; *Journal Complémentaire du Dictionnaire des Sciences Médicales*, tom. vi. p. 17, 1819.—Richerand, *Nosographie Chirurgicale*, tom. iii. p. 15,

on this subject, *Baillie's Morbid Anatomy*, 3d edit. p. 445.—Dr Kel-
 lid, and on *Congestion of the Brain*, Part II. *Edinburgh*
Transactions, vol. i. p. 123.—Bouillaud, *Mémoires de la*
Académie de Médecine, vol. ix. p. 147; Paris, 1826.—Serres, *Obser-*
vationes de Aneurysmes des Artères du Cerveau, *Journal de*
Chirurgie, n. vi. p. 82, 1826; and Dr Mills, on the *Morbid*
State of the Brain, p. 206, Dublin, 1826.

frequent cause of the *ramollissement*, especially of that form of the disease which occurs without marks of inflammation in persons much advanced in life, in the same way as it leads to the gangrene of the extremities*.

1108. (5.)—The act of inspiration is not so powerful a cause of turgescence in the head as that of expiration, in which the brain swells out, giving rise to the respiratory pulse of Haller. Expiration is especially effectual in causing such turgescence when the glottis is shut, or the aperture narrowed at the same time, as in violent muscular efforts, straining at stool, exertions of voice, or fits of laughter, or coughing. Hence apoplexy frequently supervenes upon such exertions, or upon severe catarrhs in old people, as convulsions do on the whooping-cough of children.

1110-14. Dr Cullen here allows, that the distinction of sanguineous and serous apoplexy, although recognised by many authors, is hardly applicable to practice; and if we were to take our ground of distinction from what has been stated by Dr Cullen in his Synopsis, we should err; for after apoplectic symptoms in full-blooded persons, merely serous effusion is often found; and in old leuco-phlegmatic persons, effusion of blood is not uncommon. Another ground of distinction, which is worthy of attention, has been lately proposed by M. Serres. He states, that apoplexy occurs chiefly in two different forms; the one simple, without loss of motion, the other complicated with palsy. To the first of these, believing it to be always connected with a diseased state of the membranes, he has given the name of *meningeal*, and to the last, as depending always upon a diseased state of the brain itself, he has given the name of *cerebral*, apoplexy†. But,

* Op. cit. p. 25.

† Nouvelle Division des Apoplexies, Annuaire Medico-Chirurgical des Hôpitaux, &c. Paris, 1819.

although it is rare, there appear to be cases of palsy where mere serous effusion is found without injury of the medullary structure *; and certainly there are many cases of sanguineous apoplexy where there is no palsy. On the whole, no diagnosis of serous apoplexy is to be depended upon; excepting in the case of coma coming on gradually in the course of dropsical affections, where serous effusion only is to be expected; and when it is found in cases of apoplexy, it ought rather to be considered as a termination of the disease, than as a primary affection.

It is always to be remembered that in many cases no morbid appearances can be detected. This form of the disease has been alluded to by Dr Cullen, and is described by Dr Abercrombie under the name of simple apoplexy †. It is important, as shewing that apoplexy may sometimes depend on a cause which is either temporary, or at least produces no appreciable injury of the substance of the brain. This cause may be what has been stated by Dr Cullen in section 1103. (3.). But it is also possible that other causes may act on the brain, and induce apoplexy, independently of any compressing power, as we know in the case of poisons and other circumstances mentioned in section 1115.

On this subject Dr Abercrombie has drawn the following, among other conclusions:—

“ 1. There is a modification of apoplexy which is fatal, without leaving any morbid appearance that can be discovered in the brain.

2. There is another modification in which we find serous effusion, often in small quantity.

3. The cases which are referable to these two classes are not distinguished from each other by any such diversity of symptoms as can be supposed to indicate any essential difference in their nature.

* See Dr Abercrombie, *Op. cit.* p. 247.

† *Op. cit.* p. 210.

4. Without any apoplectic symptoms, we find serous effusion in the brain, in an equal or in a greater quantity than in the cases of the second modification *."

It appears from a table given by M. Rochoux†, and a similar remark has been made by Morgagni‡, that the corpora striata, the thalami nervorum opticorum, and the parts immediately adjacent, are the most frequent seat of extravasation in apoplexy, accompanied with more or less of palsy; and this corresponds with what has been observed, as already mentioned, in the *ramollissement* of the brain. Dr Abercrombie also mentions the corpus striatum as a very common seat of extravasation in these cases §.

1122. The danger and fatality in sanguineous apoplexy appear to be frequently connected with the *ramollissement* which so commonly takes place in the substance of the brain surrounding the coagulum. In cases which have proved quickly fatal, this is sometimes observed to a great extent even when extravasation to a small amount only has taken place. The knowledge of this fact puts on its proper footing the usefulness of blood-letting and other evacuations after an apoplectic attack, or a stroke of palsy. They cannot remedy the effusion of blood that has already occurred; nor are they, in general, immediately necessary to prevent a fresh stroke; but they may often be of the greatest importance in preventing disorganization of the surrounding brain from the irritation of what has been already effused. From the appearances frequently observed, there is good reason to believe, that when the substance of the brain surrounding the extravasa-

* In such cases, it probably will be found, that there is reason to suppose the effusion to have taken place very gradually.

† Dictionnaire de Médecine, tom. ii. Article *Apoplexie*; et Recherches sur l'Apoplexie, p. 195.

‡ De Sedibus et Causis Morborum, Epist. Anatom. Med. III. Art. xviii.

§ Op. cit. 252.

tion remains in the natural state, coagula, even of large size, may be completely absorbed. This process takes place very gradually: the more fluid parts are first taken up; the coagulum loses by degrees its deep red colour, becomes brown, and acquires a firmer consistence, and at last nothing appears to remain but a small quantity of fibrine of a light red or yellow colour, which sometimes, after an interval, is also absorbed. It would appear that this may be completed within five months*. The cavity in which the coagulum is lodged assumes, during these changes, the appearance of a distinct cyst, lined by a firm membrane of a yellow colour, and sometimes of considerable thickness. It is frequently found empty, with bands of the same matter as that which forms its parietes, stretching across the cavity in various directions. At other times it is found filled with a serous fluid. In some cases, as the absorption of the coagulum proceeds, there is a gradual improvement in the nature of the symptoms, and the palsy at last disappears. But this is by no means uniform, and the improvement is frequently only partial, although, on examination after death, the cyst has been found to contain no remains of a coagulum.

There is reason to believe that in some cases the palsy may pass off before the coagulum can have been absorbed †.

1131-32. To these remedies may be added the application of cold to the head, of which the effects are sometimes very remarkable. It may be applied in the form of pounded ice, contained in a bladder, or by a stream of cold water

* See Dr Abercrombie, *Op. cit.* p. 260.

† For further details, and cases on this subject, see Riobé, *Observations propres à résoudre cette question, L'apoplexie, dans laquelle il se fait une épanchement de sang dans le cerveau, est-elle susceptible de guérison?* Paris, 1814.—Bricheteau, *Considerations et Observations sur l'Apoplexie*, *Journal Complémentaire du Dictionnaire des Sciences Médicales*, tom. i. p. 129. 289; and Dr Abercrombie, *Op. cit.* p. 258, *et seq.*

directed upon the head. It is equally applicable to simple or sanguineous apoplexy.

1133. In those cases where the power of deglutition is either lost or impaired, the expressed oil of the Croton Tiglium is one of the most convenient forms in which a drastic purgative can be given. In doses of from one to three drops, introduced into the stomach, or merely applied to the tongue, it generally acts powerfully on the bowels*.

1139. (5.) Artificial respiration was successfully employed in a case of poisoning from opium, after natural respiration had become imperceptible, by Mr Whateley, in the year 1778†; and Mr Brodie was led, by his physiological researches, to the same conclusion as Dr Cullen has stated in this paragraph, the truth of which he proved by direct experiments on animals‡. But he does not appear to have been aware, either of the principle having been laid down by Dr Cullen, or of the practice having been successfully employed by Mr Whateley.

1141. *Palsy*.—Apoplexy and palsy are so closely connected, in their symptoms, causes, and method of cure, that much of what has been already said on the first of these diseases is equally applicable to the last. On this account it has appeared preferable to take notice of these two affections in

* For further details on the treatment of apoplexy, see Dr Abercrombie, *Op. cit.* p. 288.

† Case of Recovery from Apparent Death, in consequence of taking a large dose of opium, by Thomas Whateley; *Medical Observations and Inquiries*, vol. vi. p. 331.

‡ Experiments and Observations on the Different Modes in which Death is produced by certain vegetable Poisons; *Philosophical Transactions* for 1811, p. 178; and for 1812, p. 205.

succession before hydrocephalus acutus, which Dr Cullen has placed as his third species of apoplexy, and which requires a separate consideration.

1142. That sensation may remain perfect in a palsied limb, and, although more rarely, that the power of motion may remain entire in one that is insensible, are facts which have been long known, and had led Galen and many succeeding authors to believe that there were distinct nerves of sensation and motion. In his clinical lectures, Dr Cullen states, that "it is surprising that, when the nerves that go off together in a bundle from the sensorium, are the cause of both sensation and motion in a muscle, yet the one should be destroyed and the other remain entire; this affords a proof that these nerves are distinct even in the sensorium;" and in his MS. lectures, after giving a case in which there was loss of sensation in one arm, and of motion in the other, he adds, that it appeared to him, "that the two symptoms, of loss of sense and loss of motion, depended upon quite different causes *." The late Dr Gregory, after noticing these varieties of palsy, and likewise the cases in which the pulse is manifestly weakened, from the first, in a palsied arm, was accustomed to propose a query in his lectures, Whether there might not be separate nerves for sensation, for muscular motion, and for the arteries †? But it was first pointed out by Mr Charles Bell, and afterwards more fully demon-

* Cullen's Works by Dr Thomson, vol. i. pp. 349, 353.

† Some cases are on record, in which a sudden stroke of palsy has been accompanied with total cessation of the pulse in the affected limb, and frequently with severe pain. Such cases are probably connected with some disease of the arterial system. The diminished temperature, sometimes observed in the palsied limb, seems to depend upon the altered state of the circulation. See Mr Earle, *Medico-Chirurgical Transactions*, vol. vii.—*Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, vol. iii. p. 448; and Dr Abercrombie, *Op. cit.* p. 281.

strated experimentally by M. Magendie, that the anterior roots of the spinal nerves are connected with motion, and the posterior with sensation; and that the anterior column of the spinal cord is, if not exclusively, at least chiefly appropriated to motion, and the posterior to sensation. Some instances have been recorded of loss either of sensation or motion, from disease of the spinal cord, in which the part of the cord found to have been the seat of the disease corresponded with the physiological conclusion above stated; but in other cases this correspondence has not been decidedly marked. It is, however, to be observed, that cases are on record of very extensive disorganization of the spinal cord, where both sensation and motion have been unimpaired, or, if once lost, have been nearly recovered*.

Palsy appears not unfrequently to exist in connexion with inflammation of the substance of the brain, which does not terminate in *ramollissement* or suppuration. In these cases, the inflammation seems to assume more or less of a chronic form; and on examination, increased consistence or induration, and great vascularity of some portion of the brain, often with firm adhesion to the dura mater, are commonly found. This appearance, when well defined and circumscribed, has been mistaken for a tumour developed in the substance of the brain. It is probably in palsy depending upon an inflammatory affection of this kind, that certain anomalous symptoms are principally observed. Of these the most remarkable are, the palsy commencing in one muscle or finger, and gradually extending to the whole limb; the increased sensibility and heat of the part affected; the violent pain, especially in the early stages, sometimes felt in the paralytic limb; and the morbid acuteness of the external senses. Those cases

* A striking example of this kind lately came under my observation, and cases are related by MM. Velpeau, Rullier, Ollivier, Pinel fils, and others; and by Dr Molison, Edinburgh Medico-Chirurgical Transactions, vol. iii. part i. p. 173.

already mentioned, in which sensation remains entire, while the power of motion is lost, or in which the last remains while the first is destroyed, appear to be frequently connected with this form of inflammation. Palsy proceeding from inflammation of the hemispheres of the brain, according to M. Lallemand, is very commonly preceded or accompanied by spasmodic contractions of the muscles*.

1145. The loss of memory and degree of fatuity here mentioned sometimes go off after a time, but more commonly all the mental faculties remain more or less enfeebled, and are never perfectly regained. The loss of the natural voluntary power over the expression of emotions, as in laughter or weeping, is a striking character of the alteration of the mental faculties in palsy. The loss of memory is frequently partial, and presents several peculiar modifications. The memory of words is sometimes retained, while that of things is lost, or *vice versa*. Sometimes there is no recollection of persons or things, while the power of language remains. The loss of memory is sometimes confined to certain parts of speech, particularly to substantive nouns; and it is said that one of these has been regained while another has been lost. On some occasions, although the command of language has been lost, the patient has been able to repeat what is said by another person†.

An attempt has been made by M. Bouillaud to shew that the loss of speech, or of the memory of words, is always con-

* On Palsy from Inflammation of the substance of the Brain, See Dr Abercrombie, *Op. cit.* p. 71.—Lallemand, *Op. cit.* Lettre iii. ; and Bouillaud, *Traité de l'Encéphalite*, Paris, 1825.

† On this subject, see Haller, *Elementa Physiologiæ*, tom. v. lib. xvii. p. 540.—Dugald Stewart, *Elements of the Philosophy of the Human Mind*, vol. iii ; Addenda to vol. i. p. 21.—Heberden's *Commentaries*, 2d edit. p. 347.—Dr Abercrombie, *Op. cit.* p. 277.—Bouillaud, *Op. cit.* p. 288 ; and Serres, *Anatomie Comparée du Cerveau*, tom. ii. p. 710.

nected with morbid alteration of the anterior lobes of the brain *. But this is by no means constant; and cases are described by M. Cruveilhier †, and Pinel fils ‡, in which loss of speech existed in connexion with disease in some other parts, as the middle lobes or cerebellum, without any affection of the anterior lobes; while in others extensive disorganization of the anterior lobes was found without any corresponding alteration in the power of articulate language. Similar cases have been observed by others, and several have lately occurred in the Royal Infirmary. MM. Serres §, Foville, and Pinel Grandchamp, have endeavoured to establish, that the corpora striata, and the anterior medullary fibres connected with them, are appropriated to the movements of the inferior extremities, and the optic thalami, and their posterior radiations, to the movements of the superior extremities. These last authors have also attempted to prove that the cerebellum is the seat of sensibility, and that the medullary substance of the brain is appropriated to the voluntary movements, while the cortical substance is the seat of the intelligence ||. None of these views, however, have been confirmed, and strong facts have been brought forward against some of them.

* Bouillaud, *Op. cit.* p. 157-170, 284.

† Mémoire sur cette Question, La Faculté d'articuler les sons, a-t-elle son Siége dans les Lobes antérieurs du Cerveau, ainsi que l'avancé M. Gall? Nouvelle Bibliothèque Médicale, tome ix. p. 301, 1825.

‡ Quelques Recherches sur le Siége des Altérations Cérébrales; *Journal de Physiologie de Magendie*, tome v. p. 340. See also a case by Dr Baillie, *Medical Transactions of London*, vol. iv. p. 9.

§ *Annuaire Medico-Chirurgical des Hôpitaux*, p. 246; *Anatomie Comparée du Cerveau*, tom. ii. pp. 664, 683, *et seq.* See also Lacrampe-Loustau, *Recherches pour déterminer les Rapports des Lésions du Cerveau avec les Paralysies des Membres Supérieurs et Inférieurs*; *Revue Médicale*, tom. xiii. p. 412, 1824.

|| Foville et Pinel Grandchamp, *Recherches sur le Siége Spécial des Différentes Maladies du Système Nerveux*, Paris, 1823.

Paraplegia most commonly proceeds from diseases or injuries of the spine, particularly from caries, distortion, or protrusion of the vertebræ, affections of the ligaments and cartilages, and from inflammation of the membranes or substance of the spinal cord, terminating in suppuration or *ramollissement*. In these cases it generally comes on gradually, and appears to be strictly confined to the pelvis and lower extremities. But it is sometimes connected with a chronic affection of the brain, and has come on where hemiplegia had been expected. This form of paraplegia has been particularly described by Dr Baillie *, and Mr Earle †. It is usually accompanied or succeeded by some degree of pain, giddiness, drowsiness, loss of memory, amaurosis or other symptoms referable to the head; and sometimes there is more or less of palsy in the upper extremities without disease of the corresponding part of the cord. Cases of perfect paraplegia, however, sometimes occur, in which no morbid alteration either of the brain or of the spinal cord can be detected ‡.

Many instances occur of palsy of a single limb, or of the parts supplied by a single nerve, and there is no doubt that such cases depend upon a disease of one nerve, or its sheath. Attention has been particularly directed to one case of this kind, (commonly known under the name of blight,) by Mr Charles Bell ||, and Mr Shaw §, on account of the beautiful illustration which it gives of the separate endowments of the nerves of the face. This often proceeds from injury or

* Medical Transactions of the College of Physicians of London, vol. vi. p. 16.

† On Paraplegia, Medico-Chirurgical Transactions, vol. xiii. part ii. p. 516.

‡ For remarkable examples of this kind, see Dr Abercrombie, Op. cit. p. 398.

|| Appendix to the Papers on the Nerves, London, 1827.

§ On Partial Paralysis, Medico-Chirurgical Transactions, vol. xii. part i. p. 105.

from inflammation and swelling near the parotid gland; but sometimes it comes on after partial exposure to cold air, and appears to be merely part of a rheumatic affection. Some of the most severe cases of sciatica, attended with total loss of power in the limb, depend evidently upon inflammation of the sciatic nerve or its sheath *. It is probably to such affections of the nerves, that the palsy of a limb, evidently produced by cold, is to be ascribed †. Such cases of partial palsy are occasionally met with, independently of any indications of disease in the brain; and often admit of much alleviation from local remedies, particularly blood-letting, blisters, and other counter-irritants.

In Paraplegia, these remedies, especially when combined with purgatives, continued for a considerable length of time, have proved sometimes successful in restoring the complete use of the limbs.

The case of partial palsy from the poison of lead is well known. It appears to depend chiefly on an alteration of the muscular texture, which is much wasted, and, according to Mr John Hunter, becomes drier, more fibrous and tough than natural, of a cream colour, and perfectly opaque ‡.

A peculiar paralytic state, accompanied with tremors, but generally without colic, is frequently induced by the excessive use of mercury, and especially by exposure to mercurial fumes, as in the process of gilding and in other trades, in

* See Martinet, sur l'Inflammation des Nerfs; *Revue Médicale*, tom. xiv. p. 329.—Swan on Morbid Local Affections of Nerves, London, 1820.

† See Dr Powell, Observations upon some Cases of Paralytic Affection; *Medical Transactions of the College of Physicians*, vol. v. p. 96.

‡ John Hunter, quoted by Sir George Baker, *Medical Transactions of the College of Physicians of London*, vol. i. p. 316.—On the Palsy produced by Lead, see Percival, *Observations and Experiments on the Poison of Lead*, 1774.—Clutterbuck on the Poison of Lead, 1794; and Mèrat, *Traité de la Colique Métallique*, Paris, 1812.

which this metal is employed *. A similar state appears to be produced by arsenic †.

It is in partial palsy, or in palsy unconnected with disease of the brain, that the various local remedies recommended in this disease appear to have been chiefly useful. Of these, the most important are warm bathing, friction, electricity, galvanism, and the various counter-irritants, including the moxa. It is probably in these cases also, that the nux vomica, first recommended in palsy by M. Fouquier, on account of its specific action on the muscles, appears to have been sometimes employed internally with advantage.

The *Paralysis agitans*, or Shaking Palsy, appears to be peculiar to persons advanced in life. It generally commences in one limb, and extends gradually to the rest of the body. The tremors sometimes become violent, and have been even observed to continue during sleep. The circumstances on which it depends have not been ascertained, but symptoms of affection of the brain frequently occur in its progress, and it sometimes terminates in complete hemiplegia or apoplexy. It does not appear to be much under the control of remedies.

The following modern works may be consulted, in addition to those already mentioned, on apoplexy and palsy :

KIRKLAND, On Apoplectic and Paralytic Affections, London, 1792.
FODÉRÉ, De Apoplexia Disquisitio, &c. Aven. 1808.

* See Dr Bateman, Observations in reply to Dr Edward Percival, on the subject of the Poison of Mercury; Edin. Med. and Surg. Journal, vol. ix. p. 18; and Dr Burnett, Account of the Effect of Mercurial Vapours on the Crew of the Triumph in 1810; Philosophical Transactions for 1823, part ii. p. 402.

† See Dr Cooke on Palsy, p. 101, London, 1821; Medical and Physical Journal, vol. v. p. 542.—Dr Falconar, Observations on the Palsy; Memoirs of the Medical Society, vol. ii. p. 224.—Mr Murray, Cases of Poisoning; Edin. Med. and Surg. Journal, vol. xviii. p. 167.

- YELLOLY, A Case of Tumour in the Brain, with Remarks on the Propagation of Nervous Influence; Medico-Chirurgical Transactions, vol. i. p. 183. 1810.
- MONTAIN, Traité de l'Apoplexie, Paris, 1811.
- PORTAL, Observations sur la Nature et le Traitement de l'Apoplexie, Paris, 1811.
- CHEYNE, Cases of Apoplexy and Lethargy, London, 1812.
- POWELL, Cases illustrative of the Pathology of the Brain; Medical Transactions of London, vol. v. p. 198. 1815.
- HODGSON, On the Diseases of the Arteries and Veins, London, 1815.
- PARKINSON, On the Shaking Palsy, London, 1817.
- MOULIN, Traité de l'Apoplexie, ou Hemorrhagie Cérébrale, Paris, 1819.
- COOKE, On Nervous Diseases, vol. i. London, 1820.
- PARENT et MARTINET, Recherches sur l'Inflammation de l'Arachnoïde Cérébrale et Spinale, Paris, 1821.
- DUNCAN, Contributions to Morbid Anatomy, Edin. Med. and Surg. Journal, vol. xvii. 1821.
- CRAIGIE, On the Pathological Anatomy of the Human Brain and its Membranes; Edin. Med. and Surg. Journal, vol. xviii. 1822.
- PRICHARD, On Diseases of the Nervous System, London, 1822.
- HOOVER, On the Morbid Anatomy of the Human Brain, London, 1826.
- CALMEIL, De la Paralysie considérée chez les Aliénés, Paris, 1826.
- OLLIVIER, (C. P.) De la Moelle épinière et de ses Maladies, 2^{de} edit. Paris, 1827.

Hydrocephalus Acutus.—Insulated cases of this very important and dangerous disease were published by Dr St. Clair *, and Mr Paisley †; and it has been alluded to by Sauvages ‡: but we are indebted for the first distinct and

* Edinburgh Medical Essays, vol. ii. art. xviii. 1732.

† Id. Op. vol. iii. art. xxiii. 1733.

‡ Nosologia Methodica, tome i. p. 576. Eclampsia ab Hydrocephalo.

accurate account of this affection, which had been previously confounded with the chronic hydrocephalus, or the febrile diseases of children, to the celebrated Dr Whytt *. Although the attention of physicians, since his time, has been strongly directed to this subject, yet little has been added to the very exact description he has given. It has been placed by Dr Cullen in the order Comata of the class Neuroses, as the third species of the genus Apoplexia; and he has defined it: “Apoplexia (*hydrocephalica*) paulatim adoriens; infantes et impuberes, primum lassitudine, febricula et dolore capitis, dein pulsu tardiore, pupillæ dilatatione, et somnolentia afficiens.” This definition is essentially correct, and includes the leading symptoms in the ordinary progress of the disease; but although most common before the age of puberty, it is by no means confined to that period of life. The late Dr Gregory met with many cases which proved fatal in adults from puberty to fifty or sixty years of age, and in many of these the existence of the disease was ascertained by dissection. Dr Cullen mentions the slowness of the pulse, which is characteristic of one period, but does not allude to the remarkable change which in the great majority of cases it undergoes in the last stages.

Hydrocephalus acutus was properly divided into three well-marked stages by Dr Whytt; and since his time this division has been very generally admitted. The first stage is characterized in children by languor, lassitude, loss of appetite, and the other usual febrile symptoms, which sometimes admit of considerable remissions and exacerbations. The severity of the febrile symptoms is various, but the pulse is generally above a hundred, and sometimes rises as high as a hundred and forty in a minute, with considerable heat of skin. The tongue is often white, and the bowels costive; but sometimes it is remarkably clean, and there is

* Posthumous Works, p. 725, Edinburgh, 1768.

occasionally spontaneous diarrhœa. Vomiting is a characteristic symptom in this stage, and is generally very easily excited, especially by taking food or drink, or by the erect posture. There is in most cases pain, sometimes of the whole head, at other times referred to one part, as the vertex or the forehead, with impatience of light, often very severe, and occurring in sudden paroxysms, which cause screaming. The sleep is generally disturbed, and picking of the nose and grinding of the teeth are frequently observed, as in the febrile state caused by worms, or other irritations in the bowels; from which, indeed, it is often difficult to distinguish the first stage of hydrocephalus.

The second stage is well marked by the pulse becoming slow, (often below the natural standard,) irregular, and unequal in strength. In addition to the symptoms of the first stage, there is moaning with much restlessness, and frequent screaming, sometimes from violent pain of head, at other times apparently from terror. The pupils often become dilated and insensible to light, with strabismus either outwards or inwards, and frequently with double vision. Dr Whytt observed in some cases that the pupils were contracted, but became dilated on opening the eyes, or on the application of a stimulus; and a similar remark has been made by Dr Abercrombie*. These symptoms are commonly attended with more or less of delirium, often commencing in sudden fits, which soon passes into drowsiness verging on coma. In this stage of the disease, worms are not unfrequently voided, either by vomiting or stool, and a remarkable foetor of the breath has been observed. Considerable remissions and intervals of ease, during which the patient is sensible, and vision is perfect, frequently occur at this period, or even later.

In the third stage, the pulse again becomes quick and re-

* Pathological and Practical Researches on Diseases of the Brain and Spinal Cord, p. 18.

gular, and is observed to be more frequent than in almost any other disease, often rising to 160 or 180, and sometimes even to 200 or upwards, in a minute. The coma becomes gradually more uniform and profound, while the incoherence continues. The pupils remain insensible even to bright light; and there is often complete blindness, while the sense of hearing continues entire. Tremors, subsultus tendinum, convulsions, palsy of one or both eyelids, and sometimes hemiplegia, take place in this stage. The evacuations are often involuntary, and the power of deglutition is either lost, or becomes very difficult. The respiration is stertorous, and frequently performed at long intervals, as in apoplexy.

Such is the general course of the symptoms in the different stages of hydrocephalus, but they are subject to considerable variety in their intensity and their mode of attack. The disease comes on sometimes with violent pain of head, and full pulse, and these appear to be the cases most under the influence of remedies. The pain is chiefly referred to the head, but often likewise to the neck, or more distant parts, as the abdomen, the spine, or the limbs. Sometimes the disease commences more insidiously, with less fever and pain, and with occasional remissions, which are apt to induce a belief that the attack has passed off. At other times it commences like fever, and gradually, or even suddenly, assumes the characters of hydrocephalus. Convulsions, especially in younger children, are sometimes amongst the first symptoms which appear. A variety of this disease, as occurring in children, has been described under the name of water-stroke, in which the symptoms bear a considerable analogy to those of apoplexy*. In some cases there has been no complaint of pain during any period of the disease, and the pulse has been observed either to remain frequent throughout, or never to rise above the natural standard.

* See Gölis, *A Treatise on the Hydrocephalus Acutus*, (translated from the German by Dr Gooch,) p. 5. London, 1821.

The affections of the external senses, and of the intellectual faculties, are also subject to variety, and are by no means constant. Many remarks have been made on the oily and dark green appearance of the evacuations, which is frequently observed, and has been considered by some as characteristic of hydrocephalus; but attentive observers have not been able to detect any peculiar or uniform appearance of the *fæces*, upon which any reliance can be placed. An appearance of brilliant *micaceous* crystals in the urine has been remarked by M. Vieusseux *, and by M. Coindet †; but this has not been ascertained to be general or characteristic. In conclusion, it may be stated, that no one symptom in this disease can be considered pathognomonic; and it is by attention to their combination and succession alone, that its existence can be determined. The most certain diagnostic symptoms, however, are the slow and irregular pulse, after being frequent with heat of skin, headach, screaming during sleep, strabismus, double vision, dilated pupil, and blindness, followed by very frequent pulse, tremors, subsultus tendinum, convulsions and palsy; but perhaps the most important, in the early and almost only remediable stage, are the sharp, shooting, or remitting pains of head, the vomiting from slight causes, impatience of light, and febrile symptoms without the usual general depression of idiopathic fever, or of the contagious exanthemata.

Much has been said in regard to the conversion of other diseases, and particularly of the febris infantum remittens, and affections of the abdomen, into hydrocephalus; and considerable importance has been attached to the means of discriminating betwixt the remittent fever of children and the early stages of hydrocephalus ‡. But in reference to prac-

* De la Saignée et de son Usage dans la plupart des Maladies, Paris, 1815.

† Mémoire sur l'Hydrencéphale, p. 34, Paris, 1817.

‡ See Dr Pemberton on the Abdominal Viscera, 3d edit. p. 163, London, 1814.—Dr Cheyne, Essay on Hydrocephalus Acutus, Edinburgh, 1808; and

tice this distinction is not perhaps of much moment, as the first of these affections is exceedingly apt to pass into the last, and the same treatment is indicated for both. It has been thought that there is a peculiar tendency in abdominal disease to undergo this conversion; but in many cases the disease supervenes also upon inflammatory complaints of the chest, and contagious febrile diseases.

The ordinary duration of the disease is from one to four weeks; but in a few cases it is protracted for months, either by repeated remissions and returns of the symptoms, or by the permanence of a state approaching to coma; and this even occurs without any yielding of the sutures, as in chronic hydrocephalus. There are very few cases of recovery after the second stage has shewn itself distinctly; but many, in whom the symptoms are very characteristic of the first stage, are restored.

An unusual quantity of serous fluid, generally limpid, but sometimes turbid, or of a yellowish colour, effused into the ventricles of the brain, is the most frequent morbid appearance discovered on examination after death. This is generally found not to coagulate on the application of heat, acids or alcohol. It is sometimes found effused beneath the arachnoid membrane, or at the base of the brain, when there is none in the ventricles; but in most cases where the ventricles are distended, the surface of the membranes is found drier than in the natural state. The quantity is sometimes so great as to distend all the ventricles, and, in cases more chronic than usual, has been found by measurement to exceed ten or twelve ounces. The central parts, especially the septum lucidum, the fornix, and the substance of the brain surrounding the ventricles, are frequently found in the state of *ramollissement* described in the Appendix on

Apoplexy, or of suppuration *. This is commonly found combined with effusion in the ventricles, but in some cases no fluid is found. When cut into, the substance of the brain often presents a greater vascularity than natural, and the vessels of the membranes are commonly turgid; but much dependence cannot be placed on these last appearances. In some cases where there has been extensive effusion into the ventricles, no deviation from the healthy state of the surrounding parts of the brain has been detected. Tubercles are often found—in some cases translucent and of recent formation;—in others, opaque and yellow, but still of firm consistence; the former are most frequently observed on the pia mater, the latter in the medullary substance. Tumours of considerable size, principally of that kind called medullary sarcoma, are sometimes found, either attached to the membranes, or developed in the substance of the brain or cerebellum. A number of cases of this kind occurred to Dr Gregory. Marks of inflammation and suppuration are not unfrequently found on the dura mater, the arachnoid membrane, or the pia mater. In such cases, caries of the pars petrosa of the temporal bone has been often observed; and this is generally connected with previous pain of ear and purulent discharge †.

External violence or blows upon the head, teething, the suppression of an accustomed discharge, and the debility and irritation caused by previous disease, appear to be the principal exciting causes of hydrocephalus; but a strong predisposition to it is unquestionably given by the state of the system in childhood, and by the scrofulous constitution; and like other diseases which are usually considered as scrofulous, it is most prevalent during the cold and moist wea-

* See Dr Abercrombie, *Op. cit.* pp. 132. 124.

† For cases of this kind, see Dr Abercrombie, *Op. cit.* p. 32; and Itard, *Traité des Maladies de l'Oreille et de l'Audition*, Paris, 1821.

ther of winter and spring in this country. Several children in one family frequently fall victims to it; and in these cases, it often appears that they are born of scrofulous parents.

Too much stress has been laid by Dr Whytt and others upon the presence of fluid in the ventricles, which they have considered to be the proximate cause of the disease. Serous effusion undoubtedly forms in general part of the disease, but in most cases it is probably only in the later stages that it takes place to any extent. In some well-authenticated instances, the symptoms have gone through the usual course of hydrocephalus, and terminated fatally without any effusion; and it has been ascertained, on the other hand, that effused fluid may be present in the brain, even in large quantity, without giving rise to any of the symptoms of this disease. These facts appear to justify the conclusion, that the symptoms, at least of the earlier stages of hydrocephalus, do not necessarily depend upon the presence of a morbid quantity of fluid in the ventricles. This, although in most cases probably the immediate cause of death, ought only to be regarded as one of the effects of the morbid actions which constitute the disease.

Upon this subject, Dr Abercrombie has drawn the following conclusions, from an extensive survey of the facts:

“1st, That in the ordinary cases of hydrocephalus, the coma and other symptoms attending it are not to be considered as the direct effect of the effusion, but of that morbid condition of the brain, of which the effusion is the consequence.

2d, That we have no certain mark which we can rely upon, as indicating the presence of effusion in the brain. Slowness of the pulse, followed by frequency, squinting, double vision, dilated pupil, paralytic symptoms, and perfect coma, we have seen exist without any effusion.

3d, That all these symptoms may exist in connexion with

a state of the brain which is active, or simply inflammatory, while the disease is the subject of active treatment, and while, by such treatment, adopted with decision at an early period, we have the prospect of arresting its progress in a considerable proportion of cases. The ground of prognosis, in particular cases, depends perhaps in a great measure upon the activity of the symptoms. The more they approach to the character of active inflammation, our prospect of cutting them short will be greater; and the more they partake of the low scrofulous inflammation, it will be the less. In all of them, the period for active practice is short, the irremediable mischief being probably done at an early period of the disease *."

It is now very generally admitted, that in its early stages hydrocephalus is essentially inflammatory. The symptoms, the appearances on dissection, and, what is most important, the practice which has been generally found most beneficial, all tend to corroborate this opinion. From various cases which occurred to him early in life, one of which was published by Dr Quin in his inaugural dissertation †, Dr Gregory soon saw reason to conclude, that the first and principal part of the disease depends upon increased arterial action; and the first object in his plan of treatment was to diminish or remove this. With this view he trusted chiefly to the antiphlogistic remedies. Blood-letting and purging constitute the treatment now most generally employed. The good effects of general blood-letting are often very striking in cases where symptoms characteristic of the first stage exist, especially when they commence suddenly, and are attended with considerable strength of circulation. What might otherwise have been the event in such cases may be doubtful; but in their symptoms they have been often similar to others, which have gone on to the fatal termination in this way.

* Op. cit. p. 148.

† De Hydrocephalo Interno, Edinburgh, 1779.

The blood is frequently drawn from the jugular vein or the temporal artery, and leeches or cupping are also employed. In young children, leeches act on the footing of a general depletion, and may supersede the use of the lancet; but beyond the age of five or six years, much more reliance is to be placed on venesection, which may be often carried so far as to produce faintness, once or twice, with advantage. But it is only when the remedy is used within the first two or three days, that decisive effects can be expected from it. The application of cold to the head is an important part of the treatment, and may be employed, in the manner mentioned in the Appendix on Apoplexy, as long as the heat remains above the natural standard. Large and repeated doses of purgatives are often required, but probably in those cases chiefly in which blood-letting had been neglected at the commencement. Blisters have been recommended to be applied either to the head or the neck; but they are an ambiguous remedy in the early stages; and in children especially, they are apt to cause additional irritation. Issues and setons may be useful means of prevention. Mercury was at one time the remedy most generally employed; and when given so as to affect the mouth, it has appeared useful, principally in those cases which draw out long. But it is in general difficult to excite salivation in children; and it is requisite to use considerable caution in regard to mercury, as it cannot be given without the risk of its acting too much as a stimulus in certain constitutions.

As satisfactory evidence of absorption going on in the brain is afforded by the gradual disappearance of coagula of blood from the ventricles and other parts of its substance, it appears probable, at least, that serous effusion may also be absorbed; but in cases where there is inflammation or disorganization of the surrounding substance, it is doubtful whether absorption could take place; and, if it should occur, it may be doubted whether it would be attended with any decided or permanent advantage.

In addition to those already mentioned, the following works on hydrocephalus acutus may be consulted :

SIR WILLIAM WATSON, Observations on Hydrocephalus Internus ; Medical Observations and Inquiries, vol. iv. 1771.

FOTHERGILL, Remarks on Hydrocephalus Internus ; Medical Observations and Inquiries, vol. iv. 1771.

DAWSON, Thoughts on Hydrocephalus Internus, London, 1778.

QUIN, A Treatise on the Dropsy of the Brain, Dublin, 1780.

DOBSON, HUNTER, and HAYGARTH, On the Treatment of Hydrocephalus Internus by Mercury ; Medical Observations and Inquiries, vol. vi. 1784.

LETTSON, Observations on some Cases of Hydrocephalus Internus ; Memoirs of the Medical Society of London, vol. i. 1787.

PERCIVAL, (GEORGE), Practical Observations on the Treatment and Causes of the Dropsy of the Brain ; Medical Facts and Observations, vol. i. 1791.

RUSH, Medical Inquiries and Observations, vol. ii. 1793.

BROWN, On the Treatment of Hydrocephalus Internus ; Medical and Physical Journal, vol. ii. p. 258.

WHITE, Observations on the Nature and Treatment of Hydrocephalus Internus ; Medical and Physical Journal, vol. iii. p. 113.

GARNET, Remarks on a Case of Apoplexia Hydrocephalica ; Medical and Physical Journal, vol. v.

ABERNETHY, Surgical Works, London, 1811.

CARMICHAEL SMYTH, A Treatise on Hydrancephalus, or Dropsy of the Brain, London, 1814.

CLARKE, Commentaries on Diseases of Children, London, 1815.

LAENNEC, Reflexions sur l'Hydrocéphale Interne aigu ; Journal de Médecine de Corvisart, Leroux et Boyer, tom. xi.

BRICHETEAU, Thèse sur l'Hydrocéphale, et Observation d'une Hydropisie aiguë des ventricules du cerveau ; Archives Générales de Médecine, tom. v. p. 210.

COOKE, On Nervous Diseases, vol. i. p. 379, London, 1820.

SALTER, Observations on the Treatment of Hydrancephalus, with Cases ; Edin. Med. and Surg. Journal, vol. xvi. p. 393.

DICKSON, On the Diagnosis of Hydrocephalus Acutus ; Id. Op. vol. xvi. p. 412.

PARENT et MARTINET, Recherches sur l'Inflammation de l'Arachnoïde Cérébrale et Spinale, Paris, 1821.

PIORRY, De l'Irritation Encéphalique des Enfans, Paris, 1823.

GUERSENT, Dictionnaire de Médecine, tom. xi. Article *Hydrocéphale*, 1824.

MAXWELL, Observations on Hydrocephalus Internus, with Cases; Edin. Med. and Surg. Journal, vol. xxii. p. 11.

SENN, Recherches Anatomico-Pathologiques sur la Meningite aiguë, Paris, 1825.

MILLS, On the Morbid Appearances exhibited on Dissection in various Disorders of the Brain, Dublin, 1826.

MONRO, On the Morbid Anatomy of the Brain, vol. i. Hydrocephalus, Edinburgh, 1827.

1174. *Syncope*.—It would appear, that in some instances, the proximate cause of syncope is rather a deficient action of the capillary vessels than of the heart itself. Cases of syncope terminating in death have been recorded, in which the heart was found flaccid, and all its cavities, as well as the great vessels, either entirely or nearly empty of blood; while in some of them the superficial vessels were turgid, and before death had caused suffusion *. These circumstances seem to indicate, that the smaller and more superficial vessels had suddenly lost the power of propelling their contents towards the heart, which merely ceased to contract in consequence of the absence of its natural stimulus.

1175. The dependence of the action of the heart on the nervous influence conveyed from the brain, which Dr Cullen has here assumed as a proposition fully established in physiology, has been disproved, particularly by the experi-

* See Mr Chevalier, An Account of three Cases of sudden Death, with the appearances on dissection; Medico-Chirurgical Transactions, vol. i. p. 157.—Morgagni, De Sedibus et Causis Morborum, Epist. xxv. Art. xiii. Epist. xlviii. Art. 44; and Lieutaud, Historia Anatomico-Medica, Lib. ii. Obs. 40.

ments of Haller, Fontana *, M. Legallois †, and Dr Wilson Philip ‡, and is now no longer maintained. But the influence of "powers acting primarily, and perhaps only in the brain," upon the motion of the heart, is certain, and has been well illustrated by the experiments of Dr Wilson Philip. One of these causes seems to be the suddenly diminished pressure on the brain, or diminished tension of its blood-vessels, alluded to by Dr Cullen in section 1177.

The remedies most effectual in a fit of syncope are the horizontal posture, (see sect. 1177.) the application of stimuli, such as ammonia to the nostrils, and cold water dashed on the face. The effect of these appears to be to excite the act of inspiration, and thus to secure a fuller supply of the natural stimulus of the left side of the heart. In some of the cases described by Mr Chevalier, and which were slow in their progress, very large quantities of stimulating remedies were used with manifest good effect.

1185. *Angina Pectoris*.—Under the head of organic diseases of the heart itself, or of the parts immediately connected with it, acting as remote causes of syncope, it may be proper to allude to that peculiar affection first described by Dr Heberden, under the name of *Angina Pectoris* §, and afterwards more fully by Dr Parry under that of *Syncope Anginosa*, from the analogy which it bears to ordinary syncope ||. The symptoms of this peculiar affection have

* *Traité sur la Physique Animale*, tom. i. Florence, 1775.

† *Expériences sur le Principe de la Vie*, *Œuvres Complètes*, Paris, 1824.

‡ *Experimental Inquiry into the Laws of the Vital Functions*, London, 1817. For a summary of the present state of this question, see Dr Bostock's *Elementary System of Physiology*, vol. i. p. 291, London, 1824.

§ *Some Account of a Disorder of the Breast*; *Medical Transactions of the College of Physicians of London*, vol. ii. p. 59; vol. iii. p. 1.

|| *An Inquiry into the Symptoms and Causes of the Syncope Anginosa*, Bath, 1799.

been minutely detailed by Sir Everard Home, in the well-known case of Mr John Hunter *.

It occurs principally in men beyond the middle age, of short stature, and inclined to corpulency, and generally commences with an uneasy sensation, sometimes described as a sense of stricture or anxiety, and at other times as acute pain, referred to the sternum, or the region of the heart, and commonly extending across the left side of the chest, towards the arm, in which the pain is frequently felt. It sometimes also extends to the right side, and to both arms as far as the hands, with some loss of sensation; but this is not an essential symptom, and the pain is sometimes confined to one spot. These sensations occur in paroxysms, and are generally induced, at least in the earlier stages of the disease, by bodily exercise, especially when attended by any peculiar exertion; as walking at a quick pace, or ascending an acclivity. On these occasions the patient generally finds it impossible to proceed, and is obliged to remain at rest until the paroxysm shall have abated. They are most apt to come on after a meal. There is seldom any affection of the respiration during them, and the patient can generally take a full inspiration with ease, and without increasing the pain or anxiety. Sometimes frequent sighing has been observed, and appeared to be attended with some relief. In Mr Hunter's case, the natural sensation which prompts to respiration was not felt, and he performed the action by a voluntary effort. The state of the circulation varies much in different persons. In some cases the pulse is imperceptible, and the actions of the heart appear to be at a stand; in others it is irregular and unequal in strength; but this is not generally attended with increased action of the heart. It has been sometimes observed little, if at all, affected; but most commonly there is a re-

* Life of Mr Hunter, prefixed to his Treatise on the Blood, &c. London, 1794.

markable diminution in the strength of the pulse. The paroxysms, in the early stages, are commonly of short duration, and are often relieved by flatulent eructation. In some persons each paroxysm is attended by a sudden fit of strangury.

In the more advanced periods of the disease, the paroxysms are induced by slighter causes, and are often brought on, or are much increased, by various emotions or passions of the mind, and particularly by anger. They frequently also come on during sleep, without any obvious cause. They become more severe, and of longer duration, and are frequently accompanied by vomiting, paleness and coldness of the surface, rapid sinking of the pulse, and complete syncope. Persons once affected in this way generally continue subject to similar attacks for many years, and often die suddenly, apparently during a violent paroxysm. The exquisite form of Angina Pectoris, as described by Dr Heberden and others, is seldom met with; but its more prominent symptoms frequently form part of other affections depending upon organic disease of the heart or great vessels.

The appearances on dissection are various. Perhaps the most frequent morbid alteration in the cases described by authors, is induration or ossification of the coronary arteries. This has been particularly illustrated by Dr Parry, who has endeavoured to trace the disease to the rigid and obstructed state of these vessels *. But in many cases no alteration of the coronary arteries has been detected on minute examination †; and in others, extensive ossification of the coronary arteries has existed without any such symptoms presenting themselves ‡. Extensive organic disease of the heart or great

* Op. cit. p. 109.

† See Dr Blackall on Dropsies; Appendix, on the Angina Pectoris, p. 380, 3d edit. London, 1818; and case by Mr Waldon, London Medical and Physical Journal, vol. xvi.

‡ See Account of the Dissection of a case of Ulceration of the Œsophagus,
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vessels, particularly hypertrophia, dilatation, or flaccidity of the heart, induration or ossification of the valves of the heart or great vessels, and dilatation or ossification of the arch of the aorta, have been often found after this disease, sometimes singly, at other times combined together. In other cases, no organic alteration has been discovered, and the disease has appeared to be strictly an affection of the nerves, or a neuralgia.

A very strong predisposition to it appears, therefore, to be evidently given by organic disease of the heart or great vessels. It is also sometimes found combined or alternating with gout. These morbid alterations of structure, rendering it often unable to propel the blood accumulated in its cavities, sufficiently explain the sense of stricture and anxiety referred to the heart. The acute pain has been supposed to depend upon pressure exerted on some of the nerves of the cardiac plexus, or upon their being stretched by the dilated parts.

There are very few instances of complete recovery after this disease has come on in decided paroxysms, and these are probably to be ascribed to avoiding all the known exciting causes, and to a very temperate mode of life. The treatment may be considered as entirely palliative. During the paroxysms, stimulants with external warmth, and antispasmodics, particularly ether and opium, are the remedies which have been most commonly used. Relief has been, on some occasions, obtained from blood-letting; but this is not uniform, and frequently it cannot be employed, either on account of the complete failure of the circulation, or the previous debilitated state of the patient. Issues and setons have been also recommended.

On this subject, the following works may be consulted, in addition to those already mentioned:

and Ossification of the Heart, by Henry Watson; Medical Communications, vol. i. p. 234.

FOTHERGILL, Case of Angina Pectoris, and Farther Account of this Disease; Medical Observations and Inquiries, vol. v. pp. 233. 252.

MACBRIDE, History of an Angina Pectoris; Medical Observations and Inquiries, vol. vi. p. 9.

BLACK, Case of Angina Pectoris, with Remarks; Memoirs of the Medical Society of London, vol. iv. p. 261; vol. vi. p. 41.

ALBERS, Observations on Angina Pectoris, &c.; Annals of Medicine, vol. vi. p. 382.

HUME, On Angina Pectoris, &c. Dublin, 1804.

BURNS, On Diseases of the Heart, p. 136, Edinburgh, 1809.

DESPORTES, Traité de l'Angine de Poitrine, Paris, 1811.

LATHAM, Observations on certain Symptoms usually, but not always, attending Angina Pectoris; Medical Transactions of the College of Physicians, vol. iv. p. 278.

JURINE, Mémoire sur l'Angine de Poitrine, Paris, 1815.

BLACK, Medico-Chirurgical Transactions, vol. vii. p. 70.

LAENNEC, Traité des Maladies des Poumons et du Cœur, 2d edit. vol. ii. p. 745, Paris, 1826.

1195-6. *Dyspepsia*.—It is probable that a morbid determination of blood to the mucous membrane of the stomach, even amounting, on some occasions, to a degree of low inflammatory action, may frequently give rise to the principal symptoms of Idiopathic Dyspepsia. This has been particularly pointed out by Dr Parry* and Dr Wilson Philip†, in this country, and by M. Broussais in France‡. Dr Parry has concluded, perhaps too generally, that this disease depends upon a morbid turgescence of the vessels of the villous coat;—from the increased sensibility and cardialgia ge-

* Elements of Pathology and Therapeutics, vol. i. p. 203, Bath, 1815.

† A Treatise on Indigestion, &c. p. 110, 5th edit. London, 1825.

‡ Histoire des Phlegmasies Chroniques, tom. ii. et iii. 3^{me} edit. Paris, 1822.

nerally attending it, and the unusual quantity of the natural mucous secretion, frequently vomited by dyspeptic persons, (symptoms, as he conceived, arising from, or connected with increased vascularity);—from the relief often obtained in such cases from hæmatemesis, especially in women affected with amenorrhœa, who are peculiarly liable to dyspepsia;—and from the exemption which women, who labour almost constantly under dyspeptic symptoms, usually experience during the periods of the menstrual discharge, and the relapses they suffer soon after it has ceased. “A greater degree,” he observes, “of this excessive determination, would probably bring the malady within the limits of inflammation; and from the violence of the symptoms, and concomitant fever, I have reason to believe, that I have more than once seen this effect actually happen from the use of certain ingesta, which, on other occasions, have produced only common dyspepsia.”

This chronic inflammation takes place, according to Dr Wilson Philip, principally when the disease has existed for some time, or in the second stage, and is denoted by tenderness of the epigastrium on pressure, hardness of the pulse, and some febrile symptoms. This observation, and the beneficial effects of the modification of the antiphlogistic treatment to which it leads, have been found to correspond with the experience of others. But the third stage of dyspepsia, which he has endeavoured to establish, and which he has characterized by the commencement of organic disease, is seldom well marked, and this distinction has not been generally adopted*.

Gastrodynia has been introduced by Dr Cullen into his

* For further details on the state of the Mucous Membrane of the Stomach in Dyspepsia, and the changes which it undergoes in Chronic Gastritis, see Dr Abercrombie, *Pathological and Practical Researches on Diseases of the Stomach, the Intestinal Canal, &c.* p. 17, Edinburgh, 1828; and Andral, *Clinique Médicale*, tom. iv. p. 361, Paris, 1827.

definition of this disease, and it is a symptom connected sometimes with dyspepsia alone; but it often exists apparently unconnected with it, and may proceed from various causes, as from biliary calculi, incipient organic disease, or what has been called Visceral Neuralgia *. In this last case, it is sometimes violent, occurs at irregular times, and without obvious cause, sometimes in connection with changes of weather, and certainly may be altogether independent either of inflammation or organic disease.

1210. Although Dr Cullen here recommends the use of purgatives in order to obviate the costiveness commonly attending this disease, yet he does not appear to have been fully aware, that severe dyspeptic symptoms may often arise merely from costiveness, and disappear under the continued use of purgatives alone. This has been chiefly observed in the dyspepsia which accompanies hysteria and chlorosis †. In these cases, aloes, one of the purgatives most commonly employed, may act partly as an emmenagogue. It is not always necessary that full purging should be induced. Small doses of laxatives, given so as to secure the regular action of the bowels as in health, are, in many cases, attended with manifest good effect. They may be advantageously combined with some of the medicines called tonics, particularly with the sulphate of quinine, and the sulphate or carbonate of iron. The sympathetic affections of the heart, which so frequently accompany dyspepsia, and often assume many of the symptoms of organic disease of that organ, appear in many cases to yield to similar treatment ‡.

The use of mercury, particularly in the form of the blue

* See Jolly, *Mémoires sur les Névralgies Viscérales*; Nouvelle Bibliothèque Médicale, tom. ii. pp. 149, 289.

† See Hamilton on Purgative Medicines, 2d edit. pp. 61. 105, Edin. 1806.

‡ See Dr Abercrombie, *Op. cit.* p. 81.

pill, has been strongly recommended by Mr Abernethy*, and others, under the impression that dyspepsia is often complicated with functional disorder of the liver, and that no other remedy is so effectual as mercury in restoring the healthy secretion of the bile, and the natural colour of the fæces. This practice has been very extensively employed in England, and is certainly sometimes beneficial. But mercurials are not the only purgatives that change the colour of the evacuations; nor does mercury appear to act permanently on the flow of bile. There is no obviously increased flow of bile during the continuance of a mercurial course. At all events, mercury, although fairly tried, has often failed in producing the desired effect in dyspeptic cases, and ought not to be hastily used, or long persisted in, especially in weakened habits and scrofulous constitutions. "Injury," says Dr Abercrombie, "is done by the free use of stimulants, and by active purging; and I must also express my apprehension that no small injury is done by the indiscriminate use of mercury. There are indeed some affections of the stomach probably connected with derangements of the liver, in which a very cautious use of mercury appears to be beneficial; but, in many others, it is decidedly hurtful; and I conceive, that in all disorders of the stomach, mercury, in any form or in any quantity, ought not to be employed, when the desired effect can be accomplished by any other means." In another place he observes, "I must at the same time confess my suspicion, that it has become a kind of fashion to refer symptoms to morbid conditions of the liver, without any good ground for considering them as being really connected with that organ."—"As a practical man, anxious to be guided by observation alone, there are three classes of facts which have appeared to me worthy of much attention in reference to this subject; namely, 1. That I frequently see such complaints

* Surgical Works; on the Constitutional Origin and Treatment of local Diseases, vol. i. p. 82.

get well under very mild treatment, as regulation of the bowels, and a little attention to diet; 2. That I have seen such patients put through long and ruinous courses of mercury, without any benefit, and afterwards found the complaint removed by a course of mild laxatives; and, 3. That I have known patients die of other diseases, while these alleged affections of the liver were going on, without being able to discover in the liver, upon dissection, the smallest deviation from the healthy structure *."

In those cases which are attended by the symptoms already mentioned, as indicating an increased determination of blood to the mucous membrane of the stomach, local blood-letting, by means of leeches or cupping, as recommended by Dr Wilson Philip†, may certainly be occasionally employed with decided relief; and in those cases in which the symptoms assume a more inflammatory character, moderate general blood-letting may be also employed with advantage. These remedies may be followed by the application of blisters, issues, or the tartar-emetic ointment to the epigastrium.

1212. Among the remedies which act directly on the stomach, either as stimulants or tonics, electricity and galvanism, employed so as to pass in a gentle stream through that organ, ought perhaps to be included‡.

1216. In addition to chalybeates, other metallic preparations are now employed in dyspepsia; particularly the sulphate of zinc, in small doses, and the oxide of bismuth, in doses of from five to ten grains, given alone, or combined with bitters or aromatics in small quantity. The latter has been thought peculiarly efficacious in relieving gastrodynia.

In regard to diet, perhaps the most important regulations

* Op. cit. pp. 75, 319.

† Op. cit. p. 234.

‡ See Dr Wilson Philip, on the Vital Functions, &c. pp. 155, *et seq.* 314.

are, that the meals should be very moderate in quantity, and the intervals between them suited to the degree of rapidity with which digestion goes on; so that one meal shall be thoroughly digested before another is taken. The time requisite for this purpose is very various in different persons, and due attention ought to be paid to these individual peculiarities.

The articles most generally and decidedly difficult of digestion are, all such as are taken in a state of great induration, as hard-boiled eggs,—dried, salted, or smoked meat or fish,—raw vegetables,—and also animal oil in all forms.

A certain variety in articles of food appears to be wholesome, and even necessary, as a stimulus to the secretion *. But some caution is here necessary, lest the variety of food should tempt to excess. There is much peculiar idiosyncrasy as to articles of diet among different persons; but, on the whole, it may be stated, that a mixture of animal and vegetable food is most proper. A diet composed almost entirely of animal substances was very extensively and fully tried, some years ago, in dyspepsia; and Dr Gregory used to state, that not less than several hundred patients, who had given this treatment a fair trial, had come to him still affected with stomach complaints, and were afterwards benefited by a diet partly animal and partly vegetable †.

In addition to those already mentioned, the following modern works on dyspepsia and hypochondriasis may be consulted :

FOTHERGILL, Remarks on Sick Headach; Medical Observations and Inquiries, vol. vi. p. 103.

* This has been fully ascertained by experiments on animals. See Magendie, *Précis Elémentaire de Physiologie*, 2^{de} edit. tom. ii. pp. 493, 494. Paris, 1825.—Tiedmann et Gmelin, *Recherches Expérimentales sur la Digestion*, &c. (traduit de l'Allemand par Jourdan) Paris, 1827.—Londe, *Nouveaux Elémens d'Hygiène*, tom. ii. Paris, 1827.

† For further details on the Diet in Dyspepsia, see Dr Paris on Diet, 3d edit. p. 412, London, 1828; and Dr Abercrombie, *Op. cit.* p. 71.

- STONE, Practical Treatise on Diseases of the Stomach, London, 1806.
- WARREN, (PELHAM,) Of Headachs which arise from a defective action of the digestive Organs; Medical Transactions of the College of Physicians, vol. iv. p. 233.
- PEMBERTON, On the Abdominal Viscera, 3d edit. p. 99, London, 1814.
- LOUYER VILLERMAÏ, Traité des Maladies Nerveuses, &c. Paris, 1816.
- YEATS, On the Duodenum; Medical Transactions of the College of Physicians, vol. vi. p. 325.
- MARSHALL HALL, On the Mimoses, London, 1818.
- THOMAS, On Chronic Affections of the Digestive Organs, &c. London, 1820.
- WOODFORDE, A Treatise on Dyspepsia, &c. 2d edit. London, 1821.
- GEORGET, De la Physiologie du Système Nerveux; Recherches sur les Maladies Nerveuses en général, Paris, 1821.
- FALRET, Du Suicide et de l'Hypochondrie, Paris, 1822.
- BARRAS, Traité sur les Gastralgies et les Enteralgies, Paris, 1827.
- JOHNSON, (JAMES,) An Essay on Morbid Sensibility of the Stomach and Bowels, &c. London, 1827.
- UWINS, A Treatise on Diseases connected with Indigestion, &c. London, 1827.
- COOKE, (WILLIAM,) A Practical and Pathological Inquiry into the Derangements of the Digestive Organs, London, 1828.

1269. *Tetanus*.—Some attempts have been made to trace this disease to a morbid condition of the spinal cord, or its membranes; and a certain number of cases has been published, in which increased vascularity and turgescence, and even more unequivocal marks of inflammation affecting some portion of the contents of the spinal canal, or the nerves to which they give rise, have been found on dissection*. This

* See Dr Reid on the Nature and Treatment of Tetanus and Hydrophobia, Dublin, 1817.—Dr James Thomson on Convulsive Diseases; Edin. Med. and Surg. Journal, vol. xiv. p. 614; and Dr Sanders on Tetanus, Id. Op. vol. xvi. p. 473.

view is not peculiar to Pathologists of the present day, and tetanus and various other spasmodic diseases were supposed by Hoffman, Burserius, Lieutaud, and others of the older authors, to depend upon affections of the spinal cord. Spasmodic contractions and convulsions resembling more or less those of tetanus, certainly occur in many cases, which present on dissection, as the most important morbid alteration, increased vascularity of the cord or its membranes, sometimes with deposition of coagulable lymph, and often with purulent or bloody effusion between them *. But extensive inflammation of the membranes of the cord has been frequently found where no such symptoms had existed; and, on the other hand, many cases of well-marked tetanus are on record in which no morbid alteration could be detected in the contents of the spinal canal †. The turgescence of the spinal vessels, frequently observed, may proceed from various causes, and cannot be considered as an unequivocal sign of previous morbid action. In some cases marks of extensive inflammation, or at least of unusual vascularity of the stomach and intestines, are stated to have been found ‡. But the appearances described as indicating this cannot be altogether depended upon.

1270. Amputation of the limb in traumatic tetanus, as recommended and practised by Baron Larrey ||, was fully tried during the Peninsular war, and proved ineffectual in arresting the disease after it was fully formed.

* See Dr Abercrombie on Diseases of the Brain and Spinal Cord, p. 330.—Parent et Martinet, Recherches sur l'Inflammation de l'Arachnoïde Cérébrale et Spinale, p. 555, *et seq.*—Ollivier, de la Moelle épinière et de ses Maladies, 2d edit. vol. ii.

† See Andral, Clinique Médicale, tom. iv. p. 443.—Parent et Martinet, *Op. cit.* pp. 595, 599.

‡ Dr M'Arthur on Tetanus; Medico-Chirurgical Transactions, vol. vii. p. 466.
|| Mémoires de Chirurgie Militaire, Paris, 1812-17.

1271-80. Sir James Macgrigor states, that among several hundred cases which occurred in the Peninsula, there were very few, "where this disease had made any progress, in which remedies, however varied, seemed to have any influence on it."—"The remedies which have been chiefly trusted to, for the cure of this formidable disease, are, opium, mercury, wine, warm and cold bath, venesection, ipecacuanha, and digitalis in large doses, enlargement of the original wound, and amputation of the limb. These have been tried alone, and in various combinations, and I am obliged to confess that the whole failed, in almost every acute case of tetanus which occurred. The three first have been administered in unlimited doses without effect; the cold bath is worse than useless †." In the few cases which terminated favourably, blood-letting, purgatives and opium had been employed; and in some of the milder cases, calomel or digitalis appeared to be useful. In the advanced stages, tobacco glysters were tried without effect. The cold bath, first employed successfully by Dr Wright in the West Indies ‡, appears to have failed more lately in that country §. The warm bath has now fallen into neglect, or at least is found to afford only temporary relief; and mercury given so as to affect the system appears to exert no influence over the disease. More lately, it has been stated that a strong decoction of fresh tobacco leaves, applied as a fomentation, or added in considerable quantity to the warm bath, and given also in the form of glyster, has proved successful in a certain number of cases ||. This remedy, however, was com-

* Sketch of the Medical History of the British Armies, &c. ; Medico-Chirurgical Transactions, vol. vi. pp. 449, 454.

† On the Use of Cold Bathing in Locked Jaw, &c. ; Medical Observations and Inquiries, vol. vi. p. 143.

‡ Morison, A Treatise on Tetanus, Newry, 1816.

|| See Dr Anderson, on the Use of Tobacco in Tetanus; Medico-Chirurgical Transactions of Edinburgh, vol. i. p. 184; vol. ii. p. 365.

bined with the free use of purgatives, which have been also recommended as in some instances efficacious*.

The following modern works may be consulted on this subject, in addition to those already mentioned :

HAMILTON, On Purgative Medicines, 2d edit. p. 119, Edinburgh, 1806.

WELLS, A Case of Tetanus, with Observations ; Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. iii. p. 241.

LATHAM, Cases of Tetanus in consequence of Wounds ; Medical Transactions of the College of Physicians, vol. iv. p. 22.

DICKINSON, Cases of Tetanus ; London Medical Repository, vol. i. p. 190.

PARRY, Cases of Tetanus, &c. Bath, 1814.

GRIMSTONE, On Tetanus ; Edin. Med. and Surg. Journal, vol. xi. p. 419.

DICKSON, On Tetanus ; Edin. Med. and Surg. Journal, vol. xv. p. 185.

1289-90. *Epilepsy*.—The appearances on dissection in fatal cases of epilepsy are various and often very unsatisfactory. In addition to the sharp-pointed ossification arising from the internal surface of the cranium, or the membranes of the brain, to which Dr Cullen has alluded among the occasional causes, it may be stated, that the heads of persons subject to epilepsy are frequently very peculiar in their form, and the bones of the cranium are sometimes found of unnatural thickness, or some of their internal processes unusually prominent. These appearances depend, in most cases probably, upon original conformation, and are not to be considered as the result of morbid action in connection with the

* See Dr Dickson, Observations on Tetanus ; Medico-Chirurgical Transactions, vol. vii. p. 448.

disease, but as peculiarities giving a predisposition to it. In some cases, the usual marks of inflammation, increased vascularity, softening, and suppuration of the substance of the brain, have been found; but this has been chiefly observed where the disease has been complicated with the symptoms of an inflammatory affection of the head. Where there has been no such complication, and the disease has been more chronic, the substance of the brain has been sometimes found harder than natural. Thickening and ulceration of the dura mater and pia mater, tubercles, hydatids, serous effusion, abscesses, and tumours of various kinds, are not unfrequently met with. The cerebellum, according to the researches of M. Wenzel on this subject, is the most frequent seat of these morbid alterations of structure *. But they are common to other diseases, and often exist without giving rise to epilepsy; and many cases of this disease are upon record, where no deviation from the healthy structure of the parts within the cranium could be discovered on dissection †.

There is no doubt that epilepsy, probably in those otherwise predisposed to it, often supervenes upon the cessation of accustomed discharges, or on the recession of other diseases, particularly external inflammations, as gout, small-pox, erysipelas, or scabies; and it has been observed to alternate with mania, hysteria, asthma, or dropsy ‡. A variety, consequent on recession of the menses, and recurring often at the menstrual period, has been well described by Dr Prichard, under the name of Uterine Epilepsy §.

* Observations sur le Cervelet, et sur les diverses Parties du Cerveau dans les Epileptiques, (traduit de l'Allemand par Breton,) Paris, 1811.

† On this point, and for full details on Epilepsy, see Portal, Observations sur la Nature et le Traitement de l'Epilepsie, Paris, 1827.

‡ See Dr Parry's Elements of Pathology, pp. 376. 383; and Dr Ferriar's Medical Histories and Reflections, vol. ii. On the Conversion of Diseases.

§ On Diseases of the Nervous System, p. 148, *et seq.* London, 1822.

1330-42. To this list of medicines employed in epilepsy may be added the internal use of the nitrate of silver *, and the essential oil of turpentine †. These remedies have certainly appeared useful in some cases, and have at least diminished the frequency of the fits; but, like many others, they have often proved wholly inadequate to realize the expectations they had raised. Some advantage is stated to have been obtained by establishing a communication between the head and a distant part of the body, by means of a galvanic circle ‡; but this practice does not appear to have come into general use. Purgatives have been employed in some cases apparently with good effect; and sometimes, as in the variety alluded to above under the name of uterine epilepsy, they have been advantageously combined with general blood-letting. The warm bath and cold applications to the head have been also recommended in these cases, and where the symptoms decidedly indicate increased determination to the head ||.

1354. *Chorea*.—In his MS. lectures on this disease, Dr Cullen observes, “ Sauvages gives several instances of cures

* Dr Powell on the internal use of the Nitrate of Silver; Medical Transactions, vol. iv. p. 85.—Dr Albers and Dr Roget on an Effect of Nitrate of Silver; Transactions of the Medico-Chirurgical Society, vol. vii. pp. 284. 290.—Dr Cooke on Nervous Diseases, vol. ii. part ii. p. 143, *et seq.*

† Dr Edward Percival on Oil of Turpentine in Epilepsy; Edin. Med. and Surg. Journal, vol. ix. p. 271.—Dr Latham, Medical Transactions, vol. v. p. 52.

‡ Mansford, Researches into the Nature and Causes of Epilepsy, &c. Bath, 1819.

|| See Dr Prichard on the Treatment of Epilepsy; Edin. Med. and Surg. Journal, vol. xi. p. 458; and Op. cit. For further details on Epilepsy, see Dr Cooke on Nervous Diseases, vol. ii.—Maisonneuve, Recherches sur l'Epilepsie, Paris, 1803.—Esquirol, Dictionnaire des Sciences Médicales, tom. xii. article *Epilepsie*.—Bouchet et Cazauvieilh, De l'Epilepsie, considérée dans ses rapports avec l'Aliénation Mentale, Paris, 1826.—Georget, Dictionnaire de Médecine, tome viii. article *Epilepsie*.

performed by blood-letting, and some by bleeding and purging; and I have found both to have good effects in rendering the cure of the disease more easy. But I found that my patients would generally bear the repetition of purging better than that of blood-letting, which I consider as owing to the state of the primæ viæ, or some debility occurring that produces costiveness, which in this, as in all other cases, it is necessary to obviate pretty constantly*." We are indebted to Dr Hamilton for the more extended use of purgatives in chorea, and in no disease has the efficacy of this plan of treatment been more fully illustrated†. The continued use of this class of medicines alone has, in many cases, in the practice of others as well as of Dr Hamilton, proved sufficient to remove all the symptoms of the disease, even when of long standing. Dr Hamilton states, that after adopting this treatment, he was disappointed in effecting a cure, in one case only. The purgatives most commonly employed are, aloes, jalap, supertartrate of potass, calomel, and senna. The quantity of accumulated and unnatural fæces discharged under this treatment is often very great, and sometimes could not be anticipated from the previous habit of body of the patient: But the benefit obtained is sometimes equally great, where little or no unnatural appearance of the fæces has been observed. Some cases have been found to resist the ordinary purgatives employed, but have yielded to the oil of turpentine in large doses‡. In other cases purgatives have failed, although fairly tried; and the disease has disappeared, under the use of some of the metallic tonics or astringents, as the oxide of zinc, the preparations of iron,

* Cullen's Works, by Dr Thomson, vol. ii. p. 441.

† Observations on the Utility and Administration of Purgative Medicines, 2d edit. p. 86, Edinburgh, 1806.

‡ See Dr Powell, Medical Transactions of the College of Physicians, vol. v. p. 358.

arsenic, and the nitrate of silver *. The cold bath and a tonic regimen have also appeared to be useful. In adults especially, the disease is sometimes found to resist every mode of treatment.

1362. *Palpitation of the Heart*.—In regard to the organic affections of the heart which give rise to palpitations, (excluding the case of inflammation of the pericardium and muscular substance already considered †,) it is to be observed, that they most generally depend upon some mechanical impediment to the flow of blood, either through the cavities or out of the orifices of the heart, and this has been found to take place more particularly on the left side ‡. These obstructions most commonly lead to hypertrophy of the heart, with or without dilatation of its cavities; but in some cases, probably in weakened habits, they lead to simple dilatation, or the passive aneurism of M. Corvisart §. These changes are sometimes confined to the parietes of the cavity lying immediately behind the cause of obstruction, but in many cases they extend more or less to the whole heart.

The fact of enlargement of the heart can be, in general, satisfactorily ascertained in no very long time after its commencement. Of this the most certain sign is the stroke of the apex being distinctly felt below the sixth rib. Where

* See Mr Bedingfield, *Compendium of Medical Practice*, p. 51; On the Treatment of Chorea by the Oxide of Zinc.—Dr Elliotson on the medical properties of the Subcarbonate of Iron; *Medico-Chirurgical Transactions*, vol. xiii. part 1, p. 232.—Mr Salter on the use of Arsenic in Chorea; *Id. Op.* vol. x. p. 218.—*Id. Op.* vol. iv. p. 45; vol. xi. p. 299.—Dr Powell on the internal use of the Nitrate of Silver in certain convulsive affections; *Medical Transactions of the College of Physicians*, vol. iv. p. 85.

† Appendix on Rheumatism, vol. i. p. 515.

‡ See Haller, *Elementa Physiologiæ*, vol. i. lib. iv. sect. iii. art. 17.

§ *Essai sur les Maladies et les Lésions Organiques du Cœur et des Gros Vaisseaux*, 3^{me} edit. p. 93, Paris, 1818.

there is hypertrophy, the impulse felt by the hand, or, more accurately, on the application of the ear or the stethoscope to the region of the heart, is very generally found to be greater and more extended than natural. When the hypertrophy exists to a great degree, the contractions of the ventricles become much prolonged, with a distinct heaving (*soulèvement*) of that part of the parietes of the chest, and a sensation of shock communicated to the ear; and the sound which accompanies them in the natural state is often much diminished, or even wholly absent*. In cases of mere dilatation, the impulse given by the contractions is much less marked, and is often altogether imperceptible, while the sound is generally preternaturally loud and clear. This is the only certain sign, according to M. Laennec, of dilatation of the cavities, indicating that of the left ventricle when heard between the cartilages of the fifth and seventh ribs, and that of the right ventricle when heard under the lower part of the sternum. He considered that the increased impetus of the contractions felt in these situations afforded an equally pathognomonic sign of hypertrophy of the left and right ventricles respectively; and that an estimate of the extent of hypertrophy or dilatation might be obtained from the force or degree of these signs. But the combination of these two morbid changes, or the active aneurism of M. Corvisart †, is much more common than either of them separately; and the peculiar characters of each are seldom so distinctly marked as to admit of a decided diagnosis, by means of the indications of the stethoscope alone. It has appeared to some observers, likewise, that the sound of the heart's action was preternaturally loud in cases of palpitation depending upon nervous irritability only, where there was, from the progress of the cases, no reason to suppose

* See Laennec, *Traité de l'Auscultation Médiate*, 2d edit. tome ii. p. 411.

† *Op. cit.* p. 67.

that dilatation or any other organic alteration of the heart had taken place.

In certain circumstances, instead of the natural sound attending the action of the heart, a peculiar sound is heard on applying the ear or the stethoscope, to which, from the resemblance it bears to that produced by the action of a pair of bellows, M. Laennec has given the name of *Bruit de soufflet*. This phenomenon presents several varieties, sufficiently characterized, to which he has given the name of *Bruit de scie, de lime, ou de râpe*, from their resemblance to the sounds produced on wood by these instruments. These sounds are not confined to the heart, but are sometimes found to exist in the arteries, particularly in the carotids and subclavians. They are frequently combined with a peculiar sensation, felt on applying the hand to the region of the heart, which has been named by M. Laennec, *Frémissement cataire*, and has been aptly compared to the tremulous motion accompanying the purring of a cat. It also extends occasionally into the arteries, and presents several varieties *. These signs are frequently found going along with organic affections of the heart, particularly with shortening, thickening and induration of the valves; and they were supposed more peculiarly to indicate the existence of these morbid alterations. But they have been often observed to exist in cases where no organic disease of the heart or valves has been discovered on dissection; and they sometimes occur in nervous irritable habits, and in persons subject to hysteria or hypochondriasis. Extensive disease of the valves, and diminution in the diameter of the orifices of the heart, have been found in many cases in which these signs have not presented themselves during life. "These phenomena," M. Laennec observes, on this subject, "do not depend, as might at first be supposed, upon the passage of the blood over a surface

* On this subject, see Laennec, Op. cit. tome ii, p. 421-453.

more or less rough and unequal, but they depend upon the spasmodic energy which the muscular action of the heart must acquire, in order to overcome the obstacle opposed by the contraction of the orifices. Now, all other causes, besides diminution of the cavities, which can determine a similar spasmodic contraction of the heart, may equally give rise to the *bruit de soufflet* and the *frémissement cataire*. In this respect, I have attached, in the first edition of this work, too much importance, as signs, to the existence of the *frémissement cataire* and the *bruit de soufflet*, with which I was still very imperfectly acquainted *."

In regard to the indications of the stethoscope in diseases of the heart and great vessels, it may be stated generally, that they are liable to considerable fallacies, and by no means admit of the same precision, or furnish such accurate diagnoses, as in the various affections of the lungs. But when taken along with other symptoms, the information obtained in this way is often of much importance in discriminating between palpitation proceeding from functional disorder and from organic disease; and in ascertaining the existence and nature, and in some cases the particular situation, of the various morbid alterations of texture to which the heart and great vessels are subject. Percussion on the region of the heart, as recommended by Avenbrugger and Corvisart †, as a mode of ascertaining the existence of enlargement of the heart, is also liable to fallacy, and, when taken alone, it cannot be depended upon ‡.

It is difficult to distinguish, with confidence, cases where the obstruction exists at the mitral valve, from those where it is at the mouth of the aorta; but, in the former case, the

* Op. cit. 2d edit. tome ii. p. 581.

† Essai sur les Maladies et les Lésions Organiques du Cœur et des gros Vaisseaux, 3^{me} edit. p. 148, Paris, 1818.

‡ Laennec, Op. cit. vol. ii. pp. 402. 502. 510. 512.

pulse is probably, in general, more feeble and irregular. The diseased state of the orifice of the aorta, (the most common of all the morbid alterations to which these organs are subject,) seldom opposes any great obstacle to the passage of the blood; but the valves in the diseased state are generally short, rigid, and unfit for their office; and, in these cases, the ventricle being excited to more powerful contraction by the reflux or regurgitation of blood, the pulse is generally morbidly strong and jarring. It is often regular in strength and frequency, or only occasionally intermits. But, in diseases of the heart, the pulse is so very various, that many cases occur in which no dependence can be placed on its indications*.

In all these cases, palpitation is very readily excited on exertion either of body or mind; and in some of them, attacks of pain, taking more or less exactly the form of angina pectoris, frequently recur. Fits of palpitation often come on suddenly during sleep, and are in many cases accompanied by dyspnœa, amounting sometimes to orthopnœa, while no other symptoms of serous effusion within the chest exist. The "*subita et spontanea ex somno cum palpitatione excitatio*," introduced by Dr Cullen into his definition of hydrothorax, would be more strictly applicable to the affections of the heart at present under consideration.

In most cases, the disease at the orifice of the aorta is connected with a diseased state, extending more or less along its coats, in which they become at first partially red, and afterwards indurated, rigid, of unequal thickness, and generally dilated. This is often obvious from the greatly increased impetus and fulness of the carotid, and particularly of the subclavian arteries. Such a condition of the aorta in some cases leads to hypertrophy of the heart, when the valves are nearly sound.

* See Andral, Clinique Médicale, tom. iii. p. 484.

Independently of the cases where hypertrophy or dilatation arises from disease of the aorta or valves, there are others, in which the only adequate cause, appearing on dissection, for such enlargement of the heart, is an unusual narrowness of one or more of its orifices, without alteration of texture *. There is also a certain, though probably a small number of cases, where hypertrophy or dilatation is found on dissection, without obvious cause, either internal or external to the muscular fibres †.

The nature of the organic alterations found is almost constantly either mere thickening and induration of the inner membrane, with shortening of the valves, or these states combined with the deposition of soft *végétations* ‡, of cartilaginous, or of bony matter. The alterations seen in the aorta appear to begin with small deposits of lymph on its inner membrane, and among the fibres of its middle coat. These extend, coalesce into patches, and become ultimately the seat, either of bony deposition or of ulceration; and this ulceration, when extending farther than usual, leads to the formation of aneurisms ||.

These morbid alterations of structure are certainly observed most frequently in advanced life, but they are by no means uncommon in persons under the age of thirty, although very rarely met with under the age of puberty.

In regard to the cause of these diseases in the valves and aorta, leading to palpitations and enlargement of the heart, I shall only quote from M. Andral the following conclusions, which appear to be warranted by the facts adduced by him-

* See Andral, Op. cit. tom. iii. p. 473, *et seq.*

† Ibid. p. 482.

‡ Laennec, Op. cit. tom. ii. p. 618, *et seq.*

|| For farther details on this subject, see Corvisart, Op. cit. p. 199. *et seq.*—Bertin et Bouillaud, *Traité des Maladies du Cœur et des gros Vaisseaux*, p. 169, *et seq.*—Burns on Diseases of the Heart, p. 163, *et seq.*—Laennec, Op. cit. tom. ii. p. 572. *et seq.*—Hodgson on Diseases of the Arteries and Veins, London, 1815.

self and others, and by many which I have myself witnessed :

“ 1st, A great number of the contractions of the different orifices of the heart take their rise from an inflammation, acute or chronic, of the membrane lining the cavities of that organ.

“ 2d, This inflammation is the origin, the first cause, of many aneurisms of the heart.

“ 3d, A great number of the cartilaginous and bony deposits in the aorta, many of the alterations which its middle coat undergoes, either in its texture or in its properties, are the result of an inflammation of the artery.

“ 4th, These different organic alterations of the aorta appear to have a great share in the production of aneurisms of the heart.

“ We here beg the reader not to extend our opinion beyond the limits within which we ourselves circumscribe it. We have just now established, that an inflammatory action is a frequent cause of the ossifications of the internal membrane of the heart and arteries. This opinion, which has been already stated by authors of reputation, might find further support in the analogy which takes place in other organs, where an action undoubtedly inflammatory often precedes the morbid ossification. But we have not said that such was the case with all ossifications : we believe that in old age the process of nutrition, in many fibrous or cartilaginous tissues, can be modified in such a manner, that, without any morbid congestion of blood, these tissues become hard and ossified ; and in the same manner as, by the progress of age alone, the cartilages of the ribs and of the larynx pass into the bony state ; so, and without the existence of any morbid action, depositions of calcareous phosphate can take place in the interior of the heart and arteries *.”

* Andral, Op. cit. vol. iii. p. 468.

The causes by which these organic affections are excited appear to be the same which produce inflammation in general, especially in debilitated habits. The origin of many such cases can be distinctly traced to exposure to cold; others have commenced immediately after violent bodily exertions, or mental emotions. Many, as has been already mentioned, are connected in their origin with rheumatic attacks, and nothing appears to predispose to them more strongly than the habit of drinking spirituous liquors.

These affections are not only formidable in themselves, but the habitual impediment to the transmission of the blood through the heart gives a manifest predisposition to diseases, not only of the head, as already mentioned *, but of various other organs. More or less of congestion, induration and enlargement, or even tubercular degeneration of the liver, generally attends or succeeds them, probably in consequence of the stagnation of blood in the great veins †. They increase greatly the tendency to various affections of the lungs, particularly bronchitis, pneumonia, hæmoptysis with apoplexy of the lungs ‡, and asthma with emphysema, to be afterwards considered; and they become complicated, sooner or later, with dropsical effusions of various kinds. Serous effusion into the substance of the lungs, constituting œdema of that organ, according to M. Laennec §, and presenting the principal characters of the hydrothorax of systematic authors, takes place in the later stages of many of these cases. It is, however, to be observed, that, in the production of the affections now mentioned, some exciting cause generally co-operates with the strong predisposition given by organic disease of the heart; and the invasion of the secondary disease is often distinctly marked by inflammatory symptoms,

* Appendix on Apoplexy, p. 305. See also Corvisart, *Op. cit.* p. 186.

† See Andral, *Op. cit.* tom. iii. p. 526.

‡ *Op. cit.* pp. 513, *et seq.*; 528, *et seq.*

§ Laennec, *Op. cit.* tom. i. p. 349.

and may be checked, at least for a time, chiefly by the antiphlogistic remedies, succeeded by diuretics or anodynes, as circumstances may indicate.

The palpitations depending on organic disease, when free from such complications, and when the exciting causes of these are avoided, may sometimes exist for a long time without giving rise to much suffering. They demand a cool spare diet; and frequently their increase, or the accession of consecutive diseases, can only be prevented by repeated bleedings, although the condition of the patient is often such as to contra-indicate much loss of blood at one time. In the very commencement of such diseases of the heart, there is reason to believe that the antiphlogistic remedies, employed with care and perseverance, may be frequently successful in arresting their progress; but in these early stages it is often very difficult to recognise the disease with certainty. In the commencement, the use of mercury has also appeared sometimes beneficial; and as the origin of the organic alteration is generally a partial deposition of lymph, it seems reasonable to suppose that it may be occasionally checked by this remedy, as similar deposits certainly often are, when taking place on the iris.

Palpitations, even although violent and obstinate, are often unconnected with organic disease of the heart itself, or the great vessels. They are sometimes connected with various chronic diseases of the lungs, which imply retarded transmission of the blood through them; or with other organic disease producing compression or displacement of the heart without alteration of its structure, as in cases of enlarged liver, tumours developed within the thorax, effusion into the cavity of the pericardium, or empyema *. In these cases of diseased lungs, dilatation of the right side of the

* Laennec, *Op. cit.* vol. ii. p. 544.—Dr Abercrombie on the Pathology of the Heart; *Edinburgh Medico-Chirurgical Transactions*, vol. i. p. 64.

heart sometimes, but by no means uniformly, takes place. The most certain signs of this affection are, the preternaturally increased sound of the contractions of the heart heard under the lower part of the sternum, as already mentioned, and the unusual turgescence of the external jugular veins, in which a reflux of blood, synchronous with, or rather immediately preceding the contractions of the ventricles, often gives rise to what has been called the Venous pulse*.

The second head to which Dr Cullen has reduced the causes of palpitation, are those acting in consequence of an increased *mobility* only of the muscular fibres of the heart. This is perhaps a better term, as defined by Dr Cullen to signify the increased facility with which muscular action is excited, as distinguished from the increased strength or vigour with which it is performed, than the more modern term *irritability*, which is more general in its import†.

Palpitations have been observed along with functional disorders of various organs, particularly of the liver and stomach, and have disappeared on the abatement of these affections. An unusual "mobility of heart," and frequent palpitations, are observed in some persons after bloodletting, especially when large and repeated‡; and they may be certainly produced in many persons by much study, anxiety of mind, and watching. The late Dr Gregory used to

* Laennec, Op. cit. vol. ii. p. 511.—Dr George Pearson on a Disease of the Valves of the Heart; Edin. Med. and Surg. Journal, vol. xii. pp. 194. 201.—See also Mr J. W. Turner on the Motions of the Heart; Edinburgh Medico-Chirurgical Transactions, vol. iii. part i. p. 205.

† See Cullen's Physiology, sect. ii. chap. ii. §§ 83. 89, *et seq.*

‡ See Dr Marshall Hall on the Effects of Loss of Blood; Medico-Chirurgical Transactions, vol. xiii. part i. p. 121.—Mr Travers on Constitutional Irritation, p. 501.—Mr Brodie on Injuries of the Brain; Medico-Chirurgical Transactions, vol. xiv. part ii. p. 382.—Dr Armstrong on Typhus Fever, &c. 3d edit. p. 352.

observe, that he had been consulted by several medical students, during every year of his connection with the University, who fancied that they were affected with disease of the heart, on account of severe palpitations, but that he had never met with one who had such organic disease. Some of these were evidently cases of dyspepsia; others could not be traced to such an origin. Such cases are most effectually relieved by country air, and change of scene and occupation.

In addition to those already mentioned, the following modern works may be consulted on the diseases of the heart and great vessels :

SCARPA, On Aneurism, (translated by Wishart,) Edinburgh, 1808.
 WARREN, (J. C.) On Organic Diseases of the Heart, Boston, 1809.
 ABERNETHY, On a Disease of the Heart; Medico-Chirurgical Transactions, vol. i. p. 27.

FERRIAR, On Dilatation of the Heart; Medical Histories, &c. vol. i. p. 189; vol. ii. p. 251, London, 1810.

TESTA, Delle Mollatie del Cuore, Bologna, 1811.

KREYSIG, Die Krankheiten des Herzens, Berlin, 1814.

YOUNG, Remarks on Palpitation; Medical Transactions of the College of Physicians, vol. v. p. 257.

DUNCAN, Cases of Inflammation of the Heart; Edin. Med. and Surg. Journal, vol. xii. p. 43.

JAMES, On Diseases of the Heart; Medico-Chirurgical Transactions, vol. viii. p. 434.

1384. *Asthma*.—Many cases of dyspnœa, taking the form of asthma, depend evidently upon various organic diseases of the lungs and heart, implying impeded transmission of blood through these organs; and this affection appears sometimes to arise from diseases of the liver. But recent investigations have shewn, that the spasmodic or nervous asthma of systema-

tic authors, (the possibility of which was at one time called in question by many,) may exist, and even prove fatal, without appreciable alteration of texture in any of these organs; and tend to confirm the opinion of Dr Cullen, that this disease depends upon a preternatural and spasmodic constriction of the muscular fibres of the bronchiæ. The existence of circular muscular fibres commencing in branches of the bronchiæ of smaller diameter than those in which the cartilaginous rings disappear, has been demonstrated by M. Reisseissen*; and his observations have been verified by others. M. Laennec states, that he had traced them in branches of less than a line in diameter; and that, although it appeared to him difficult to trace the muscular fibres further, analogy would lead to the belief that they exist equally in the small ramifications, and perhaps in the air vesicles themselves†. It is certain that cases are on record where dyspnœa, or even paroxysms of remittent asthma, had proved rapidly fatal; and on dissection, minute examination failed to detect any organic alteration adequate to account for the symptoms during life‡.

M. Laennec has described two varieties of asthma, which cannot be ascribed to alteration of texture in any of the organs. The one is the spasmodic asthma of authors; the other is characterized by the sense of oppression, or the augmented *besoin de respirer*, while the sound of the expansion of the lungs, as heard through the stethoscope, remains perfect, or becomes as loud and distinct in adults as it naturally is in children. To this he has given the name of Asthma with puerile respiration. In ordinary spasmodic asthma, on the contrary, the natural sound of respiration is

* De Fabrica Pulmonum Commentatio, Berlin, 1822.

† Laennec, Op. cit. vol. ii. p. 80.

‡ See Guersent, Dictionnaire de Médecine, tom. iii. article *Asthme aigu des Enfants*.—Andral, Clinique Médicale, tom. ii. p. 77, et seq.—Laennec, Op. cit. tom. ii. p. 87.—Parry, Elements of Pathology and Therapeutics, p. 199.

often either much diminished, or wholly inaudible, over a great portion of the chest. That this depends upon a spasmodic contraction proper to the lungs and bronchiæ themselves, appears from the fact, that in many persons in whom the sound of respiration is either very feeble or altogether absent, (without symptoms of catarrh or organic disease to which it can be ascribed,) if the *besoin de respirer* is artificially increased by resisting the sensation which prompts to inspiration, or by reading aloud without inspiring, as long as possible, the sound of the expansion of the air-cells becomes distinct during the full inspiration which follows *.

1386. The diseases with which asthma is most frequently connected are the different varieties of Catarrh †, particularly the Catarrhe pituiteux, and Catarrhe sec of M. Laennec ‡, in their acute and chronic forms, tubercles developed in the lungs, hypertrophy or dilatation of the heart, and enlargement of the liver. This last is probably, in most cases, consecutive upon repeated attacks of pulmonary disease. It has not, however, been ascertained, that asthma ever proves fatal by giving rise, as here stated by Dr Cullen, to phthisis pulmonalis, or aneurism of the heart or great vessels. When combined with these affections, it is probable that, in the great majority of cases, the deposition of tubercles in the lungs, or some morbid alteration of structure in the heart or great vessels, has preceded the accession of the asthmatic symptoms. This applies at least to asthma as connected with disease of the left side of the heart. It is easy to conceive, that any long continued cause of retardation to the transmission of the blood through the lungs

* For further details on this subject, see Laennec, Op. cit. tom. ii. p. 74, *et seq.*

† See Appendix on Catarrh, vol. i. p. 595.

‡ Op. cit. vol. i. pp. 162-171.

may give rise to dilatation, or even to hypertrophy of the right side; and this has been accordingly observed, as indicated by the strong action felt at the epigastrium, or by the reflux of blood in the jugular veins *. But in such cases this seldom proceeds to any great length, unless it becomes complicated with other affections.

But asthma, especially when combined with chronic catarrh, frequently produces, or is accompanied by, a peculiar affection, which, though observed by Dr Baillie † and others, was first particularly described by M. Laennec under the name of Emphysema of the Lungs. It consists in a dilatation, to a greater or less degree, of the air cells, sometimes without, at other times with rupture and union of several of them into vesicles of considerable size. These often do not appear to be raised above the level of the surrounding surface; at other times they are elevated, so as to resemble the vesicular lungs of some amphibious animals. Pulmonary emphysema may be confined to a small portion, or it may occupy the greater part of one or both lungs. In these last cases, the lungs do not, as usual, collapse when exposed to the direct pressure of the atmosphere. In some cases, they are so voluminous, that the lung of one side is found to lap over that of the other, and it has been even observed to cause displacement of the heart. In other cases, on opening the thorax, the lungs immediately expand, and project beyond its parietes. Their substance is generally of a lighter colour than natural, more or less translucent, especially towards their edges; and their specific gravity, when the emphysema is extensive and uncomplicated, is so much diminished, that they remain, like a distended bladder, entirely

* For cases of this kind, See Laennec, *Op. cit.* tome i. p. 312. In some of these, disease of the left ventricle was also found, and was attributed by M. Laennec to the affection of the lungs. But it is difficult to conceive how disease of the left side of the heart can proceed from this cause.

† *Morbid Anatomy*, 3d edit. p. 73.

on the surface of water into which they are thrown. When inflated and dried, the dilatation of the air-cells is very manifest; and, when cut into, it is generally found that they are more dilated internally than upon the surface. In consequence of the rupture of some of the superficial vesicles, air is sometimes found effused or extravasated in the cellular tissue beneath the pleura pulmonalis; and, as in subcutaneous emphysema, it can generally be made to pass, by a little pressure, from one portion of the surface to another. The substance of emphysematous lungs is usually firmer and drier, and it is more difficult to express the air from a portion of it, than in the natural state. The crepitation on pressure is much less marked, and sometimes nearly imperceptible, while the lungs frequently convey a peculiarly inelastic or doughy sensation to the hand.

These appearances are sometimes combined with serous or sanguineous infiltration into the pulmonary substance, rendering it difficult in such cases to ascertain, on dissection, the existence of emphysema, especially if not very extensive. In portions of the lungs affected with emphysema, more or less of dilatation of the bronchiæ, principally in those of small diameter, is sometimes very distinctly marked.

Pulmonary emphysema appears most probably to depend, as already mentioned, in regard to dilatation of the bronchiæ*, upon the pressure exerted on the lungs during forcible expirations, while there exists an opposition or obstruction to the free exit of the air. Accordingly, in the great majority of cases, it has been observed where such opposition or obstruction had manifestly existed, particularly in persons who had been affected with severe and extensive catarrh, combined with asthma or hooping-cough†.

* See Appendix on Catarrh, vol. i. p. 601.

† The opinion of M. Laennec, as to the manner in which this alteration of the texture of the lungs is produced, is somewhat different,—being founded upon the principle, that the action of the muscles of inspiration is stronger than that of

The general symptoms of this affection are the same as those of catarrh and asthma. It appears often to occur in infancy, as during the hooping-cough; it is very chronic in its progress, and may exist for many years, unless it becomes complicated, without interfering to any great degree with the general health. When confined to one lung, the affected side is sometimes found, on examination, to be dilated, and the intercostal spaces to be wider, and more filled up than natural, as occurs in empyema*. The sound on percussion is louder and more tympanitic than that of the healthy side; while the sound of respiration is either inaudible by means of the stethoscope, or very faint. When, as is more commonly the case, both sides are equally affected, all the intercostal spaces are frequently observed prominent, and the sound on percussion becomes tympanitic over the whole chest, while the sound of respiration is only heard faintly in some points, and is occasionally combined with a slight *Râle sibilant* or *muqueux*. When the emphysema exists to a great degree, the dry crepitation, described by M. Laennec under the name of *Râle crépitant sec à grosses bulles*, and which is analogous to the ordinary *Râle crépitant*, is occasionally heard for a short time; and is sufficient, along with the faint sound of respiration still heard in some points, to distinguish emphysema of the lungs from pneumothorax, with which it might be otherwise confounded.

Pulmonary or vesicular emphysema is sometimes com-

those of expiration; whence he concluded, that air may be introduced into the cells of the lungs during inspiration, which the act of expiration may be inadequate to expel. But it does not seem easy to conceive, that the air-cells should be subjected to so great a pressure in consequence of acts of inspiration, as by the violent movements of expiration during the fits of coughing, either in asthma or in hooping-cough.

* See Appendix on Pneumonia and Pleuritis, vol. i. p. 426.

bined with interlobular emphysema, in which the infiltration of air takes place into the cellular texture between the lobules. In this form of the affection, transparent and well-circumscribed bands are formed on the surface, and chiefly towards the edge of the lungs, separating the lobules sometimes to a considerable distance from one another; but without causing evident dilatation of the air-cells, even in the insulated portions. They are generally elevated more or less above the adjacent surface; they are broadest towards the edge of the lungs, and they penetrate to a considerable depth in their substance. Extravasation of air beneath the pleura pulmonalis occurs more frequently in the interlobular, than in the true vesicular emphysema; and when this takes place near the root of the lungs, it passes readily into the mediastinum, whence it sometimes spreads to the neck, and to the subcutaneous cellular tissue of the whole body. Interlobular emphysema is the result of the rupture of some of the air-cells, or perhaps of some of the smallest ramifications of the bronchiæ, during a violent effort, by which the air passes into the cellular tissue separating the lobules. It is more common in children than adults, and takes place during croup, whooping-cough, or acute catarrh, especially when combined with much dyspnœa or asthma. It is also caused by the forcible retention of the inspired air which takes place during various violent and prolonged efforts, as in parturition, or in raising a heavy weight. It is accompanied by the *Râle crépitant sec à grosses bulles* already mentioned, which is quite pathognomonic, according to M. Laennec, of this affection; and a sensation of movement, or of crepitation, is frequently felt by the hand applied to the chest during inspiration or expiration. This affection is not of much importance in itself, (though one that occurs chiefly in dangerous diseases,) and often disappears in the course of a few hours, apparently from the rapid absorption of

the extravasated air; but it appears to be easily reproduced*.

1388. There can be no doubt, that an increased flow of blood takes place to the mucous membrane of the bronchiæ during a fit of asthma†; and there is a certain number of cases, particularly in young persons, in which the characteristic symptoms of asthma are blended with decided marks, not only of impeded transmission of blood through the lungs, but of inflammatory action. In such cases, advantage is often obtained from pretty full blood-letting.

1396-7. A great number of antispasmodic remedies have been at different times introduced in the treatment of asthma, and many of them have been manifestly efficacious in preventing or relieving the paroxysms in individual cases. Of these, perhaps, the most powerful is the smoke of the *Datura stramonium* inhaled into the lungs‡. *Hyoscyamus*, *belladonna*, *colchicum*, *aconite*, *conium maculatum*, and the *solanum dulcamara*, have been also employed with occasional good effect. Opium combined with ether, or with camphor or ammoniated alcohol, as in the paregoric elixirs, is perhaps one of the best forms in which antispasmodics can be given.

The tonic regimen, in so far as it can be used without risk of cold, and some of the medicines called tonics, especially the preparations of steel, have appeared useful in the interval of the paroxysms. Galvanic influence, from its observed effects on the secretion of the bronchiæ in experi-

* For further details on the subject of Emphysema of the Lungs, see Laennec, *Op. cit.* tom. i. p. 288-349.

† See Dr Parry's *Elements of Pathology and Therapeutics*, p. 196, *et seq.*

‡ See Dr Sims on the use of *Stramonium* in Asthma; *Edin. Med. and Surg. Journal*, vol. viii. p. 365.—Dr Marcet on the use of *Stramonium*; *Medico-Chirurgical Transactions*, vol. vii. p. 551.

ments upon animals, has been introduced into practice, and strongly recommended by Dr Wilson Philip *. But I am not aware that this practice has become general.

1398-9. In those persons in whom asthma is unconnected with organic disease, the tendency may be certainly much diminished, or sometimes apparently eradicated, by great care in avoiding the exciting causes of the paroxysms, and so preventing the disease from becoming habitual in the constitution. Of this, Dr Bree has furnished, in his own person, a remarkable example †, to which the late Dr Gregory used to refer in his lectures.

The exciting causes of asthma, against which patients ought to be especially warned, are all disorders of the stomach, and particularly flatulence, much exertion either of the body in general, or of the respiratory organs in particular, and exposure to cold, to boisterous weather, or to the inhalation of any sand or fine dust.

1400. The use of coffee is here stated by Dr Cullen to be improper in this disease; but it has been found on many occasions to relieve, if not to prevent the paroxysms ‡.

1402. *Hooping-cough*.—The inflammatory affection of the air passages, which recent investigations have shewn to exist

* Experimental Inquiry into the Laws of the Vital Functions, p. 316, *et seq.*

† A Practical Inquiry into disordered Respiration, 3d edit. p. 267, London, 1803.

‡ See Dr Bree, *Op. cit.* p. 256.—Dr Percival's Medical and Experimental Essays, vol. iii. For further details on the subject of Asthma, see Dr Beddoes on the Medicinal Use of Factitious Airs, Bristol, 1795.—Dr Ferriar on the Effects of Pneumatic Medicine; Medical Histories, vol. ii. p. 261, London, 1810.—Georget, *De la Physiologie du Système Nerveux; De l'Asthme Convulsif*, tome ii. p. 406, Paris, 1821.—Ferrus, *Dictionnaire de Médecine*, tome iii. article *Asthme*.

very generally in this disease, and which probably is uniformly present in the earlier stages, is perhaps the most important point connected with the pathology of whooping-cough. On dissection in fatal cases, increased vascularity, thickening and alteration of texture in the mucous membrane of the lower part of the trachea and bronchiæ, as already described under the head of catarrh, are the morbid appearances most frequently found*. This is sometimes confined strictly to the mucous membrane, especially of the smaller ramifications of the bronchiæ, which are often found obstructed by a great accumulation of viscid puriform mucus. But in other cases the inflammatory action extends to the parenchymatous substance of the lungs, giving rise to the various consequences of inflammation in this organ; particularly to condensation or hepatization, purulent infiltration, or abscess. Deposition of coagulable lymph, in the form of adventitious membrane upon the surface, and serous or purulent effusion in the cavity of the pleura, are not unfrequently met with. Tubercles are often found in considerable numbers, sometimes in the state of suppuration, but generally in their miliary form, and in those parts of the lungs especially, where the most decided marks of inflammatory action appear on dissection†. The bronchial glands also are frequently found enlarged and tubercular. Dilatation of the bronchiæ, and emphysema of the lungs already described‡, are frequent consequences of the violent cough and convulsive respiration, characteristic of this disease. Considerable vascularity has been sometimes observed in

* See Dr Watt on the History, Nature and Treatment of Whooping-cough, p. 103, *et seq.* Glasgow, 1813.—Dr Hastings on Inflammation of the Mucous Membrane of the Lungs, p. 202, London, 1820.—Guibert, *Recherches Nouvelles sur le Croup et la Coqueluche*, p. 263, Paris, 1824.

† See Dr Watt, *Op. cit.* p. 165.—Guibert, *Op. cit.* p. 220, *et seq.*

‡ Appendix on Catarrh, vol. i. p. 600; and on Asthma, vol. ii. p. 361.

the mucous membrane of the stomach and intestines, and has been supposed to indicate inflammation of these organs * ; but much reliance cannot be placed on this appearance as a mark of increased action. In those cases which are attended with convulsions, turgescence of the blood-vessels of the brain and its membranes, and slight serous effusion, are often found.

The signs furnished by the stethoscope, during the intervals between the paroxysms, are merely those indicating catarrh, particularly the faint sound of respiration, or even its total absence, in some points, while the sound on percussion remains natural,—puerile respiration in other points, and more or less of the ordinary *râles* accompanying catarrh. During the paroxysms, the sound of respiration is either inaudible, or is only heard in the short interval between each shock communicated by the convulsive movement of the thorax in coughing. The sonorous and prolonged inspiration, which affords the pathognomonic character of the whooping-cough, is confined, according to M. Laennec, entirely in the larynx and trachea, as no sound of respiration is at the same time perceptible, even in parts of the lungs where, during the intervals, it is well heard, or puerile. Hence he concluded that a spasmodic contraction of the small branches of the bronchiæ, similar to that already mentioned as occurring in asthma, may take place during the paroxysms of whooping-cough †.

1413. This disease sometimes proves fatal, by the extent of the inflammation in the lungs, or by the accumulation of altered and viscid mucus in the bronchiæ causing death by asphyxia. In these cases, of course, the effects of inflammation have been generally preceded by fever and dyspnoea, and

* See Hastings, Op. cit. p. 203.—Guibert, Op. cit. p. 220, *et seq.*

† Laennec, Op. cit. tome i. p. 188.

the danger of the disease is accordingly stated by Dr Cullen to be in proportion to the degree of these symptoms present. But in a large proportion of cases death takes place by convulsions, apparently induced by the impeded circulation of blood through the head during the paroxysms. In those cases in which it gives rise to the formation of tubercles, the disease generally assumes a very chronic form, and ultimately proves fatal with many of the symptoms of phthisis pulmonalis. After it has subsided, the disease is often reproduced by exposure to cold, or by some other contagious disease.

1414-19. The treatment in the first or febrile stage of hooping-cough must be regulated by the knowledge acquired through the medium of pathological anatomy, that inflammation of the mucous membrane of the bronchiæ probably always exists to a greater or less degree. This cannot be cut short as in the simple inflammatory affections; and the principal object of practice is to prevent its increase or extension along the mucous membrane, or still more to other parts of the pulmonary tissue, or to the pleura; the danger of convulsions from congestion of blood in the head being at the same time kept in view. This may be in many cases attained by the antiphlogistic treatment and emetics, as mentioned by Dr Cullen, and especially by avoiding exposure to cold.

1420-25. The time for the different antispasmodic remedies and tonics is when the febrile and inflammatory symptoms have in a great measure subsided. In addition to the remedies mentioned by Dr Cullen, various others have been recommended upon the authority of experience; particularly the carbonate of soda by Dr Richard Pearson*; the ex-

* On the Treatment of Hooping-cough; Medico-Chirurgical Transactions, vol. i. p. 23.

tract of the lactuca virosa by Dr Gumprecht *; the extract or the fresh powder of belladonna †, the oxide of zinc ‡, the arsenical solution §, and cantharides used internally ||. The vapours of tar have also been employed on some occasions with apparent good effect ¶.

1426. The late Dr Gregory was accustomed to state, in illustration of the benefit derived from change of scene, that he had seen the change from one room to another attended with good effect. He had also known cases where sudden terror, or other mental emotions, had put a stop to the recurrence of the fits **.

1447. *Colic*.—The infusion of tobacco leaves, employed in the form of glyster, is a very powerful remedy in this disease, and can be, in general, more easily regulated than that composed of the smoke, here mentioned by Dr Cullen. It is stated by Dr Abercrombie, that “the tobacco injection, as far as his observation extends, is the remedy of most general utility in all forms and stages of Ileus ††.” But much caution is at first requisite in its use, on account of its peculiar de-

* On the use of the Lactuca Virosa in Hooping-cough; Id. Op. vol. vi. p. 608.

† Laennec, Op. cit. tom. i. p. 191.

‡ Guersent, Dictionnaire de Médecine, vol. vi. Article *Coqueluche*.

§ Simmons on the use of Arsenic in Hooping-cough; Annals of Medicine, vol. ii. p. 393.—Dr Ferriar's Medical Histories and Reflexions; on the Hooping-cough, vol. iii. p. 221.

|| Dr Lettsom's Medical Memoirs of the London Dispensary, pp. 256, 266.

¶ See Dr Watt, Op. cit. p. 258; and for a full account of particular remedies, p. 274.

** For further details on the subject of Hooping-cough, see Dr Underwood on the Diseases of Children, 7th edition, vol. i. p. 356.—Dr Watt, Op. cit. Guibert, Op. cit.—Desruelles, *Traité de la Coqueluche*, Paris, 1827.

†† Pathological and Practical Researches on Diseases of the Stomach, the Intestinal Canal, &c. p. 144, Edinburgh, 1828.

pressing action upon the system. The quantity to be infused in a single enema should not be more than half a drachm of the dried leaves, at least in the first instance. It may often be combined with some of the milder purgatives, given by the mouth in pretty full doses.

1452. The treatment which has been long successfully employed in the Colica Pictonum in the Parisian hospitals, under the name of *Traitement des Pères de la Charité*, consists principally in a succession and alternation of purgatives and anodynes, given both by the mouth and in the form of glyster, combined with emetics and sudorifics*.

1458. *Cholera*.—Various theories as to the nature and proximate cause of this disease have been proposed, but these are still in a great measure involved in obscurity. That there is an obvious affection of the nervous system, appears from the violent spasms of the extremities, and even of the trunk, often observed to precede the evacuations; and in its most dangerous form, the cholera (which has at different times, but particularly lately, been most extensively and fatally prevalent in India and other tropical countries,) has been sometimes observed to prove fatal, without any vomiting or purging, in the course of a very few hours; or even, in a few instances, to prove immediately destructive of life†. There is manifestly, also, an uncommonly great and sudden alteration of the circulation and distribution of the blood, as shewn by the rapid shrinking and coldness of the surface, the clamminess and lividity of the skin, the collapse of the

* See Mérat, *Traité de la Colique Metallique*, 2^{de} edit. p. 152, *et seq.* Paris, 1812.—Ratier, *Formulaire Pratique des Hôpitaux Civils*, &c. Paris, p. 272.

† See Mr Jameson's Report on the Epidemic Cholera Morbus of Bengal, in 1817, 1818, and 1819, pp. 41, 60, Calcutta, 1820.—Mr Scott's Report on the Epidemic Cholera, p. xxi, Madras, 1824.

features, the sinking and glassy appearance of the eyes, &c. along with great and sudden diminution in the strength of the pulse, which is often imperceptible for a considerable time before death; and further indicated by the enormous quantity of fluid discharge which takes place, in most cases, from both the stomach and the bowels, within a short time after the commencement of the disease.

The most striking peculiarity of this form of cholera, essentially distinguishing it from that commonly seen in this country and described by Dr Cullen, is the total absence of bile in the stomach or intestines in cases which have proved quickly fatal. The appearance of bile in the stools is generally considered, in the epidemic cholera of warm climates, as a sign of the decline of the disease*. On dissection, in these cases, the principal morbid appearances are the very great venous congestion in the internal organs, and particularly in the vena cava, the vena portæ, and the blood-vessels connected with the stomach and the intestines, and the large quantity of fluid, sometimes watery and limpid, at other times turbid, or grumous and viscid, found in the course of the alimentary canal, without any bilious or feculent matter. The mucous membrane of the stomach and intestines is very various in its appearance, being, in some cases, partially thickened, softened, and highly vascular, or of a dark colour; and, in others, particularly in those which have proved rapidly fatal, paler than natural, and unaltered in its structure†. The appearances which have been supposed by some to indicate inflammation‡, or catarrh§, of the mucous membrane, are often by no means unequivocal. The blood

* Jameson, *Op. cit.* p. 54.

† *Op. cit.* p. 66. *et seq.*—Scott, *Op. cit.* p. xxxiii-xxxiv.—Annesley, *Sketches of the most Prevalent Diseases of India; On the Epidemic Cholera*, p. 119. *et seq.*, London, 1825.

‡ Jameson, *Op. cit.* p. 68, 69.

§ Christie, *Observations on the Nature and Treatment of Cholera*, p. 64. *et seq.*, Edinburgh, 1828.

is commonly found dark coloured and viscid, probably in consequence of the failure of the circulation, (so prominent a symptom in this disease,) and the absence or deficiency of the usual change of the blood in the lungs, which this necessarily implies.

In regard to the exciting cause of this endemic disease, nothing satisfactory is known. Many who witnessed its ravages were not convinced of its contagious nature; and it appears, from the experience of armies, to have been confined to particular districts. Unlike other diseases of tropical climates, during the late epidemic it is stated to have proved more fatal to natives than to Europeans, and chiefly to those of weak constitutions among the latter.

1462-64. In the treatment of the cholera of this country, in many cases where a state of great debility has been induced by the continuance of the disease for one or two days, the patient will not rally under the use of opium, unless stimulants, such as wine or brandy, are at the same time given.

The treatment which appears to have been most successful in the late epidemic cholera of India, consisted chiefly in very early blood-letting, followed by full doses of opium combined with stimulants, and frequently repeated. Calomel, in large doses, either alone or combined with opium, appeared to be useful on many occasions. But its good effects were by no means uniform; and, in some situations, it was found to add invariably to the irritability of the stomach, and was considered injurious in every case and in every form. From the feebleness of the circulation, it was often very difficult or impossible to procure a flow of blood; and it was only when employed within the first few hours from the commencement of the attack, that blood-letting was found decidedly beneficial*.

* For further details on the treatment of Cholera, see Jameson, *Op. cit.* p. 196. *et seq.*—Scott, *Op. cit.* p. liv. *et seq.*—Johnson on Tropical Climates, *Mort*

1492. *Diarrhœa*.—This affection has been considered by some of the later continental authors, and particularly by M. Broussais, as merely a symptom, in the great majority of cases, of inflammation of the mucous membrane of the intestines, here mentioned by Dr Cullen as one of the causes of diarrhœa. It has been referred by M. Broussais to the general and comprehensive head of acute or chronic *Gastro-Entérite* *; and is conceived by him to indicate, more particularly, chronic inflammation of the mucous membrane of the colon. But these views are liable to the same objections as those which have been brought against his theory of fevers †. Diarrhœa is certainly in many cases connected with increased action in the vessels of the mucous membrane, and consequent increased secretion into the intestines, as when it occurs in the course of continued fever, chronic dysentery, or in some cases of enteritis: it is often attended by pain or tenderness of the abdomen, frequent pulse, and other febrile symptoms; and when it assumes the chronic form, it is not unfrequently connected with ulceration of the mucous membrane, which obstinately resists every mode of treatment. But there are other cases of idiopathic diarrhœa unaccompanied, during life, by any febrile or inflammatory symptoms ‡; and where, on dissection, no marks of increased ac-

de Chien, 2d edit. p. 220. *et seq.*—Annesley, *Op. cit.* p. 164, *et seq.*—Dr Anderson on Cholera Morbus; *Edin. Med. and Surg. Journal*, vol. xv. p. 354.—Mr Corbyn on the Spasmodic Cholera of India; *Medico-Chirurgical Transactions*, vol. xi. p. 110.

* See Appendix on Gastritis, vol. i. p. 463, *et seq.*—Broussais, *Histoire des Phlegmasies Chroniques*, 3me edit. tomes ii. iii.

† See Dr Abercrombie, *Pathological and Practical Researches on Diseases of the Stomach, &c.* p. 299.—Appendix on Gastritis, vol. i. p. 476.

‡ See Dr Baillie on a Particular Species of Purging; *Medical Transactions of the College of Physicians*, vol. v. p. 166.

tion, and even no appreciable alteration of the mucous membrane, can be detected.

1500-1. In many cases of diarrhœa, especially when recent and with scanty evacuations, opium and other remedies do not appear to take effect until the bowels shall have been freely opened by some of the milder purgatives or laxatives; nor is their use, in such cases, followed by any pernicious effects, as here alluded to by Dr Cullen. When attended with febrile symptoms, tenderness of the abdomen, or tenesmus, local or even general blood-letting is frequently employed with manifest advantage. Leeches applied to the verge of the anus, a practice very generally followed on the Continent, as already mentioned *, often procure decided relief to these symptoms, and sometimes appear to cut short the disease.

1502-3. Among the various astringents employed in this disease, the sulphate of copper in small doses has been lately recommended by Dr Elliotson, particularly in more chronic cases which have resisted other remedies †. The acetate of lead has been also employed in similar circumstances. They may be advantageously combined with opium or hyoscyamus. Opium, in the form of glyster, is sometimes employed with good effect. The diet, in general, ought to be composed of the lightest and most easily digested food, particularly the farinaceous vegetables.

1509. *Diabetes*.—In his MS. lectures, Dr Cullen mentions that he had found cases of this disease to be attended with an unusual dryness of the skin, and that, in one case, the

* Appendix on Dysentery, vol. i. p. 609.

† On the Use of the Sulphate of Copper in Chronic Diarrhœa; Medico-Chirurgical Transactions, vol. xiii. part ii. p. 451.

urine was diminished in proportion as its natural softness and moisture was restored by warm bathing*. Dryness of the skin is a very characteristic symptom in the earlier stages of diabetes; but, in many cases, the patients become ultimately hectic, and subject to sweating, without any alteration in the other symptoms of the disease.

The essential characteristic of true diabetes is the discharge, not only of more, but of heavier urine than in the natural state. The specific gravity of diabetic urine is generally above 1030, and often as high as 1040, compared to water as 1000. That of healthy urine varies from below 1020 to 1030, but does not appear to exceed this last number†. From this it appears, that the quantity of solid matter passing off daily by the kidneys, in this disease, is often ten or even twenty times greater than the natural amount. When this morbid increase in the density, as well as the quantity of the urine exists, the disease may be considered to be characterized, although no saccharine matter be detected. Cases of this kind are related by Dr Bostock; and in one case it appeared distinctly, that the excess of the solid contents of the urine consisted, in the first instance, of urea only, but afterwards became converted into saccharine matter‡. Whether this is generally the course of the changes in diabetes may be doubtful. Some of the cases, described as diabetes insipidus, are essentially different from true diabetes,—the urine in them being of much lower specific gravity than natural,—and the quantity of the solid matter passing off daily by the kidneys not being beyond the average. Such cases are more properly examples of the polydipsia than the diabetes.

* Cullen's Works, by Dr Thomson, vol. ii. p. 492.

† See Dr Henry's Experiments on Diabetic Urine; Medico-Chirurgical Transactions, 3d edition, vol. ii. p. 120.

‡ Observations on Diabetes Insipidus; Medico-Chirurgical Transactions, 2d edition, vol. iii. p. 107.

Dissection has hitherto thrown no light on the seat of this singular disease. It does not appear to be essentially connected with organic alteration of any viscus. Many diabetic persons have been observed to die of pneumonia, or phthisis; but many die gradually exhausted, without any affection of the lungs. It is probable, that in cases of the former kind, the diabetes was not farther connected with the affections of the lungs, than as causing long continued and increasing debility, and therefore predisposing to them. No appearances, from which any decided conclusion can be drawn, have been observed in the kidneys. Enlargement of their substance and particularly of the calices, along with a flaccid state of these organs, is frequently found; but this is probably rather an effect than a cause of the disease.

1510-12. The pathology of this disease is still very obscure; but the following facts may be mentioned as evidently connected with it, and as indicating at least, pretty clearly, that the original seat of the disease is not in the kidneys.

1st, The chemical relation between urea and sugar. "The remarkable relation found to subsist between urea and sugar seems to explain, in a very satisfactory manner, the phenomena of diabetes, which may in fact be considered to consist in a depraved secretion of urea. Thus the weight of the atom of sugar is *just half* that of urea: the *absolute quantity of hydrogen* in a given weight of both is *equal*, while the *absolute quantities* of carbon and oxygen, in a given weight of sugar, are precisely *twice* those in urea *."

2dly, The fact, that urea is discovered in the blood of animals in whom the kidneys have been extirpated †; whence

* Dr Prout on the Proximate Principles and Morbid States of the Urine; Medico-Chirurgical Transactions, vol. viii. p. 541.

† Prévost et Dumas, Examen du Sang et de son Action dans les Divers Phénomènes de la Vie; 2d Memoire, Annales de Chimie et de Physique, tom. xxiii. p. 90.

we draw the legitimate conclusion, that the formation of urea is at least commenced before the blood, from which it is to be eliminated, enters the kidneys. In fact, Dr Christison has lately detected urea in the blood, in two cases of dropsy with scanty and albuminous urine, connected with disease of the kidneys.

3dly, The fact, that in many cases, at least, of diabetes, the characteristic symptoms disappear, and the kidneys secrete perfectly healthy urine, shortly before death *.

The experiments of Dr Wollaston †, who could not detect sugar in the blood of diabetic patients, were supposed to be very adverse to the supposition of diabetes being a disease of the general system. But as it is now known that the formation of urea must be commenced in the blood, although it cannot be detected there unless its elimination by the kidneys is prevented, or at least impeded, these experiments cannot be considered as decisive on that point.

Many circumstances indicate that the function of absorption is very generally disordered in diabetes, and the lymphatic system has been observed to be apparently more developed than in the natural state ‡.

1513. The animal diet, as recommended by Dr Rollo ||, has been often fairly tried in the Royal Infirmary, and particularly in the practice of the late Dr Gregory, but never, I believe, with permanent success. The symptoms of the disease have been observed to disappear, either spontaneously or under this treatment, for a time, but have almost constantly recurred. It appears from Dr Henry's statements, that the quantity of the urine may be diminished, and the saccharine matter may disappear under this treatment; while

* Dr Latham on Diabetes, p. 151, 152, London, 1811.

† Philosophical Transactions for 1811, p. 96.

‡ Dr Monro tertius, Annals of Medicine, vol. viii. p. 388.

|| Cases of Diabetes Mellitus, 2d edit. London, 1798.

the essential character of the disease, the greatly increased quantity of the solid contents passing off in this way, continues. The other remedies, which have occasionally appeared useful, are different astringents, and amongst others the tincture of cantharides, the warm bath and inunction of the skin, and opiates in full doses gradually increased, and steadily continued *. Phosphoric acid and the phosphates have been recommended by various authors; but never having come into general use, they have been probably found ineffectual †. Repeated blood-letting, as recommended by Dr Watt ‡, has been certainly followed by an abatement of the symptoms, chiefly in younger and stronger subjects; but this improvement, in many cases, has not been observed, and I believe has very seldom been permanent §.

1524. *Hysteria*. In his MS. lectures, Dr Cullen mentions the use of blood-letting in hysteria, both as employed during the fits, and in the intervals, with a view to take off the plethoric state, where it prevails. But he adds, by way of caution, that it ought to be confined entirely to plethoric cases, and to the first attack of the disease; and that when this depends upon *mobility*, blood-letting is a precarious remedy, and when frequently repeated, instead of preventing the recurrence of the plethoric state, will even induce and increase it. Accord-

* Dr Pelham Warren, Cases of Diabetes Mellitus treated with Opium; Medical Transactions of the College of Physicians, vol. iv. p. 188.

† Dr Latham, Op. cit. p. 105, *et seq.*

‡ Cases of Diabetes, &c.; Paisley, 1808. See also Dr Satterley, Cases of Diabetes, treated by blood-letting; Medical Transactions of the College of Physicians, vol. v. p. 1.

§ For farther details on Diabetes, see Dr Bardsley's Medical Reports, p. 68. *et seq.* London, 1807; Dr Ferriar's Medical Histories, &c. vol. i. p. 130, *et seq.* London, 1810.—Dr Baillie, Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. ii. p. 70.

ingly he states that hysteria is frequently produced by too copious blood-letting *. Some hysterical persons, however, not evidently plethoric, appear to bear this depletion well, even when repeatedly used; and it is often attended with decided benefit in such cases.

From the derangement of the functions of the stomach and intestines, as indicated by many of the dyspeptic symptoms commonly attending hysteria, particularly shifting pains of the abdomen, flatulence, and constipation alternating with vomiting or purging, Dr Hamilton was led to employ purgatives more freely than had been previously the practice, and with manifest advantage †. The use of purgatives has now become very general in this disease, and they are often combined with the ordinary antispasmodics and tonics. It is frequently necessary, on account of the degree of constipation, to employ pretty full doses of the more active purgatives, to procure even moderate evacuations; and Dr Hamilton recommends that their use should be continued, until the *fæces*, which are generally unnatural, assume a more healthy appearance, or the disease ceases. But strong purging is to be deprecated,—the object being, as in dyspepsia, to procure such an effect from medicines only, as may imitate, as nearly as possible, the regular and healthy state of the alvine evacuations. A treatment founded upon the principle that an undue impulse of the blood is a common cause of spasmodic and nervous affections, and particularly low diet have been recommended by Dr Parry ‡; and regular exercise, as in dyspepsia, is certainly often of the utmost importance in the treatment of hysteria.

* Cullen's Works, by Dr Thomson, vol. ii. pp. 501. 503.

† On Purgative Medicines, 2d edit. p. 105, Edinburgh, 1806.

‡ On the Effects of Compression of the Arteries in various Diseases, &c.; Memoirs of the Medical Society, vol. iii. p. 77.; and Philosophical Transactions for 1811, p. 89.

1525-27. *Hydrophobia*.—The appearances found on dissection of fatal cases of this disease are by no means satisfactory, and in many cases no appreciable alteration has been detected. Increased vascularity in the pharynx, the œsophagus, the stomach, and accumulation of mucus in the larynx or the trachea and bronchiæ, have been often observed, and been supposed to indicate previous inflammation of the mucous membrane of these parts*. But such appearances, as already mentioned, cannot be altogether depended upon, and they have been frequently absent in well-marked cases of the disease. The sanguineous congestion, frequently observed in the lungs, and which has been supposed to be constant†, probably takes place shortly before death. Unusual turgescence of the blood-vessels, especially of the membranes of the brain, has been also observed, and, in the majority of those cases in which the spinal canal has been laid open, great congestion of the membranes, and in some instances effusion of blood, have been found in the cavity of the theca vertebralis, particularly towards its superior extremity, and extending even to the medulla oblongata and tuber annulare‡.

* See Dr John Hunter, *Observations on Canine Madness*; *Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, vol. i. p. 311.—Dr Marcet, *A Case of Hydrophobia, with an Account of the Appearances after Death*; *Medico-Chirurgical Transactions*, vol. i. p. 154.—Dr George Gregory, *Id. Op.* vol. xiii. p. 260.—Dr Anthony Todd Thomson, *Id. Op.* vol. xiii. p. 315.—Dr Satterley, *Medical Transactions of the College of Physicians*, vol. iv. p. 369.—M. West, *Journal de Physiologie de Magendie*, tome ii. p. 95.

† Dr Ferriar, *Medical Histories and Reflections*, vol. iii. p. 50.—Trollet, *Nouveau Traité de la Rage*, Paris, 1820.—Dr A. T. Thomson, *Op. cit.* pp. 314. 323.

‡ See Dr A. T. Thomson, *Op. cit.* pp. 314. 324.—Dr Brandreth, *Edin. Med. and Surg. Journal*, vol. xxiii. p. 235.—Mr Copeland, *London Medical Repository*, vol. iii. p. 306.—Mr Webster, *Medico-Chirurgical Journal*, vol. iv. p. 289.

Full blood-letting, which formerly constituted the essential part of the treatment in hydrophobia, has been again introduced; and in India, at least, appears to have been attended in some cases with success*. It has, however, been fairly tried in other cases, both in India and in this country, and proved ineffectual†. The injection of tepid water into the blood has been proposed and tried by M. Magendie, with the effect of arresting for a time the spasmodic contractions, and enabling the patient to swallow liquids‡. Similar experiments have been performed by M. Dupuytren with opium, and by Dr Brandreth with the acetate of morphia, as recommended by Dr Booth and Dr Richard Pearson; and in both cases decided but temporary relief was obtained§.

The application of the cupping-glass to the wounded part, as lately recommended by Dr Barry, with a view to prevent the absorption of the rabid virus, may prove useful as a measure of precaution. The following directions for treating the recent bite of a rabid animal are given by Dr Barry: "The first thing to be done is to apply a powerful cupping-glass over the wound. This measure supersedes at once the ligature, ablution, excision, &c. during the period of its application, and for a certain time after its removal. 2. After the cupping-glass has been applied for an hour *at least*, the whole of the parts wounded or abraded by the bite should be freely dissected. 3. The cupping-glass should then be re-applied immediately. 4. The wound should next be hermetically sealed by the actual cautery. 5. The part

* See Mr Tymon and Dr Shoolbred on Blood-letting in Hydrophobia; Edin. Med. and Surg. Journal, vol. ix. pp. 22, 30.

† See Cases of Hydrophobia treated by Blood-letting by Mr Marshall; Edin. Med. and Surg. Journal, vol. x. p. 26.—Dr Ballingall, Id. Op. vol. xi. p. 74.—Dr Albers, Id. Op. vol. xi. p. 413.

‡ Journal de Physiologie, tom. iii. p. 382.

§ Edin. Med. and Surg. Journal, vol. xxiii. p. 76.

should be as little exposed to the contact of the air after the slough comes away, and as soon healed up, as possible *." This practice, of course, can be understood to apply only to cases where the poison has not yet been transported into the circulation, and is not beyond the limits of the influence of the vacuum caused by the cupping-glass.

In addition to those already mentioned, the following modern works on this subject may be consulted :

MEASE, On the Disease produced by the Bite of a Mad Dog, or other Rabid Animal, Philadelphia, 1793.

ARNOLD, On Hydrophobia, London, 1793.

RUSH, On the Yellow Fever, Gout, and Hydrophobia, Philadelphia, 1798.

HAMILTON, (ROBERT,) On Hydrophobia, London, 1798.

BARDSLEY'S Medical Reports ; On Canine and Spontaneous Hydrophobia, p. 237, London, 1807.

MOSELEY, Hydrophobia, its Prevention and Cure, London, 1808.

LIPSCOMB, History of Canine Madness and Hydrophobia ; with the Methods of Cure, Ancient and Modern, London, 1809.

DELONDRE, Essai sur la Rage, Paris, 1811.

GILLMAN, Dissertations on the Bite of a Rabid Animal, London, 1812.

O'DONNELL, Cases of Hydrophobia ; with Observations on the Nature and Seat of the Disease, 1813.

PARRY, Cases of Tetanus and Rabies Contagiosa, Bath, 1815.

MARSHAL, The Morbid Anatomy of the Brain in Mania and Hydrophobia, London, 1815.

MAROCHETTI, Observations sur les Indices certains de l'Existence du Venin Hydrophobique dans un individu, et Moyens d'en prévenir le developpement en détruisant le germe ; Commentationes Societatis Physico-Medicæ, tom. ii. part ii. p. 446, Moscow, 1821.

SAINT-MARTIN, Monographie sur la Rage, Paris, 1826.

* Experimental Researches on the Influence exercised by Atmospheric Pressure upon the Progression of the Blood in the Veins, &c. p. 149, London, 1826.

1551-54. *Insanity*.—The appearances often found on dissection within the cranium, after long-continued mental derangement, are so various, and so similar to those found after other diseases of the head, that no general conclusions can be drawn from them; nor have they as yet thrown much light upon the intimate nature of this important class of diseases, or on the proximate cause of the morbid perceptions and trains of thought by which it is characterized.

In addition to those here mentioned by Dr Cullen, it may be stated that perhaps the most frequent morbid appearances are serous effusion between the membranes or in the ventricles, and greater vascularity than natural of the arachnoid membrane, the pia mater, and the substance of the brain, which are frequently found to adhere strongly together *. The softening of the brain, already described under the name of *ramollissement* †, appears to be as often met with as the increased consistence and hardness formerly supposed to be intimately connected with insanity. It has been lately stated by MM. Foville and Pinel Grandchamp, that they had observed manifest increased vascularity, or other morbid alterations of the exterior cineritious substance, in every case in which the state of insanity had continued unabated to the last. Hence they have concluded, as already mentioned, that the cineritious substance is the seat of the intellectual faculties ‡. These views, however, have not been

* See Greding, *Melancholico-Maniacorum et Epilepticorum*, &c., *Sectiones*, apud Ludwig *Adversaria*, vol. ii. pp. 90, 269, 449, 622; vol. iii. p. 75, Leipzig, 1771.—Chiarugi, *Della Pazzia*, Firenze, 1794.—Haslam, *Observations on Madness and Melancholy*, 2d edit. p. 87, *et seq.* London, 1809.—Marshal on the Morbid Anatomy of the Brain in Mania and Hydrophobia, p. 149, *et seq.*

† Appendix on Apoplexy, p. 304.

‡ *Recherches sur la Siége Spécial des différentes Maladies du Système Nerveux*, Paris, 1823.

hitherto confirmed by other observers. Tumours of various descriptions in the substance of the brain, effusion of blood on its surface, and ossification or other disease of the membranes, are not unfrequently met with. The heads of maniacs are often, as in epilepsy, of a peculiar and irregular form. The bones of the cranium are sometimes found of unnatural thickness; at other times they are unusually hard and dense without diploe, or very light and spongy.

Some of these appearances are frequently found to a greater or less extent, but none of them can be considered as constant or essential; and in some cases, no appreciable deviation from the healthy structure has been discovered even on minute examination*. The mere absence, however, of organic lesion, as properly stated by Dr Cullen, does not assure us that no morbid change had taken place in the brain; and it is, at least, probable that changes in the intimate structure or the capillary vessels of parts so delicate as those contained within the head may exist, and prove the cause of insanity, and yet be so minute as to elude on dissection the observation of our senses. Some authors, indeed, have not hesitated to express their conviction, that insanity always depends upon organic disease of the brain or its membranes†. But it appears difficult to explain upon this principle many well-authenticated instances of insanity caused instantaneously by sudden and violent mental emotions, such as terror, anger, or joy, and others of equally sudden

* See Dr Morison, *Cases of Mental Disease*, &c. p. 138, Edinburgh, 1828.—Dr Burrows, *Commentaries on the Causes, Forms, Symptoms and Treatment of Insanity*, p. 70, London, 1828.

† Haslam, *Op. cit.* p. 238.—Marshall, *Op. cit.* p. 265.—Lawrence on the *Physiology, Zoology, and Natural History of Man*, p. 113, London, 1819.—Falret, *Du Suicide et de l'Hypochondrie*, Paris, 1822.—Bayle, (A. L. J.) *Traité des Maladies du Cerveau et des ses Membranes; 1^{re} Partie, Maladies Mentales*, Paris, 1826.—Voisin, *Des Causes Morales et Physiques des Maladies Mentales*, p. 346, *et seq.* Paris, 1826.

recovery, either temporary or permanent. It is to be observed, however, that the frequent occurrence of apoplexy, palsy, and epilepsy in the course of mental diseases *, points out a strong connection between insanity and the organic alterations of structure within the head, generally found to give rise to the two first, at least, of these affections.

1558. The following division of mental diseases, first proposed by M. Pinel, and afterwards modified by M. Esquirol, is perhaps, in some respects, preferable to that of Dr Cullen :

“ 1st, Monomania, (or partial insanity,) in which the delirium is confined to a single subject, or a small number of subjects.

“ 2d, Mania, in which the delirium extends to subjects of every kind, and is accompanied by excitation.

“ 3d, Dementia, (or fatuity,) in which the insane are incapable of reasoning, because the organs of thought have lost their energy, and the concentration (or power of voluntary attention) necessary to fulfil their functions †.

“ 4th, Imbecility or idiotism, in which the conformation of the organs has never been sufficiently perfect to permit of just reasoning ‡.”

* See Haslam, *Op. cit.* p. 259, *et seq.*—Calmeil, *De la Paralysie, considérée chez les Aliénés*, Paris, 1826.—Bouchet et Cazauvieilh, *De l'Epilepsie, considérée dans ses Rapports avec l'Aliénation Mentale*, Paris, 1826.

† Some recent authors appear to have adopted this definition of Dementia ; but a better idea of it is given by M. Pinel, who thus describes it under the name of *Démence, ou Abolition de la Pensée* : “ A rapid succession, or rather an uninterrupted alternation of insulated ideas and frivolous emotions disproportionate to their causes, unconnected movements, and successive acts of extravagance, complete oblivion of all previous conditions, abolition of the faculty of perceiving objects by the impressions made upon the senses, total loss of judgment, continual activity without object or design, and no inward perception of existence.” *Traité Médico-Philosophique sur l'Aliénation Mentale*, 2d edit. p. 180, Paris, 1809. See also, Esquirol, *Dictionnaire des Sciences Médicales*, tome viii. article *Démence*.

‡ Esquirol, *Dictionnaire des Sciences Médicales*, article *Folie*, tom. xvi. p. 163.

The various forms under which mental diseases appear may be probably referred to these heads; but it is to be remembered, that the different species pass into each other by such insensible gradations, that it is often impossible to characterize them with precision.

The remote and predisposing causes of insanity to which Dr Cullen has not particularly alluded, may be divided into physical and moral. Of the first of these, perhaps the most powerful as well as the most frequent is hereditary predisposition. This transmission is more frequently observed among the higher than among the lower orders. A table is given by M. Esquirol, by which it appears, that in his private establishment, reserved for the insane of the higher orders, out of two hundred and sixty-four cases, one hundred and fifty were attributed to hereditary predisposition, while in the Hospice de la Salpêtrière, out of four hundred and sixty-six cases, one hundred and five only were referred to this cause. Dr Burrows states, that in his practice he has clearly ascertained, that an hereditary predisposition existed in six-sevenths of the whole of his patients. It has been supposed, with some probability, that this difference is in a great measure to be ascribed to the frequent intermarriages between those of the same rank and among relatives in the upper classes of society*. The prevalence of insanity in those religious sects where intermarriages are general, as among the Jews, or the Society of Friends, has been ascribed to the same cause. It is stated by M. Esquirol, that hereditary insanity is often observed to come on at the same period of life, to be excited by the same causes, and to assume the same form†.

The age of infancy may be said to be exempt from insa-

* See Esquirol, Op. cit. tome xvi. p. 188.—Georget, Dictionnaire de Médecine, tom. ix. article *Folie*, p. 216.—Burrows, Op. cit. p. 104, London, 1828.

† Op. cit. p. 189.

nity, and very few cases are on record under the age of ten years*. But a strong predisposition appears to be given by the age of puberty, and the various important changes which take place at that period of life. It results from various numerical statements, that in both sexes, and in all conditions of life, mental derangement is most frequent between the ages of twenty-five and forty years†. From the following table given by Dr Haslam, and including a period of ten years, it also appears, that the probability of recovery is in proportion to the early age at which insanity has come on, and that it is very small in those who are attacked in advanced life.

Age between	Number admitted.	Number discharged cured.	Number discharged uncured.
10 and 20 . .	113 . .	78 . .	35
20 and 30 . .	488 . .	200 . .	288
30 and 40 . .	527 . .	180 . .	347
40 and 50 . .	362 . .	87 . .	275
50 and 60 . .	143 . .	25 . .	118
60 and 70 . .	31 . .	4 . .	27
	1664 . .	574 . .	1090 ‡

In regard to the influence of sex as a predisposing cause of insanity, M. Esquirol, from various numerical statements, has drawn the following conclusions: “ 1st, That judging from a very considerable number of maniacs, taken from various countries and conditions, the difference in the proportion between men and women is much less considerable than is commonly supposed. 2d, That this difference approaches nearly to the proportion that exists between the sexes in the general state of the population. 3d, That the difference is not the same in all countries. 4th, That in

* See Haslam, Op. cit. p. 185, *et seq.*—Esquirol, Op. cit. p. 168.

† Esquirol, Op. cit. p. 171.—Burrows, Op. cit. p. 245.

‡ Haslam, Op. cit. p. 249.

France the proportion of insane women is greater than in England *." These results appear to correspond with the statements of Dr Burrows on this point †. M. Esquirol ascribes the greater equality among the insane of both sexes in England to the more solid education that the females in this country receive, to their leading more domestic lives, and to their acting a less important part in society. The period of the accession of menstruation, and of its cessation, appear to act as predisposing causes of mental derangement in females; but perhaps not to such an extent as some have been led to believe. It results from the registers of the French establishments, that there are fewer females insane than males from the age of ten to nineteen, and not so many females from forty to forty-nine years of age, as from thirty to thirty-nine ‡. This, however, does not correspond with the experience either of M. Esquirol, or of Dr Burrows.

Insanity frequently comes on during the period of gestation, or shortly after parturition; and when occurring at this time it has been named Puerperal mania. It appears to be most common among the upper classes of society, and where there is hereditary predisposition. The probability of recovery, however, is much greater in puerperal insanity, than when it proceeds from any other cause. Dr Haslam states, that out of eighty patients whose disorder shortly followed the puerperal state, admitted into Bethlem Hospital from the year 1784 to 1794, fifty recovered perfectly §. Out of ninety-two cases of puerperal insanity admitted into the Salpêtrière in Paris from 1811 to 1814 inclusive, fifty-five recovered ||; and out of fifty-seven cases given by Dr Burrows, thirty-five recovered ¶.

* Op. cit. p. 173.

† Op. cit. p. 240-242.

‡ *Compte rendu des Hospices des Aliénés*, Tableau, No. 11, 1826.

§ Op. cit. p. 247.

|| Esquirol, *De l'Aliénation Mentale des Nouvelles Accouchées et des Nourrices*; *Annuaire Medico-Chirurgical des Hôpitaux et Hospices Civils de Paris*, p. 600, 1819.

¶ Op. cit. p. 395.

To these, which are probably the most important and powerful among the physical causes of insanity, may be added the abuse of spirituous liquors, excess of every kind, falls or blows upon the head, insolation; various diseases, particularly epilepsy, apoplexy, fever, irregular or interrupted menstruation, the suppression of hæmorrhoids, or other accustomed discharge, the recession of cutaneous diseases *, the irritation of mercury, &c. and the progress of age. Disorders of the digestive organs have been of late years particularly pointed out as exciting causes of insanity, or, at least, as frequently connected with mental diseases †; which observation, indeed, is equally applicable to the production of a great variety of diseases of the nervous system, in those predisposed to them. Different causes, already considered, of obstruction to the flow of blood through the heart, appear to give rise to mania, as well as to epilepsy and apoplexy. The influence of climate and season, although unquestionable, has been perhaps overrated. The extremes both of heat and cold have been found to cause insanity. A greater number of admissions into the Salpêtrière, however, take place during the summer than the winter months ‡; and it may be stated, I believe, with confidence, that the proportion of cases of insanity occurring among Europeans of the higher orders is greater in hot climates than in this country.

In regard to professions and occupations, it may be stated generally, that those which lead to excessive study or intense thought, or expose to great mental excitement and sudden vicissitudes of fortune, appear particularly to dispose to insanity; but from a table given by M. Esquirol of the profes-

* See Dr Parry, *Elements of Pathology and Therapeutics*, vol. i. pp. 343. 373, Bath, 1815.

† Dr Armstrong, *Practical Illustrations of Typhus Fever, &c.* 3d edit. p. 468.

—Dr E. Percival on certain Morbid Conditions of the Abdominal Viscera in some Varieties of Maniacal Disease; *Dublin Hospital Reports*, vol. i. p. 117.

‡ Esquirol, *Dictionnaire des Sciences Médicales*, tom. xvi. p. 166.

sions and previous mode of life of several hundred insane persons, it appears that the circumstance in the condition both of the upper and lower orders most conducive to the production of the disease is a sedentary life or occupation *.

The moral causes of insanity are numerous, and their influence is very extensive. Among them may be included all the passions and emotions of the mind, all impressions which tend to excite or exalt the imagination, particularly those caused by great political events and commotions, and new or abstruse views upon doctrinal points in religion. This last is perhaps the most fertile source of insanity, especially in women, in those countries where there are numerous sects, and where great freedom and latitude of religious belief prevail. Religious insanity accordingly is one of the most common forms which the disease assumes in Great Britain, while it is comparatively rare in France and other Catholic countries. Out of three hundred and thirty-seven insane patients admitted into M. Esquirol's private establishment, he found only one case to proceed from religious fanaticism †. "Were I to allege," says Dr Burrows, "one cause which I thought was operating with more force than another to increase the victims of insanity, I should pronounce that it was the overweening zeal with which it is attempted to impress on youth the subtle distinctions of theology, and an unrelenting devotion to a dubious doctrine. I have seen so many melancholy cases of young and excellently disposed persons, of respectable families, deranged from either ill-suited or ill-timed religious communication, that I cannot avoid impugning such conduct as an infatuation, which as long as persevered in will be a fruitful source of moral evil ‡."

The following instructive table, illustrating the relative influence of different moral causes in the production of in-

* Op. cit. p. 178.

† Burrows, Op. cit. p. 56.

‡ Op. cit. p. 186.

sanity in the different ranks of society in France, is given by M. Esquirol. The patients admitted into the private establishment are of course confined to the higher classes :

Exciting Causes.	Cases in the Salpêtrière in 1811 and 1812.	Cases in the private esta- blishment in 1811 & 1812.
Domestic vexations, . . .	105	31
Thwarted love, . . .	46	25
Political events, . . .	14	31
Fanaticism, . . .	8	1
Terror, . . .	38	8
Jealousy, . . .	18	14
Anger, . . .	16	0
Misery and reverses of fortune, .	77	Reverses of fortune, 14
Wounded vanity, . . .	1	16
Disappointed ambition, . . .	0	12
Excessive study, . . .	0	13
Misanthropy, . . .	0	2
Total,	323	Total, 167 *

It has been generally stated, (although this does not appear from M. Esquirol's table or statements,) that the exciting emotions, such as joy, have more frequently produced insanity than the depressing emotions of sorrow or disappointment. At the time of the frequent changes of fortune which took place during the celebrated South Sea Scheme, it was observed that insanity was frequently excited by sudden and unexpected accessions of wealth, but hardly ever by great pecuniary losses. Dr Burrows states, in like manner, upon the authority of Dr J. Bright, secretary to the commissioners for licensing houses for the reception of lunatics, that "in the six months succeeding the extensive failures, and consequent distress, of the winter 1825-6, in this metropolis,

* Op. cit p. 187.

there were fewer returns of insane persons in the London district than in any corresponding period for many years past *." In illustration of this point, the late Dr Gregory was accustomed to mention a curious case which occurred to himself, of a mother and two daughters who all became insane in one day, immediately after a sudden accession of fortune.

1562-72. A variety of expedients have been employed at different times with good effect in mania and melancholia. They may be stated generally to act by exciting sensations of such intensity and duration as necessarily to interfere with the morbid thoughts or trains of thought upon which the mind in this diseased state is disposed to dwell. Of this kind are the rotatory machine or circular swing, exciting nausea, &c. recommended by Dr Mason Cox †, and the *Douche*, or sudden affusion of cold water on the head from a height, especially while the body is in the warm bath, which is much employed in France. Perhaps the different counter-irritants lately employed, such as the tartar-emetic ointment recommended by Dr Jenner ‡, the moxa, and even the actual cautery, may be supposed to act in a great measure in this way.

1573. The principle of the great improvement, lately introduced in the management of lunatic asylums, may be stated to consist in the substitution of such objects of mental occupation and interest as may gradually withdraw the mind from the morbid trains of thought,—for the coarser expedients of coercion and terror, to which the keepers of such institutions are too apt to resort. On this subject important information

* Op. cit. p. 16.

† Practical Observations on Insanity, 3d edit. p. 151, London, 1813.

‡ Letter to C. H. Parry, M. D. on the Influence of Artificial Eruptions, 1822.

may be found in the Reports of the evidence of different gentlemen extensively employed in this kind of practice, given before the Committee of the House of Commons on Mad-Houses, in the years 1815 and 1816. Such occupations as imply much and continued bodily exercise, here alluded to by Dr Cullen, are the most useful of any when the complaint has become perfectly chronic. This seems to be strikingly exemplified in the observation made by several experienced persons, that patients of the lower orders, whom they could set to work in the fields or gardens, recovered more frequently and speedily than patients of the higher orders, who could not be engaged in equally laborious occupations.

The frequency of relapses or recurrences in cases of insanity points out the expediency of seclusion for a considerable time after the cure is apparently accomplished. The advantage of this practice is strongly illustrated by the difference in the proportional number of relapses in those establishments where patients are secluded for a shorter or longer period. Thus, according to the registers of the Parisian asylums, where the power of detention is unlimited, the proportion of the relapses to the admissions is for the men an *eighteenth*, and for the women a *thirty-fourth*, the medium for both sexes being a *twenty-sixth* *; while in the Lunatic Asylum of Wakefield, the proportion of the relapses to the admissions is as high as a *sixth* †. Persons and objects which recall former associations appear to be the most frequent causes of relapses, and ought therefore especially to be avoided for as long a period as possible ‡.

With regard to the prognosis in insanity, the following results may be given in addition to what has been already stated on this subject. Out of 2005 patients admitted into the Sal-

* *Compte rendu des Hospices des Aliénés*, Tab. No. 11.

† Burrows, *Op. cit.* p. 544.

‡ For further details on the treatment of Insanity, see Dr Morison, *Outlines of Lectures on Mental Diseases*, 2d edit. p. 77, *et seq.* Edinburgh, 1826.—Dr Burrows, *Op. cit.* p. 570, *et seq.*

pêtrière during a period of ten years from 1804 to 1814, 1218 were cured. From another statement by M. Esquirol, it appears that out of 2804 females received into the Salpêtrière during ten years, of whom 795 were considered incurable on account of old age, imbecility, epilepsy, or palsy, 604 were cured during the first year of treatment, 502 during the second, 86 in the third, and 41 during the seven remaining years*. It is stated by Dr Haslam, that from the year 1748 to 1749 there were admitted into Bethlem Hospital 4832 women, and 4042 men. Of these, 1402 women and 1155 men were discharged cured†. In the years 1822, 1823, and 1824, there were admitted into the different lunatic asylums of Paris 2325 patients. The number which recovered was 865, and of these 746 were cured in the first year, and 119 in the six subsequent years‡. A considerable number, however, of these cases of recovery, both in France and in this country, may be supposed to have had sooner or later a recurrence of the disease. Many of these are never brought back, so that a correct estimate of the actual number of permanent recoveries cannot be obtained. To give some idea of the number of those who afterwards relapse, Dr Haslam mentions, that of 389 patients admitted into Bethlem during a period of two years, 53 had been at some former time in the hospital.

It may be stated generally, as already mentioned, that the prognosis in insanity is favourable in proportion to the early period of life at which the disease appears and the recentness of the attack. It is more favourable in mania, even when furious, than in melancholia or monomania, especially when accompanied with depression. “An hundred violent, and the same number of melancholic cases were selected:

* Esquirol, *Op. cit.* pp. 204, 205.

† Haslam, *Op. cit.* p. 246.

‡ *Compte rendu des Hospices des Aliénés*, Tab. No. 14.

Of the former, sixty-two were discharged well; of the latter only twenty-seven. Subsequent experience has confirmed this fact*." Religious insanity is one of the most incurable forms of the disease. In the insanity of advanced age, in chronic dementia, idiotism, and the complication of insanity with epilepsy and palsy, recovery may be considered as quite hopeless.

In addition to those already quoted, the following modern works on insanity may be consulted:

- CRICHTON, *On Mental Derangement*, London, 1798.
 ESQUIROL, *Des Passions, considérées comme Causes, Symptômes et Moyens du Traitement de l'Aliénation Mentale*, Paris, 1805.
 AMARD, *Traité Analytique de la Folie*, Lyon, 1807.
 HALLARAN, *On the Causes and Cure of Insanity*, Cork, 1810.
 FERRIAR, *Medical Histories and Reflexions*, vol. i. p. 214; vol. ii. p. 109, London, 1810.
 CROWTHER *on Insanity*, London, 1811.
 TUKE, *Description of the Retreat near York, &c.* York, 1813.
 HILL, *On the Prevention and Cure of Insanity*, London, 1814.
 REID, *On Insanity*, London, 1816.
 DUBUISSON, *Des Vésanies, ou Maladies Mentales*, Paris, 1816.
 FODERÉ, *Traité du Délire, appliqué à la Médecine*, Paris, 1817.
 HASLAM, *Considerations on the Moral Management of Insane Persons*, London, 1817.
 MAYO, *Remarks on Insanity*, London, 1817.
 SPURZHEIM, *Observations sur la Folie*, Paris, 1818.
 GEORGET, *De la Folie*, Paris, 1820.
 BURROWS, *Inquiry relative to Insanity*, London, 1820.
 PRICHARD, *On Diseases of the Nervous System*, p. 113, London, 1822.
 WILLIS, (F.) *On Mental Derangement*, London, 1823.
 BROUSSAIS, *De l'Irritation et de la Folie*, Paris, 1828.

* Haslam, *Op. cit.* p. 257.

Delirium Tremens.—It may be proper to take some notice in this place of that remarkable affection, which of late years has particularly excited the attention of physicians, and been described first by Dr Burton Pearson, under the name of Brain fever *, and afterwards by Dr Sutton, under that of Delirium tremens †. From the general character of the affection of the sensorium in this disease, it is probable that it was formerly confounded with mania or phrenitis, and that the peculiarities of the fits of insanity, generally of short duration, which result from the habitual indulgence in spirituous liquors, and the muscular tremors which serve to characterize it as a distinct affection, had been in a great measure overlooked.

Although supposed by some to arise occasionally from other causes ‡, Delirium tremens may be considered, generally, as confined to those persons who are addicted to the use of spirituous or fermented liquors. A case is related by Dr Sutton, where it was produced in a lady by continued indulgence in the use of the tincture of lavender, as a cordial ||. It is most common among that class of persons who by their employment have the greatest facility for indulging this propensity to excess,—such as keepers of taverns or public-houses, butlers, waiters, persons employed in distilleries, smugglers, &c. Dr Sutton states it to be frequent on the coast of Kent, where “spirits brought in by smugglers might be had in great abundance at a cheap rate; and such as laboured under delirium tremens in that quarter were mostly those who confessedly indulged in the use

* Observations on Brain Fever; Edin. Medical and Surgical Journal, vol. ix. p. 326.

† Tracts on Delirium Tremens, &c. London, 1813.

‡ Lévillé, Mémoire sur la Folie des Ivrognes, ou sur le Délire Tremblant; Mémoires de l'Académie Royale de Médecine, tom. i. p. 219, Paris, 1828.

|| Op. cit. p. 49.

of spirits to excess *." In this country, however, it is to be remarked, that the disease does not appear to be common among those of the labouring classes, who from their occupations are much exposed in the open air, and undergo much bodily labour, although they be notoriously addicted to the use of ardent spirits. Those persons whose constitutions are naturally weak, or injured by habits of excess, and whose occupations are sedentary, and those who are frequently deprived of the natural amount of sleep, appear to be peculiarly liable to the disease. It comes on, sometimes suddenly, at other times gradually, after the use of spirituous liquors in considerable quantities, continued generally for days, or even for weeks ; but it sometimes occurs where the quantity taken daily has not been sufficient to produce intoxication. The characteristic symptoms often do not appear until the accustomed stimulus has either been much diminished or interrupted. In several instances they have been observed to come on shortly after pretty full blood-letting employed on some other account.

As the disease occurs in habitual drunkards, it has been thus accurately described by Dr Armstrong. "The first feelings of indisposition are lassitude, indistinct chills, loathing of food, uneasiness in the head, disturbed short slumbers, anxious countenance, and oppression at the pit of the stomach ; and these are followed by retching or vomiting, white moist tongue, wildness and quickness of the look, weak rapid pulse, general irritability, watchfulness, tremors of the hands, and dampness of the skin increased by the slightest exercise. Confusion of mind, or forgetfulness supervenes, which passes on to a state closely resembling mania. The patients suppose that their affairs are ruined ; or that certain persons have conspired to poison or shoot them ; or that their friends have deceived or deserted them ; or

* Op. cit. p. 50.

that they are confined against their inclination in a strange place. Occasionally they imagine that they see frightful objects, the impressions of which are so forcible, that they call loudly for assistance to drive them away. At other times they declare that vermin are crawling over the bed or about their clothes; or that bright or dark spots are floating in the atmosphere; sometimes they fancy that they hear remarkable noises in the room or at a distance; and in other examples, alternately listen and speak, as if they were conversing with one that was present. They are often intent upon calculations, buildings, projections, counting or picking up money, settling accounts, or some such imaginary employment; and if you attempt to address them, they will either unheedingly pursue their occupation, or abruptly tell you that they must not be interrupted *."

In some instances the pulse is little if at all affected in frequency; although commonly weak and tremulous, it is sometimes full and strong. The heat of the skin is seldom much raised above the natural standard, and, while the eye is restless and excited, the face in general is pale or nearly natural in colour, without the expression of countenance peculiar to the delirium of fever. The great and sudden prostration of strength characteristic of continued fever is also absent, and there is for the most part, on the contrary, great restlessness and an irresistible propensity to motion and change of place. The turgescence and suffusion of the face and eyes, the impatience of light and sound, and the increased arterial action usually accompanying inflammation of the brain and particularly of its membranes, are rarely observed in delirium tremens. By attention to these circumstances, and to their respective causes, this affection

* Practical Illustrations of Typhus Fever, of the Common Continued Fever, and of Inflammatory Diseases, 3d edit. ; On the Brain-Fever of Drunkenness, p. 498, London, 1819.

may be generally distinguished from the only diseases with which it is apt to be confounded. The most important and characteristic symptoms of delirium tremens may be stated to be, the agitation and tremor sometimes of the whole body, but particularly of the arms and hands, rendering it often impossible to count the pulse, and amounting frequently to subsultus tendinum; the restless and suspicious eye, the spectral apparitions, the efforts made to catch or remove imaginary objects, particularly animals, supposed to be near the person or bed, the dread of personal violence from others whom they fancy to be plotting against them, and whose schemes they are convinced that they overhear in an adjoining apartment, the constant watchfulness and the frequent conversations which they hold with imaginary beings around them.

These symptoms vary in their intensity and duration; in some well-marked cases proving fatal with coma, contracted pupils, very small and rapid pulse, and convulsions, in the course of a few days; in other less urgent cases, being protracted for several weeks unless sleep shall have been induced. Such protracted cases not unfrequently terminate in temporary or confirmed mania, showing the connection which exists between these two diseases*. The mortality from this disease is greatest among confirmed drunkards enervated by long habits of dissipation, and those who have been driven to have recourse to frequent intoxication from mental care and distress.

The appearances on dissection do not commonly differ from those observed in other cases where death has taken place with apoplectic or comatose symptoms and convulsions, but without decided indications of inflammatory ac-

* Armstrong, *Op. cit.* pp. 499, 500.—Burrows, *Commentaries on the Causes, Forms, Symptoms and Treatment of Insanity; on Delirium Tremens*, p. 328, London, 1828.

tion. Turgescence of the veins of the membranes, with more or less of effusion on the surface, and in the ventricles of the brain, are generally found *. In two cases Dr Armstrong found slight congestions in the liver as well as the brain, while the other viscera appeared natural †. Some of the more chronic cases, especially in advanced life, present partial thickening and opacity of the arachnoid membrane, and sometimes points of adhesion to the dura mater, by means of minute membranous shreds, along with serous effusion between the membranes, and extending into the spinal canal ‡. Increased vascularity of the mucous membrane of the stomach and intestines is sometimes observed, and has been supposed by some of the French Pathologists to indicate *Gastro-Entérite*, the irritation from which they have conceived to be the cause of the symptoms. This is a very common appearance, especially in those who have been addicted to the use of ardent spirits, but, as already stated on several occasions, it cannot alone be considered as decisive of previous inflammation of the mucous membrane of the alimentary canal. When occurring in cases of delirium tremens, it can be only considered as a complication, proceeding probably from the same cause, or at most as an irritation concurring to excite disease of the brain ||.

In regard to the pathology of delirium tremens, it may be stated that, although inflammatory symptoms sometimes attend the disease, and the usual effects of inflammation are occasionally found after death, it does not appear to be essentially or uniformly connected with increased vascular action within the head. From the paleness of the face, the coolness and clamminess of the skin, the frequent absence of local symptoms or complaint, and the small and weak

* Sutton, Op. cit. p. 34.—Burrows, Op. cit. p. 329.

† Armstrong, Op. cit. p. 501.

‡ Lévillé, Op. cit. p. 196.

|| Ibid. p. 199, *et seq.*

pulse frequently attending it from the commencement, there is reason to believe that, in certain circumstances, and especially when it supervenes upon the interruption or great diminution of the accustomed stimulus, it may be connected with diminished action over the whole body, and particularly within the head. "This disease," says Dr Armstrong, "invariably occurs during the existence of that general collapse which succeeds intoxication when the tone of the heart and arteries is diminished, and when the venous system must consequently be more or less in a state of congestion*." The great degree of nervous irritability induced by long-continued habits of intoxication, while, at the same time, there is great bodily exhaustion and debility, appears evidently to be connected with diminished vascular action, and certainly bears some analogy to the peculiar phenomena of delirium tremens.

A parallel case, of similar affections of the nervous system, attended, and apparently in part produced, by opposite conditions of the vascular system, may be found in fits of epilepsy or convulsions, which are sometimes induced evidently by increased impetus of blood to the head, as during the paroxysms of coughing in hooping-cough, and at other times are manifestly brought on by copious blood-letting even in the same patient. There is a striking similarity between many of the symptoms of this disease, and those induced by the habitual use of opium in large doses, as in those persons who are called Opium eaters; and Dr Armstrong mentions that one of his patients in delirium tremens "was a female, who had been long in the habit of taking opium to a great extent, and who was attacked with this disorder on suddenly lessening the doses of her favourite drug†."

The mode of treatment most generally employed seems

* Armstrong, Op. cit. p. 501.

† Op. cit. p. 509.

to confirm, in a certain degree, this view of the pathology of delirium tremens. Opium, in the solid form, or in that of laudanum, given in full and frequently repeated doses, until sleep shall have been induced, or at least until the restlessness and tremors shall have abated, is the remedy that has been found most successful; and, in many cases, opium alone, or combined with purgatives in the commencement, has proved sufficient, after a time, to induce sleep, and remove all the most urgent symptoms *. In other cases, however, and more especially in habitual and enervated drunkards, and where the disease has followed the disuse of the usual quantity of stimulus, it frequently fails to produce this effect, unless combined with some of the diffusible stimuli, such as camphor, or the carbonate of ammonia. In such cases, a moderate allowance of the accustomed stimulus in the form of wine, brandy, or malt liquor, as circumstances may point out, is sometimes attended with marked good effect in diminishing the restlessness, tremors, and other urgent symptoms.

On the other hand, cases occur, particularly in younger and more vigorous persons, and in those whose constitutions have not been debilitated by long habits of drunkenness, where moderate blood-letting, employed early in the disease, and followed by laxatives, is found to be attended with much advantage †. It not unfrequently happens, in such cases, that opium does not appear to take effect, and sleep is not induced, until after moderate blood-letting shall have been premised; but the opium, succeeding to blood-letting, is quickly successful. One or two instances of this kind have come lately under my observation, even in patients somewhat advanced in life, and who had no peculiar fulness of pulse, flushing, or heat of skin. Caution, however, is necessary in

* See Dr Sutton, *Op. cit.* p. 14, *et seq.*—Léveillé, *Op. cit.* p. 185.

† See Armstrong, *Op. cit.* p. 502.

the employment of blood-letting in this disease, on account of the rapid sinking of the *vis vitæ* which frequently takes place. It is probably only admissible, where the habits of intoxication have not been of long standing, and where the strength and constitution have not been materially impaired. It ought, of course, to be employed chiefly in the commencement of the disease, should never be large, and probably need be seldom repeated. In cases where it is not advisable to have recourse to general blood-letting, although symptoms of determination to the head may exist, blood may be abstracted by cupping or by leeches, and cold or evaporating lotions may be applied to the head often with good effect*. Where the pulse is firm, and the habit of body pretty vigorous, nauseating doses of antimonials have been found useful auxiliaries to blood-letting. In the early stages of those cases where there is considerable vigour of constitution, Dr Armstrong recommends, from experience, the use of the cold as well as the tepid affusion, even during the profuse sweating that frequently occurs in this disease, followed by the use of stimulants and warmth, both internally and externally †.

It will always be right to open the bowels thoroughly before beginning the use of opium; and in many cases, particularly in those of more robust constitution, it may be proper to continue the use of laxatives throughout the disease.

The quantity of opium to be given must be regulated entirely by the state of the symptoms and the previous habits. Habitual drunkards generally require larger and more frequent doses of opium, and bear it better than persons unaccustomed to the excessive use of stimulating liquors. Very large doses are sometimes given in such cases, without procuring sleep or producing any sensible effect. In America,

* Dr James Wood on Brain Fever; Edin. Med. and Surg. Journal, vol. xiii. p. 439.—Burrows, Op. cit. pp. 332.

† Armstrong, Op. cit. p. 504, 510, 512.

where this disease appears to be very frequent and formidable, Dr Burrows states, on the authority of physicians of that country, that doses of from twelve to thirty grains of opium are often given with impunity, and continued until sleep shall have been induced *. Some caution is necessary, however, in the use of this remedy, as it is often difficult to distinguish between the comatose symptoms coming on during the progress of the disease, and those caused by too large a dose of opium. Calomel combined with opium, preceded by purgatives, and continued till the mouth is slightly affected, is strongly recommended by Dr Armstrong as especially useful in the more advanced stages of the complaint †.

As the physical powers are usually diminished, and as patients are easily intimidated in this disease, there is seldom occasion for much personal restraint. When employed, it ought to be of the mildest kind; as coercion, and especially forcible detention in bed by means of the strait-jacket, are often found to aggravate the irritability, restlessness, tremors, and the ideas of personal danger upon which the thoughts frequently turn. A very marked effect in diminishing these symptoms, and calming unfounded apprehensions, is sometimes observed, by giving way, in a certain degree, to the false perceptions and hallucinations characteristic of the disease, by mild and soothing language, and by allowing the patient to rise out of bed, and to change his place, as soon and as often as the desire is manifested ‡. Persons of whom they entertain any apprehensions, or against whom they entertain any prejudice, ought to avoid exposing themselves to the view of patients in this disease. During the convalescence there is generally much debility; and in these circumstances advantage may be obtained from

* Burrows, *Op. cit.* p. 334.—Dr Coates, *London Medical Repository*, vol. xxix. p. 182.

† *Op. cit.* p. 504, *et seq.*

‡ See Armstrong, *Op. cit.* p. 514.—Burrows, *Op. cit.* p. 335.

the tonic regimen, and the use of bark and other medicines of this class.

In regard to the prognosis in delirium tremens, it may be stated, that out of twenty-two cases which fell under the care of Dr Sutton in the course of three years, four died *. Dr Armstrong met with forty-two cases; and out of the first sixteen, four proved fatal, while three only died out of the remaining twenty-six. This difference, and his greater success latterly, he ascribed, in a great measure, to the less indiscriminate use of opium in every stage and variety of the complaint, and to the more liberal use of purgatives, especially early in the disease †. The prognosis, as appears from what has been already stated, is most unfavourable in old and confirmed drunkards, and in those whose constitutions have been much impaired by long habits of excess ‡.

1628. *Tympanites*.—It is probable that the *tympanites abdominalis* of systematic authors, only occurs as the consequence of perforation of the intestines; and as this is commonly minute, it is very apt to escape observation, and thus lead to the supposition of air having been extricated into the cavity of the peritonæum, in the same manner as into the cavity of the intestines in the common form of tympanites. The perforation which gives rise to the escape of air into the cavity of the peritonæum is very generally the result of ulceration, extending from the mucous membrane to the serous

* Sutton, Op. cit. p. 71.

† Armstrong, Op. cit. pp. 500, 506.

‡ For further details on the subject of Delirium Tremens, and other mental affections proceeding from the same cause, see Mr Blake on Delirium Ebriositatis; Edin. Med. and Surg. Journal, vol. xix. p. 497.—Dr Berendt on Delirium Tremens; Hufeland's Journal, vol. lv. part v. p. 86.—Salvatori, De Ebriositate continua, remittente et intermittente; Commentationes Societatis Physico-Medicæ, tom. ii. p. 261, Moscow, 1821.

coat of the intestines; and it may occur in the course of various diseases, as idiopathic inflammation of the mucous membrane, fever, dysentery, chronic diarrhœa, and in the later stages of phthisis pulmonalis. No reliance can be placed upon a diagnosis during life between *tympanites intestinalis* and *abdominalis*, except from this circumstance, that the latter, being almost always the result of such a perforation, is attended with very acute and rapidly fatal peritonitis.

1630-44. The *tympanites intestinalis* takes place as a symptom in various diseases, both acute and chronic. It frequently occurs in the course of acute inflammation within the abdomen, and in very different stages; sometimes, especially in patients previously healthy, not until the disease has lasted for some days, and the case has become almost desperate; in other cases, particularly in weakly and hysterical patients, it occurs early and without other bad symptoms, and may then either disappear when the inflammation is subdued, or continue after the inflammatory symptoms are gone, and yield to mild laxatives, a somewhat tonic regimen, fomentations, frictions and slight compression, and gently stimulant and astringent enemata, containing bark, or the sulphate of quinine in considerable quantities *. It is a common symptom, also, in chronic peritonitis, especially in females, and where there is adhesion or disorganization: it supervenes sometimes upon diarrhœa without distinct inflammatory symptoms, and it accompanies many of the febrile diseases of children, especially protracted cases of the febris infantum remittens, with or without disease of the mesenteric glands. It also occurs apparently unconnected with organic disease, but as a sequel of inflammation; and in these cases it probably depends chiefly, as stated by Dr Cullen, upon a loss of tone in the muscu-

* See Dr Abercrombie, Pathological and Practical Researches on Diseases of the Stomach, the Intestinal Canal, &c. pp. 178, 307.

lar fibres of the intestines. In some such cases, it has spontaneously and rapidly disappeared *. It may, however, be doubted, how far spasmodic constrictions of portions of the intestines, which Dr Cullen has supposed to form part of the proximate cause, act in giving rise to tympanites. In cases where a tympanitic state of the abdomen has existed during life uncomplicated with disease of the coats of the intestines, they are generally found equally distended throughout their whole course.

1663-6. *Dropsies*.—As it has been now fully ascertained, that absorption, especially of the thinner fluids, takes place in the animal economy by the extreme branches of the veins, the lymphatic system may be, perhaps, kept altogether out of view in our speculations concerning the general causes of dropsy, excepting only in some cases of partial serous effusion depending upon enlarged and obstructed glands; and even these probably act chiefly by pressing upon the veins.

Dropsical effusion is always to be considered as an effect of previous disease, and that generally more or less complicated; commonly chronic during the greater part of its progress, but frequently acute in its commencement. There are a few cases of anasarca which cannot be distinctly traced to any such visceral disease, as can be supposed to obstruct the flow of blood in the veins in the manner mentioned by Dr Cullen, from § 1648 to § 1654. The slighter cases of anasarca after scarlet fever, formerly mentioned †, are of this kind; the severe cases are generally connected with inflammation within the chest.

In general, however, it may be stated, that cases of dropsy are divided into those connected with disease of the heart, of

* Dr Monro, Edin. Med. Essays, vol. i. p. 235.

† See Appendix on Scarlet Fever, vol. i. p. 548.

the lungs, of the liver, and of the kidneys; and that a great many cases, in their later stages at least, are attended with organic disease of two or more of these viscera. This distinction appears to be of more real importance than that according to the cavity into which the effusion has taken place; and in many cases, the most urgent symptoms depend upon the organic disease producing the dropsy, rather than upon the amount of the effusion.

Before stating, however, the particular lesions of these viscera with which dropsy is so intimately connected, it is right to say a few words on the still more practically important connexion of dropsy with inflammation. In a certain number of cases, particularly in younger persons, of previously healthy constitution, and where it has followed exposure to cold and moisture, drinking of cold liquids when the body has been overheated, or intemperance, dropsy is an acute disease, attended with symptoms of local inflammation, and frequently of general fever; and the obstruction of venous circulation leading to the effusion, is rather to be considered as the effect of the inflammation of the organs above mentioned, threatening organic disease, than of such disease already formed. But even where organic disease is of old standing, more or less of inflammation frequently precedes or accompanies successive renewals or aggravations of dropsical effusion, of which it may be considered the exciting, while the previously existing organic disease is only the predisponent cause. And there is sufficient evidence, that the timely and judicious use of the antiphlogistic remedies to subdue such inflammatory attacks is often of more real importance than the use of any means to cause absorption of the effusion which may result from them.

The attention of physicians appears to have been first particularly called, of late years, to this important subject, by a German author, who published a treatise expressly on this

kind of dropsy *. It generally comes on suddenly, after exposure to the causes above mentioned, and is preceded or accompanied by some oppression and uneasiness in the respiration; in some cases amounting only to a sense of constriction without pain, cough, or febrile symptoms; in others, the symptoms are those of pneumonia, with cough and pain increased on full inspiration. The affection of the breathing sometimes amounts to dyspnœa, or orthopnœa, and the symptoms then resemble those of hydrothorax. The dropsy appears in the form of anasarca, frequently commencing in the face, and gradually extending to the rest of the body †. As in cases where the transmission of blood through the lungs is much impeded, the pulse is frequently irregular and small, but often improves in strength, and becomes regular after blood-letting; sometimes, however, it is full and strong, as in pneumonia. The urine is generally scanty and high-coloured, and often coagulable. But the coagulable state of the urine is by no means constant ‡; and the presence of albumen in the urine, although an important symptom in many cases of dropsy, the cause of which will be afterwards considered, cannot be considered, as proposed by Dr Blackall ||, to be a test of the propriety of blood-letting in this form of the disease.

On dissection in fatal cases of this form of dropsy, the appearances are those usually caused by pneumonia, pleuritis, carditis, or peritonitis, and they are probably often connect-

* Grapengiesser, *Dissertatio Inauguralis de Hydrope Plethorico*, Gottingæ, 1795.

† See Dr Abercrombie on certain Dropsical Effusions which are successfully treated by Blood-letting; *Edin. Med. and Surg. Journal*, vol. xiv. p. 166.

‡ See Dr Crampton, Appendix to the Clinical Report on Dropsies; *Transactions of the Association of the Colleges of Physicians in Ireland*, vol. ii. p. 273. —Dr Abercrombie, *Op. cit.* p. 167.

|| Observations on the Nature and Cure of Dropsies, and particularly on the presence of the coagulable part of the blood in Dropsical Urine, 3d edit. p. 286, London, 1818.

ed with disease of the kidneys. From the late Dr Gregory's notes of his clinical lectures, I find that he had met with cases of this kind, both fatal and successfully treated, as early as the year 1785, from which he was convinced of the inflammatory nature of the affection, and of the propriety and frequent efficacy of active antiphlogistic remedies.

The relief obtained from free and early bloodletting in this form of the disease is generally very decided ; and the blood drawn commonly exhibits the usual inflammatory appearance. Large quantities of blood can often be drawn in these cases without inducing faintness, or producing much effect on the strength of the pulse *. The urine often becomes copious, and the dropsical effusion disappears, sometimes very rapidly, without the aid of other remedies, after the internal affection has been removed by free blood-letting. In other cases, especially if of longer standing, and if blood-letting has not been employed sufficiently early in the disease, it is necessary to have recourse to purgatives and diuretics. These last remedies are often observed to take effect fully after venesection, when they had previously failed in procuring an increased flow of urine.

On the other hand, it is equally certain that both organic diseases of the viscera above mentioned, and dropsical effusions connected with these, often come on very gradually without any distinct inflammatory symptoms ever occurring, or any fair opportunity of using the antiphlogistic remedies presenting itself. This description of cases appears to have particularly attracted the attention of Dr Cullen ; but we have accurate statements by many authors prior to his time, of the frequent effect of inflammation in producing dropsy,

* See Dr Graham's Case of General Dropsy ; *Edin. Med. and Surg. Journal*, vol. xviii. p. 225.

and of the decided advantage from the use of blood-letting in the cure of dropsies proceeding from this cause*.

It may be stated, in general, that the influence of mere debility, as a cause of dropsical effusion, has been much exaggerated, even by Dr Cullen in §§ 1656 and 1657; persons in the most extreme state of debility, when wholly free from organic disease, as in the close of fevers, being very seldom dropsical to any extent. Dropsy very frequently occurs in the later stages of many organic diseases in persons much debilitated, but not simply as the consequence of that debility.

Inflammation of the pericardium and its consequences, the various organic affections of the heart and its orifices, and particularly the diseased states of the aorta, which have been already considered †, and which imply impeded transmission of blood through the heart, are very frequent causes of dropsical effusion in its different forms; and indeed seldom prove fatal without producing more or less of dropsy ‡. As the left side of the heart is the part most commonly diseased, much stagnation of blood in the lungs of course precedes dropsical effusion from this cause, and such cases are therefore generally complicated with obstinate bronchitis, with asthma and emphysema, with hæmoptysis and apoplexy of the lungs in some cases, and even with peripneumonia §.

* Hoffmanni Opera, vol. iii. De Hydrope.—Morgagni de Sed. et Caus. Morb. Epist. xx. Art. 34.—Sauvages, Nosolog. Method. tom. ii. Classis x. Gen. xiv. Var. 13.—Burserii Instit. Med. Pract. vol. ii. cap. iv. § xc.—Donald Monro, Essay on Dropsy, 3d edit. p. 42, London, 1765. See also Home's Clinical Experiments and Histories, sect. xvii. pp. 346, 348.—Rush, Medical Inquiries and Observations, vol. ii. pp. 167, 170.—Parry, Elements of Pathology and Therapeutics. p. 139, *et seq.*

† See Appendix on Rheumatism, vol. i. p. 518; and Appendix on Palpitation of the Heart, *supra*, pp. 348, 352.

‡ See Dr Bright's Reports on Medical Cases, p. 119, London, 1827.

§ See above, pp. 355, 360, 361; and Appendix on Hæmoptysis, vol. i. p. 577.

In such cases œdema of the lungs is perhaps more frequent than much effusion into the cavity of the chest, at least in the earlier stages of the disease. The symptoms described by Dr Cullen as those of hydrothorax, may all exist and prove fatal, particularly where the lungs are œdematous, without any effusion into the chest. It has been already observed, that the "*subita et spontanea ex somno cum palpitatione excitatio*," of Dr Cullen's definition, is characteristic of disease of the heart, rather than of hydrothorax; and the "*aqua in pectore fluctuans*" requires the presence of air as well as of liquid in the cavity of the chest to be perceptible*. The effusion of much serum into the cavity of the pleura must necessarily cause dyspnœa; but this is not always aggravated by the recumbent posture†; and as it occurs very seldom without any organic disease, we are not sufficiently informed of any peculiar symptoms necessarily attending it. Its diagnosis, by means of percussion and the stethoscope, is therefore the more important, though not free from fallacy.

True idiopathic hydrothorax, uncomplicated with organic disease, is a very rare affection. M. Laennec states the proportion not to be higher than one in two thousand bodies‡. Symptomatic hydrothorax, on the other hand, is one of the most frequent consequences of the various organic diseases above mentioned, and especially takes place in the later stages of those of the heart. When idiopathic effusion into the cavity of the pleura does occur, it is generally confined, as in chronic pleurisy or empyema, to one side of the chest; and in these circumstances the affected side becomes dilated, and

* See Appendix on Phthisis Pulmonalis, vol. i. p. 582.

† See Corvisart, *Essai sur les Maladies et les Lésions Organiques du Cœur et des Gros Vaisseaux*, 3^{me} edit. p. 448.—Laennec, *Traité de l'Auscultation Médiate*, 2d edit. tom. ii. p. 235.—Forbes, *Original Cases, illustrating the Use of the Stethoscope and Percussion*, &c. p. 213, London, 1824.

‡ Laennec, *Op. cit.* tome ii. p. 228.

the intercostal spaces more prominent, as already described *. The sound on percussion of the affected side is dull over an extent of surface in proportion to the quantity of effused serum, and according to the position in which the thorax is examined. When the effusion is sufficiently great to fill the cavity and to compress the lung, in the direction of its root, against the spine and the posterior mediastinum, a dull sound is returned over the whole side, while at the same time the sound of respiration is inaudible, by means of the stethoscope, in every point, with the exception of that portion of the parietes which corresponds to the root of the lung, where it is bronchial. In general, however, the sound of respiration is more or less distinctly heard in the superior portions of the lung, as under the clavicle, and above the spine of the scapula. In these points, and over the whole lung of the other side, the sound is frequently puerile. When the effusion is moderate, and the patient is examined in the erect position, the line of demarcation, or the level which the liquid has attained in the thorax, can be accurately determined, in many cases, by means of percussion and the stethoscope †. As in cases of pleuritic effusion, these signs are sometimes combined with that peculiar modification of the voice, as heard through the stethoscope, called by M. Laennec *Ægophony*, and which has been already described ‡. This alteration of the voice appears to depend upon the transmission of the sound through a thin stratum of liquid interposed between the surface of the lungs and the pleura costalis; and it gradually disappears as the quantity of the effusion increases. In those cases of hydrothorax, therefore, where the amount of the effusion is considerable, and where the lungs are much compressed, or the affected side is di-

* See Appendix on Pneumonia and Pleuritis, vol. i. pp. 425, 426.

† See Piorry, *De la Percussion Médiante*, pp. 67. 75. *et seq.* Paris, 1828.

‡ Appendix on Pneumonia and Pleuritis, vol. i. pp. 430, 431.—See also Laennec, *Op. cit.* tom. i. p. 69; tom. ii. p. 230.

lated, this sign will probably not exist, or, at least, can only be occasionally heard, and for a very short time, in consequence of a sudden change of posture.

The effusion into the cavity of the pleura consequent upon organic disease of the heart or other internal organ, or symptomatic hydrothorax, gives rise to the same physical signs as indicated by percussion and the stethoscope. But as, in these cases, both cavities of the pleura are commonly affected, the presence of effused fluid cannot be ascertained with the same precision, by a comparative examination of the two sides of the chest. In most cases of hydrothorax, indeed, it may be stated, that it is only by attention to the general symptoms, especially those connected with the organs of circulation, and to the history and progress of the disease, that it can be accurately distinguished from chronic pleurisy with effusion, as the signs furnished by percussion and the stethoscope are common to both affections. There is reason to believe, however, that symptomatic hydrothorax only takes place, to any extent at least, in the last stages of organic disease*.

The œdema, or serous infiltration of the substance of the lungs, which occurs very frequently in the course of organic disease of the heart, appears to give rise to some of the symptoms supposed peculiarly to indicate hydrothorax. When this state of the lungs exists, the sound on percussion is seldom much altered, as they are still, to a certain extent, permeable to air; but the sound of respiration is much diminished, and a peculiar *râle* is heard, analogous to the *râle crépitant* of pneumonia already described, but conveying the sensation of greater humidity, to which M. Laennec has given the name of *râle sous-crépitant*†. It is, how-

* See Laennec, Op. cit. tom. ii. p. 235.—On the Means of distinguishing between the Symptoms of Idiopathic Hydrothorax and those of Organic Disease of the Heart, see Corvisart, Op. cit. p. 446, *et seq.*

† For further details on Œdema of the Lungs, see Laennec, Op. cit. tom. i. p. 349. *et seq.*

ever, sometimes very difficult to distinguish these two varieties of *râle*; and the other symptoms of œdema are common to different affections of the lungs.

Percussion and the stethoscope, as in pericarditis, afford no pathognomic signs of dropsy of the pericardium; and those symptoms, which have been given by M. Corvisart* and others, as distinctive, occur where no effusion into this cavity exists. As an idiopathic affection, the hydro-pericardium is very rare; and as the result of organic disease, although very frequent, to a certain extent, it appears generally to take place shortly before death†.

The organic diseases of the lungs which give rise to dropsy are chiefly hepatization, and a peculiar pulpy softening, often going on to ulceration, but generally unconnected with tubercles, which may perhaps be sometimes a sequela of hepatization, but which seems, in other cases, to form more gradually‡. Dropsical effusion is often found connected with tubercles of the lungs, and also with emphysema; but it is generally one of the latest symptoms produced by these affections, and it seldom goes to any great length, in such cases, when they are uncomplicated with other organic disease.

The disease of the liver which most frequently gives rise to dropsical effusion is that alteration of texture described by M. Laennec as an adventitious tissue, under the name of *Cirrhose* §, but which, according to M. Andral, is, at least at the commencement, merely the hypertrophy of the white component substance of the liver ||. In this affection, the

* Op. cit. p. 47, *et seq.*

† See Laennec, Op. cit. tom. ii. p. 668.

‡ See Dr Abercrombie on the Pathology of Consumptive Diseases, part ii; Edin. Med. and Surg. Journal, vol. xviii. p. 22.

§ See Dictionnaire de Médecine, tom. ix. p. 211.

|| Clinique Médicale, tom. iv. pp. 9, 15.

liver assumes a corrugated, granular, and irregularly lobulated appearance, and it frequently becomes ultimately diminished in size, apparently from atrophy of the red substance*. According to MM. Laennec and Andral, ascites is almost constantly the result of this condition of the liver when advanced to a certain degree. In other cases of dropsy, tubercles are found in the liver, of a more distinct character, and of various consistence and size in different cases†. In general, as stated by Dr Cullen in sect. 1652, more or less of enlargement, and often induration, of the spleen accompany these affections of the liver; but the proportion of the disease of the spleen to that of the liver is very various. The form of dropsy attending these alterations of structure is most commonly ascites, as might be expected from the obstruction to the flow of blood in the branches of the vena portæ; and indeed, with the exception of those depending upon inflammation, or other disease of the peritonæum, few cases of great effusion into the cavity of the abdomen occur without disease of the liver. Ascites appears also to be sometimes connected with disease of the stomach, particularly with scirrhus and ulceration of its coats. It cannot be doubted, that disease of the liver will produce effusion into the thorax likewise; but in many cases where disease of the heart or lungs, and consequent effusion into the chest, co-exist with disease of the liver, there is every reason to believe that the last is consecutive upon the thoracic disease. There are some cases of ascites unconnected with disease of the liver, but consequent upon, or sometimes alternating with, severe attacks of diarrhœa, dysentery, or melæna‡. In such cases, the restoration of

* For a farther account of this affection, see Appendix on Hepatitis, vol. i. pp. 493, 494.

† See Farre on the Morbid Anatomy of the Liver, London, 1812-15. For farther remarks and cases of Diseased Liver in Dropsy, see Dr Bright's Reports of Medical Cases, p. 89, London 1827.

‡ See Dr Cheyne on Melæna, with Observations on the alternate Excess of

the increased discharge from the mucous membrane has sometimes appeared very useful in diminishing the effusion from the surface of the peritonæum.

Dropsy in its various forms, but more particularly anasarca, appears, from the recent investigations of Dr Bright, to be frequently connected with organic disease of the kidneys. The general symptoms of these alterations of structure are very obscure, but they are very commonly accompanied by an albuminous state of the urine. Dr Bright states, that he has "never yet examined the body of a patient dying with dropsy attended with coagulable urine, in whom some obvious derangement was not discovered in the kidneys *." The appearances observed in these cases are various. The kidneys are sometimes not materially altered in size, but lose their usual consistence and colour, and acquire a pale yellow or mottled appearance, both externally and internally. The texture of the cortical portion, in some cases, becomes granulated, with numerous minute points or specks of an opaque white matter distributed throughout its substance. In this state the kidneys are generally larger and softer than natural. In other instances, probably in those cases chiefly where the disease has been of longer standing, the kidneys are found rough, hard, lobulated, and diminished in size.

Dr Bright appears to have established the facts, "that certain dropsical affections depend more on the derangement of the kidneys themselves, than has generally been supposed; and that the albuminous nature of the urine frequently points out the particular cases in which these organs are the seat of disease †." The obvious objection to this doctrine is taken from the frequent occurrence of cases of inflammatory dropsy with coagulable urine, which are speedily and

morbid Action in the Mucous and Serous Membranes; Dublin Hospital Reports, vol. i. p. 259.

* Bright, Op. cit. p. 2.

† Op. cit. p. 70.

completely cured; as for example in the anasarca which succeeds scarlet fever. But this objection to the supposition of diseases of the kidneys in such cases is nearly obviated by one important case given by Dr Bright, where inflammatory dropsy with coagulable urine had abated, but the patient was suddenly cut off by another disease, and the kidneys were found large, softer than they often are, of the darkest chocolate colour, and evidently gorged with blood, although without organic change of structure*.

The frequent appearance of blood, to a greater or less extent, in albuminous urine, especially in cases of anasarca after exposure to cold or intemperance, remarked by Dr Bright, affords also strong reason to believe that an inflammatory action of the kidneys exists in these cases.

1674-5. In regard to the treatment of dropsy in general, little need be added to what has been already said. The most important improvement which has taken place of late years in this respect is the timely and judicious use of antiphlogistic remedies. When the state of the circulation and the general symptoms are such as to demand or authorize it, Physicians are no longer deterred from employing blood-letting, by the mere presence of dropsical effusion under any form. In those cases where the disease is acute, and the dropsical symptoms have appeared suddenly after exposure to causes known to produce inflammatory affections, the relief obtained by the abstraction of blood, as already stated, is generally immediate and very decided. In many instances blood-letting alone appears to act as a very powerful diuretic; and, in most cases, it singularly promotes the action of medicines of this class. In the earlier stages of dropsy, even depending upon organic disease, relief to the present symptoms is not only obtained by moderate blood-letting, but the

* See Dr Bright, *Op. cit.* p. 33, and plate v.

progress of the morbid alteration of structure is often retarded, and even, in some cases, apparently arrested by this means. Under the antiphlogistic treatment, the debility accompanying dropsical effusion early in the disease, instead of being increased, is often very rapidly diminished *.

1683. The drastic purgatives most commonly employed as hydrogogues in dropsy, are gamboge, scammony, jalap, and elaterium. The active principle of this last plant, as appears from the experiments of Dr Clutterbuck and Dr Paris, exists only in the juice around the seeds, from which it subsides spontaneously, but in very small quantity †. To these may be added the tartrate of antimony and the croton oil. Decided relief and rapid diminution of the dropsical effusion follow, in many cases, and more particularly in ascites, the full action of purgatives of this class. But their use is often superseded by the milder operation of saline medicines and many of the neutral salts, which appear also to combine a diuretic with their purgative effect. Of these the most powerful are the supertartrate of potass, given in doses of from half an ounce to an ounce alone or combined with jalap, or used in solution as common drink, the tartrate of soda, and the sulphate of magnesia. The combination of the milder with some of the more drastic purgatives is often attended with much advantage. In order to secure much watery discharge by the bowels, it is generally necessary to repeat the use of purgatives of this kind at short intervals, and to continue them for some time ‡.

* On Blood-letting in Dropsy, see Dr Blackall, *Op. cit.* 3d edit. p. 285.—Dr Crampton, *Clinical Report on Dropsies*, part ii; *Transactions of the Colleges of Physicians in Ireland*, vol. ii. p. 195.—Dr Abercrombie on certain Dropsical Effusions successfully treated by Blood-letting; *Edin. Med. and Surg. Journal*, vol. xiv. p. 163.—Dr Bright, *Op. cit.* pp. 71, 72.—Dr George Gregory, *Elements of the Theory and Practice of Physic*, 3d edit. p. 640, London, 1828.

† See Paris's *Pharmacologia*, 4th edit. p. 372, London, 1820.

‡ See Dr Blackall, *Op. cit.* p. 288, *et seq.*

1684. In his *Materia Medica*, where he has treated fully of the various diuretics, Dr Cullen has alluded to the effects of digitalis, even in small doses, upon the stomach and intestines, and especially its peculiar effect in diminishing the frequency of the pulse, which he considered to be certain proofs of a general operation upon the system. But, at the same time, he has stated his inability to explain on what principle its powers as a diuretic depend *. Nor do more recent investigations appear to have thrown much light upon this subject. It is employed either in substance, or in the form of infusion or tincture. Many authors prefer the infusion, as being the most certain preparation of this powerful remedy. But it has been observed by some practitioners, in opposition to the opinion of Dr Withering, that, in doses of from one to three grains of the recently prepared powder, given with a little wine, and repeated at the interval of three or four hours, until from nine to twelve grains have been taken, and then intermitted, it not only acts more certainly and powerfully on the kidneys, but is not so apt to cause nausea or vomiting, or to reduce the action of the heart. But in whatever form it is given, digitalis, like all other diuretics, often fails in producing the desired effect. It is frequently combined with squill, or calomel, and apparently with advantage. It has been often remarked, where digitalis and squill taken singly produced no diuretic effect, that they have acted rapidly and powerfully on the kidneys when combined †.

The other diuretics in common use are the acetate and nitrate of potass, the vinum colchici, the spiritus ætheris nitrosi, the spartium scoparium and the fruit of the juniperus communis in decoction or infusion, and the essential oil of turpentine. The pyrola umbellata has been highly recom-

* Cullen's *Materia Medica*, vol. ii. p. 555, *et seq.*

† For further details on the use of Digitalis, see Withering on Foxglove and some of its Medicinal Uses, Birmingham, 1785.—Blackall, *Op. cit.* p. 300, *et seq.*

mended of late years, as possessing powerful diuretic qualities; it is used in the form of infusion or decoction *. The preparations of copper, cantharides, opium, ammoniacum, and the infusion of tobacco †, have been also employed.

1707-8. The case of idiopathic hydrothorax affecting one side, can hardly be distinguished, in practice, from the case of empyema without communication between the bronchiæ and the pleura. But if it can be distinguished, it must be considered as a less favourable case for the operation of paracentesis thoracis, because air here comes in contact with the serous membrane itself, whereas in empyema that membrane is defended by a coating of lymph.

Scarifications or punctures are an effectual mode of relieving the distention caused by anasarca swellings, but they occasionally lead to erysipelas and gangrene, especially if they are performed lower than the knees.

The following modern works, in addition to those already mentioned, may be consulted on the subject of dropsy:

SHUTTLEWORTH, *On Dropsy*, Liverpool, 1808.

MACLEAN, *On the Nature, Causes, and Cure of Hydrothorax*, Sudbury, 1810.

FERRIAR'S *Medical Histories and Reflections; Remedies of Dropsy*, vol. i. p. 38; vol. ii. p. 143, London, 1810.

WELLS, *On the Dropsy which succeeds Scarlet Fever; Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, vol. iii. p. 167; *On the Presence of the Red Matter and Serum in the Urine of Dropsy, which has not originated from Scarlet Fever*, *Id. Op.* vol. iii. p. 194.

MONDAT, *Des Hydropisies, et de leur Cure*, 2^{de} edit. Paris, 1818.

* See Dr Somerville on the Diuretic Properties of the *Pyrola Umbellata*; *Medico-Chirurgical Transactions*, vol. v. p. 340.—Dr Beatty, *Case of Ascites cured by the Pyrola Umbellata*; *Transactions of the Colleges of Physicians in Ireland*, vol. iv. p. 23.

† See Dr Fowler's *Medical Reports of the Effects of Tobacco in the Cure of Dropsies*, London, 1785.

- GREGORY, (GEORGE,) A Lecture on Dropsy, London, 1819.
 COMTE, De l'Hydropisie de Poitrine, et des Palpitations du Cœur,
 2^{de} edit. Paris, 1822.
 BOUILLAUD, De l'Oblitération des Veines, et de son Influence sur la
 Formation des Hydropisies Partielles; Archives Générales de
 Médecine, tom. ii. p. 188, 1823.
 PORTAL, Observations sur la Nature et le Traitement de l'Hydro-
 pisie, Paris, 1824.
 VENABLES, Clinical Report on Dropsies, London, 1824.
 AYRE, Researches into the Nature and Treatment of Dropsy, Lon-
 don, 1825.

1741. *Scrofula*.—Scrofula in its various forms is not only apt to appear after small-pox, but after all the exanthemata and the various febrile diseases of children. The debility following these affections appears to be a condition of the body peculiarly favourable to the excitation of this kind of diseased action.

1743–50. The term scrofula is now generally applied in medical writings, not so much to any determinate set of symptoms, as to the tendency to a peculiar mode of inflammation and suppuration, and to the deposition and subsequent ulceration of tubercles in various parts of the body *. The accurate description given by Dr Cullen of the common scrofulous affection of the skin and conglobate glands is only a particular instance of this tendency. There is no texture of the body susceptible of inflammation, in which scrofulous action may not likewise take place.

The question whether tubercles, which may be regarded as a scrofulous disease, result from this peculiar mode of inflammation, or are the effect of a specific action, and generally the cause of the inflammation which goes along with

* On Scrofula considered as a Chronic Inflammatory Disease, and on the appearance of Scrofulous Inflammation as modified by texture, see Dr Thomson, Lectures on Inflammation, pp. 130, *et seq.*; 155 *et seq.* Edinburgh, 1813.

them, has been already considered in regard to tubercles of the lungs *, and need not therefore be again discussed. It has been supposed by some, that the original scrofulous action is never strictly inflammatory; and that the inflammation and suppuration which appear are generally its effects †. But this is perhaps too great a refinement. It does not appear that the lymphatic system is peculiarly concerned in scrofula, further than as the glands of that system are a very common, and often the primary seat of scrofulous inflammation, tubercular deposition, and its consequences.

The principal characteristics of scrofulous inflammation in all parts of the body, are its slow progress, and peculiar obstinacy,—the much less intensity of pain than occurs in healthy inflammation of the same parts,—the livid rather than florid colour of external parts that are reddened by this form of inflammation,—the tendency to ulceration of the unhealthy kind, described by Dr Cullen in sect. 1745,—and the connexion of this kind of action in almost all parts with tubercular deposition, generally found in different textures in the same case.

The course of matters in scrofulous affections of the joints is probably, in general, different from what Dr Cullen has stated in sect. 1748. In some cases, undoubtedly, tumours and abscesses in the softer parts precede affections of the bones, cartilages and ligaments; but, more generally, the parts essential to the formation of the joint are first affected, and the abscesses in the neighbourhood are secondary symptoms. The scrofulous affection of the hip joint appears, commonly, to commence by ulceration of the cartilages; the most common kind of what is called white swelling of the knee, by a thickening and a peculiar degeneration of the synovial membrane; and other scrofulous affections

* See Appendix on Phthisis Pulmonalis, vol. i. pp. 587, 590.

† See Mr Lloyd, A Treatise on the Nature and Treatment of Scrophula, p. 52, *et seq.* London, 1821.

of the joints commence by enlargement and softening of the ends of the bones. On all these, after they have already existed some time, and when different textures are involved in the disease, abscesses supervene *. In like manner, the disease of the spine, which is common in scrofulous constitutions, begins by chronic inflammation of certain of the vertebræ and the fibrous tissues connected with them, going on to caries of these bones, and soon followed by abscesses in the surrounding soft parts.

1752. In regard to the connexion of the venereal disease with scrofula, it is to be observed, that though neither can cause, each may aggravate the other. Such complications are of very frequent occurrence, and often very unmanageable; and it is probably these that the irritation of mercury is particularly apt to aggravate.

What has been said in the text and in the notes, on the effect of climate, and the habits and mode of life of great towns, and of debilitating causes in general, in producing phthisis and rickets, may be applied to scrofula in every form †. It appears, also, that the inhabitants of low and moist situations are, *cæteris paribus*, more liable to scrofula than any others.

1753-9. Considering scrofulous disease as, in general, a modification of inflammatory action with its consequences, it is quite obvious that no one remedy, or even plan of treatment, can be advisable throughout the whole course of such affections. The general principles to be kept in view are, to moderate inflammation as early as possible after its commencement; and to maintain the strength and counteract the scrofulous diathesis, as far as possible, by the remedies

* See Brodie on Diseases of the Joints, pp. 68, *et seq.*; 101, *et seq.*; 209, *et seq.*—Lloyd, *Op. cit.* p. 118, *et seq.*

† See Dr Alison on the Pathology of Scrofulous Diseases; Transactions of the Medico-Chirurgical Society of Edinburgh, vol. i. p. 365.

and regimen of the tonic kind, when the inflammation and its consequences have become chronic, or have altogether subsided; or when the symptoms of the scrofulous diathesis only are present, no well-marked scrofulous disease having shown itself.

Although country air and sea-bathing are generally considered the most valuable remedies with this last view, a course of warm bathing has sometimes appeared useful*. Warm clothing is certainly of the greatest importance as a preservative; and a residence in a climate warmer than that of Great Britain, during some winters of that period of life, at which scrofulous affections are most apt to occur, may often have the effect of preventing their accession, both because there is much less exposure to their most frequent exciting causes, cold and moisture, and because exercise may be more habitually taken during the winter and spring months with safety. But it is to be observed, that summer residence in very hot climates appears manifestly debilitating and injurious to young persons; and children brought up for some years within the tropics are perhaps peculiarly liable to scrofula in this climate.

Besides the use of the mineral waters mentioned by Dr Cullen, a continued course of mild purgatives has appeared useful, particularly in chronic affections of the lymphatic glands†.

Of the various particular remedies introduced since the time of Dr Cullen, in the treatment of scrofula, the best attested, perhaps, are the different preparations of steel, the mineral acids, and the muriate of lime‡. The continued use of the alkalies has been much recommended. Their beneficial effects have been supposed by some authors to be

* See Russell on Scrofula, p. 56, Edinburgh, 1808.

† See Russell, *Op. cit.* p. 63, *et seq.*—Lloyd, *Op. cit.* p. 38, *et seq.*

‡ Beddoes, *On the Management of the Consumptive, and on the Cure of Scrofula*, p. 227, London, 1801.—Wood, *Edin. Med. and Surg. Journal*, vol. i. p. 147.—Brodie, *Op. cit.* pp. 245, 246.

confined to the alimentary canal *. Iodine taken internally in the form of the tincture, or applied externally as an ointment, has apparently proved useful in removing indolent scrofulous tumours. The safest, and, in the opinion of Dr Coindet himself, the best mode of using preparations of iodine, is in very small quantity, continued for several months †. Weak solutions of the sulphate or acetate of zinc appear to be among the best external applications to scrofulous ulcers ‡.

The due management of counter-irritants in some scrofulous affections, particularly of those tissues which change slowly in disease, is a matter of great importance, but requires caution and minute attention. This subject, however, belongs more properly to the province of surgery.

The following modern works may be consulted on the subject of scrofula, in addition to those already mentioned :

WHITE, (THOMAS,) A Treatise on the Struma or Scrofula, 3d edit. London, 1794.

BROWN, On Scrophulous Diseases, shewing the good effects of factitious airs, London, 1798.

BURNS, (JOHN,) Dissertations on Inflammation, vol. ii. Glasgow, 1800.

BAUMES, Traité sur le Vice Scrophuleux, 2de edit. Paris, 1805.

CROWTHER, On the Disease of the Joints commonly called White Swelling, 2d edit. 1808.

CARMICHAEL, (RICHARD,) An Essay on the Nature of Scrofula, London, 1810.

* Abernethy, on the Constitutional Origin and Treatment of Local Diseases; Surgical Works, vol. i. pp. 162, *et seq.* 178.—Lloyd, Op. cit. p. 41.—See also Brandish on the Use of Caustic Alkali in Scrofula, London, 1811.—Armstrong on Scrofula, with an Account of the Effect of the Carbonas Ammoniacæ; London, 1812.

† See Coindet, Observations on the Remarkable Effects of Iodine in Bronchocele and Scrophula, (translated by Johnson,) 2d edit. p. 21, *et seq.* London, 1824.—Manson, Medical Researches on the Effects of Iodine, p. 231, *et seq.* London, 1825.—Gairdner, Essay on the Effects of Iodine on the Human Constitution, London, 1824.

‡ See Goodlad on Scrofula; Edin. Med. and Surg. Journal, vol. xi. p. 204.

GOODLAD, On the Diseases of the Vessels and Glands of the Absorbent System, London, 1814.

HENNING, A Critical Inquiry into the Pathology of Scrofula, London, 1815.

LEPELLETIER, Traité Complet sur la Maladie Scrophuleuse, Paris, 1818.

FARR, On Scrophula, London, 1820.

ALIBERT, Nosologie Naturelle, p. 448, Paris, 1820.

HUFELAND, Traité de la Maladie Scrophuleuse, (traduit par Bousquet sur la 3me edit.) Paris, 1821.

1760, *et seq.* *Syphilis*.—There has been so much discussion by surgical writers on the subject of syphilis since the time of Dr Cullen, that it will hardly be expected that I should enter fully on the consideration of the disease in this place. But I cannot omit taking notice of the essential change that has been gradually effected in the opinions of the great body of practitioners, and been confirmed by an ample induction of facts, in regard to the importance of mercury as an antidote to the venereal poison, or even as a certain means of accelerating the favourable termination of venereal action.

It was stated by Mr Hunter, and more fully by Mr Abernethy, that symptoms nearly resembling both the primary and secondary syphilitic affections, and equally proceeding from sexual intercourse, may frequently be successfully treated without mercury, or are even aggravated by its use. But more recent observations have nearly established, that there is no form of venereal disease which does not admit of a favourable termination, (although often very slowly,) under the use of local antiphlogistic remedies, chiefly astringent applications, with rest and the general antiphlogistic regimen; the vegetable alterative medicines, such as the decoctions of sarsaparilla, guaiac, &c. and sometimes the mineral acids*.

* See Dr Fergusson, Observations on the Venereal Disease in Portugal;

In the opinion of the best informed practitioners, therefore, at present, mercury is regarded only as an alterative remedy of peculiar efficacy in certain forms of venereal complaints, chiefly in those ulcerations which have hardened bases, and are slow in their progress, corresponding to Mr Hunter's description of true chancre, and in those eruptions which are, for the most part, scaly. In many cases, when the inflammatory symptoms are well marked, or fever exists, its use is dangerous, and it ought certainly to be delayed until the inflammatory and febrile symptoms have been in a great measure subdued. In the cases, unfortunately so frequent, where syphilis co-exists with the scrofulous diathesis, or even with scrofulous diseases, there is always much risk either of aggravation of the present symptoms, or of excitation of fresh scrofulous disease, external or internal, from the use of mercury; and it is in these cases peculiarly important to know how much may be done without it.

It has been most generally supposed, that the difference, in regard to the effect of mercury on venereal complaints, depends upon varieties of specific contagion of this kind, to which the names of pseudo-syphilis, syphiloid disease, &c. have been applied. Certain varieties, comprising large numbers of cases, have been accurately described. The most definite classification of the varieties of venereal complaints is that attempted by Mr Carmichael, who considers the eruption on

Medico-Chirurgical Transactions, vol. iv. p. 1.—Mr Rose on the Treatment of Syphilis, with an account of several cases of that disease, in which a cure was effected without the use of Mercury; *Id.* Op. vol. viii. p. 349.—Mr Guthrie, Observations on the Treatment of the Venereal Disease, without Mercury; *Id.* Op. vol. viii. p. 550.—Dr Thomson, Observations on the Treatment of Syphilis without Mercury; *Edin. Med. and Surg. Journal*, vol. xiv. p. 84.—Dr Hennen on the Cure of Syphilis without Mercury; *Id.* Op. vol. xiv. pp. 201, 328, 356.—Dr Hill on the Simple Treatment of Syphilis; *Id.* Op. vol. xviii. p. 567.—Mr Broughton on the application of Mercury to Venereal Complaints, *London Medical Gazette*, vol. i. pp. 689-717.—Mr Bacot, Essays on Syphilis, *Id.* Op. vol. ii. 1828.

the skin as the most characteristic mark of each variety, and hence describes a papular, a pustular, a phagedenic, and a scaly venereal disease *. But it is still a question, whether such differences depend upon distinct specific poisons, or are merely the effect of difference of constitution and mode of life †, and perhaps of the gradual alteration in the general symptoms of the disease which appears to have taken place in the course of ages. It is generally believed, however, in the present day, in opposition to the opinion of Dr Cullen, that the poison producing syphilis is specifically distinct from that producing gonorrhœa.

Perhaps the most important addition to the internal remedies in the treatment of syphilis, is the nitric or nitrous acid, either taken internally, or in the form of the warm bath impregnated with it, or the nitro-muriatic acid ‡.

In addition to those already mentioned, the following modern books may be consulted on the subject of syphilis :

REES, A Treatise on the Primary Symptoms of Lues Venerea, London, 1802.

HOWARD, On the Venereal Disease, London, 1806.

CAPURON, Tableau de la Maladie Vénérienne, Paris, 1807.

BERTIN, Traité de la Maladie Vénérienne chez les Enfants nouveaux-nés, les Femmes Enceintes, et les Nourrices, &c. Paris, 1810.

PETIT-RADEL, Cours des Maladies Syphilitiques, Paris, 1812.

MATTHIAS, The Mercurial Disease, London, 1816.

* An Essay on Venereal Diseases, and the Uses and Abuses of Mercury in their Treatment, 2d edit. London, 1825.

† See Hennen's Principles of Military Surgery, 2d edit. p. 523, *et seq.* Edinburgh, 1820.

‡ See William Scott on the Internal Use of the Nitrous Acid; *Annals of Medicine*, vol. i. p. 383, *et seq.*—Beddoes on the Treatment of the Venereal Disease by Nitrous Acid, London, 1799.—Pearson (John) on the Effects of various Articles of the Materia Medica in the Cure of Lues Venerea, 2d edit. p. 198, *et seq.* London, 1807.—Blair, Essay on the Venereal Disease, and the Effects of the Nitrous Acid, &c. London, 1808.—H. Scott on the Internal and External Use of the Nitro-Muriatic Bath in the Cure of Diseases; *Medico-Chirurgical Transactions*, vol. viii. p. 173; and *London Medical Repository*, vol. vii. p. 59.

- HEY, On the Effects of the Venereal Disease on the Fœtus in Utero ;
Medico-Chirurgical Transactions, vol. vii. p. 541.
- EVANS, Pathological and Practical Remarks on Ulcerations of the
Genital Organs, London, 1819.
- BACOT, Observations on Syphilis, &c. London, 1821.
- SAINTE-MARIE, Méthode pour guérir les Maladies Vénériennes In-
vétérées, &c. Paris, 1821.
- LAGNEAU, Exposé des Symptômes de la Maladie Vénérienne, 6me
edit. Paris, 1826.
- DESRUELLES, Mémoire sur le Traitement sans Mercure, employé à
l'Hôpital Militaire d'Instruction du Val-de-Grace, contre les Ma-
ladies Vénériennes, Primitives et Secondaires, Paris, 1827.
- DEVERGIE, Clinique de la Maladie Syphilitique ; en Livraisons,
Paris, 1828.

1803, *et seq.* *Scurvy*.—A particular account of the im-
provements in the victualling, discipline, and arrangement
of ships in the Royal Navy, which have gradually had the
effect of banishing scurvy even from ships in the longest
voyages, may be found in a paper on the health of the
Navy, by Sir Gilbert Blane *. It appears from the state-
ments and tables given by this author, that scurvy, which
previously was very prevalent, has almost disappeared from
ships of war, and naval hospitals, ever since the year 1796,
when an order was issued for a general supply of citric acid,
or lemon juice. “It is found,” he states, “by the inspec-
tion of a great number of surgeons’ journals, that ever since
the supply of this article, the scurvy has either not appeared
at all, even on the longest voyages and cruises ; or, if ever it
did in a slight degree, it was soon made to disappear by an
additional dose of lemon juice. The daily regulated allow-
ance for each man is now one fluid ounce, with an ounce and
a half of sugar †.”

* Medico-Chirurgical Transactions, vol. vi. p. 490.

† Op. cit. p. 499.

It is, however, I believe, doubted by many of the medical officers of the Navy, whether the exemption from scurvy is so much owing to the general use of lemon juice as Sir Gilbert Blane supposes, or whether it is not rather the result of many concurrent causes affecting the health of ships' crews. From Captain Parry's account of his voyages, it appears that various other articles of fresh provisions were thought decidedly useful; particularly, meat prepared without salt, concentrated soups, and fresh fermented bread made from flour daily, instead of sea-biscuit, along with such vegetables as their situation permitted them to obtain. The few cases of scurvy which occurred in these voyages were partly referable to peculiar exposure to dampness in confined situations, and to indolence of disposition and mental depression*.

1815-29. *Jaundice*.—The formation of biliary concretions is so far illustrated by the discovery of M. Chevreul, already mentioned, that cholesterine, the chief constituent of many of these, exists in healthy bile†. But in regard to the causes of its deposition we are still much in the dark; nor has any solvent been discovered for it, which can be applied to the living body with any chance of benefit. It may be observed, however, that the circumstance in which jaundice from this cause is most frequently observed, is a sedentary life, particularly if suddenly succeeding to habits of exertion. In these circumstances, an unusual congestion of blood in the great vessels and internal parts of the body, particularly in the liver, may be supposed to take place; and it is worthy of notice, that in those who have particular congestion of

* See Parry's *Journal of a Voyage for the Discovery of a North-West Passage*, 2d edit. pp. 158, 159; Appendix, p. clxxiv, London, 1821.

† Chevreul, *Note sur la Presence de la Cholesterine dans la Bile de l'Homme*; *Journal de Physiologie de Magendie*, tom. iv. p. 257, Paris, 1824.

blood in the liver, (and consequent disease of that organ,) dependent, in the first instance, on disease of the heart or lungs, gall-stones are not unfrequently found after death, where there was no reason to suppose them to have existed previous to the attack of thoracic disease.

In cases of jaundice which can be ascertained to depend upon chronic disease of the liver, the treatment recommended for chronic hepatitis is of course advisable. The practice of giving emetics as a means of propelling forwards biliary concretions is generally considered precarious; and, indeed, in most cases, the paroxysms of severe pain, which mark the passage of gall-stones, are accompanied by so much vomiting as to forbid the use of emetics, and render the pill or enema the best form of administering opium.

Cases certainly occur not unfrequently, in which all the symptoms of jaundice exist for some time before death, and no cause of obstruction in the ducts can be detected. This is generally the case in the jaundice accompanying fever; but the same has been sometimes observed in idiopathic jaundice*. All the bile ducts, in such cases, being sometimes entirely empty, the suppression of the excretion would appear to have taken place at its very origin, and the case is similar to the *ischuria renalis*. In such cases likewise, violent and fatal affections of the nervous system, somewhat similar to those occurring in the *ischuria renalis*, have sometimes been observed. If any treatment can be available in such cases, it is probably blood-letting, followed by the free use of mercury, perhaps combined with opium.

* See Dr Marsh, Cases of Jaundice, with Dissections; Dublin Hospital Reports, vol. iii. p. 265.

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