Researches into the nature and treatment of dropsy in the brain, chest, abdomen, ovarium, and skin : in which a more correct and consistent pathology of these diseases is attempted to be established, and a new and more successful method of treating them / recommended and explained by Joseph Ayre.

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CHAP. IV.

TO

JOHN AYRE, M.D.

OF MALTON.

My dear Brother,

Your pursuing the same profession as myself, and with no ordinary or stinted devotion to it, would justly command from me the dedication of this essay to you, as a mark of the high respect which I entertain for your professional zeal and ability. But these considerations, interesting as they are, are absorbed by others which are more so. To you, therefore, my earliest companion, and most beloved of

purgative was a specific for the cure of abdominal dropsy; and acknowledged, with the candour which distinguished him, the surprise and disappointment he afterwards felt by its failure in other cases. Since his time, numerous medicines of various powers, and in pursuance of various objects, have, in their turn, been adopted and discarded; and such has been the confliction of opinions in regard to the efficacy of most of them, as to create, in the minds of many practitioners, an utter distrust of them all. The cause, however, of their failure has arisen, not from any intrinsic defect in the medicines themselves, but from the defective pathology which governed their use, and in the neglect of those other aids which were required to give them effect—in regarding too commonly, in short, the serous accumulation as the disease itself, and the means employed for its removal, as the sufficient remedy for its cause.

To correct these, and other erroneous

notions concerning the nature and mode of treating this disease, and to fix its pathology on something like a solid basis, are the objects of the following pages; and if, in the prosecution of this task, I have no acknowledgments to make to any individual writer as my guide and authority, I have, nevertheless, to confess myself indebted for many important facts to the writings of the late Dr. Wells, of Dr. Blackall of Exeter, and of Drs. Abercombie and Duncan, junior, of Edinburgh, but particularly to the valuable system of pathology of the late Dr. Parry of Bath, which may be justly classed among the most important contributions that have been made in modern times to Medicine.

Of the general views which I have given of this disease, I must be allowed to observe, that, under the amplest opportunities for verifying them, they have been entertained and acted on by me for a considerable

time, and during the last five years, have formed the substance of an annual lecture to a class of clinical students. And this I am the more particularly led to notice, from having seen, since these papers were committed to the press, a copy of an abridged edition of the elaborate Dictionnaire des Sciences Médicales, now in course of publication, in which I am gratified to find, that the doctrines of dropsy, maintained in the larger work, are there relinquished, whilst others are given in their place, conformable, in the main, with those which it is the object of this treatise to establish.

Of the essay itself, which I now submit to the candid judgment of the reader, I may remark in conclusion, that it was originally designed as a part only of a more considerable work on the pathology of this, and some other chronic diseases; and that it was merely from the difficulty of compressing it into the required limits,

that its separate publication became necessary: circumstances which will supply, I trust, both the reason and apology for the brevity with which some parts of its subject are disposed of.

By the same Author,

PRACTICAL OBSERVATIONS

ON THOSE

DISORDERS OF THE LIVER,

AND

OTHER ORGANS OF DIGESTION,

WHICH PRODUCE WHAT ARE DENOMINATED BILIOUS COMPLAINTS.

Second Edition, with Additions, 8vo. *Price* 8*s.* 6*d. in Boards.*

CHAPTER I.

ON THE PATHOLOGY OF DROPSY.

Dropsy is arranged and defined by nosologists as a disease. The watery effusion, however, of which it is considered to consist, is only one in a series of effects of a disease, and not always the last of that series. The true disease is to be sought for in that particular condition of the solids, by which the effusion is produced. To appreciate, therefore, justly the nature and treatment of Dropsy, it is necessary to understand the nature of that particular condition of the solids which constitutes the disease, and of which the serous or watery effusion is merely the result.

Of the nature of that morbid state which

gives rise to general and local dropsy, various hypotheses have been entertained; and the most plausible of these, more or less modified, still maintain their hold in the schools of medicine, and influence the practice of their professors. According to these, all dropsical accumulations arise, either 1*st*, from a want of tone or energy in the absorbent vessels, by which the superfluous fluid of the part is insufficiently absorbed; or 2*dly*, from an increased exhalation of the same proper fluid, through a similar want of tone in the exhalants; or, lastly, from a mechanical obstruction to the free return of blood by the veins, produced by scirrhus or other disease, by which a greater portion of it is forced into the exhalants, and a greater effusion of their proper fluids is thereby occasioned. That these views, however, although supported by the authority of respectable names, and long prescription, are purely hypothetical, may I think be shown from the following considerations.

1*st.* The opinion of a want of tone in the absorbents, as a cause of dropsy, is contradicted by the fact, that in those cases, in which it is assumed to prevail, it is found that the adipose matter or fat of the body is removed by the absorbents; or, in other words, that emaciation takes place to as great an extent, and as rapidly, in this as in other diseases; and emaciation can only be effected by means of absorption. Besides, in these cases of dropsy, mercury, when rubbed upon the surface, or received internally, is absorbed as readily, and affects the system as early, as under other states of the body. There is also no accumulation of the fluids in the joints, or in the *bursæ mucosæ* in these cases, which, nevertheless, would happen if there was a general debility of the absorbent system; and *ecchymoses* or livid spots, though easily induced in anasarcous limbs, are likewise easily removed from them by the absorbents.

2dly. The opinion of a want of tone or energy in the exhalants, involves in it one

of the two following conditions; namely, either 1st, that the fluid of dropsy may escape mechanically from them, and that the fluid thus *mechanically* separated may be *identified* in its sensible and chemical qualities with another fluid which is confessedly *secreted;* or 2dly, that if the fluid of dropsy be secreted, then that an *increase* in the quantity of a secretion may continue an indefinite period, under a *decrease* in the energy of its secreting vessels; conclusions to which experience and analogy are alike opposed.

3dly. With respect to the effusion arising from a mechanical obstruction to the blood's return through the veins, by a pressure of parts of a diseased viscus on the vessels passing through it, it may be objected, that an obstruction of the kind here contemplated has never been shown to exist. In the case of the liver, which is commonly considered, when in a scirrhous or enlarged state, to be the seat of these mechanical obstructions, and thus to be the cause of

abdominal dropsy, we have no satisfactory instance yet shown to us of any such precise condition of that organ. There are, indeed, numerous instances of abdominal dropsies in those labouring under a scirrhous or enlarged state of the liver; but there are also numerous examples of such states of the liver, as well as of the spleen and other organs, without any such effusion; and in many cases, where such effusion has taken place, it has been carried off by the natural passages, or by tapping, without any return of the dropsy; and yet without any visible change in the structural condition of the liver. If the cause were of a mechanical kind, existing within the liver, or other organs, the effect should be constant; and every scirrhous or enlarged state of these organs should be attended by the watery discharge; and tapping should be uniformly followed by its return. Besides, if we must recur to a mechanical cause as explanatory of the occurrence of water within the cavity of the abdomen, we have

still to account for the appearance of such effusion, in cases where no disease of the liver, or other organ, exists; and, likewise, of its occurring in other cavities where no mechanical cause is asserted to be present, and where, in these several cases, the remedies by which the cure is effected has no relation to such causes. The hydrocele in men, and the ovarian dropsy in women, are purely of this latter kind; and these resemble, with respect to their symptoms and progress, and the sensible and chemical qualities of their fluids, the dropsical effusions of the abdominal cavity.

But farther: if the discharge depended upon a mechanical cause, the water should in every case be of a uniform fluidity, and the progress of its accumulation should be likewise uniform, so that the operation of tapping should have no tendency to induce a more rapid refilling of the cavity; yet the contrary of all this is a subject of daily observation; for the effused fluid in the same individual may be almost entirely aqueous

at the first tapping; in the next viscid; in a third perhaps be again aqueous; in a fourth again viscid, or of a wheyish or milk-like colour, with the loss of its transparency. The effusion of the fluid likewise, instead of a progressive increase, is found frequently to cease after a certain portion is collected, and the disease thus becomes for a certain time stationary; and yet without any possible change in the relative condition of this the assigned cause. The effect of tapping, also, is usually to occasion a more rapid return of the water, and a necessity for a more frequent renewal of the operation; circumstances which are utterly at variance with the notion of any mechanical obstruction in the liver.

But experiments have been made upon the lower animals, with the view of determining this question, and the one made by Lower, of tying the *vena cava* of a dog, has been confidently appealed to as a conclusive argument in its favour. The inferences, however, drawn from the experiment

are fallacious ; for the experimenter, besides overlooking the agency of effects incidental to the operation, has committed the too common error of reasoning from the lower animals to man ; and, therefore, has assumed, because ascites occurred in the dog, that it would also have happened in the human subject. But there was an effect, here overlooked, which was to be expected to take place in the abdomen of the dog, from the injury done to the surrounding parts by the operation itself, and which would be quite independent of any effect arising out of the experiment. In the human subject this effect would be the highest form of inflammation, by which coagulable lymph or pus would be poured out upon the surface of the peritoneum. There would, therefore, be inflammation excited in the abdomen of the dog ; but as the lower animals are less easily acted on than man, the inflammation would in this case be in a lower degree. But every degree of inflammation has its particular product. The

highest occasions a discharge of pus, whilst the lowest, when seated in a serous membrane, is a larger portion of its proper serous fluid. This, therefore, might be the product of the inflammation which was produced incidentally by the experiment in the abdomen of the dog; and it would be just as reasonable to regard the coagulable lymph in the human subject, which would result from such an experiment, as an effect of the mechanical obstruction, as to consider the fluid effusion in the dog to be so.

Instances of diseases of the liver, connected with ascites, have been also noticed, in which there was, in addition to its other morbid states, a partial occlusion of the *vena portæ*, by the effusion of coagulable lymph into it. But such instances are rare, and will not be met with, perhaps, in the low proportion of one for several hundred cases of ascites connected with hepatic disease; and in the cases where they may occur, we are warranted from analogy to assume, that any obstruction given to the circulation by the

diseased vessel would be quickly relieved by the enlargement of the anastomosing branches; and that no effusion of water into the abdomen would result from it. For such has been found to happen in analogous cases, where this obstruction has occurred to the circulation through the *vena cava*, and where the liver became the principal medium by which the blood of the lower extremities, as well as of the abdomen, was conveyed to the heart; and where the relative proportion of the vessels of the liver, to the quantity thus required to pass through it, was equal to the lessening of one half of their calibres, under the ordinary condition of its circulation; and yet without any effusion of water into the abdomen or other parts. In the third volume of the Medico-Chirurgical Transactions, there is an interesting example of this kind communicated by the late distinguished anatomist, Mr. Wilson, and a reference made to three others, in which the *vena cava* was found completely obliterated as a tube, from the

point immediately below where the *venæ hepaticæ* unite to it, downwards to its bifurcation; so that nearly the whole of the blood of the abdomen and lower extremities was obliged to pass through the liver in its passage to the heart, but without there occurring any watery effusion into any part of the body.*

* The following farther particulars of this case, as bearing upon this question, may not be unacceptable to the reader. Besides the entire obliteration of the vena cava, the author proceeds to state that, the coats of the emulgent veins and of their branches, were thickened until they nearly reached the kidneys, and their cavities were filled with the same substance. Both the spermatic veins were remarkably thickened, and their cavities completely obliterated by the same process, as were the primary iliac veins, the external iliac veins until they had nearly reached the groin, and the internal iliac veins, with most of their larger branches, particularly those which returned the blood from the uterus. The whole of these vessels adhered so firmly to their corresponding arteries, as to render the separation of the one from the other impossible, without considerable injury to their coats.

The uterus was much larger than it usually is in its

Morbid conditions of the heart, of an analogous kind, are likewise noticed by various

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unimpregnated state; the coats of its principal veins were thickened, and their cavities partially obliterated. The smaller branches, both in its substance and on its internal surface, were very numerous, and much distended with blood.

The vessels of the lower extremities I found, upon a careful examination, to be in a perfectly natural state; no undue accumulation of blood had taken place in the veins, nor had any watery fluid collected in the cellular membrane.

As the stoppage of the circulation in the large veins below the diaphragm (excepting in those of the liver) was so complete, a wish naturally arose to ascertain with accuracy the principal channels, by which the blood, usually returned by them, had reached the heart.

In attempting this, I found that the anastomosing branches of the veins on the sides and back part of the pelvis were much enlarged, as were also those between the vena saphæna major, and the branches accompanying the deep-seated arteries passing through the foramen magnum ischii and the sciatic notch. Large communications were seen filled with fluid blood between the venæ pudicæ externæ, and the lower branches of the vena mesenterica inferior, which was enlarged to treble its usual size.

writers, by which the course of the circulation became greatly obstructed, and yet with-

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The veins coming from the sinuses of the dura mater in the theca vertebralis, the sinuses themselves, and the veins entering them were much enlarged, and the communications between them and the sacral and lumbar veins were, by the blood contained in them, rendered very apparent. The enlarged branches of the lumbar veins formed such easy communications with each other, as to allow a passage through them to a very large quantity of blood, which entered the vena azygos by the anastomosing branches of its lower part. This vein, although three times larger than it commonly is, was without the varicose appearance described by Dr. Baillie. The emulgent and phrenic veins communicated largely with the lumbar veins and the vena azygos.

By means, therefore, of the increased size of the veins which have been mentioned, and the enlargement of their anastomosing branches, the blood, which had formerly been returned by the trunk of the vena cava inferior, in consequence of the complete obliteration of this vessel from the liver downwards, reached the heart, by a more circuitous course indeed, but with so little difficulty, that no real impediment was occasioned to the general circulation. The blood passed from the venæ pudicæ externæ into the inferior mesenteric veins, and

out being followed by an effusion of water. A remarkable example of this kind, which may be selected *instar omnium*, is related by Dr. James Johnson in the last volume of the Medico-Chirurgical Transactions*; where the parietes of the left ventricle of the heart were so thickened, and the capacity of the cavity so contracted, as to render it unequal to the containing of more than two or three drachms of blood; and from which, therefore, there arose an habitual distension of the inferior vena cava, and a consequent extraordinary dilatation of that vessel, as effects of the obstruction that was given to the transmission of the blood

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from thence to the vena portæ; it circulated afterwards through the liver, and entered the lower part of the right auricle of the heart, by the very small portion of the vena cava inferior which remained pervious, viz. between the auricle and venæ cavæ hepaticæ. The remaining part, having reached the vena azygos, passed from it into the vena cava superior, and entered the same auricle from above.

* Vol. 13. part i.

through the heart; and yet without the occurrence of any effusion either into the chest or abdomen.

From these facts, therefore, and others to be presently noticed, it appears to me conclusive, that the dropsical effusion, in whatever part it may be seated, does not arise from any want of tone in the exhalant or absorbent system, or from any mechanical obstruction in the liver or other viccus; but that it proceeds from a morbid action in the cellular or serous tissues, and that this action, as we shall now proceed to show, is allied in its nature to inflammation.

In support of this view of the subject, it may be remarked, in the first place, that all the phenomena belonging to cases of watery effusion, met with under one or other of the forms of inflammation, are common to those of dropsy. The fluid discharged under the cuticle from an inflammation of the erysipelatous kind, or from that induced by heat, or by the irritation

of a blister, is distinctly a secretion, and resembles in all respects the fluid that is found in abdominal or other dropsies. The fluid collected in pemphigus, which, it is well known, is a disease commencing with detached inflammatory spots, and terminating, after some hours, in watery vesicles, resembles in like manner the dropsical effusion. In some cases of acknowledged inflammation, the fluid effused is found to vary greatly in its degrees of tenuity, so as to be sometimes of quite a viscid nature. The same is observed of the water of dropsy, so that it runs with difficulty though the canula, in the operation of tapping; and instances even have been met with, where the fluid had consolidated into a mass of jelly, and which could only be extracted in detached portions*, from a considerable opening made for that purpose in the abdomen. And this variable condition of the dropsical fluid may be met

* See Dictionnaire des Sciences Médicales, art. Hydropisie.

with in the same patient, on one occasion of drawing it off, and not on a succeeding one. A similar variation in the degrees of tenuity is likewise observed in the fluid discharged into the cellular tissue, constituting anasarca; so that the œdematous parts, when punctured, either discharge no fluid, or do it very imperfectly.

To the views here taken of the identity of these actions, it may, however, be objected, that the entire absence of pain in the ordinary cases of local or general dropsy, is irreconcilable with the notion, that the action producing them is the same which arises from the irritation of a blister on the skin, and still less the same which produces a watery effusion into the ventricles of the brain; but the great differences in this respect are referrible purely to the very different degrees of sensibility, with which these parts are endowed; though in pemphigus, be it remarked, which is a disease of the skin, and confessedly inflammatory, there is no pain preceding the vesication.

The serous membranes lining the cavities of the chest and abdomen, have their sensibility little increased under chronic inflammation; and hence it is a common circumstance for persons to die of diseases, seated in these parts, without ever having experienced much pain from them; and in whose bodies, nevertheless, after death, there are found the traces of very extensive chronic inflammation.

It may be also objected, that the suddenly increased effusion of tears in weeping, or of the saliva in certain states of the stomach, or of the matter of sweat when profusely perspiring, &c. are severally the result of an action which is unallied to inflammation; and that a sudden effusion, therefore, may take place from a serous membrane, from a condition of its vessels equally remote from that state. But there is, in reality, no analogy between the cases; for it must not be forgotten, that the suddenly increased discharge of tears, &c. occurring on these several occasions,

results from a law which pertains to the economy of the parts secreting them, and whose final cause (and which is alone the rule by which every law of the system is framed) is the *benefit* of the human frame; whereas no such law can belong to the economy of the serous membrane, causing an undue effusion from it, any more than of the tissue lining the cavities of the joints, or the bursæ mucosæ, &c. since the final cause of such a law would not be the benefit, as in the other cases, but the *injury*, and often the *destruction* of the body.

2dly. But it may be farther shown, that the morbid action, which produces the watery effusion, is only another condition of inflammation; since it obeys the same laws. Thus, it is a well known property of common inflammation to be suddenly translated from one part of the system to another, and which is termed a metastasis. This property is also observable in the action producing the serous effusion; and although

it has been supposed to be only the fluid which is thus suddenly removed from one part of the body to another, it is unquestionable, that, in these cases at least, the metastasis is exclusively of the action which produces the serous discharge. The action, likewise, occasioning the effusion, as seen in anasarca, usually commences at a given point, and is gradually extended thence in a continuous course, analogous to what occurs in inflammation, and particularly in the erysipelatous kind, to which it bears a very strong resemblance, and into which, indeed, it is easily convertible.

But farther; the results of common inflammation, it is well known, vary according to the intensity of the cause. The lowest degree of it occasions an increase in the quantity of the proper fluids of the part. In the mucous membranes, the product is a mucous fluid, too well known to require to be described. In the serous and cellular tissues it is a transparent, and, usually, a limpid fluid, consisting principally of serum,

and more or less charged with albumen, according to the amount of this lowest degree of inflammation. A higher degree of inflammation yields for its product coagulable lymph; a still higher one produces pus. All these several products of common inflammation are more or less remedial of their cause; or, in other words, they are the immediate means of the cessation or abatement of the inflammation which produced them. This is observed in the lessening or removal of the pain of a blister, immediately upon the completion of the vesication. Similar remedial effects take place upon the occurrence of suppuration in a common phlegmon. Now, the same power of proving remedial to the inflammation, which is observed to belong to the effusion of a blister, is likewise a property, though in a much less degree, of the hydropic effusion, when the inflammation which produces it is idiopathic; or, in other words, is not created by a visceral or other disease, or some particular excitement of the gene-

ral system. Hence the familiar fact of the cessation of pain in the extremities, on their becoming anasarcous; and of an effusion, which has begun to take place into a cavity, becoming sometimes temporarily suspended, and particularly so in ovarian dropsy, and in hydrocele; and of the effused fluid continuing for several months, and even years, in its sac, without any sensible addition being made to the quantity, until, by some accidental cause being superadded to the original one, the serous inflammation is again renewed.

And here it may be proper to remark upon a common error committed by those, who, mistaking the nature of the action which produces the serous effusion, look in the *post mortem* examination for some of the common signs of an inflammation having existed; and who conclude, upon not finding such, that the water was derived from some mechanical or other cause, foreign to the true one. But in the higher forms of abdominal inflammation the pro-

ducts are pus or lymph, and these are found upon the surface of the peritoneum, with sometimes a thickening and discoloration or ulceration of its substance; whilst in the lowest form of that increased action to which the serous membranes are subject, the only product is the serous fluid, and there can be, therefore, no visible alteration produced by it in the structure of the serous tissue.

3dly. By the hydropic or serous inflammation obeying the same laws which govern the other degrees of common inflammation, it follows, that upon a higher excitement being superinduced upon it, the serous effusion should cease. This, therefore, is found to happen in every case where such higher excitement is brought on. This increased inflammation is sometimes occasioned by design or accident, and, at other times, it occurs in the natural and progressive course of some disease, formed within the cavity, which is the seat of the dropsical effusion; and where the morbid action, by extending to the peritoneal covering, had first given rise to the hydropic

excitement. Of the effect of such higher inflammation, we have a familiar instance in the radical mode of cure employed in the treatment of hydrocele. In these, in the first instance, there is that degree of local excitement which terminates in the watery effusion. When, as we have just observed, the primary excitement is inconsiderable, or soon allayed, the effusion is in small quantity, and is remedial of its cause; since it will continue in its sac for many years without any sensible increase. By tapping, a slight excitement, similar to that which primarily produced the effusion, is renewed, which leads to an earlier and more abundant discharge, than what had previously occurred. To cure it, therefore, a higher inflammation than the mere tapping can produce, is purposely brought on by the injection into the sac of a stimulating liquid; by which, instead of the discharge of the former fluid, there is one of coagulable lymph; and a union of the sides of the cavity being thereby induced, a cure of the dropsy is effected.

The same effect of a higher excitement is sometimes accidentally produced in ovarian dropsies, by some untoward circumstances attending the operation of tapping. In general, such cases prove fatal, by the suppuration which ensues upon the inflammation. Sometimes, however, the inflammation is more moderate, and proves remedial of the watery effusion.

An example of this kind occurred in my practice some years ago, which will illustrate well the nature and cause of hydropic effusion, and of the power of a higher excitement to remove it. It was the case of a female, who, for the first time, was tapped for an ovarian dropsy, which she had laboured under several years. The discharge through the canula having suddenly stopt when about two thirds of it was drawn off, the surgeon introduced his probe to remove the obstacle. In doing this, he produced a slight hemorrhage, and some degree of pain; and for several days succeeding, there was much constitutional irritation and

general fever, with considerable risk to the patient's life. After a difficult struggle she recovered; and with the agreeable result of having the ovarian dropsy so radically cured, as to be now, after seventeen years, still free from it.

The same consequence would ensue in abdominal dropsy, if the same increased excitement could be safely brought on in that cavity; but the contents of the abdomen are of a vital character, and every degree of excitement, above the one producing a serous effusion, is destructive of their organization. In numerous cases of tapping for ascites, where there is much disease about the liver, or the other viscera, the higher inflammation, here referred to, does take place, and frequently with a fatal effect. The same occurs sometimes by the progressive increase of the disease in some one of these organs; so that a patient may labour under ascites at some period during the fatal progress of a disease in the liver, or other viscus, and be relieved from his

dropsy some weeks, or even months, before his death. In these cases, the morbid excitement of the peritoneal covering, which was merely sufficient, in the early part of the disease, to pour out the serous fluid, becomes increased to a degree that is incompatible with the serous secretion ; and coagulable lymph is thrown out upon the surface, and in the interstitial parts of the serous membrane, by which it becomes thickened, and otherwise deranged in its structure and office.

In illustration of this, I may mention the case of a gentleman whom I attended some years ago with my friend Mr. Watson of Cottingham. This patient having laboured several years under the well marked symptoms of diseased liver, brought on and perpetuated by intemperance, became afflicted with ascites ; the fluctuation of the water being remarkably distinct, and the body exceedingly large. We were deterred from tapping by the apprehension of its danger in his case ; and after a long trial

of diuretic medicines, the water was ultimately and entirely carried off by the kidneys. His dropsical symptoms never returned, although he survived a twelvemonth; but his other symptoms were left behind unremoved. On inspecting the body after death, we found the peritoneal covering of the liver, and the organs adjoining it, of a nearly perfectly white colour, and of the thickness of chamois leather; and this appearance pervaded the peritoneum, more or less, through the whole abdomen; whilst the liver, stomach, duodenum, and arch of the colon, and the other organs in their neighbourhood, formed by their union nearly one undistinguishable mass, which not even a careful dissection could disjoin.

A similar case to this occurred in a child in the same village, whom I saw with Mr. Watson. The little patient had mesenteric disease, which occasioned an ascites. After some time, this latter complaint was removed during the use of diuretic medicines;

but the disease itself increased, and in a few weeks the child died. The appearances on dissection exhibited indications, like the last, of there having existed a higher inflammation in the peritoneal membrane, than that which gives rise to serous effusion.

Now from these, and similar examples, which have fallen under my observation, I think it may be assumed, that ascites, when proceeding from some visceral disease, (and the principle applies to hydropic effusions from the presence of disease in other cavities,) does so by the gradual extension of the chronic inflammation of the internal cellular or serous tissues of the diseased organ, to its outer external covering; and that, commencing here as from a point, the serous or hydropic inflammation is progressively propagated through the whole of the serous membrane of the cavity. By the disease within the cellular tissue of the diseased viscus increasing, a corresponding increase, in these cases, will ensue of the disease on the surface of the

membrane investing it; until at length a susceptibility to take on a higher action is induced, which only requires any slight occasional cause to establish. Under this condition of an increased excitement in the peritoneal or other serous membrane, coagulable lymph is discharged into its cellular tissue, and a thickening of it takes place; until at length the operation of paracentesis, which in the early stage of the disease was attended with only inconsiderable inconvenience, becomes an adequate cause of a still higher inflammation, which terminates perhaps in suppuration; and, in the *post mortem* examination, the serous fluid is found so mixed with coagulable lymph, and purulent matter, as to give a whey or milk-like appearance to the mass. The quantity of the serous fluid, in these cases, is generally small when compared with what was accumulated in the intervals of former tappings; for the vascular excitement, which occasions the discharge of coagulable lymph, is destructive of that which pours out the serous fluid.

4thly. But beside the particular facts deduced from observations on dropsy as a local disease, and which go to prove its relation to diseases of local excitement, there is a farther and considerable support to be given to these views by various proofs that are afforded, and particularly from observations made upon the urine, of the serous inflammation producing local dropsy being frequently connected with one of a general kind; so that the inflammatory state of the system becomes sometimes a cause of the effusion into a cavity, by the local excitement it produces, and at other times an effect of this state; and that thus the general serous inflammation, according to the order of its occurrence, may prove either a cause or an effect of the local one. The subject is of itself highly curious, and the profession are under great obligations to the late Dr. Wells*, and to

* The following extract is taken from a valuable paper by Dr. Wells, published in the third volume of the Medico-Chirurgical Transactions of 1812, in which

Dr. Blackall * of Exeter, for the very important contributions which they have

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that gentleman gives the result of his observations on the urine of one hundred and thirty patients labouring under the different forms of dropsy:—

"Among twenty-nine cases of dropsy of the skin," observes this writer, "which were not preceded by any disease to which dropsy is generally attributed, there were twenty-three with urine containing serum. The proportion of these cases, therefore, to the six without serum in the urine, being nearly as four are to one, is very much higher, than that of the whole number of instances of dropsy with serous urine to the whole number free from it, this being only as seventy-eight are to fifty-two, or as three to two. The proportion of considerable cases in this class, is also very great; for out of five instances of the urine being made firmly solid by heat, and of seven being made a soft solid by like means, which occurred among one hundred and thirty cases, two of the former, and four of the latter, were found in the twenty-nine cases, which form the subject of the present article. Of the remaining seventeen cases with urine containing serum, the quantity of serum was in nine considerable, though less than

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* See his work, entitled, Observations on the Nature and Cure of Dropsies, &c. Longman & Co. 1813.

made towards its elucidation. From the facts, however, respecting the condition

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in those of the two preceding divisions; the urine of three had a still less quantity, and that of five but a small one.

"On the other hand, of nine cases of dropsy of the skin, apparently arising from weakness, the urine in seven was altogether without serum. Two of the latter occurred in old dysentery, one in chlorosis, one in chronic rheumatism, two after agues, and one after profuse bleeding, which had been employed to remove a great inflammation in the chest.—In the eighth case, which took place after ague, and in the ninth, which occurred in chlorosis of very long standing, there was a small quantity of serum in the urine.

"The presence, therefore, of serum in dropsical urine seems to be independent of weakness. It would appear, on the contrary, from the full and frequent pulse which frequently accompanies it, to be connected with too great action in some part of the system. This is rendered further probable, by the patient's often suffering great pains in the loins and limbs, both before and after the appearance of the dropsy, as was formerly remarked. An argument, indeed, may be brought against this opinion from the fact, that there was no serum in the urine in six of the cases, which had not been preceded by any other disease. But not to mention that weak-

of the urine, collected and recorded by these intelligent writers, as well as from

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ness may arise without any previous *apparent* disease, those who are acquainted with hospitals will readily acknowledge, that it is often very difficult, and sometimes impossible, to obtain a tolerably accurate account of what has happened to patients, before their admission.

" In one case of dropsy of the skin, which followed quickly the application of cold to the body, and was attended with catarrh, and in another, in which the liver was evidently diseased, though there was no perceptible fluid in the abdomen, the urine contained no serum.

" The most common cause of dropsy of the skin in this country, or rather perhaps, the circumstance which most commonly precedes it, is a disease of the chest, manifested by cough and difficulty of breathing. I examined the urine in thirty-seven cases of this kind, to discover if it contained serum, and found it in twenty-four. In three of these the urine became a soft solid, upon being heated; in two, the quantity of serum was great, but less so than in the preceding three; in five, the quantity was still less; and in fourteen, it was very small. In the whole twenty-four there was probably extravasated fluid in the chest; but I have placed them under the title of dropsy of the skin, as there was commonly no symptom of considerable disease of the chest. I shall delay making any further observations

others that have occurred to myself, from an attention long directed to the subject,

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on the urine in these cases, until I have spoken of hydrothorax.

" Of twenty cases of hydrothorax, all of them attended with dropsy of the skin, the urine was found in fourteen to contain serum, which, however, was in considerable quantity only in one case, and in this the urine was not made solid by heat. In one of the six cases without serum in the urine, there were manifest symptoms of a disease of the heart, or the great blood-vessels in its immediate neighbourhood; but in the urine of three other patients having similar symptoms, there was a small quantity of serum. — Five of the twenty cases were accompanied with ascites, but as the hydrothorax appeared to be the principal disease, I have classed them under it. In two of the instances of this combination there was no serum in the urine; in three there was a little.

" From a review of these cases of hydrothorax, and of those of dropsy of the skin after a disease of the chest, it appears, that in proportion as they were unlike the cases of dropsy of the skin without any known cause, the probability was less of finding any considerable quantity of serum in the urine; or in other words, the greatness of the disease of the chest always lessened the probability of any great quantity

there are certain conclusions deducible, which appear not to have been contem-

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of serum being found in the urine. Thus of thirty-seven cases of dropsy of the skin after a disease of the chest, only five had much serum in the urine, and only one of hydrothorax out of twenty; whereas among twenty-nine cases of dropsy of the skin, without any ascertained cause, there were fifteen instances of the urine holding a considerable quantity of serum. It seems to me, therefore, that effusion of water into the chest, or under the skin after a disease of the chest, constitutes for the most part, a very different disease from that which is occasioned by the effusion of water under the skin, when the effusion has not been preceded by any other disorder of consequence. There is, indeed, an appearance here of a want of an entire uniformity in the operations of nature; but this appearance, in all probability, arises from a sufficiently long and accurate attention not having yet been given to the subject.

"My success has been greater in arranging accurately the cases of ascites, in which I have made experiments on the urine with the view of learning, whether it held serum or not.

"In four cases of that disease in women, which were evidently of the encysted kind, the urine was altogether

plated by those gentlemen, but which are strictly accordant with the pathological

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without serum. Three of them were attended with watery swellings of the limbs.

" In fourteen cases of the same disease apparently not encysted, and in the histories of all of which I either have marked that the swelling of the limbs had followed that of the abdomen, or have taken no notice of an external swelling, there was likewise no serum in the urine.

" In seven cases, in other respects similar to the above-mentioned fourteen, there was a very little serum in the urine.

" But with respect to ascites which is distinctly preceded by dropsy of the skin, the result of my observation has been very different. These have been made in eight cases, in seven of which the swelling of the abdomen had occurred under my own eyes, and in regard to the eighth, I had a history of what had happened, both from the patient himself and from his physician, that leaves no doubt concerning it. In three of these cases the urine was made entirely solid by heat. In two others the quantity of serum in it was considerable, but still not sufficient to occasion an entire coagulation when heat was applied. In the remaining three the quantity was somewhat less considerable.

views which I have endeavoured to establish in the foregoing pages.

According to these facts it appears, that when the disease of dropsy is under a subacute form, and of the anasarcous kind, it is usually idiopathic, and often originating from cold; and in this state, as well as in the symptomatic form, though in a less degree, the urine is found to contain a portion of serum. It is nearly peculiar to this disease, and denotes, according to the quantity of it contained in the urine, the amount of that excitement in the cellular tissue, and of the general vascular system, which may be termed serous inflammation: for it is met with most considerably in those forms of the disease, in which these particular states of the body are most apparent. The urine, therefore, with some occasional exceptions, is loaded

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It appears, therefore, that ascites, following dropsy of the skin, differs greatly from ascites, which either precedes dropsy of the skin, or is not accompanied by it.

with serum in the greatest abundance in those cases, where the effusion into the skin precedes the local dropsy, and which denotes the operation of a general cause; whilst, on the other hand, it is, although commonly present, yet in smaller quantity where the anasarca succeeds the other form; since this order in their appearance indicates the existence of a local disease, as a cause both of the local and general affection. It is, therefore, in the sub-acute, and idiopathic forms of dropsy, that this state of the urine prevails the most; and it is in this state, with some occasional deviations, that the defective action is most conspicuous of the excretory functions of the kidneys, but especially of the bowels and skin, as shown by the scantiness of the urine; and particularly, by the costiveness, and the unperspirable state of the surface.

In the dropsy following scarlatina, and which is idiopathic, and commonly from cold, favoured by a particular predisposition induced by the eruptive complaint, there

is generally the greatest quantity of serum, and with it the most decided marks of vascular excitement, as indicated by the state of the pulse, the condition of the blood, and the beneficial effects of the antiphlogistic plan of treatment. But the urine, likewise, as we have just observed, is found to contain serum in cases of anasarca, when symptomatic of visceral disease; for the disease of the viscus, which is the cause of the local inflammation in the serous membrane of the cavity, may produce an adequate degree of that general vascular excitement which gives rise to a discharge into the cellular tissue.

In the practical application, however, of the principles here stated, difficulties will occur to the practitioner. Some of these will arise from extraneous causes acting on that secretion, by which the natural effect of the disease upon it may be counteracted; or from causes proper to the disease itself; by which an apparent want of uniformity may be occasioned, in regard to its occur-

rence, under apparently similar conditions of the disease. I may, therefore, observe summarily in regard to the subject, and without at this time entering farther or more minutely into it, that there appear to be four distinct conditions of the system by which its occurrence is regulated.

1. It is in the greatest quantity, where, along with a copious and continued effusion, there is a nearly corresponding quickness in the absorption of the serous fluid, and which will occur most commonly when the general excitement precedes, and is a cause of, the local one.

2. It is consequently, *cæteris paribus*, in a less quantity where the general hydropic excitement of the system succeeds, and is dependent on the local one.

3. It is absent, or found only in a minute proportion, in all those cases where the local increased action in the serous membrane is only partially extended to the rest of the system, and where the absorption from the part is inconsiderable; as particularly happens in the encysted kinds: or,

4. Where the effusion of the serous fluid has proved remedial of the inflammation producing it; in which case the disease, as it respects the presence of water in a part, may visibly resemble another example, and yet be essentially different from it, by the serous inflammation, which produced it in both, having ceased, on its occurrence, in one of them.

5thly. But there is a farther evidence of the relation which dropsy bears to diseases of local excitement, deducible from the effects which it produces on the general system. The serous secretion, although a fluid of a unique kind, consists, as its name implies, of a considerable portion of the serum of the blood, with a variable proportion of albumen. Pending its continued effusion in anasarca, there is a certain, and, sometimes, a large quantity, daily absorbed and carried out of the body, so as to make even the flow of urine appear considerable. There is, therefore, a regular draught made upon these nutrient principles of the

blood, by their habitual effusion and discharge from the body; and which must create effects like those which arise from the continued discharge of pus from a suppurating surface. In both cases, the local disease, according to its extent and duration, will necessarily occasion an exhaustion of the vital powers; and there will in both cases be induced that condition of the system, which is termed cachexy. The exhausted or cachectical state, therefore, of the system, which has been so variously accounted for, and so frequently assigned as a principal cause of both local and general dropsy, is a direct consequence of the agency of some power diminishing the vital strength at its source; and in the case of a chronic and long continued serous inflammation, it will proceed from the daily abduction from the circulation of a portion of its vital fluid: and whether it be pus or serum that is drawn from the body; or, whether it be from any permanent failure in the supplies of nutriment to it, the effect will be the same, as if a cer-

tain quantity of blood was daily abstracted from the system. Under the diminution of the vital powers, whether in this or in some other way occasioned, a suppurating surface will readily fall into gangrene, from any general cause temporarily exciting it; and in this state of the system, therefore, a higher inflammation may sometimes supervene upon an œdematous limb, and, in like manner, terminate likewise in gangrene. Hence, therefore, the tendency of dropsical parts to fall into gangrene, and which has been urged, as an argument, in proof of debility being the cause of the serous effusion, is only what is common to other forms of local inflammation, under a similar condition of the body. Nor will it create any difference, in relation to the gangrene, whether the serous inflammation accidentally arise, as the other forms of locally increased action frequently do, under an exhausted condition of the vital powers; or, whether it leads to that state, as they often do, by the debility induced in the system, through some long continued and

weakening discharge from it: for the inflammation, and the gangrene, succeeding, which occur in this, and in the other cases, although local in their seat, derive their origin exclusively from the constitution.

A farther evidence of the truth of the pathological principles here exhibited, might be drawn from the nature of the remote causes of dropsy, and of those several means which promote or retard its removal; but these, as well as other points which bear upon the question, will come more properly under consideration in the observations immediately to be made upon the principal forms of the disease; and I shall, therefore, close this part of my subject by a brief recapitulation of the general pathological conclusions, with the facts supporting them, which in the foregoing pages I have endeavoured to point out.

RECAPITULATION.

I. The term Dropsy, though employed by nosologists to designate a disease, whose

essence is considered to consist in a serous effusion, must be understood as denoting only one of a series of effects, and not always the last of that series, arising from a morbid condition of the serous and cellular tissues of the body.

II. The serous accumulations from these tissues do not occur, as is commonly but erroneously supposed, from any want of tone in the absorbents; or from a similar state of the exhalants; or from a mechanical obstruction to the blood's return by the veins. For, in respect to the first of these assigned states, it can be shown, that, pending its assumed existence, an absorption readily takes place of the adipose matter or fat of the body — of ecchymoses or livid spots under the skin, — and of mercury and other absorbable matters rubbed upon its surface, or taken internally;—and there is no accumulation of the sinovial or other fluids in their cavities, consentaneously with the serous accumulation.

III. The opinion of the effusion depend-

ing upon a debility of the exhalants, involves in it the difficulty of supposing, either, that there may be *mechanically separated* from the blood a fluid, which, at another time is *secreted* from it; or, that an increase in the quantity of a secretion may continue an indefinite period, under a permanent debility of the secreting vessels.

IV. The theory of a mechanical obstruction being a cause of local dropsies, is disproved by the facts, that every assignable degree and kind of visceral disease is met with without any local dropsy; and local dropsy without any discoverable visceral disease;—by the varying degrees of rapidity with which, during given periods, the course of an accumulation proceeds;—by the varying degrees of tenuity of the serous discharge in successive effusions into the same cavity;—by the nearly uniform tendency of tapping to occasion an earlier renewal of the serous accumulation;—and, lastly, by a direct evidence being afforded, that mechanical obstructions to the circulation, of the most direct kind, and very greatly exceed-

ing those assumed to exist as causes of local dropsy, may occur, both temporarily and permanently, without producing the slightest appearances of a serous discharge.

V. That the effusion, therefore, arises from some particular action in the serous tissue, and that this action is analogous to inflammation, is assumed, from several of the foregoing facts ; — from the identity of the fluid of dropsy with that under some of the recognised forms of inflammation, even to the varying degrees of their tenuity ; and from the action proper to dropsy obeying the same laws which govern inflammation generally. Since,

VI. The action producing anasarca is propagated gradually by a continuous course along the serous tissue, as happens in common inflammation ; —is subject to metastasis ; and is convertible into the higher forms of increased excitement. For the cellular membrane, in common with the other tissues of the body, is subject to various forms or gradations of inflammation. The highest is that in which pus is secreted ; the second

occasions a discharge of coagulable lymph; the lowest produces, as its result, an increase in the natural secretions of the part, and which, when produced in excess by natural causes, constitutes dropsy. Of these, therefore, the highest form, when supervening upon it, is destructive of the action producing the lymph, and this of the action producing the serum; and the effusion, whether of pus, or lymph, or serum, may be alike remedial of the excitement producing it, where that is not continued by a permanent cause.

VII. The serous inflammation producing a local dropsy, beside the causes hereafter to be noticed, may arise from some disease existing in the serous membranes of a cavity; or it may be secondary to a chronic inflammation in some viscus, and which, by a slow and progressive action, is propagated to the serous membrane investing it; whence, as from a point, it gradually spreads along the membranous duplicature of the cavity. When once established, it may

be continued as a chronic affection, independently of its primary cause; whilst, on the other hand, it will be aggravated by all those causes which increase the visceral disease; and even to the extent of having a higher inflammation superinduced upon it, by which coagulable lymph may be poured out, and a farther effusion of water be prevented.

VIII. Beside the proofs deducible from the particular phenomena of local dropsy, farther evidence of its depending on an inflammatory action, is derived from being sometimes connected with, and at other times arising from, a similar excited state of the general system, as denoted by the presence of serum in the urine, and sometimes by the state of the pulse, and of the blood; and which excitement may be either idiopathic, when it is usually most considerable, or symptomatic from a local disease. The absence of the serum from the urine, in the milder forms of the disease, may depend upon the insufficiency of the remote cause to act upon the general sys-

tem ; or upon the insufficiency of the local disease to induce the morbid action there ; or it may depend upon the effusion into the serous tissue having removed the excitement which occasioned it.

IX. And, lastly, there is a constitutional effect arising from a permanent hydropic effusion, which agrees in its nature with that which proceeds from a long continued purulent discharge ; they both being akin to the effects which proceed from an habitual hemorrhage, or from such other cause, as either withdraws, or withholds, from the blood, one or more of its nutrient parts. The gangrene, therefore, which supervenes upon an œdematous limb, under the cachexy induced by any of these causes, is only what is common to the other forms of inflammation, under that condition of the system ; and whether the hydropic state, or any other modified form of inflammatory action, precedes, or follows, as the cause or consequence of the cachectical state of the body, the gangrene, which ensues, is alike derived from the constitution.

CHAP. II.

From the view which has now been taken of the Pathology of Dropsy, it may be collected, that the effusion of the serous fluid is to be considered as arising from a local vascular excitement in a serous tissue, which may be termed serous inflammation; being the lowest assignable grade of that common increased action of their vascular system, to which these structures are subject. This excitement may be either,

1*st*. Sub-acute, or chronic.

2*d*. Symptomatic, or idiopathic: that is, it may arise from a local disease, or from the common causes of inflammation; and these causes may be either general or particular.

3d. The serous inflammation may be either local or general, giving rise to a general or a local effusion.

By the correctness of the judgment formed concerning any given case of dropsy, in reference to these distinctions, must depend the correctness of our indications of cure in the treatment of it. We now proceed to the consideration of the principal forms of the disease, and which are, 1. Hydrocephalus internus; 2. Hydrothorax; 3. Ascites; 4 Ovarian dropsy; 5. Anasarca.

Section I.

HYDROCEPHALUS INTERNUS, OR DROPSY IN THE BRAIN.

1. This disease consists in the proper serous inflammation of the membranous, or of the cellular or interstitial, tissues of the brain, by which an effusion of water takes place from them. It has been

divided, by the writers of this country, into acute and chronic; and in a certain sense correctly; for sometimes its course is rapid, and will be completed in a few days; and at other times it runs on for several weeks before terminating fatally. The terms acute and chronic, however, must be understood as restricted to that particular form of inflammation producing a serous effusion, and not as denoting the highest and lowest degrees of common inflammation. From the want of sufficient accuracy, in respect to the terms employed to denote the condition of the brain under this disease, much confusion has arisen in the notions entertained concerning it.

Dr. Golis*, in his work on this disease, has defined it to be an effusion of pus, or lymph, or serum, or a mixture of these, into the ventricles of the brain; and, in confor-

* A Treatise on the Hydrocephalus Acutus, or Inflammatory Water in the Head, by Leopold Antonio Golis, M.D. Translated from the German, by Robert Gooch, M.D. 1821.

mity with this definition, has divided it into the hyper-acute and acute. But the hyper-acute and acute of this writer, are nothing more than the acute and sub-acute phrenitis of nosologists, in which pus or coagulable lymph are the proper products, with sometimes a serous effusion into the ventricles as an incidental one. To term that a dropsy of the brain, therefore, which may only consist, according to Dr. Golis's definition, of an effusion of pus or lymph, is chargeable with the same degree of incorrectness, as it would be to name similar effusions of pus or lymph, under peritoneal inflammation, a dropsy of the abdomen. The serous tissues of the brain, in common with similar structures in other parts of the body, are subject to the various degrees of common inflammation; and these several degrees have their respective products of pus, or lymph, or serum, and which may occur in the same case, either separately or in combination, accordiug to the seat and respective degrees of the inflammation. When in combination, it may be

from a serous inflammation arising in the membranes lining the ventricles, consentaneously with a higher inflammation in some part of the investing membrane; or conversely of this order: also it may occur as an effect of it, and an effusion of serum may thus be combined with one of pus or lymph; but if the higher inflammation primarily arise in the ventricle, or extend to it, the result will not be serum, but pus or coagulable lymph: and cases of all these kinds, both separately and in combination, are met with; and many of them answer, in their symptoms and results, to the water stroke of the German writers.

Now, the true hydrocephalus internus stands distinguished from these, in the nature of the inflammation of which it consists, in the same way, precisely, that the serous inflammation of the pleura, producing simple hydrothorax, is distinct from that higher degree of vascular excitement, which occasions an effusion of pus or lymph. Relatively to these, therefore, this disease is in a chronic form; and consists, we may

repeat, of that lowest degree of inflammation to which serous membranes are subject, and the effect of which is to increase the natural secretion of the part, so as to cause, in regard to the brain, an accumulation of that fluid in its cavities.

Sometimes this disease appears to come on more slowly in some, than in other cases, from differences in the nature of the remote causes, assisted, perhaps, by some cause connected with the state of the system, or of the brain, affecting its predisposition to this disease ; but, in some of these instances, the serous inflammation producing the effusion will differ only from the other examples, in being less extensively diffused through the serous tissues of the brain, so that, by the more gradual effusion of the fluid, the brain will acquire a capability of bearing for a considerable time the pressure of a quantity of water, which, if suddenly effused, would instantly prove fatal. In many cases, on the other hand, the disease is merely chronic in regard to the form of its

approach; so that, upon the developement of the serous inflammation, it displays all the characters of what is termed the acute kind, and runs its course as rapidly.

The dropsy of the brain is usually divided into three stages. The first stage is that in which the vascular excitement of the brain exists, and in which the prominent symptoms are, a pain in the head, rapidly increasing in acuteness with the increase of the disease, and denoted in infants, by a restless movement of the head upon the pillow, and by moaning and occasional sudden screamings; by sickness and retching; impatience of light and noise; contraction of the pupils, and delirious terrors, &c. The second, where the symptoms indicate a pressure upon the brain by the effused fluid, and in which, there is an absence of pain excepting upon raising or moving the head; convulsions; a permanent dilatation of the pupil; squinting; blindness; slow intermitting pulse; hemiplegia; and a peculiarly placid expression of the countenance.

And the third is made up of some of these, with other ulterior symptoms, which follow the vascular reaction.

With respect, however, to the division thus formed of this disease, it is, I think, somewhat questionable, whether it be pathologically correct; for strictly speaking, the true disease is comprised between the incipient beginnings of the inflammation, and its termination by the effusion; since the symptoms which follow, and compose what are called the second and third stages, are little more than the consequences of the disease, and arise from the mechanical pressure of the water upon the brain. The progress, therefore, of what may be strictly considered the disease, should perhaps be considered as terminating with the occurrence of the effusion, which is often remedial of the excitement causing it; and the whole disorder to be thus made up of two distinct states, the first consisting of symptoms, which commencing with the excitement, terminate with the

serous discharge; whilst the second is composed of those of a secondary kind, and which are wholly dependent for their origin and continuance, on a mechanical pressure from the effused fluid.

This disease may occur either as an idiopathic or a symptomatic affection.

As an idiopathic disease, it may have for its remote cause,

1. Various injuries inflicted on the head by slight blows, which in those constitutionally predisposed, will often be sufficient to produce that particular increased action in the serous membrane, which occasions an effusion of water. In some of these cases, I have known the blow received upon the head to be attended with no inconvenience, after the first few minutes of pain succeeeding it, and yet be followed, in a few days, by a sudden accession of inflammation, which ended, in less than forty-eight hours, in the serous effusion and death.

2. All the general causes likewise of in-

flammation will, in those predisposed to it, produce the same results. The particular effects of such general causes from cold, will commonly be limited to the serous tissues of the brain, in the cases where they are affected. Sometimes, however, in the severer forms of the disease, the brain is affected in common with the serous and cellular tissues of other parts of the body; and I have thus seen it occur under a general anasarca, or, where one or more of the other cavities were simultaneously affected with the same increased action. Under the same head of causes producing a local serous inflammation within the head, or a general excitement of the system, leading to this local one, we may refer the suddenly drying up of long established discharges, as of issues; and the sudden repulsion of an eruption from the skin; or the imperfect evolution of that, or other sanative actions of the system, at the close of some febrile diseases, and very pertinently denominated defect of crisis. In all these cases, as well as in va-

rious others, in which some required and disburdening evacuation from the system is prevented, the serous effusion is to be considered as vicarious, and would prove remedial, if, instead of being poured into the ventricles, it were discharged into the cellular tissue of the body.

When these causes are acting in the system, there is, frequently, a considerable apparent struggle between them and the sanative powers of the body; and the morbid action, therefore, which gives rise to the effusion, frequently does not take place, as from scarlatina, until a considerable time after the febrile disorder has disappeared. The disease is, therefore, when arising from this cause, exceedingly variable in respect to the period occupied in its approach and progress. Hence, of some children it is observed, that after struggling during some weeks under an imperfect convalescence from some of the eruptive febrile complaints, they are at length overtaken with this disease; whilst others are as suddenly attacked

by it in the first week of their supposed recovery. In all these cases, the nature of the action, as well as its results, are the same; and appear to consist in a turgescent or congestive state of the cerebral vessels, that leads to that slight reaction of the exhalant extremities of the arterial system, which causes the effusion.

When, in these instances, the action which occasions the serous discharge, commences in the cellular tissue, producing anasarca, the system becomes relieved by it; and there is, therefore, the utmost advantage to be derived, as will hereafter be noticed, from promoting an artificial drain from the system, by means of an issue, or by blisters.

The symptoms which denote the state of the system, indicating the approach of the cerebral disease, resemble nearly all those which are to be presently noticed as arising from a disturbance in the digestive organs, and which so frequently produce the hydropic effusion into the brain. The most marked of these are a dull and somewhat sullen expression of countenance—slight

unsteadiness in walking — a peevish irascible manner — alternate flushings and paleness — complaints of slight giddiness, of nausea, and of a mistiness of vision, and of a constrictive pain about some part of the head, most usually the forehead, increased by a strong light or noise, and by any sudden movement of the body — watchfulness, or the contrary state, with only a partial occlusion of the eye-lid during sleep — costiveness, and a variable appetite.

Analogous to this state of the brain, as affecting young persons, is that chronic congestion of the venous system of the head, occurring in persons of a particular habit, and when past the middle period of life; and which may either terminate, by a rupture of the congestive vessels, producing the sanguineous apoplexy, or by a reaction in the serous tissue of the exhalant extremities of the arteries, and which is resolved by a watery effusion.

The state of somnolency, and even torpor, in which some aged persons will tem-

porarily lie, is generally from this particular condition of the brain, and which may terminate, as has just been observed, in some cases, by the rupture of a vessel, by which an effusion of blood will take place upon the brain; or, secondly, in others, by such a re-action of the exhalant extremities of the arterial system, as shall occasion an effusion of water into the ventricles; or, thirdly, there shall arise only such a subdued degree of this re-action, as *shall prove remedial of* the venous congestion, without producing an effusion, and, in these cases, recoveries will take place; whilst, lastly, in others, the same beneficial result may occur, from means being successfully directed to the primary congestive state.

As illustrative of the nature of this form of disease within the head, and of the efficiency of simple means to remove it, I may notice the case of an old gentleman, to whom, some years ago, I was called one morning early. His servants, who slept in a room above him, had been alarmed in the

night by the unusual loudness of his breathing, and having descended to his room, discovered him in a state of absolute stupor. At my visit, I found him insensible to every stimulus, lying with his lower jaw fallen, and apparently dying under the symptoms of oppressed brain; and so confidently was this opinion entertained by the family, that a strong objection was made by them to my ordering the means which I thought necessary for his relief. Means, however, were used; and they consisted of a blister to the crown of the head, mustard sinapisms to the feet, and an active enema. After six hours, and when these remedies had taken effect, he became sensible; in the evening he sate up in bed to take his tea, and two days afterwards was walking unassisted on the pavement before his house, and died some few years after of another complaint.

When the disease is symptomatic, it may arise from a particular cause seated within the head, or, from some local and distant

one. A symptomatic dropsy of the brain, from a disease seated within it, is not a very usual form of it with children, in whom the complaint is most common. When it occurs, it is from some chronic disease forming or existing there, as a tumour, or a thickened state of the arachnoid, or, of the other membranous coverings of the brain, as results of former inflammations; and eventually giving rise to the proper serous inflammation of the membranes within the ventricles of the brain, and which, with the effusion ensuing from it, are only incidental effects of another disease, and wholly dependent upon it.

In the severer forms of the disease affecting adults, and particularly in those arising from a structural disease of the arachnoid, or other membranes, I have seen the disease run its course with the rapidity and intensity of the water-stroke of the German writers. In some of these cases, whose fatal issue I have been called to witness, it has been evident, from the history given of

them, that the patients had been labouring many months under a chronic inflammation of the investing membranes of the brain, and where the serous inflammation, with its consequent effusion, at length supervened as an incidental effect of it.

Sometimes adult patients wholly recover from the chronic or sub-acute inflammation, which induced the structural disease, and then this last becomes, at some future period, the occasional cause of the hydropic one. In a case of this kind, which I saw lately, the gentleman, a dissenting minister, about thirty years of age, had been attacked a twelvemonth before with a sub-acute inflammation of the membranes of the brain, from which he recovered, so as to resume his clerical duties; and was considered by his friends to be in good health, with the exception of a headache, and some numbness in his arm, of which he occasionally spoke. On a Saturday he complained of his head, and of being otherwise unwell: on the following morning,

whilst in bed, he was seized with an epileptic convulsion: through that day and to the end of the third one, when he expired, he was seldom free from them; and before his death he was wholly blind and paralysed. On opening the head, the arachnoid membrane was thickened, and its transparency in several places destroyed; and there were several diaphanous adhesions between it and the dura mater, which were the consequences of the former inflammation. Four ounces of water were collected in the ventricles; but no other vestige of recent inflammation was discoverable in them, and the texture of the brain was natural.

The most usual cause of the disease, however, particularly in children, is an irritation which is sympathetically communicated to the brain, from a disturbance in the chylopoetic organs; and particularly from a functional disorder of the liver. The cerebral disorder, to which a derangement in the digestive functions thus gives rise, is only one of those nume-

rous effects which arise out of sympathies subsisting between these organs and different parts of the system. In many cases the same sympathetic irritation is successively and variously directed to different parts of the system. It will thus leave one organ or part, and suddenly move to another; and through the operation of causes which are not always obvious, but which have a relation to some particular predisposition inherent or acquired. In this way, an irritation may occasion an eruption upon the skin, and thence be translated to the bronchial lining, producing a cough; and next, perhaps, to the serous tissue of the brain, exciting there a turgescent or congestive state of the cerebral vessels, by which symptoms are produced, through the pressure of the congestive vessels, that simulate those of hydrocephalus; or the true disease is brought on by an arterial re-action ensuing upon the congestion, which is resolved by a serous effusion.

And here let me remark, that the symp-

toms, which arise out of the disturbance in the digestive organs, just noticed, are naturally divisible into two classes. One of these belong essentially to the complaint; for the symptoms of it are those which are constantly present in it; whilst the other class is composed of symptoms which are secondary in respect to them, and are only of incidental occurrence. The symptoms of the first class are principally the following: A morbidly craving desire for food, which, after continuing an indefinite period, is succeeded by a loathing of it, and with a feeling of faintness at the stomach under both these conditions of the appetite; with nightly returns of fever, and starting, during sleep; the tongue furred, and dry on waking; a nauseous odour of the breath; listlessness and fretfulness, and a disinclination to take exercise, and a marked unaptness for study; drowsiness; chilliness and coldness of the feet; an aching in the knees; diminution of the flesh and strength; costiveness, or the contrary

state; a yeasty-coloured, or highly dark and morbid, condition of the stools, which are intermixed with slime; sallowness of the complexion; a harsh and dry state of the skin and hair, with a proneness to perspire under very slight exercise. The symptoms of the second class are made up of these, and of various others, which are more peculiarly sympathetic, and which, under the influence of a scrophulous diathesis, or other disordered habit of the system, may become themselves diseases, and even survive the morbid and distant irritation which produced them.

From observing the marked connection thus seen to subsist between this turgescent state of the brain, from chylopoetic disturbance, and its serous inflammation, Dr Golis has concluded that it essentially pertains to it, and, therefore, whenever it occurs, that it is a part of it; and he has thus considered it as forming the first stage of the disease, and preceding in all cases the excitement; and has accordingly enumerated, with

their supposed diagnostic distinctions, all those very various and dissimilar symptoms, so multitudinous in their number, which belong to chylopoetic derangement, as denoting the approach, or the presence, of the cerebral disease. That the turgescent state, however, of the vessels of the brain, produced sympathetically by a derangement in the digestive function, is not essentially a part of the disease constituting dropsy of the brain, may be concluded from the fact, that this turgescent state of the brain, even to the simulating nearly all, if not all, the falsely assumed pathognomonic signs of the disease, is of frequent occurrence, and of comparatively easy removal, by means that are exclusively directed to the distant sympathetic cause. By such, indeed, of my experienced professional readers, who shall honour these pages with perusal, numerous examples will doubtless be remembered of cases, in which they apprehended that effusion had taken place; and only discovered by the result that they had

been mistaken. To myself many such have occurred. In several, I have seen or heard of the disease advancing, from the milder state of cerebral irritation, to *apparently* that of inflammation and effusion, and yielding rapidly and fully to those means, which were alone directed to the disordered condition of the digestive organs. Even paralysis, which may be thought to indicate most strongly the existence of effusion, may originate from a congestive state of the vessels, independently of any permanent pressure, and which may either remain after, or disappear with the other symptoms.

An example of this kind, strongly illustrative of this particular fact, fell under my notice some years ago in a child, whom I attended in the acute form of biliary disturbance, and who, when an infant, had been convulsed, as it was thought, from dentition, and whose mouth in consequence had afterwards continued distorted. In the course of the illness in which I attended

the child, there were several of the usual symptoms threatening an effusion of water in the head; and during the several days these symptoms continued, the distortion entirely disappeared; which showed, that the contrary side of the brain had become affected, and that a temporary paralysis had been induced in the muscles antagonists to those already paralysed, and that thus the distortion had become relieved. On the patient recovering, the original deformity returned. In some cases I have known blindness to prevail for several days; and in two instances the blindness, after being suddenly removed, was renewed a second time during the same attack, from some irregularity in the diet. There is, indeed, as I have shown in a work relating to this subject*, no single symptom met with in the true disease, which is not sometimes found in the simulated one; and the

* Practical Observations on those Disorders of the Liver and other digestive Organs, which produce what are denominated Bilious Complaints. Second Edition. 1824.

difficulty is not merely considerable, but often insurmountable, in determining at once concerning them; and it is frequently, indeed, only by the result, that an opinion of their true nature can be formed. The simulated cases depend upon a pressure made upon the brain, by the turgescent state of the cerebral vessels; and to constitute the true disease of dropsy of the brain, there is only wanting that arterial re-action which should cause the fluid to be effused.

The cerebral turgescence and disturbance, therefore, in whatever degree they may exist, are only, when sympathetically produced, to be considered as morbid causes, whose presence, where the predisposition prevails, may lead to a serous inflammation of the tissues of the brain, but which do not form, in any sense, parts of the disease itself; since, under every degree of them, they are so frequently remediable by means, which are alone available for the removal of their distant and sympathetic cause. Nor is the distinction,

here pointed out, of little practical importance; for the treatment suited to a turgescent state of the brain of an idiopathic kind, and, therefore, independent of any distant cause, must necessarily differ from that which is strictly symptomatic of chylopoetic disturbance. In the one case, the attention must be exclusively given to the turgescent state of the cerebral vessels, as constituting an integral part of the disease; whilst, in the other, it must be directed principally to the disturbed condition of the digestive organs, and only subordinately to the head; as it is only by correcting the disorder in the digestive functions that the congestive state of the brain, as occurring in this latter case, can be permanently removed.

Section II.

HYDROTHORAX, OR WATER IN THE CHEST.

This disease, as its name imports, and as defined by nosologists, consists of

symptoms which, strictly speaking, pertain only remotely to the true disease. By the pressure of the water upon the vital organs contained in the chest, a certain disturbance is given to their action, from which these symptoms arise. These are, a sense of oppression at the lower part of the sternum; an habitual difficulty in respiration, increased by all those circumstances which call for full and frequent inspirations, as ascending a height, &c.; a cough which is either dry, or attended with a slight mucous expectoration; a difficulty in lying down in the recumbent posture, more or less considerable, and always disproportioned in severity to the other pectoral symptoms, and occasioning, when attempting it, a threatening of suffocation, and an aggravation of the cough; sudden startings from sleep; an intermitting or irregular pulse; thirst; scanty urine; œdema of the extremities. None of these symptoms, singly, are pathognomonic of the effusion; but they are so when taken collectively, and particularly

so when considered in connection with the previous history. They are, however, only symptoms of the effusion; and as the excitement sometimes terminates with the occurrence of the serous discharge, the existence of the excitement, is only in many cases, discoverable to have existed by its effects; for there are no signs which clearly point out the presence of that state previous to the appearance of the effusion. Writers on the subject, indeed, have spoken of precursory or premonitory symptoms; but what they describe as such are nothing more than those arising from an inferior degree of the effusion, which has already commenced; and are, of course, only a milder form of those symptoms which have just been enumerated. They are, however, important in a practical point of view; for by recognising them early, we are enabled the earlier to combat with the disease.

Like the disease of hydrocephalus internus, just noticed, hydrothorax may be either idiopathic or symptomatic, and pro-

ceed from a local or a general cause. The nature of the inflammation is the same in both; and there is, therefore, a chronic state, and another form, which, relatively to that, may be termed sub-acute. The cases of this disease which are symptomatic, and from a local cause, are generally in the chronic form. There is no pretence for dividing this disease into stages, as is done in hydrocephalus internus; for the symptoms, as has been just observed, which precede the effusion, are too obscure to be recognised; yet the morbid actions immediately exciting the watery discharge, or, in other words, the proximate cause of both is the same. In the case of the brain, practitioners are disposed to regard its disease as irremediable upon the occurrence of the effusion, and consider, very justly, the period of excitement, or of turgescence preceding it, to be those in which the assistance of our art can be alone rendered available. But there is in hydrothorax a similar degree of serous inflam-

mation ; and our means, to be made useful, should be employed in this, as in the other disease, equally with the view of removing or preventing the excitement. The mode by which this state is induced in the serous membranes, is by the chronic inflammation that exists in the diseased organ extending to them ; and not by the same form of inflammation being set up in them, by a certain sympathy or consent of parts, which, from a loose analogy, has been thought to subsist between similar structures.

The particular diseases within the chest, as tending to produce a serous effusion into it, will necessarily differ greatly in regard to such tendency ; and there are, therefore, many derangements of structure within it, of which the danger is chiefly to be estimated, by their acting as remote causes of such effusion. In many of these cases, indeed, the danger from the organic disease is inconsiderable, excepting as it may prove the cause of this secondary complaint ; whilst, in other cases, if it occur

at all, the effusion is merely the sequel of a disease essentially fatal. To distinguish between these two conditions is a desideratum in pathology. Modern writers on pathological anatomy have prosecuted, with considerable zeal and ability, their researches into the nature of the diseases of the organs within the chest, but they have done but little towards elucidating the true relation, which subsists between the diseases of the several viscera, and the serous effusions which take place into their cavities; for, by limiting their views to the disease which the *post-mortem* examination exhibited, they have overlooked those intermediate actions or states of excitement, which connect the organic disease with such effusions. Hence, where a palpable disease of the heart is found, as an ossification of its valves, by which its functions are disturbed, it is usual to consider such disease as acting in a mechanical manner in producing the effusion; and as there are no means available for

the removal of such a cause, so, it is thought, there are no means available for the prevention of the effusion, which is supposed to be its natural and inevitable effect. Such cases, which are much the most numerous of those by which hydrothorax is produced, are, therefore, generally abandoned as incurable. The means, however, which are sometimes used, and that successfully, for the removal of the water, have now and then the effect, at the same time, of removing the chronic excitement producing the effusion of it; and radical cures of this disease are occasionally and unexpectedly occurring, under a plan of treatment which is thought to be exclusively suited, as it is confessedly directed, to the removal alone of the water. It was, indeed, by the occurrence of unexpected results of this kind, in some cases of this disease, and where the object of the treatment was merely to carry off the water, that my attention, several years ago, became more particularly called to a consideration

of their nature; and by employing those means hereafter to be noticed, I succeeded in curing cases of the disease to which the ordinary treatment, pursued on such occasions, had before proved unequal.

When the excitement producing dropsy within the chest, is independent in its origin of any organic disease existing there, its remote causes may be either of a general, or of a local kind, and are the same which produce, when applied in a higher degree, or under different states of the system, the other forms of inflammation. When, therefore, inflammation takes place in the chest, it may, according to the degrees of it, produce different results; and these may be either pus or coagulable lymph, or a serous effusion, or a mixture of these. If the inflammation be high, and means be employed late, or in an insufficient degree, for subduing it, a lower or chronic form of the inflammation may be left behind, which may produce a watery effusion; or some structural disease remains as an effect of the

higher excitement, and which eventually becomes a cause of it. The occurrence of this result, in either of these modes, is sometimes attributed to a debility, arising from the large depletion of blood-letting, which the severity of the previous inflammation had called for, — an opinion that is well calculated to paralyze the hand of the timid and inexperienced practitioner, and to ruin the reputation of the judiciously bold one.

That such opinions, however, are founded in error, may be shown from this, that the effusion, thus imputed to debility, does not occur sometimes, until some weeks or months after the period when the bleeding was employed; and although the debility is confessedly of a general kind, yet the effusion is local, and is precisely in the very cavity where the disease existed, which required the unjustly condemned evacuations. The truth of the matter is, that in such cases, either the depletory means have been employed in an inefficient degree, or too

late; or sufficient care has not been given during the convalescent state, to avoid the several causes which tend to keep up, or increase the force of the local, or general circulation. A lower grade of inflammation, therefore, is left behind in the chest, by which it may, according to the tissue it is seated in, either become an immediate cause of effusion, or induce a structural disease in some part, which eventually serves as a point, whence the serous inflammation may derive its origin. The imperfect recovery of such patients from their first attack, and which is attributed to the depletion, arises from the disease which is left by it, and to the injudicious means, perhaps, that are employed by the too anxious attendants, with the view of restoring the strength. In such patients, there may be often traced a permanent difficulty in the breathing whilst at rest, or an obstruction to the full and free expansion of the chest, upon a trial made for that purpose, which is irreconcilable with the assumed cause of

debility; though in other cases, from the obscure nature of the symptoms, or the little inconvenience sustained from the chronic disease, the effusion into the chest will at length occur without any indications of its approach.

As connected, in some degree, with this part of our subject, it may here be noticed, that scarlet fever frequently serves as a remote cause of this disease, and in a mode not fully understood; for its occurrence is not regulated by any observable circumstances peculiar to the previous complaint. It appears, in many cases, to occur as a terminating or critical issue of the disorder, analogous to those pustular eruptions, which often break out at the close of other acute diseases; or, perhaps, rather as the morbid substitute of some sanative action of the system, the office of which is to put a finish to the complaint, by an unseen but salutary evacuation from some one of the emunctories of the body. When hydrothorax arises after scarlet fever, it is usually preceded by

some slight œdema about the neck or chest, and is frequently accompanied by the most decided marks of vascular excitement. The urine, in these cases, is often of a brown hue, and loaded with serum; and the course of the disease is sometimes so rapid, as to prove fatal as early as the second day after its appearance.

Beside the ordinary predisposing or exciting causes of inflammation, as cold, &c. which produce this disease, there is one which has a much more important influence in producing, or predisposing to it, than is generally supposed; namely, a certain congestive or plethoric state of the circulation, which is brought on in some persons of particular habits, by indulging in the pleasures of the table, and taking little exercise. Thus, in many such persons, when past the middle period of life, there is a tendency to a plethoric fulness of the venous system, with a disposition, under this state of it, to local congestions in some particular part. In some, as noticed

in the last section, it is found to be in the head, producing the sanguineous apoplexy, by a rupture of the vessels; or the serous one, by an arterial re-action, leading to a serous effusion. In others the congestive fulness prevails chiefly in the chest, tending, as in the head, to an arterial reaction. In this state, any slight additional increase in the force of the general circulation, or any cause, such as obstructed perspiration, &c. disturbing farther the balance between the two systems of vessels, may occasion such a particular excitement in the serous tissues of the chest, as to produce the serous effusion. The difficulty of breathing under exercise, and the short irritating cough, mark the presence of such tendency; especially when coupled with the full relief which one or two copious bleedings, and a spare diet will give to these symptoms. The several articles of food or drink indulged in by these persons, are enumerated by some writers, as occasional causes of chronic congestions ; but there

is not, in any single one, any distinct tendency to produce it, independently of that general power, which the whole conjointly possess of producing a plethoric and excited state of the system; and thereby of predisposing it to be acted on by all the occasional causes of inflammation.

Section III.

ASCITES, OR WATER IN THE ABDOMEN.

The symptoms which attend the effusion of water into the abdomen, are exceedingly obscure, and its presence can rarely be detected, until collected in such quantity as to admit of its fluctuation being felt. This arises, partly, from the slight symptoms which pertain to it, being overlooked among the severer ones of its remote cause; and, partly, from the natural insensibility of the peritoneal membrane, under serous in-

flammation; and from no inconvenience besides being sustained by a moderate pressure of the water upon the viscera. Abstractedly from its cause, the watery accumulation is of little importance; and in this respect it differs from the two affections just noticed, in which the effused fluid, from whatever cause arising, constitutes an important feature of the disease. It is, therefore, peculiarly in respect to the remote cause of this discharge, and not to the discharge itself, that the attention of the practitioner must be chiefly engaged.

The remote cause may be either symptomatic or idiopathic, and either local or general.

When symptomatic, the cause will be seated in some diseased viscus, and generally in the liver or spleen, or mesenteric glands, though any of the other viscera becoming diseased, may become a remote cause of this affection. To produce, however, a dropsical effusion into the abdomen from this cause, it is necessary that the dis-

ease of the viscus should be making progress; for, in its indolent state, or, in other words, if inflammation be not present in it, it is incapable from its mere bulk, as is commonly but erroneously supposed, of producing this effect. Hence, as I have often witnessed, the liver may continue for several years exceedingly enlarged, so as visibly to distend the abdomen, and yet without giving rise to any discharge; until, perhaps, by some accidental cause acting on that viscus, and producing inflammation in it, an effusion of water at length takes place. And this happens still more frequently with the spleen, which is often greatly enlarged in patients who have long laboured under intermittents; but which, becoming indolent with the removal of its cause, may continue for many years in that state, with little or no disturbance of the healthy condition of the parts surrounding it. The same is likewise true of the disease of the mesenteric glands, which only prove a cause of the watery effusion,

by the continuance of their inflammatory state.

Nor does the serous discharge always take place into the abdomen, in every case where these organs are morbidly affected, but only where their peritoneal covering participates in their disease; for the chronic inflammation in those cases, where it occasions ascites, does so by extending from the cellular tissue of the internal structure of the organ, to the serous tissue investing it; and from thence, as from a point, it spreads with varying degrees of rapidity through the whole of the peritoneal investiture. The morbid excitement, when once established in the peritoneal membrane, continues essentially connected with its primary cause; and the gradual increase of the disease within the organ, is followed by a correspondent increase in the intensity or extent of the serous inflammation in the peritoneal surface. The rapidity of the accumulation will be governed, therefore, by the intensity or extent of this excitement.

Prior to the first tapping, in symptomatic cases of ascites, the accumulation of the water proceeds much more gradually than subsequently; for by the tapping, a cause of farther serous inflammation is generally superadded to the original one. After each successive discharge by tapping, therefore, the water is commonly renewed more quickly, and on one of these occasions, perhaps, a sub-acute or chronic inflammation is induced in some part of the peritoneum, by which a farther disease of that membrane is occasioned; and at length, either by the increase of this superadded disease, or as an effect of some succeeding operation, a still higher degree of inflammation comes on, which may prove destructive of life.

In some instances, where there is considerable disease of the liver, the water of the first accumulation may be absorbed and carried out of the body, and the patient may thus undergo a cure as it respects the effusion; but the serous inflammation, which

caused the discharge, has only, in this case, yielded to an inflammation of a higher grade, which may arise, either, from the peritoneal membrane participating in the increase of disease in the affected viscus, or, by there accidentally supervening upon the secondary one a farther cause of inflammation. In these instances, as well as in those, in which a higher inflammation succeeds the operation of tapping, coagulable lymph is poured out, by which the peritoneal surfaces, which were formerly the seat of the serous inflammation and effusion, are perhaps agglutinated together; and a fresh and more formidable disease is thus superinduced upon, or superadded to, the former one. In the worst of these cases pus is discharged from some points of the inflamed surface, and which, by mixing with the lymph and serum that are poured out at other parts, forms an apparently homogeneous fluid of a milky colour, which in puerperal and other cases of abdominal inflammation, has been strangely believed by some to be chylous; and by

others, an effusion of the milk by a metastasis.

When ascites is an idiopathic affection, it may proceed from all the common causes of inflammation. The most frequent one is cold, and which may act either locally or generally. When in the latter mode, the ascites is usually combined with anasarca, and the disorder generally comes on suddenly, and has a rapid progress. The vascular system is excited, and there is more than usual thirst; the blood when drawn exhibits the buffy appearance; and the urine, when subjected to heat, is found to coagulate strongly from the large quantity of serum contained in it. In some of the severer cases, the effusion into the abdomen takes place very suddenly, and yet, by a copious bleeding, the disease may be at once arrested, and the water be afterwards absorbed. The subjects of this form of dropsy are commonly robust labouring men, whose employment carries them amongst water; and stout full-habited fe-

males, when they chance to take cold at a particular period. I have known the same to happen, combined with anasarca, from exposure to cold under the active operation of a purgative; though any of the ordinary causes of inflammation, as a suddenly suppressed discharge from hemorrhoids, &c. acting on habits whose state of plethora predisposes them to it, will be sufficient to produce it.

It has been just remarked, that abstractedly from its causes, the watery accumulation is unimportant. This, however, must be understood of it only when the quantity is inconsiderable; for it may become, by the effect it occasions on the peritoneal membrane, a source of farther disease. And this will be by the mechanical irritation it gives by its pressure to the organs and integuments of the abdomen, through the operation of that provident law of the animal economy, by which the tendency to an ulcerative inflammation is produced in parts, from a stimulus imparted to them

by the presence of some noxious agent, and of which the final cause is the expulsion of such irritant from them.

Of the power which the pressure of the distending fluid has upon the parts surrounding it, we have a familiar instance in the entire absorption of the fat from the parietes of the abdomen, in those labouring under ascites. And that the organs themselves do not escape from an injury inflicted by a compressing fluid, I have repeatedly witnessed. In one case which I saw of hydrothorax in a boy, who laboured under this disease during several months, and where the effusion was confined to the right side of the chest, the pressure of the effusing fluid had been so considerable, and so long kept up, as to cause the entire destruction and absorption of the right lung; so that the whole that was found remaining of it, was a small portion of membrane loosely attached to the upper part of the chest, and floating in the surrounding fluid.

The injury sustained from distension will

generally be first experienced in the peritoneal membrane of the abdomen. If the pressure of the water, from the patient's position, or other causes, be made considerably upon the diaphragm, a low degree of the inflammation may arise there; and by being communicated to the membrane lining the chest, may give rise to an effusion of water into it; whilst by the irritation communicated to the peritoneum by the distending fluid, the serous inflammation of it already existing, will be increased or more widely extended; and according as this irritation is prolonged, the risk will be incurred of inducing a higher form of inflammation. If tapping be resorted to under these circumstances, there will arise the danger of such a destructive degree of inflammation, as may occasion the patient's death; and the unfavorable termination of the case will be here attributable, not to the original disease, but to one that is thus incidentally superinduced upon it.

Section IV.

OVARIAN DROPSY.

This disease arises from a chronic inflammation, usually commencing first in the substance of the ovarium, and thence extending to the serous tissue investing it. The symptoms which are premonitory of the dropsical affection, and arise from the morbid action going on in the ovarium, are necessarily various with respect both to their nature and duration; because any disease seated in that organ, whether of the character of scirrhus, or of any other chronic disease, is capable, by an extension of its proper inflammation, to produce that particular degree of excitement in its serous tissue, which leads to a watery effusion. The progress of the disease in the ovarium will necessarily vary under different cir-

cumstances; and there will be a greater tendency in some, than in other forms of its disease, to produce this particular result. In some cases, the diseased ovarium may fall into an indolent state; or its serous tissue may not become involved in its disease; or, if involved in it, the inflammation of it may be of the sub-acute or adhesive form, by which it may become indissolubly united to, and blended with the ovarium, and its serous character be thus destroyed. Hence it sometimes happens, that a great sense of uneasiness may be complained of in the iliac region, and even the enlarged ovarium may be felt like a ball under the hand, when placed upon the side of the abdomen, and yet without ever being followed by a dropsical effect; whilst, in another case, the irritation shall appear to be inconsiderable, and even to be wholly uterine, and be followed, nevertheless, after some months, by this effect. When the morbid action is established, which

occasions the effusion of water, its progress is generally slow, and frequently becomes stationary for a time, and then resumes its course, until at length it stops. The fluid thus effused, whether in small or in large quantity, will often be retained in its sac for several years, and without any inconvenience, excepting from its bulk, and with no apparent injury to the health. Slight causes, however, are sufficient to renew the original inflammation of the ovarium, or the secondary one of the serous tissue investing it, and which now forms the sac of the accumulated fluid; and by the renewal of the inflammation, in either of these structures, a return of the effusion will ensue. Hence after an accumulation of this kind has remained in a stationary or quiescent state for some years, it suddenly increases, so as to render tapping necessary. By this operation a fresh cause of morbid excitement is afforded to the internal surface of the sac, and, perhaps, to the primary

disease of the ovarium itself; and the cavity is now refilled in a comparatively short period. From this time, each successive operation renews this irritation, and renders a more frequent return of the operation necessary; until at length, by these repeated renewals of the morbid excitement, a state of disease is induced within the sac, analogous to what occurs after abdominal tapping, and which leads, at length, to a degree of inflammation destructive of life.

The remote causes of the different forms of ovarian disease are exceedingly obscure. Blows or other injuries received on the iliac region, are sufficient to produce a common inflammation in this organ; and where the predisposition to it exists, the inflammation, in whatever way induced, may cause the developement in it of scirrhus, or of some other form of chronic disease. The age at which menstruation ceases, from the uterine irritation prevailing at this period, seems favorable to its occurrence;

and it is, therefore, more commonly found at this period than at any other, though I have met with it at every age, commencing from that of puberty to several years beyond the time at which this function ceases. At its early stage, this disease is distinguished from the two latter forms of dropsy just noticed, in not occasioning any of that general hydropic excitement of the system, which consists, as denoted by the serous character of the urine, of a disposition in the cellular tissue of the body, to take on that action by which the serous fluid is discharged into it. There is, therefore, no thirst, nor dryness of the skin, nor other indication of considerable disturbance in the excretory functions, so observable in the common forms of the disease. The ovarian dropsy is, therefore, a purely local affection, and is an example of that form of it, which is called encysted, and which may occur in every part or organ of the body that

contains in it a cellular tissue, or a serous envelope.

Section V.

ANASARCA, OR DROPSY IN THE SKIN.

This disease consists in a serous inflammation in the cellular tissue of the body, with a serous effusion as its result. The fluid accumulation may be either general or local, and arise from causes either idiopathic or symptomatic, and either general or peculiar. It occurs under two forms, one being of greater intensity than the other. The disease derives all its importance from the nature of its remote causes. Where it is idiopathic, and proceeding from cold, it is usually unimportant; for though the progress of the swelling be rapid, and the appearance of the disease formidable, yet it readily subsides under proper treatment, as the effusion

proves in these cases, either partially or fully corrective of its cause; and little more, under such circumstances, is required in its treatment, than to promote the absorption of the water. In some cases of general anasarca, however, the disease is more severe; for sometimes the action of the heart and arteries is increased, the urine becomes loaded with serum, and there is thirst and other indications of general vascular excitement, similar to the state which was noticed, as producing effusion into the brain, or the other cavities of the body. By its occurrence under an idiopathic form, it serves the important end of obviating the effusions into these parts, as it proves a remedy to that general cause which, according to the tendencies of particular parts to serous inflammation, may produce this effect in them. Hence a general anasarca of the cellular tissue of the body coming on from cold, or after scarlatina, or where it is vicarious of some required evacuation, is seldom succeeded by a discharge

into these cavities; and on the same principle, where any one of these, and particularly the larger ones, are the primary seat of the effusion, the œdema which succeeds this effect, is commonly inconsiderable.

In some cases of this form of dropsy, the fluid effused into the cellular tissue is of a highly viscid or gelatinous quality, so as to cause much resistance to the finger compressing the parts. It is a form of the disease most commonly local, and is often met with in the lower extremities of the aged. It arises from cold locally applied, and sometimes it occurs as a critical action on the decline of fevers; many examples of which fell under my notice in the epidemic which prevailed in 1816-17. It is attended with much uneasiness in the parts; and in its sensible appearances it bears a strong resemblance to the phlegmasia dolens, or white leg of the puerperal state, to which I am inclined to believe it is closely allied.

The common œdema of the legs and

feet are not unfrequent effects of cold applied in the same local way. There is generally a remission of the pain on the occurrence of the swelling. The degree, however, in which the pain shall abate, will depend upon the degree in which the effusion shall effect the removal of its cause.

Sometimes, as I have already had occasion to notice, the serous effusion of one part appears to be translated to another. The translation, however, in these cases, is not of the serous fluid, but only of the serous inflammation yielding the fluid. This transference of the morbid action, is usually to some other part of the cellular tissue; but sometimes it is to the serous membrane of the brain, or to the cavities of the chest or abdomen.

An œdematous state of the feet and ankles is often symptomatic of chylopoetic disturbance, and particularly in young women, in whom the menstrual function is obstructed. It usually commences with considerable pain and stiffness of the parts,

and there is sometimes a considerable degree of hardness in the œdematous swellings, and stiffness of the joints, from the cellular tissue connected with the capsules and ligaments, having an effusion of a more viscid quality discharged into them. The œdematous swellings attendant on the inflammation of gout and rheumatism, and other local inflammations, are of this kind; and the serous effusion, undoubtedly, in those several cases reduces to a certain degree the inflammatory actions which constitute these diseases. Hence, on the occurrence of these swellings, the local heat and pain are diminished; whilst, at the same time, a measure of relief is sometimes afforded by it, to the disturbed and excited state of the vascular system.

But the most common form of anasarca is that which is symptomatic of some visceral disease; and which, as it ordinarily appears, arises from a state of the system that answers to the hydropic diathesis of systematic writers. It generally

begins in the lower extremities, but is rarely attended with those strong signs of local excitement, so obvious in the anasarca of the idiopathic kind. Its occurrence towards the close of various chronic diseases of a fatal nature, has been referred to various causes. When combined with ascites it has been supposed to arise from pressure made by the water on the iliac veins, by which the returning blood is impeded in its course; but frequently in pregnancy the uterine pressure produces a considerable swelling of the crural veins, without any serous effusion resulting from it; and I have already had occasion to refer to an instance of permanent obstruction to the passage of the blood by the vena cava, which produced a much more considerable effect upon the main trunk of the veins proceeding from the lower extremities, than could possibly arise from ascites; and yet without any serous effusion being occasioned by it.

But here let me observe, that the denial

of ascites producing an anasarcous state of the legs, from the water compressing the iliac veins, must not be understood as implying, that a mechanical compression of a vein will not in other cases produce an effect of this kind. A pressure made on the brachial vein and its branches by schirrous glands in the axilla, is a common cause of this state. The remote cause is here, indeed, of a mechanical kind, but not so the proximate cause of the effusion. By the resistance given, in this case, to the blood's return by the principal veins of the limb, a re-action is occasioned in the extremities of the arteries leading into the corresponding extreme branches of the veins, and which re-action is in this, as in a multitude of other occasions of congestive fulness in these vessels, a sanative effort of nature to overcome the primary obstruction.

In ordinary cases, therefore, of common idiopathic venous congestion, this arterial re-action succeeds in removing it. On

other occasions, however, where the venous obstruction is of slow increase, but ultimately considerable in degree, the reaction which arises, occasions a gradual dilatation of the minor lateral branches of veins connected with the trunk below the obstructed part, and anastomosing with others that are above it, by which the circulation is perfectly, though circuitously, carried on. Where, again, an obstruction is considerable, and somewhat suddenly induced, as in the instance under consideration, the re-action which ensues is unequal to produce the required effect to obviate it, and the consequence is, that the vessels are excited to a degree which occasions their exhalant extremities to pour out a serous fluid, which, under other circumstances, as one of the products of increased action, would have served as a curative effect.

The anasarcous state of the lower limbs in chronic disease has also been referred to a local and a general debility, and this opinion of its nature is thought to be shewn by the fact of its being increased by a de-

pending position of the limb, and relieved by the horizontal one; by the occurrence of an inflammatory state of the parts being incompatible with such debility; and lastly, by the want of a preternatural degree of heat on the surface of an œdematous part, and which, it is assumed, should prevail, where the least degree of morbid excitement is present. Upon which objections it may be observed, that the supposition of the general debility being the cause of the local one, and this last of a simple mechanical separation of the serous fluid, is invalidated by the fact, that the effects are in no correspondence with the assigned cause; for in a multitude of cases of both chronic and acute disease, the general debility, as well as the local one, as far, at least, as this last can be judged of, is often excessive, as in the last stage of fevers, and yet without being attended by any effusion; whilst, in other asces, the serous discharge is considerable, and the debility only slight. That with respect to a proof being afforded

of such debility, by the anasarcous state occurring most considerably when the limb is in a dependent position, it may be observed, that this state of the limb will be produced in the strongest person when unduly subjected to this cause, and where the debility is immeasurably less than that which prevails in typhoid and other debilitated patients, in whom no such effusion is produced; and that, with respect to this and the other objections, it may be farther observed, that there is, it is well known, in certain fatal chronic diseases, a tendency in the lower limbs to take on a low inflammatory action, and often of the erysipelatous kind; and that, therefore, the still lower degree of it, proper to anasarca, may be well imagined to prevail. And if, be it remarked, the depending position of the limb increases the effusion, and the horizontal one relieves it, it is only what is common to all the other forms of increased action, and which proceeds from the higher congestion of the vessels induced by such a

position. The temporarily dependent state of the limb, in fact, may aggravate, but does not cause, as the horizontal one will relieve, but can neither prevent nor remove the hydropic inflammation of the part. And with respect to the temperature of the surface of œdematous parts not being preternaturally raised, the objection, if of any force, must apply to all, for all have this peculiarity, and yet some cases of œdema confessedly arise from inflammation; differing not, in this respect, from several other morbid states, as those, for instance, of chronic rheumatism, and which are indisputably, as indicated by the nature of their causes and remedies, of a truly inflammatory kind.

RECAPITULATION.

Before closing the view which has now been taken of the principal forms of this disease, I will briefly recapitulate the material points connected with their history

and pathology: and, for this purpose, may begin by remarking, that there is a common resemblance observable among all the forms of this disease, in regard to the nature of their proximate causes, but an important difference in respect to the nature of their remote causes, and of their symptoms, and of the relative importance of the effusion.

I. When the discharge takes place into the brain, it may occur, either as an incidental effect of that acute inflammation of the organ, which answers to the phrenitis of nosologists, and of which the proper morbid result is coagulable lymph; or under its ordinary and proper form of serous inflammation, when, relatively to phrenitis, it will be in a sub-acute or chronic state, with the watery effusion as its natural product. It may be either idiopathic or symptomatic. When the former, it may be induced by a general state of the system, answering in its nature to the scrophulous diathesis, and favoring the developement of a local disease; and this state may be either that of direct ex-

citement, or of a general constitutional irritation of a specific kind, derived from the suppression or obstruction of some required evacuation, and most commonly occasioning, particularly in the latter case, a precursory turgescence of the brain. When the disease is symptomatic, it may arise from some structural disease within the head; or, secondly, from some relative weakness of its venous system; or, thirdly, from a distant irritation in the digestive organs. When the attack of the disease proceeds from the first of these causes, it is usually severe, and answers in its symptoms to the water stroke of the German writers. When from the second, the disease corresponds to the serous apoplexy of systematic writers; and, as it respects its approach, is usually chronic, though generally sudden in its termination, by the arterial re-action being rapidly, sometimes instantly, succeeded by the effusion. When it proceeds from the third cause, the turgescent state of the brain, which gives origin to symptoms that

simulate these of the true disease, arises as a direct effect of chylopoetic disturbance, and is remediable, until arterial re-action commences, by means directed solely to its remote cause.

II. Hydrothorax may be either idiopathic or symptomatic, and proceed from a local or a general cause. When idiopathic, it may either arise from all the local or general causes of inflammation, and in this form exist independently of, or in combination with some higher grade of local vascular excitement; or it may arise from a local congestive state of the vascular system within the chest, as an effect of a plethora of the general circulation; and in these several cases the effusion may prove more or less remedial of the local, and, sometimes, of the general excitement. When symptomatic, it usually occurs under a chronic form, and from the chronic inflammatory action of the visceral disease, extending to the serous membranes of the chest. The occurrence of the dropsical effusion, when

thus symptomatic, affords no standard by which to judge of the measure of danger belonging to the visceral disease, independently of this its effect; whilst the effusion, when in considerable quantity, is essentially destructive of life, by interfering with functions that are necessary to it.

III. Abdominal dropsy proceeds nearly from the same causes as hydrothorax, and like it, is most commonly symptomatic of some diseased viscus, by the chronic inflammation in the internal tissues of the diseased organ being propagated to its outer peritoneal covering, and thence through the cavity of the abdomen. The effusion is of inconsiderable importance compared with the visceral disease, which is its remote cause; until, from the risk incurred of farther disease from the stimulus of distension, a necessity arises for tapping, when this operation proves a farther cause, perhaps, of aggravating the disease of the affected viscus, and either of renewing or extending the hydropic excitement, or of converting

it into a high or more destructive form of inflammation.

IV. Ovarian dropsy originates, in every instance, either from a chronic inflammation commencing in the inner surface of the serous membrane investing the ovary; or from a similar morbid state of the ovary itself, or of its interstitial tissue, and which, after continuing an indefinite period, extends, at length, to its serous envelope. The effusion which ensues upon the excitement, is often corrective of it, until fresh causes be applied, that aggravate or renew the disease of the ovarium, or of its investing membrane. The inflammation thus renewed, may, according to the form it assumes, either prove a cause of a fresh accumulation, or it may become the means of a radical cure, by the effusion of coagulable lymph which it induces; or, lastly, it may, by occasioning suppuration, be destructive of life.

V. Anasarca is a disease, the importance of which is alone determinable by the nature

of its remote cause, and which will vary, in this respect, according as it is dependent, or not, on some visceral or other disease; or, as it is connected or not with some cachectical state of the system; and whether as a *cause*, or, an *effect* of it. In its idiopathic and simple form, the effusion of its fluid puts an end to the serous inflammation producing it, and, when occurring alone, is frequently vicarious of a similar effusion, which, under a slight variation of circumstances, might have been discharged into some cavity. As a purely local affection, it may derive its origin from the ordinary causes of inflammation acting either locally or generally; or it may be secondary to some serous inflammation seated in a cavity; or lastly, it may arise from some disturbance in the digestive function, by which this and other distant irritations are produced, through the operation of that obscure law of the animal economy, denominated sympathy.

CHAP. III.

TREATMENT.

From the principles explained in the foregoing pages, it will be apparent, that, as the proximate cause of the several forms of the effusion, and which is the disease, is the same under all its conditions, the same general principles of treatment will be alike applicable to all; subject only to such modifications as arise from differences in the nature and intensity of the remote cause, and those general or local relations of the parts implicated in the serous effusion, with the diseases of the organs which incidentally produce it. Founding the treatment on these views, the following are the indications

of cure, namely: 1*st*. To remove the visceral or such other disease or state, whether local or general, which, when present, proves a remote cause of the effusion; 2*dly*. To remove the morbidly increased action in the serous membrane or tissue, which is its proximate cause; 3*dly*. To promote the absorption of the effused fluid.

HYDROCEPHALUS INTERNUS, OR DROPSY IN THE BRAIN.

The treatment of this form of dropsy is divisible into three general kinds; the first consisting of means to correct, with its causes, that turgescent state of the brain, which may produce the arterial re-action and effusion; the second, of those which shall subdue the excitement, when formed; the third to correct or relieve, as far as it is practicable, the effects of the effusion, and procure, if possible, its absorption.

I. The general causes tending to produce that congestive state of the brain, precursory

of its inflammation, are of three kinds. 1*st*. Those acting through the general system, and consisting of an irritation from some obstructed and required evacuation. 2*dly*. A local disease seated in the head, or a local injury inflicted on it. 3*dly*. Chylopoetic disturbance, acting sympathetically upon the brain.

The causes acting through the general system may be either from some of the emunctories of the body becoming obstructed, and their secretion diminished, as of the skin, as denoted by its harsh dry feel; or of the kidneys, as indicated by the scantiness of their secretion, &c.; or from a failure of the natural efforts of the system to produce some one of those obscure, but critical and sanative actions, which follow upon certain fevers; or from some artificial, but long established drain by issue, or other source, being suddenly dried up. To obviate the two first of these causes, means must be employed to correct and increase the defective excretory action. For this

purpose, we must employ diuretics, and the milder kind of diaphoretics and aperients, conjoined with the occasional use of the warm bath, of leeches to the temples, and mild mustard cataplasms to the feet, together with a plain unirritating diet, warm clothing, with all those other general means which are useful in counteracting the tendency to the scrophulous diathesis.

By these means we may obviate the two first of these causes. For the third, in addition to these, an issue should be made somewhere in the neighbourhood of the part where the former discharge was seated; or a blister, which is to be kept open, may be substituted for it.

To some of my readers, perhaps, it may seem like an adoption of the doctrines of the humoral pathologist, to recommend so inconsiderable a remedy as an issue, for so considerable an affection as an incipient turgescence, or impending inflammation of the brain; but whatever may be said, and much may be said upon the question, the

fact of its utility in many such cases is indisputable. As an instance illustrative of this fact, among many that have repeatedly fallen under my observation, I may mention here the case of a man whom some years ago I admitted into the hospital for epilepsy, which he had been labouring under during a considerable time. The fits occurred three or four times a-week, and were preceded by that peculiar feeling in his right arm, which is termed *aura epileptica*. By an accidental exposure of that arm at one of my visits, I discovered a scar, and upon inquiry as to its origin, I learnt that it was caused by an extensive sore, which had been discharging during several months, and which had healed up a short time only before he was attacked by the fits. The connection between his disease and the suspended discharge being apparent, I substituted a seton in the neck for the medicines before in use, and with the result, I need scarcely add, of immediately curing him of his epilepsy.

Should there appear to exist any structural disease within the head, as the relic of a former state of excitement, a serous inflammation in the ventricles may be reasonably apprehended. To avert it, the most rigid and undeviating attention to regimen will be indispensable, whilst, at the same time, occasional cupping or leeching must be employed, and a seton should be fixed in the neck. For the object of the treatment, in these cases, is not to remove, but to avert the inflammation, and which, from the strong disposition to it conferred by the organic disease, can only be effected by avoiding, not merely the causes of inflammation, but likewise all those agents which are calculated, in any way, to increase the momentum of the circulation: since, in some of these cases, the very slightest injuries inflicted on the head, are sufficient to excite the serous inflammation of its diseased membranes. Indeed, so slight may be the cause, that in an instance which lately fell under my notice, and where dis-

section discovered the existence of much previous disease, it arose from the person whilst walking merely striking his head against a bird cage which was loosely suspended from the ceiling. Beyond these, the common precautions against morbid irritations, little else in these cases can be done.

Where the turgescent state of the brain arises from a disturbance in the digestive organs, it will be remedied by means which are directed to this cause. The primary seat of this disturbance is usually in the liver, as evidenced by the colour and condition of the stools, and the nature and effects of the remedies, though the irritation, which acts sympathetically upon the brain, is often seated in the *primæ viæ*. By correcting and increasing the secretion of the bile, and disburdening the bowels of their morbid contents, the sympathetic affection of the head will disappear. The treatment proper for this object, besides applying, as a measure of precaution, the cupping glasses, or a few leeches to the

temples, must consist in giving a small dose of calomel nightly, and in urgent cases two or three times, or oftener in the day, and a laxative enema, or an aperient draught the succeeding mornings, assisting their general effects by diuretics, and by the most exact attention to regimen, both as to the kind and quantity of the food; whilst, at the same time, the use of the calomel is to be regulated by a daily inspection of the stools, and its employment prosecuted until the natural colour of them is restored.

II. When the inflammation is established, and arises from the presence of a tumour, or other structural disease seated in the head, it can rarely be regarded or treated any otherwise, than as the sequel of a disease essentially fatal. The whole of the treatment, if an opportunity be given of treating it, can be little else than palliative; for the inflammation which ensues, as an effect of the structural disease, is too often dependent on it to a degree that renders all the known modes of management unavailing.

When the inflammation is idiopathic, it is strictly a case of locally increased action, and the treatment must be especially so directed. A bleeding from the temporal artery is proper for patients above the age of childhood; though a liberal bleeding from the arm, conjoined with copious local depletion from the temples, by means of leeches or cupping, is perhaps a preferable plan. When leeches are used, and they must be used for infants, they should not be in fewer number than three or four for an infant under six months, nor than five or six for one above a twelve-month; and the bleeding must be encouraged, after they are removed, by bags of flannel containing bran, and repeatedly wrung through hot water; watching the effect which is made by the bleeding, upon the pulse, and upon the symptoms of the disease, and repeating its use, in a few hours, if required. Where blood cannot be procured by cupping from the temples, leeches applied there are preferable, even

with adults, to the taking of blood from the back of the neck. Their number should not be less than twenty-five or thirty ; and the bleeding should be encouraged until a certain degree of faintness is produced. The object is to make expeditiously such a forcible impression upon the disease, as to remove the urgent symptoms whilst the bleeding is going forward; and where a patient is of an age to speak to the state of his feelings, the bleeding must be prosecuted to this result. Nor is there any other rule to be laid down than this, nor is there a need of any other ; for the variable intensity of the disease, arising from the frequency of its combination with the higher degrees of inflammation, together with the varying states of plethora, and of constitutional vigour in different patients, especially in relation to its alliance with a strumous cause, render impracticable the giving of any precise directions as to the extent to which depletion must be carried. The effect of the bleeding, when actively pursued, must of

course be watched, and any ill effects of it guarded against; and no long continued and active leeching should be carried on with children, without a medical, or other competent attendant, for this purpose; for, through the want of this, I have heard of some infants sinking under the loss of blood, from continuing the bleeding too long; whilst, I doubt not, many others sink under the disease, from an inert and inefficient practice being pursued, through the fear of producing such an accident. Along with the leeches, a blister should be applied to the summit of the head, and afterwards a cold evaporating lotion to the temples.

Where a full and visible impression is made by these means upon the disease, little more will be demanded afterwards, than to watch the result. Some diaphoretic medicine, however, may be given, assisting its use by the tepid bath, or the pediluvium; and the bowels are to be kept open by a small dose of calomel, which is followed,

after two hours, by a draught of some aperient medicine. With this the medical treatment, there must be a rigid observance enforced of what is termed the antiphlogistic regimen; light and noise should be excluded; for these and other agentst possessing only a very limited power ovei the brain in its healthy condition, have a very considerable effect upon it in this its diseased one.

Many practitioners give the mild preparations of mercury, and particularly calomel, freely in this disease, under a notion of its having some specific power in subduing it; but it should never be so used, excepting in cases where the disease is symptomatic of some functional disturbance in the liver and other chylopoietic organs, when it is calculated, in conjunction with the local bleeding, &c. to afford the most important service. The cases reported of its great success in this disease, have been examples of this form of it; and conclusions respecting the suitableness of the

treatment by mercury, under all circumstances of the disease, have thus been hastily and erroneously drawn. With children, the symptomatic hydrocephalus is, perhaps, a much more common form of it than the simple inflammatory; but it is not always easy to those who are inexperienced in their treatment, to distinguish between them. The condition of the stools at the period when a child is labouring under the disease, will afford to such persons but an imperfect notion of its true nature; for the disturbance of the brain will often create a disorder in the secretions, both of the liver and the other chylopoietic organs, producing green looking stools; and there is often a congestive state of the brain for a short time preceding the full developement of the idiopathic excitement, which may, in like manner, by re-acting upon the liver, create a disorder there. In cases, however, which are symptomatic of this cause, the chylopoietic disturbance will be found to have existed several days or even weeks; and the origin of the disorder,

in like manner, may be commonly traced to some irregularity of diet, or other obvious causes, and frequently in infants to those which are connected with premature weaning; and sometimes even the cerebral disorder itself will have been only the last of a series of effects in the system, to which such disturbance had given rise.

Where this is the case, the nature of the disease becomes apparent, and a free administration of calomel becomes necessary, as one material part of the treatment, aided by a somewhat less active use of the local depletory means already noticed. In the cases of this kind, I give half or a third of a grain of calomel every half hour, during several successive hours, following up this medicine with a laxative enema, or some mild, but sufficiently aperient medicine; and repeating, after some time, the doses of the calomel, until a decided change is effected in the character of the complaint. For in this affection, when symptomatic, it is not sufficient to subdue the excitement, if this its remote

cause be unremoved, since the local depletion, however far it may be carried, will be of no avail to avert the effects of a sympathetic irritation that still continues. Neither will it be prudent to trust to those means which correct the chylopoietic disturbance, to the neglect of those of a local kind, even where the evidence of such a cause existing is complete. For though the means applied to correct the disorder in the digestive organs, may be sufficient to remove the turgescent state of the brain, which arose from it, yet, those means will have little or no controul over the excitement which that turgescent state has created; and still less can they avail in subduing an excitement, that may even survive its remote cause, and continue independently of it. By overlooking these facts, much distrust and disappointment have arisen with many, who confided in the opinion delivered by some writers, of the uniform prevalency of chylopoietic disturbance as a cause of this disease, and of the sufficiency of calomel to remove it. In

general, mild aperients are much more suitable in this disorder than those which are termed active; and when insufficient of themselves, they may be assisted by glysters.

And here it is proper to caution the reader, not to discontinue these means immediately upon the occurrence of what appear to be symptoms of effusion, since frequently these symptoms, as it respects the effusion, will unexpectedly manifest their fictitious character, and disappear under a treatment no wise adapted to such a state, and with a rapidity too, which equally betrays their true nature.

From cases of this kind so frequently coming under my observation, I was formerly inclined to dissent from the common opinion, that cases of effusion are remediable; and concluded that the reported instances of recoveries after such occurrences, were nothing more than examples of the kind here referred to, in which symptoms of cerebral irritation or congestive pressure were mistaken for those

of effusion ; but instances of such apparent recoveries have since fallen under my observation, which fully convince me of their reality. The instances, to which I here refer, are those where the effects of compression only subsided very gradually; or where some one or more of them permanently survived the rest. In one case, there were the most decided symptoms of a permanent compressing cause within the brain, among which were a partial blindness and paralysis, with a fatuous state of the mind, but which, in the course of two years, were intirely recovered from. In another case of a boy twelve years of age, who recovered, there was, among other symptoms indicating compressed brain, such a degree of spinal cramp as to occasion the cataleptic rigidity of the whole body, and which, on subsiding, left behind it the most intire relaxation and paralytic weakness of all the voluntary muscles, with an irremediable imbecility of mind. That these, and other examples

like them, which must be of familiar occurrence to many practitioners, arise from a compression more permanent than what could depend upon simple vascular turgescence, is a fact which, I think, must be admitted; that they proceed, however, in all cases, or, perhaps, in any case, from a quantity of water accumulated in the ventricles, and which is afterwards absorbed, may, perhaps, be justly questioned.

But is there not, it may be asked, any middle state between the simple vascular turgescence, and the effusion of a fluid between the membranes, or into the ventricles of the brain, and from which may be derived the compression? To which inquiry it may be answered, that there appears to be such a state; for pathologists have erred in supposing the seat of the disease to be limited to the tissues which form the investing or lining membranes of the brain, or that, to constitute a dropsy of that organ, the effusion must necessarily be from these parts. For beside these

membranous structures, there is, undoubtedly, though not demonstrable to the eye, an interstitial tissue which pervades every part of the brain, and that into this tissue there is frequently poured forth an effusion, which forms what must be considered an anasarcous state of the organ. In the instances in which this state occurs, the brain, on removing the skull-cap, may be observed to become expanded, and no longer to allow of being readily inclosed in its former bony case; and upon cutting into its substance, an oozing of the serous fluid from the divided surfaces is very distinctly observable. The fluid thus effused constitutes, therefore, a true anasarca of the brain, and must produce an effort at expansion; and, by the resistance given by the unyielding nature of its case, a consequent compression of its substance may be expected to arise. The degree of this effect will vary according to the intensity and permanency of the morbid action producing the effusion, and the

extent of the brain which it occupies. It may be inconsiderable from its cause being so, and from the tendency which the effusion in all cases has to abate the excitement causing it, and which in the milder forms of the disease produces no doubt that effect. In the severer examples, it might prove fatal without any of the serous membranes becoming implicated in the disease; and, on the other hand, recoveries will occur under circumstances of moderate pressure, with much more facility where the compressing cause is thus extensively diffused, and, therefore, more equally applied through the brain, than where, as in the ventricles, it is concentrated; whilst, at the same time, the extensive diffusion of the fluid through its substance, by being more extensively subjected to the action of the absorbents, will be thereby more readily removed from it.

Of the means to be employed to promote the absorption of the water under

these, or other circumstances of its accumulation in the brain, little satisfactory can be said. The treatment must be founded on the use of such means as shall avert the risk of renewing an inflammation in the organ. To this end, occasional blistering the head will be proper; the diet must be spare, and the several secretions, particularly those of the kidneys, must be cautiously promoted.

HYDROTHORAX AND ASCITES.

These two forms of dropsy resemble each other so closely in the nature of their remote and proximate causes, as to allow of their treatment being considered together.

The obscure nature of the visceral diseases of the chest, which cause this disease, renders it frequently difficult to decide precisely upon their true seat, and still more so to determine, under what circumstances, as denoted by their symptoms, a

serous inflammation and effusion shall arise from them. A chronic disease seated in the serous tissues investing the heart or lungs, &c., will afford, in general, but very indistinct indications of the mischief to which they are leading, until by the extension of the chronic inflammation to the outer serous membrane, an effusion begins to take place. The symptoms which ensue upon this effect occurring, are those proper to the mildest forms of the disease, and have been called precursory.

The plan of treatment to be pursued at this period, must consist in the use of those means, which shall subdue the chronic excitement of the serous membrane, and the primary chronic inflammation of the diseased organ. For this purpose five or six ounces of blood are to be drawn from the integuments of the chest by cupping or leeching; selecting that side upon which the patient is able most easily to lie down; and repeating the operation to the amount of half the quantity every

third day, for three or four successive times, and occasionally afterwards as circumstances shall require. Along with the local bleeding, a somewhat active blistering must be employed upon the same side, repeating, likewise, its use as frequently as the state of the surface will admit.

With some persons, whose system is in a plethoric state, and which may be judged of by the presence of concurring symptoms, it may be proper to commence the treatment by a full general bleeding; for a local congestion within the chest is not unfrequent in this condition of the system, and becomes often, I suspect, a cause of a serous inflammation of the thoracic tissue, independently of any previous disease; and where, therefore, a disease already exists, it will add considerably to its intensity. In ordinary cases, however, venæsection will be unnecessary; for local depletion, combined with blistering, is more particularly adapted to correct that chronic inflammation of the serous mem-

branes, which causes an effusion from them, and which is neither the result of any inflammatory excitement of the general system, nor of a nature to produce it. General bleeding, therefore, excepting in the state of the circulation just noticed, is quite uncalled for, as it has no control over actions of so unmixed and so purely a chronic kind, and where the cause and seat are both local. Topical bleeding, when properly conducted, has the advantage of acting only slightly on the general system, and therefore only slightly on the general strength, and very considerably on the local disease; for, however unsatisfactory the practice may seem, when reasoned on *à priori*, from the little connection subsisting between the external parts of the chest and its internal organs, there is, unquestionably, the most important advantage to be derived from the practice, as every one experienced in its use can attest. Indeed, I am satisfied, that the advantage obtained from an oc-

casional cupping or leeching of the surface contiguous to organs affected with chronic inflammation, will greatly exceed what several general bleedings would produce; and this, too, without any needless exhaustion of the strength.

After subduing, by these means, the chronic action existing in the serous membranes, there will be much advantage derived from a seton fixed in the integuments of the chest. Its operation is not so sudden nor so direct as the leeches and blisters applied there; but it is calculated in this, as in other local chronic diseases, to produce a beneficial effect, by the habitual inflammation and discharge, and by the counter irritation which it keeps up in the neighbourhood of the disease, and where local evacuations, under a more active state of disease, are confessedly of service. For it is a character of chronic inflammation to continue gradually progressing for an indefinite period, and with degrees of slowness which are

imperceptible; and it is the purpose, and often in the power, of a seton placed in its neighbourhood, to arrest this chronic inflammation, and thereby to put an end to the secondary inflammation in the serous membrane depending on it.

And this practice, which is thus useful in correcting the chronic action in the serous membrane producing the effusions into the chest, is likewise suited to correct the chronic excitement subsisting in the peritoneal membrane of the abdomen, and very commonly the visceral disease producing it. In the enquiry, which will be shortly published, into the pathology and treatment of the diseases of the liver, I have entered at length into a consideration of their nature and causes, and the relation they bear to this disease; and in reference therefore to them, and to the other diseases concerned in producing abdominal dropsy, it will be sufficient here to observe, that analogous to what occurs in the thorax, the chronic excitement of the serous

membrane investing the organs, or lining these cavities, is generally kept up by a corresponding state of the diseased viscus; and that, therefore, local depletion by cupping or leeching is necessary to both, and will often succeed in reducing the primary disease into an indolent state, and thus put an end to the secondary one depending on it.

With too many practitioners it is the practice to employ mercury freely in every case of abdominal dropsy, under the vague notion of there existing some mechanical obstruction in the liver or other viscus as a cause of it; and under the equally vague notion that mercury so employed will remove it. The practice, however, to speak of it in the mildest terms, is founded on erroneous views of the pathology of these diseases; and employed, therefore, as it is by some, on all the occasions in which they meet with them, must be frequently very injurious. For, independently of the injury to be inflicted by it, when given freely in

some of the forms of liver-disease, there is an effect produced by it on the urine, when given to a person in health, resembling that which arises from the specific excitement of dropsy. Under a salivation, the urine becomes charged with serum. Any condition of the system, therefore, approaching even to the state of salivation, must be injurious, by the tendency it must have to increase that morbid state of the body, which is nearest allied to the hydropic one. Hence, the mercurial salivation has been numbered amongst the remote causes of dropsy; and the resemblance between the dropsical and mercurial excitement, thus established by the common resemblance of the urine in these states, goes far to prove this connection; and it is not improbable, that the mercurial inflammation, when considerable, may survive its specific cause, and degenerate at length into the purely hydropic state. When, however, mercury is given in minute doses, so that these its specific morbid effects are not

produced, it is capable of becoming highly useful, as we shall presently have occasion to notice.

In conjunction with the employment of topical bleeding, and the other means just noticed, drastic purgatives have an important influence in subduing the disease; and this not merely by removing the water, but, likewise, by contributing to subdue the chronic excitement which occasions its effusion. They have been employed during many ages in nearly all the forms of this disease, and with very different, and often contradictory views. But, however erroneous were the theories which dictated the practice, the practice itself was often successful. For it happened then, as it often happens in the present day, to the misfortune and disgrace of medicine, that errors in speculation were perpetuated by being founded in what was right in practice; so that a treatment frequently became successful, only by missing the object it was professedly aimed at, and happily attaining

some other one. The plan, therefore, which, under different views, and in pursuit of various imaginary objects, has so long prevailed, of prescribing active drastic purgatives in this disease, has not only succeeded in carrying off the water, but has in many cases produced, by the counter-action and irritation these excited in the mucous membrane of the bowels, the farther benefit of removing that morbid action in the serous tissue investing them, which had caused the serous discharge, and sometimes the primary disease of the viscus itself, which produced and prolonged it. The drastic medicines which have been given at various times in this disease form a somewhat numerous list. The one which I prefer to the rest, and am accustomed to rely on, is the gamboge, which I give to the amount of four or five grains in a single dose, with the same quantity of some aromatic powder, and triturated with a few crystals of the super-tartrite of potash; or

in urgent cases of hydrothorax, to the quantity of ten or twelve grains, divided into four doses, one of which to be given every three hours. This medicine generally causes considerable watery evacuations from the bowels; and in cases where there is much water collected, as in ascites, I have seen upwards of three gallons discharged in the course of a day from the bowels, with a very sensible decrease of the abdominal swelling. Its effect, to be useful, must be that of obtaining watery evacuations; and where these are fully produced, the oppression in the breathing, and the other distressing symptoms, whether in the abdomen or thorax, become much relieved. When the strength admits of it, the purgative may be repeated once in four or five days. In general they are borne better in ascites than in hydrothorax; though there will necessarily be great differences in this respect, from the varying character of their causes respectively.

They are sometimes inadmissible in ascites, from the nature of the visceral affection; for where a disease of the liver or mesentery is its remote cause, and the disease at the same time is in an aggravated form, there is a tendency to a spontaneous and distressing diarrhœa, which even the mildest purgative would increase. In the case of the mesentery, such a mode of treating the dropsy would speedily destroy the patient; and with respect to the liver, whenever a diarrhœa is found to attend its disease, or survive the ordinary operation of a drastic purgative, and particularly if accompanied by tormina and straining, and be checked only temporally, and with difficulty, then this and all other drastic purgatives must be withheld; for such cases generally prove fatal; and the ascites itself, which, in many of these severer cases, is unattended by that sign of the hydropic diathesis, the coagulable urine, may be regarded as a mere sequela of the disease, and not the most urgent one.

Beside these means, there is another important class of medicines to be noticed, which afford great benefit in this disease; namely, diuretics. The sensible operation of these medicines, as is well known, is to promote the secretion by the kidneys. There appears to me, however, to be farther effects produced by them upon the system, or particular parts of the system, which is not referable to the mere evacuation of a certain quantity of fluid from the body; and these effects, it is probable, consist in promoting the natural discharges by this, and, perhaps, the other emunctories, whose partial suppression may either produce this disease, or serve materially to continue it; and likewise in occasioning a derivation of blood to the kidneys, and therefore to a part distant from the morbid one; and that thus, whilst they are contributing materially to the removal of the fluid, they are serving, like the purgatives, an important end, in assisting to subdue the causes of it. The

medicines which I am accustomed almost entirely to rely on in this disease, is the powder of dried squill and digitalis, given in combination in the form of pills, and in doses which, from their smallness, will probably excite no little surprise in the minds of some of my readers. The dose of the squill is something less than a grain, and of the digitalis only a sixth part of a grain, given uninterruptedly every third or fourth hour.

To many who are accustomed to consider the efficacy of a medicine to be dependent on the quantity that can be retained upon the stomach, or in any way introduced into the system, the doses just announced will appear insignificant and useless; but to such it may be remarked, that the rule by which medicines act beneficially, in exciting certain specific and curative actions in the body, has no relation whatever to the mode by which they are borne in the system, or retained on the stomach; nor is it to be assumed of a poisonous medicine, because

its allowable dose is at best but a small one, that it, therefore, will be most beneficial when taken at its maximum strength. For, as to any thing than can, prior to experience, be assumed or known to the contrary, the very reverse of this may be the truth; or it may be, what indeed is the fact in regard to digitalis, that the minute dose of a sixth part of a grain, given every three hours in union with squill, has all the efficacy, as a diuretic, of the largest doses which have ever been ventured on of this medicine, and none of their danger. During several years' practice as physician to a public hospital and dispensary, I never saw occasion to exceed the above doses in this, or in the other many diseases in which I employed them. To render them more diuretic, it is proper, however, in this disease, to give a third or the half of a grain of calomel nightly, and an infusion of dandelion, or some other of the popular diuretic decoctions, and which may be taken, *ad libitum*, as a common drink.

With some practitioners it is usual to allow their patients daily portions of gin-punch, with the double view of aiding the operation of the diuretic medicine, and of supporting their strength; but the practice, as a general rule in the treatment of these diseases, is exceptionable; for though it may seem to assist, and sometimes, indeed, does assist, in carrying off the water, yet it tends to perpetuate the remote and proximate causes of the effusion.

But on these points, indeed, an error in the conclusion formed concerning the impropriety of this treatment, may be easily committed, as a practitioner may believe that he is radically curing the disease when he is only temporarily removing the effusion produced by it. For the discharge of the fluid will often proceed only slowly, whilst the absorption of that already collected may go on quickly by means which are valuable to that end, but more or less injurious, or, at best, but useless to the

disease itself; so that on disusing them the fluid again collects, and the patient is then thought to relapse; although the truth of the matter is, that the cause had been left unremoved, or, perhaps, rendered worse by the treatment. In some cases, however, the practice is allowable; for the dropsical accumulation, as we have before observed, may be all that there is remaining of the disease; for the effusion often becomes, in the idiopathic forms of the disease, a remedy to the serous inflammation; and, therefore, all that is required for the recovery of the patient is simply the removal of the water.

In general, diuretics answer their purpose best in this disease, under the liberal use of so much drink as shall satisfy the desires of the patient, and also when a somewhat cathartic effect is produced by them; and, therefore, where they do not occasion this latter effect, and the urine continues scanty, it will be proper to give a dose of the super-tartrite of potash every

morning, either alone, or dissolved in the patient's diuretic drink, and which may be taken in the course of the day.

The observations which have now been made are applicable to the treatment of hydrothorax and ascites, when arising from the serous inflammation of the investing membranes, from a chronic inflammation of one or more of the viscera.

There remains now to notice the treatment proper for the idiopathic forms of the hydropic inflammation, which may be either strictly local, or consist in a general specific excitement of the system, leading to a general watery effusion; and of which the exhalants of the several serous membranes only partake in common with the rest of the serous tissues. In this form of dropsy the pulse is hard, and venesection then becomes an important remedy in its treatment. The blood in these cases exhibits strongly the buffy appearance, and the urine coagulates freely when subjected to heat. I have met with several cases in

which a considerable accumulation of water had taken place in the abdomen, and in the cellular tissue of persons of a plethoric habit, when by a copious bleeding the disease was at once arrested, and the water afterwards absorbed.

The very successful issue, indeed, of the practice here recommended in cases strictly idiopathic, is among the most agreeable occurrences which the medical practitioner can meet with; for the distressing associations connected with this disease render its presence a source of considerable disquietude to patients and their friends. An interesting young woman applied to me labouring under abdominal dropsy. It was attributed to cold, and had only existed about three weeks; yet the body had become considerably distended, and the fluctuation very distinct. Her general health was only inconsiderably affected, and there was no anasarca; the urine was scanty, and was only slightly coagulable by heat; the pulse

was increased somewhat in its force and strength. The abdomen had been gradually enlarging up to the day in which I first saw her, when I directed fifteen leeches to be placed upon her body, and after twelve hours a blister, and to take a brisk cathartic, with some diuretic medicines. On the following day the swelling was found to be stationary, and on the following one it was perceptibly lessened. On the third day eight leeches were again placed upon the body, and a second blister; and the cathartic was repeated. The urine now became copious, and the size of the abdomen decreased. In something more than a fortnight the dropsy was entirely removed, and the patient has since continued well.

In some patients whom I have attended under this particular form of the disease, and in whom the recovery was equally rapid, there have occurred returns of the effusion, from neglecting to avoid the ordinary causes of irritation, and which were again removed by the same treatment, and

the cure completed by a more scrupulous adherence to the rules enjoined. In one patient this renewal of the dropsy occurred thrice in the course of seven months; and it was not until after repeating the use of the leeching and blistering for several times, assisted by the other means, that the entire re-establishment of the health became secured. These attacks of idiopathic dropsy, according to my observation, are more common with females than men, and more with the younger than with those in middle or advaneed age. If in the early periods of their appearance they are neglected, or mismanaged in their treatment, and any of the ordinary causes of inflammation be applied, there will be a danger, not only of their becoming established, but of a higher form of inflammation being superinduced upon the first one; when a fresh source of irritation of the peritoneal membrane being created, a structural disease of it may be formed, and a cachectical state of the system at length induced.

The effusion into the chest or abdomen occasionally occurs after scarlatina, combined with anasarca, which is preceded by a slight œdema about the upper parts of the body. When into the former cavity it is of difficult management, since it often partakes of the twofold state of debility and excitement; for its course is so rapid, that frequently all the mischief is done before its approach is well suspected; and when, therefore, it is discovered, it is sapping the very foundations of life, by its disturbance of those actions upon which life itself depends. When early detected, blood must be promptly drawn from the arm by venæsection, and from the chest by cupping or leeching, followed by the use of the warm bath, by a blister to the side, and by the exhibition of a brisk cathartic. Diuretics, which are so beneficial in the less acute forms of dropsy, are commonly too inert and slow in this, unless given in doses to act immediately upon the vascular system, when the infusion of digitalis, as

given by many practitioners in all the other states of the disease, may be resorted to; since the treatment here is not so much to remove the water, as to prevent if possible its farther effusion; for where a discharge suddenly takes place into the chest after scarlet fever, it will generally prove fatal, even though the quantity collected be inconsiderable, and only such as would occasion, if gradually effused, a moderate degree of inconvenience to the lungs.

Of the treatment by tapping, where required, we shall reserve the consideration, until we have disposed of the two other forms of the disease.

TREATMENT OF OVARIAN DROPSY.

The treatment required in ovarian dropsy differs somewhat from that which is proper for hydrothorax and ascites. For this form of the disease is never attended by the serous state of the urine, until after repeat-

ed tappings, when the general irritation excited in the system by the local disease, and which has been aggravated by this cause, gives rise at length to the hydropic diathesis. There is, therefore, in the early periods of the disease, but little debility from the effusion; since, by the inconsiderable degree of absorption which takes place from the sac, there is not, as in ascites and in anasarca, any considerable waste of the strength, by the loss from the system of a nutrient part of the blood. The disease of the ovarium, likewise, gives no disturbance to any considerable or vital function, and originates from no obstructed emunctory. The urine, therefore, is only partially diminished in its quantity, and there is no thirst, and the general health is unimpaired. The disease, in fact, is purely local, and the principal means of treatment must consist in occasional leeching and blistering; in the use of diuretics; a spare regimen; the warm bath; and in preserving a moderately open state of the bowels;

for the object is to subdue the chronic inflammation in the organ, which is the remote cause, together with the corresponding action in the investing tissue, which is the proximate cause of the effusion; combining with it, at the same time, the farther one of procuring the absorption of the fluid.

When the disease is brought under treatment, before the inflammation has extended from the diseased ovarium to its serous envelope, the dropsical effusion may in general be averted. The difficulty, in general, is to detect such chronic inflammation. In some women of spare habits, the enlarged ovarium may be felt like a ball under the hand, when placed on the side of the abdomen. In these cases, repeated leeching, with attention given to avoid all the causes of inflammation, will prove successful. In a case which I saw some years ago in consultation, both ovaria were in an enlarged state, and were painful when pressed upon, but which were brought into a passive state by repeated leeching; and the morbid en-

largement of the organs has since then gradually subsided, and without any appearance of dropsy.

The advantages, however, of local bleeding, are not limited merely to these the incipient forms of the disease, but the same means will arrest the disease, even when it has advanced so far as to cause the effusion; and the water, contrary to the general opinion, may be re-absorbed. Several instances of such success have occurred in the course of my practice. One of these was in a married lady, about thirty years of age, whom I saw in consultation with my friend, Mr. Watson of Cottingham. In this case the fluctuation was quite distinct, and the body was enlarged to the extent of what it usually is at the fifth month of pregnancy. By the use of leeches several times applied to the abdomen, and of diuretic medicines, the abdominal enlargement was entirely removed, and the patient has since that time continued perfectly free

from her disease, and has become the mother of several children.

TREATMENT OF ANASARCA.

In treating anasarca, it is necessary to advert to the nature and causes of it. If it be idiopathic, and unconnected with any dropsy of a circumscribed cavity, and the pulse at the same time be soft, and the urine free from serum, it may be treated solely with the view of procuring the absorption of the effused fluid; as in such cases, the watery discharge in all probability will have removed in a considerable degree the excitement which caused it. In these cases, recoveries will take place under almost any plan of treatment; for it requires, to effect this object, only the ordinary action of the absorbent vessels to carry off the water. The bark and other tonics, therefore, with the many popular remedies for dropsy, which are so commonly given,

and their success so boasted of, in its treatment, are in truth, if useful at all, only so in a very limited degree, and that only in removing what must in strictness be considered the effects of the disease ; since the excitement which caused it had ceased upon its occurrence.

In all cases of this kind, puncturing the œdematous parts, by which the fluid escapes, or frictions employed upon them, with bandages equally applied, are of service in promoting the removal of the fluid, aided by the use of diuretics, and the other means which are useful for the same purpose in the other forms of dropsy.

To œdematous swellings, in which the serous local inflammation, whether symptomatic or idiopathic, still subsists, I am accustomed to direct the application of leeches and cold evaporating lotions, observing not to commence the use of the latter until twelve hours after the leeches have been used, that inflammation may not be produced in the wounds.

By many of my readers, to whom this practice will be novel, a fear might be entertained, (for such fears have been entertained and expressed to me, by many students who have seen me directing it,) that the punctures made by the leeches would terminate in troublesome sores. No such consequences, however, follow; although, from such effects succeeding the artificial puncturing of the lancet, the fears could not be deemed unreasonable. The truth is, the cases are not analogous; for the punctures made by a lancet are more deep than those made by leeches, and necessarily penetrate the cellular tissue, where, in many of the cases in which this practice is resorted to, there is present already a certain degree of inflammation, which the puncturing, slight as it is, is quite sufficient to increase.

And here it may be in place to remark, with respect to the use of puncturing and bandaging, that neither of these are admissible until the serous inflammation has

ceased. When used before this period, the puncturing frequently produces an inflammation of an erysipelatous kind, and which in the aged or debilitated, and particularly in those in whom the disease has long existed, may terminate in gangrene. When bandaging is prematurely employed, the injurious effects which arise from it, are that of causing the serous inflammation to extend beyond its previous limit, and of preventing those remedial effects of the effusion, which in the ordinary and idiopathic forms of the disease may be frequently found to result from it.

Where anasarca arises from a general excited state of the system, as denoted by the pulse, and by the serous quality of the urine, venæsection becomes necessary, combined with the use of leeches applied to the extremities, or to those parts of the body in which the serous tissues are most affected, along with the active use of the general means already alluded to. With respect, however, to this form of the dis-

ease, it may be well to caution the younger part of my readers against the error into which they may be apt to fall, of estimating the degree of its danger, and of the necessity for active treatment, by the single consideration of the extent of the œdematous swelling; and of treating it accordingly. For this disease, when idiopathic, and arising from cold, although highly formidable in appearance, from the very considerable degree of œdema, is, when properly treated, of little account, when compared with some of the other forms of the disease; and in many cases, the more considerable are the swellings, the more secure will be the important cavities from being implicated in the affection; since the effusion will be the more likely to have served as a remedy to its cause.

In the cases, therefore, where the disease is not seen early after its appearance, the treatment may be frequently limited to those means which promote the absorption of the water; and neither venæsection nor

leeching will be required. The state of the pulse, and of the urine, and the presence, or otherwise, of marks of vascular excitement, and the history given of the case up to the period when first visited, and particularly in relation to the progress of the swelling, must guide the practitioner in his decision concerning it.

About two years ago I was desired to see a young woman, a servant, labouring under general anasarca and ascites, who had taken cold from washing a stone floor upon her knees, and from getting wet whilst engaged at her work. Her disease had existed only five days when I first saw her, and yet her swellings had reached, at that time, their utmost size, and surpassed very greatly in extent any thing I had ever before witnessed. Every part, indeed, was so enormously swelled as quite to stiffen the joints, not excepting, if I remember rightly, the parts engaged in moving the jaw. The disease, however, as I have just observed, had reached its highest point, and the

inflammatory action had exhausted itself; I directed the treatment, therefore, exclusively to promoting the absorption of the effused fluid from the cellular tissue and the abdomen, in which, upon the lessening of the œdema about the body, I very plainly discovered a fluctuation. In the course of a few days the action of the kidneys commenced, and a copious flow of urine was produced and continued until every vestige of the former effusion was entirely removed, and the health of the patient re-established.

When the dropsy of the skin is considerable, and long protracted, and symptomatic of some visceral disease, as it most commonly is in these cases, and is attended by a serous state of the urine, and a general failure of the strength, the cachectical state of the system may be considered as established, and the treatment is then beset with difficulties. For the general means, which are useful in the earlier states of the disease, and when the vital strength is entire,

become injurious in this, by the tendency they have, aided by the effects of the visceral disease, to diminish farther the vigor of the system; whilst, at the same time, the treatment, which is suited to support the declining strength, can contribute nothing towards lessening the constitutional and local disease; but will frequently increase that morbidly excited state of the circulation, which, analogous to what occurs in diabetes, will continue and increase under the most decided marks of general constitutional weakness. Pending the continuance of that inflammatory state of the system, in which the urine is charged with serum, the debility will be mainly derived from that drain of its nutrient parts, which is thus established in the body, assisted by the weakening effects of the organic disease. If blood be drawn it will be found, in many of these cases, to exhibit the usual signs of inflammation; and the treatment of the tonic kind, when employed

to support the strength, will be often found to act unfavourably.

The plan to be pursued must consist in the use of such means as shall assist the powers of digestion and assimilation, so that, by a highly nourishing but plain diet, the drain from the system may be somewhat counteracted; and, at the same time, the cause of the effusion is to be corrected by the use of local depletion and blistering, and by the temperate employment of those general means which are useful in the less aggravated forms of the disease.

The diet of patients in the symptomatic forms of dropsy, should be plain and unirritating, and beyond this no precise rules can be laid down, from the necessarily varying character of the visceral diseases, which are as remote causes of the effusion. In the idiopathic states of the disease the antiphlogistic regimen, as it is termed, should be rigidly enforced, and particularly an abstinence from all fermented liquors, until the in-

flammatory part of the disease be removed. The clothing should be moderately warm, and selected of that kind which will best promote the insensible perspiration of the surface. Chamois or wash-leather drawers, and a waistcoat of the same material worn next the skin, will, in many cases, prove highly useful for this end, and may, as a preventive means, be likewise very properly resorted to in many of those cases, where there are grounds for apprehending its approach. The wash-leather dress here recommended in dropsy, is preferable to flannel or fleecy hosiery, on account of its occasioning less heat and more moisture upon the surface; and of its being less permeable to it than those, so as to allow of less evaporation, and thereby to diminish the risk of any chilliness occurring, by which the healthful action of the skin might be interrupted. For it is to be observed, that a cool atmosphere, provided it be dry, is greatly to be preferred for a dropsical

patient, and particularly for one labouring under anasarca, since, if he be kept secure from sudden changes of temperature, there is a positive advantage to be derived from it, as it aids very materially the effects of the diuretics, and tends to lessen the morbid action in the cellular tissue, as well as the thirst and other uneasy sensations resulting from it.

TREATMENT BY TAPPING.

In the observations which were made on the treatment of ascites and ovarian dropsy, we proceeded upon the presumption of its being practicable to remove the water by the natural passages. On many occasions, however, from the permanent nature of the remote cause, or the neglect of adequate or sufficiently early means for its removal, the necessity arises for tapping; and in all such cases the operation is to be regarded as a necessary

evil, and resorted to only as the means of avoiding a greater one.

The material points, therefore, for consideration will be, at what period, and under what circumstances of the disease, it should be employed. Now, the circumstances calling for this operation are, where, from the very considerable accumulation of the water, and the consequent distension it occasions, a permanent and morbid stimulus is given to the peritoneal membrane, by which the serous inflammation of it is perpetuated or increased; or where so much pain and irritation are produced, as to risk the inducing there a similar disease of the chest, and of bringing on likewise an ulcerative form of inflammation in the peritoneal lining of the abdomen; whilst the objections to its employment consist, in the danger which is incurred, where there is much visceral disease, of its causing a destructive form of inflammation in the peritoneum; and the probability of its occasioning,

under the most favourable condition of the disease, a more rapid renewal of the serous accumulation.

The errors concerning its use, into which, according to my observation, practitioners are prone to fall, are in having recourse to it much too early, and, therefore, much too frequently; and likewise often under a condition of visceral disease, which renders its success impossible. In cases of simple ascites, to take the most inconsiderable example of it, where the cause is of an incidental nature, and but little connected with hepatic disease, the operation will be attended with no danger, and may be successful, but can rarely, if ever, be required, where the proper treatment has been pursued; and should on no account be resorted to until after the amplest trial of all the various means for the removal of the water, and its causes; and not until, through the failure of those means, it has begun, by its pressure upward, to threaten a serious disturbance to the

breathing, and the other consequences just noticed: since in cases where tapping is too long delayed, the accumulated water, which is but an effect of a disease, may become itself a cause of one.

The inconvenience of the operation, if so mild a term be allowable, is, we may repeat, in occasioning a renewal, or an aggravation of the serous inflammation in the peritoneal lining; whilst the danger in all cases is in the nature and amount of the visceral disease producing the dropsy, and not in the dropsy itself; because, even a slight degree of disease, especially of the liver, will sometimes produce ascites, when in a severer form of the same disease there shall be a very inconsiderable quantity, or even no effusion of water, from the accidental circumstance of the peritoneal envelope of the organ being implicated in the disease in the one case, and not in the other. Many cases, therefore, of ascites, even when combined with anasarca, may be inconsiderable in point of

danger, when the dropsy, under its simplest form of œdema of the ankles, shall be irremediable; since it is, in this last case, the sequel of an essentially fatal disease of the liver, or of some other viscus.

To determine correctly, therefore, regarding the danger of the operation in respect to the inflammation that may ensue upon it, a reference must be had to the nature and extent of the hepatic or other disease, and not merely to the intensity or the extent of the serous inflammation, and its hydropic effusion, both of which are but secondary.

In illustration of the importance of referring to these distinctions, I may notice the case of a female patient of about thirty-five years of age, whom I admitted some years ago into the Hospital, labouring under an ascites and general anasarca to a degree that I never saw exceeded. The disease was of some months' standing, and all the usual means had failed with the practitioner whose care she had been

under, and who had been only deterred from tapping by the fear of its danger, as her disease was suspected to have originated from intemperance. There were, however, no decided symptoms of hepatic disease, nor any signs of effusion into the chest; and the disease, although formidable in its appearances, and in the disturbance it gave to the breathing, was not so in reality; and the water, therefore, as a measure of necessity, was drawn off by tapping. In three weeks the anasarcous water was absorbed, and there was no return of the ascites. She left the Hospital well; and I heard several years after that she had since that time continued altogether free from her disease.

Whenever, therefore, after a full and inefficient trial of the means for procuring the absorption of the water, a patient in ascites becomes in a certain degree unable to lie down in bed, recourse must be had to the operation; for the accumulated water in these cases is acting as a mechanical

irritant to the peritoneal membrane, and thus perpetuating its disease; since, besides the imminent risk incurred by the delay, of inducing an ulcerative inflammation in the peritoneum, there is the farther one of causing an effusion into the chest, from the irritation given by the injurious pressure of the water upon the organs there. Delay, under such circumstances, may be followed by a fatal event, as I have more than once witnessed. In one instance, which occurred a few years ago, the importance of the operation under the circumstances just noticed, became strongly illustrated. It was the case of a man of about fifty years of age, who, previously to my visiting him, had been labouring under an ascites, and almost general anasarca, during two months; and for the previous ten days had been unable to lie down in bed, from the impediment it occasioned to his breathing. Nevertheless, his pulse was regular and otherwise natural; his stools were of a healthy

appearance; and even his appetite and digestion were little impaired; but the urine was exceedingly scanty and high-coloured. Drastic purgatives made no active impression on his bowels, and diuretics were equally inefficient. Indeed, the abdominal distension was strongly acting in his case as a morbid stimulus to the serous membrane of the abdomen, and was thus perpetuating the serous effusion from it; and as, therefore, the difficulty of breathing, and general distress of the patient from this cause, were becoming exceedingly urgent, and as the visceral disease was evidently inconsiderable, and the risk of an effusion into the chest imminent, the operation of tapping was urgently recommended, as the only means that could be then afforded for his relief. The advice, however, was not followed; and another physician having been consulted, a fallacious hope was held out to the patient of the practicability of carrying off the water by the natural passages. The issue

of the case was such as was apprehended; for a few days afterwards, whilst the attendants were lifting him from his chair to the bed, he was suddenly suffocated.

When, from the causes already stated, the operation of tapping becomes necessary, it will be proper to premise its employment, by giving the day before a few grains of gamboge, or some other drastic purgative; for it is of considerable importance, to perform the operation under the presence of as low a degree of the serous inflammation in the peritoneum, as circumstances will admit of; although, in the cases where the operation is required, it is obvious that a measure of that morbid action must be present; as it will be only by its resisting the ordinary means for subduing it, that the operation itself is required. Six hours after the operation a few leeches should be applied to the abdomen, and a small blister on each side of it, and repeated as early again as the condition of the skin will allow. At the

same time, the several remedies in use previous to the tapping should be continued; and not merely those which were appropriated to the primary and secondary causes of the effusion, but also those which are employed for promoting its absorption; for they all severally contribute, as we have already had occasion to notice, to the removal of the inflammation in the serous tissue producing the effusion, and of such visceral or other disease, by which the former morbid excitement in the serous membrane was originally produced, and will be still perpetuated.

CHAP. IV.

CASES AND DISSECTIONS.

The following cases, with their dissections, of the several forms of dropsy, will illustrate the pathological principles which I have endeavoured to establish. They are not selected from my own case-book, but from the writings of gentlemen, whose practical acquaintance with pathological anatomy will render the accuracy of their observations unquestionable. To the evidence, therefore, of facts supplied by these writers, I would now request the attention of the reader; appealing to this evidence as the test by which the correctness of my conclusions may be tried and judged of.

The pathological principles regarding hydrocephalus internus, which I propose to confirm by these cases, are the following: 1st, That the serous effusion into the ventricles, or other parts of the brain, is dependent on an increased action in the vessels of its serous tissue. 2d, That the serous membranes and interstitial tissue of the brain, in common with similar structures in other parts of the body, are subject to different degrees of inflammation, the highest producing pus or lymph, and the lowest a serous effusion. 3d, That these several degrees of inflammation may exist singly in the brain, or in different parts consentaneously. 4th, That when the serous effusion occurs in combination with other products of increased vascular excitement, it is to be regarded as an incidental effect only of that state; when alone, and as the only product, it constitutes the true and uncombined dropsy of the brain.

The FIRST CASE is a well-defined example of the disease in its simple, unmixed form,

and seems to have originated from a derangement in the digestive organs. The disease would appear to have been of thirty days' duration; but the first half of that period was occupied with its turgescent stage. The inflammation was in its lowest form, and the only product of the disease, therefore, was the pellucid serous effusion.

The SECOND CASE is an example of an acute inflammation of the membranes of the brain, from a concussion produced by a fall. There are two or three points about it which merit attention. The first is, that though occurring in an infant, and from an accident, it resembles, in its symptoms and results, the same affection which occurs in an adult, when subjected to the same cause. The second is, that it differs in nothing from the acute inflammation of the brain, when occurring either in an infant or adult, from the common causes of inflammation. The third point is, that the proper product of acute inflammation is coagulable lymph; and as this acute form of the disease per-

vaded almost every part of the serous tissue, the effusion of lymph abounded in every part of the brain; whilst the quantity of the serous discharge did not exceed half an ounce, and that was turbid, from the admixture of lymph with it.

The THIRD CASE is one of acute inflammation of the brain, coming on suddenly from the common causes of inflammation, and terminating fatally in little more than twelve hours. The particulars deserving attention here are: first, The exact resemblance which the disease bears, in its symptoms, and in the mode and rapidity of its termination, to that which arises from a mechanical injury inflicted on the brain. Second, The suddenness of the effusion in this case, and which is here palpably derived from inflammation, evinces that the rapidity with which the effusion is made, is no evidence, as some have supposed, of the absence of an increased action as its cause.

The FOURTH CASE is a highly instructive example of the disease, when produced by

chylopoietic disturbance. The interesting facts it exhibits, are: first, That the cerebral affection was only one in a series of effects produced by that cause, there having been first a diarrhœa, which abated on the occurrence of a cough, this having been followed by an irritation in the mouth, and this, in its turn, by the cerebral disease. The second point of importance is, that the inflammatory action, which existed in the ventricles where the water was collected, was merely of the serous kind, and the fluid discharged, therefore, which was not turbid because unmixed with lymph, was the only product; whereas a higher degree of excitement was shown to have been present in other parts of the brain, by the lymph which was found effused among its convolutions.

The FIFTH CASE is nearly the converse of the preceding, in respect to the seat of the inflammation. The disease existed only six days, and affords an example of that widely diffused inflammatory action, which occasions an effusion into different parts at the

same time. It appears to have commenced in the membranes investing the brain, where it was most intense, and to have extended thence to the interstitial tissue, and to the lateral ventricles. In this case, the quantity in the ventricles, which are the usual seats of the disease, consisted only of half an ounce; whereas three ounces were effused on the surface, between the arachnoid membrane and pia mater, and an indeterminable quantity into the interstitial tissue of the organ, constituting an anasarca of it, as evidenced by the serous oozing which bedewed the knife of the operator.

The SIXTH CASE is an example in an infant of an acute inflammation of the brain, from which, through the intensity of the disease, the morbid products were coagulable lymph, that was discharged between the arachnoid coat and pia mater, and pus, which was collected in the ventricles. There was none of the common serous effusion, for the inflammation was somewhat too high to yield that product; but in place

of it, there was spread over the membranes of the brain a gelatinous discharge, like that which is sometimes met with in the vesicles produced by a highly stimulating blister, and in some cases of ascites and anasarca, and to which we have already alluded, as particularly illustrating the inflammatory nature of dropsy.

The SEVENTH CASE is a striking example of the same kind, and in this, the inflammatory action did not extend to the ventricles, but was limited to the investing membranes of the brain, and was, like the last, intermediate in its nature between that higher inflammation, which pours out lymph, and that lowest, which occasions an effusion of serum.

The EIGHTH CASE presents a striking example of a very considerable thickening of the *dura mater*, produced by a chronic inflammation, to which the serous membranes of the brain are subject in common with others of the body. The thickened state of this membrane arose from a deposition

of lymph into its interstitial tissue, and gave origin to a tumour of a considerable size, being five and a half inches long, two and a half broad, and half an inch deep, occasioning such a compression of the brain as to disturb, and at length destroy its functions. It is observable, that there was no appearance of disease in the brain beyond the neighbourhood of the tumour, for the chronic inflammation was confined to it; and there was, therefore, very little effusion into the brain; affording an answer to those who imagine that the serous effusion found in such cases, arises from a mere mechanical obstruction of the tumour to the course of the venous blood through the brain, and who thus overlook the important fact, that such tumours owe their *origin* and *continued growth* to inflammation; for as this condition is either present or easily renewed in them, any of the ordinary causes of increased action in this, as in all other cases of structural disease, are suffi-

cient either to restore or extend their inflammatory state.

The NINTH CASE illustrates strongly the same principle as the last one, and is an instance of a considerable tumour forming in the brain, and of an acute inflammation of the organ, uncombined with any serous effusion. The disease in this case was produced by a translation to the brain of the inflammatory action of the croup. The disease terminated fatally in little more than twenty-four hours, from the accidental circumstance of this structural disease being present in the organ, which at once predisposed it to take on that state, and accelerated the fatal issue of it. The circumstances meriting attention are, 1*st*, That the only product of the inflammation was coagulable lymph, and this in very small quantity, from the disease having so early terminated fatally, by supervening on another fatal disease. 2*d*, Although there was a tumour in the right ventricle, of a year and a half's growth, of the size of an

egg, and of two ounces weight, there was *no serous effusion* into any part of the organ, affording, like the last, the most irrefragable evidence, that where effusion occurs as an effect of such disease, it is not from its acting mechanically, by compressing some important vessel, but by an inflammation, being either set up afresh in the disease, or by that which is proper and present in it extending to other parts.

To these examples of the varying nature of the seat and products of inflammation in the serous membranes of the brain, might be added instances, were it necessary, in which suppuration occurred within its substance, and which are met with, both separately and combined with the serous effusion, according as the serous inflammation is excited or not, in one portion of the brain, consentaneously with a higher excitement in another.

The next series of cases (Section ii.) are selected with the view to illustrate the nature of hydrothorax, ascites, and anasarca.

The material points to be shewn are, 1*st*, that the serous effusion into the larger cavities occurs, as we have seen it do into the brain, from an inflammatory action in the serous tissue. 2*d*, That this increased action in the serous tissue may exist in combination with, and as an effect of, a higher form of inflammation, seated in another part of the same membrane, or independently of it; and as, in the first case, the serous effusion will be an incidental effect, in the last it will be the proper one. 3*d*, That where the serous inflammation occurs as the result of a visceral disease, it is to be considered as an effect of a chronic inflammation existing in the diseased viscus, and continuously propagated to its investing membrane. 4*th*, That this inflammatory action set up in the envelope of a diseased organ, and which is at first of the serous kind, partakes, after some time, of the nature of that from which it originates, and coagulable lymph is poured out into its interstitial substance, and upon its surface, by

which it becomes thickened, and deranged in its structure and office. *5th*, That the higher chronic inflammatory action thus established in the envelope of a diseased organ, becomes a cause, in its turn, of the serous inflammation proceeding gradually along the membranes of the same cavity, until at length the higher inflammation of the membrane covering the diseased viscus, is continuously propagated to them; so that they also have lymph discharged into their substance, and a derangement, in like manner, produced in their structure and office. *6th*, That in some cases the primary disease is formed in a serous membrane, independently of any visceral disease, and which consists in that degree of chronic inflammation by which lymph is discharged into it, the morbid action being kept up in the part, and propagated to a distant one of that cavity, in the same order, and with the same results, as when primarily arising from the structural disease of an organ. *7th*, That the inflammatory action in the cellu-

lar tissue leading to a serous effusion, and thus producing anasarca, may be the effect of a local cause, or of a general one; this last being sometimes brought on by some distant local disease, attended by a serous state of the urine, and constituting what, in this latter case, is termed the hydropic diathesis.

The FIRST CASE is an example of dropsy in the chest and abdomen, under the forms in which they are ordinarily met with. There appears to have been a sub-acute inflammation in the serous membranes of the chest, as denoted by the adhesions found between the pleura costalis and pulmonalis, and which appears, through the intemperance of the patient, to have degenerated into, or been followed afterwards by, the lower degree of serous inflammation. There were six pints of fluid in the abdomen. The liver was in a hardened state, and, therefore, had evidently been subjected to an inflammatory action, for its structural disease could proceed from no other cause.

This morbid action in the liver had extended to the peritoneal covering of it, and hence arose the effusion; for there was no disease in any other part of the abdomen; and as the investing membrane of the liver consisted only of that first degree of inflammatory action, no thickening or discolouration had as yet commenced in it.

The SECOND CASE illustrates well the nature of the products of inflammation, according to its degrees of intensity. In the chest of this patient there was an accumulation of fluid, with signs of considerable local excitement. In the abdomen there were very extensive adhesions of recent formation between the intestines and peritoneum, denoting the existence of a higher inflammatory action than is compatible with the serous effusion, and the discharge, therefore, into this cavity, instead of consisting of the serous fluid, which under a lower excitement would have occurred, was purely of lymph, that is stated to have amounted to a pound.

The THIRD CASE is a good example of hydrothorax, combined with anasarca, and attended with a serous state of the urine.

The circumstances deserving attention in this case are, 1*st*, The exact resemblance which is shewn to subsist between the sub-acute inflammatory states of the serous membrane of the chest, combined with the lower degree of it in another part of the same membrane, and the corresponding conditions of those of the brain, under these two forms of local excitement. 2*d*, The two cavities of the chest are here differently affected; for analogous to what we have seen to happen in different parts of the brain, the membranes of the right cavity become, in the progress of the disease, universally covered with coagulable lymph; whereas the effusion of lymph on the left side is limited to the *pleura costalis;* the heart and lung being both sound. 3*d*, The lung of the right cavity is rendered dense, and is reduced in size to a few square inches, from the compression produced by the water,

which was in much greater quantity in this cavity than in the left one. By some writers, this reduced and dense condition of the lung has been erroneously considered as the cause of the effusion, and as acting mechanically in obstructing the circulation of the blood through it. It is, however, an *effect* only of the compression of the fluid; and so great in some instances is this compression, as to cause, as we have already had occasion to notice, the entire destruction and absorption of the organ. In the case alluded to, the water occupied the entire cavity, and there was nothing left of the lung, but a portion of its membrane, and where, therefore, any mechanical cause that it before could have supplied, must of course have ceased; and yet the effusion continued. 4*th*, The fourth point in the case under consideration is, that the discharge of the fluid from the legs procured by puncturing them, reduced the quantity of the serum in the urine; by which it is shewn, that there was less taken up during that

time by the absorbents, and less, therefore, conveyed of it by the kidneys from the system.

The FOURTH CASE, like the last one, affords a striking example of the nature of the changes produced in the serous membrane of the chest, by a subacute inflammation of them, and the relation this higher action bears, as a cause, to the serous inflammation which is combined with it. In this highly interesting case the general action, affecting the cellular tissue of the body, acquired a degree of intensity, corresponding to that which prevailed in the internal membranes; and the effusion into it, instead of possessing the usual serous qualities, was of a sero-gelatinous nature, similar to what we have already alluded to as occasionally found within the brain, as well as in the other cavities. The highly inflammatory state of the system in this case, presents a strongly marked example of what constitutes the hydropic diathesis, which was

rendered thus intense, perhaps, by the patient's great and repeated misuse of mercurial medicines. In its nature, and in its exhausting effects upon the body, it bears a strong resemblance to the morbid excitement of diabetes, and may be regarded as a link connecting the higher or lymphatic, with the lower or serous, form of inflammation, and as shewing the relation they bear to each other, through this their common state. Under this increased vascular action of the system, nearly all the several serous tissues of the body became affected. The urine was highly loaded with serum, and it is deserving of observation, that notwithstanding the inflammatory character of the disease, as shewn in the nature of the effusion into the cellular tissue, and by the temporary relief afforded by copious bleeding; the patient was greatly distressed by an habitual feeling of coldness, a fact which is strongly illustrative of the principle already adverted to, that the coldness of the sur-

face of an edematous limb affords no evidence, as some have supposed, that the action seated within the part and producing the swelling, is not of an inflammatory kind.

Section I.

CASES AND DISSECTIONS OF HYDROCEPHALUS INTERNUS, OR DROPSY IN THE BRAIN.

Case 1.

A boy, aged nine, was affected with slight headache, foul tongue, bad appetite, and disturbed sleep. Pulse from ninety-six to a hundred. He was not at first confined to bed, and the complaint excited little attention. The first week of his illness was passed with these slight symptoms; he was one day better, and another rather worse; his headache sometimes gone for great part of a day, and never severe. Towards the end of the second week, there ap-

peared to be a want of correspondence in the symptoms, the head-ache being greater and more permanent than accorded with the degree of fever; but even on the 13th and 14th days, the complaint had still much the appearance of mild continued fever, and was considered in that light by a practitioner of the first eminence. During the second week, however, the head-ache had become more severe, while the other febrile symptoms had been diminishing. On the fifteenth day the pulse sunk rather suddenly to seventy, and the headache was increased. On the sixteenth day there was a slight convulsion. On the seventeenth there was coma, with some squinting; the pulse below the natural standard. On the eighteenth the pulse began to rise, and the coma was diminished. On the nineteenth and twentieth he was distinct and intelligent; tongue clean; some appetite; pulse 96. On the following day his appearance was less favourable. He then sunk gradually into

coma, with squinting, and died about the thirtieth day of the disease. The pulse had risen to one hundred and twenty, and in the last week there had been some slight return of convulsion.

Dissection.—All the ventricles of the brain were found distended with clear serous fluid. There was no other morbid appearance, except considerable turgidity of vessels on the surface of the brain. *

Case 2.

Charles D——r †, a boy eight months old, at the breast, plump and healthy, was let fall, by a young thoughtless maid, down the stairs of the first floor, and she herself

* Observations on Chronic Inflammation of the Brain and its Membranes, by John Abercrombie, M. D. Edinburgh Medical and Surgical Journal, vol. xiv. p. 276.

† Treatise on the Hydrocephalus Acutus, or Inflammatory Water in the Brain, by L. A. Golis. Translated from the German, by Dr. Gooch, p. 192.

fell on the child; both were found lying senseless on the ground; the maid soon recovered, but not so the child. The physician was called to the spot, who ordered immediately warm cataplasms of aromatic herbs with wine, and called a *consilium medico-chirurgicum;* at the same, the wish was expressed that cold applications had been used instead of warm. An extravasation of blood was suspected, and trepanning proposed, but as the parents vehemently protested against it, and as, besides, the seat of the extravasation could not be determined, it was not performed, and the little patient died in eight-and-forty hours after suffering the concussion, on which a vehement fever, accompanied with convulsions, spinal cramp, and hemiplegia rapidly followed one another.

Dissection.—Marks of a previous bruise on the outside of the head were to be seen, and after taking off the skull-cap, we found the blood-vessels of the membranes, and of the brain itself enlarged, turgid with

blood, and in the sinuses, particularly in the longitudinal, the serum, lymph, and the red part of the blood distinct from one another, and the two latter swimming in the first. The coagulable lymph resembled an earth-worm; the plexus choroides was pale, and on it sat many little balls of coagulable lymph; the colour of the medullary substance was reddish; the consistence of the brain soft, as it always is when concussion is the cause of the disease; of the supposed extravasation of blood I found nothing. In the ventricles of the brain I met with scarcely a table-spoonful of turbid serum, but there was a considerable effusion of plastic lymph, which lined the outer surface of the brain, the corpus callosum, and the cavities of the cerebrum and the cerebellum. Lastly, the inner pericranium of the right parietal bone and of the squamous part of the temporal, where externally the bruise had been, was greatly inflamed.*

* Treatise on the Hydrocephalus Acutus, or Water

Case 3.

A. D., fourteen months old, vaccinated, plump, and strong, one morning about five o'clock, after a restless night, was seized with violent fever and general convulsions. These tumultûous symptoms urged the father of this motherless infant to seek immediate assistance for his child, and in less than half an hour after the accession of this high degree of phrenitis, four leeches were applied behind the ears, which drew more than three ounces of blood; calomel, emollient medicines to drink internally, and mustard cataplasms on the feet, soon diminished all the symptoms of the disease. This improvement however was of short duration, the fever soon increased, the convulsions soon returned, deafness and spinal cramp came

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in the Brain, by L. A. Golis. Translated by Dr. Gooch, p. 192.

on; hemiplegia, with spasmodic contraction of the pupil, blindness and distortion of the face followed rapidly on one another, and thirteen hours after the accession of the disease, and the employment of proper internal and external remedies, the child died.

Dissection. The cranium, when its coverings, in which the vessels looked forcibly injected, were raised, was of a bluish colour, the sutures were separated, the sinuses contained much coagulated blood, with separate plastic lymph, both of which were surrounded by a pretty considerable quantity of serum; all the blood-vessels of the brain and its membranes were enlarged and turgid with blood.

On the convolutions, on the corpus callosum, and in the ventricles of the brain, was found, like a preternatural membrane, which lined the walls of these cavities, a great quantity of coagulable lymph, as also at the basis of the cranium; the pale plexus choroides was covered by the same, and

in the ventricles of the brain, the septum of which was broken through, three ounces of turbid serum were found; the lungs were filled with blood, and the belly somewhat tumid, as the patient, after a considerable quantity of drink and medicines, had passed no stool, and very little urine.*

Case 4.

Augusta F. nine months old, delicate and irritable, had been vaccinated when she was two-and-forty days old. It is remarkable that this child was brought forth by her feeble mother in the middle of the eighth month of pregnancy, during violent symptoms of a nervous inflammation of the lungs, with delirium, and was reared by the milk of a healthy nurse. At her birth an unfavourable prognosis was given about her life and health, yet she grew very much in size and strength. In the fifth month she

* Idem, page 194.

began sometimes to complain of pain in the belly, and soon afterwards cut her first incisor. At the beginning of the eighth month of her existence she suffered a few days from diarrhœa, which abated with the increase of a cough, which soon manifested all the signs of hooping-cough, and daily became more violent; to this, dentition was added, fever occurred, and six hours after the appearance of the latter there broke out general convulsions and spinal cramp; palsy of the right side followed, while the left arm and the left leg were outstretched. After twelve hours the patient died; the suitable remedies having in vain been employed under the symptoms of the water-stroke.

Dissection.—The blood-vessels of the membranes and of the brain were more turgid than is common in the water-stroke, and the serous extravasation, amounting to two ounces, was less turbid than usual; yet we found no membrane of plastic lymph, which in the acute hydrocephalus

lines the ventricles of the brain; but it was seen effused in the wrinkles of the convolutions.*

Case 5.

J. P.'s child, eight months old, with blue eyes; a fair and thriving child. On the 10th *April*, this boy, in the forenoon, was quite well, cheerful, and happy. In the afternoon, he was fretful. All night he was extremely fretful. On the 11th, he was dull, oppressed, fretful, and feverish. In the afternoon, he started and screamed wildly, rather than in pain. His bowels were disordered; and, upon taking a cathartic medicine, he passed some green, fœtid, and ill-concocted stools. On the evening of the 12th, he was lively and cool. In the afternoon, the fever, fretfulness, and starting, returned. He had a very restless night. 13th.—I first saw him. His com-

* Idem, page 200.

plexion is pale; brow contracted; he is extremely warm; his pulse 180; tongue rather loaded. He starts and sighs often; his legs are in constant motion, not violent; his hands are frequently drawn in and extended, and his fingers are spasmodically moved; at times his eyes are much affected, fixed, with enlarged pupils; he is said to have had a convulsion fit shortly before I called. Before I left him the effects of it seemed to have disappeared. He was again quick and observing. 14th. This child passed a very disturbed night. His left hand is in constant motion; it is hard to say whether it is spasmodic or voluntary; it is the regular motion which we observe in hydrocephalus. He has slight spasms about the mouth and eyes. His brow is contracted; pupil rather dilated, not readily contracting. His respiration is quickened (70); pulse about 160. He has great febrile heat. His tongue is cleaner; complexion pale; bowels loose; his stools are of a bright yellow colour, as if containing

much bile, with green streaks, and a very sour smell. 15th.—In the course of last night he had three severe epileptic fits. He often sighed. He is much worse this morning; his pulse is about 200. His eyes are spasmodically affected; the pupil much contracted. There is subsultus; moaning. He is pale. His belly loose. 16th.—As the day advanced, yesterday, the convulsions became less violent. The nervous twitchings remaining. He died at three o'clock this morning.

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

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

tunica arachnoidea and pia mater; it was in far greater quantity on the upper part of the brain than elsewhere, and seemed pretty equally distributed on each hemisphere. It might be compared to a large flat vesication, the margin of which arose from the horizontal line which divides the upper and middle third of the circumference of the brain. Although beyond this part, the appearance of vesication did not extend, yet the veins on the pia mater, all around the external part of the brain, were nearly coated with what appeared to be coagulable lymph, (at some places flakes of it lay distinct;) from this the pia mater appeared as if converted into a thick membrane, in fact it was thickened, as appeared on examining that part of it where the exudation on the surface did not exist; and here we found little red vesicles and streaks of blood, such as appear on an inflamed membrane. The sinuses in the dura, and the veins in the pia mater, were filled with blood. The substance of the brain was very soft; on cut-

ting it, fluid exuded, so as to bedew the new surface. There was but little fluid in the ventricles, not exceeding half an ounce. The plexus choroides was nearly colourless, as if bleached. The substance of the fornix, as well as the other parts of the brain, was very soft. There was little or no fluid in the third or fourth ventricle. The quantity of fluid collected exceeded three ounces and a half, of which three ounces were collected from the surface of the brain.*

Case 6.

A child, aged five months, previously in perfect health, was seized with convulsion on the evening of 21st November 1817. The attack, which was not of long duration, was ascribed to dentition; the gums were divided over several teeth that appeared to be producing irritation, and the other remedies were recommended that are usual in

* Essay on Hydrocephalus Acutus, by John Cheyne, M.D., page 215.

such affections. He continued well through the night. On the 22d, was oppressed with quick breathing, and in the afternoon, without any return of convulsion, he fell into a comatose state. This continued several hours, and then subsided, after bleeding with leeches on the temples, brisk purging, and the use of cold applications to the head. On the 23d he was much relieved; eye clear; took notice of objects, and was disposed to play: had no complaint, but occasional starting. On the 24th continued through the day in the same favourable state. Late at night he was seized with convulsion, which continued to recur at short intervals through the whole night, and he died early in the morning.

Dissection.—On the surface of the brain, between the pia mater and the arachnoid membrane, there was an extensive layer of a firm adventitious membrane, of a yellow colour, similar to that which has been described in the two preceding cases. It covered a great part of the upper surface

of the brain, and there was a considerable quantity of it on the inferior surface of the anterior lobes, between the hemispheres, and on the cerebellum. In the lateral ventricles, there was nearly an ounce of purulent matter, and the substance of the brain surrounding the ventricles was very soft. There was no serous effusion. There was much gelatinous effusion about the optic nerves, under the base of the brain, and under the cerebellum. Under the medulla oblongata there was gelatinous effusion, mixed with some purulent matter.*

Case 7.

A boy, aged eleven, had been for about a fortnight remarkably listless and inactive, and affected with frequent vomiting. The vomiting had occurred every day, some-

* Observations on Chronic Inflammation of the Brain and its Membranes, by John Abercrombie, M. D. Edinburgh Medical and Surgical Journal, vol. xiv. p. 286.

times several times in the day; his bowels were costive, but he complained of no pain, and was free from fever. In the evening of 29th June 1816, he was seized with violent convulsion, which recurred repeatedly. In the intervals he had severe vomiting, and complained of headach. Pulse 60. The convulsion recurred frequently through the following night; in the intervals, he complained that he could not see. Towards the morning, the convulsion ceased, and left him in profound coma. The coma continued till mid-day on the 30th, when it began to abate, after he had been freely purged. In the evening he was quite sensible, and complained of headache. Pulse 120. July 1st. — The ordinary round of practice having been adopted, he was much relieved; no headach; no vomiting; tongue moist. Pulse 120. 2d. — Pulse 108. No complaint; much disposed to sleep; pupils rather dilated. 3d. — Pulse 112. No complaint; appearance much improved; eye natural; bowels open;

tongue clean; no unusual drowsiness. 4th.—Pulse 108. Functions natural; a good deal disposed to sleep. 5th.—Pulse 70; had an attack of vomiting, and complained violently of his head; afterwards sunk into a degree of stupor; was sensible when roused, but impatient of being disturbed; complained much of his head; eyes natural; repeated vomiting. 6th.—Perfect coma, with frequent convulsion; pulse from 120 to 160; he frequently lay with one hand pressing his forehead, and the other on the lower part of the occiput, as if he felt pain at both these places. 7th.—In profound coma the whole day. Died in the night.

Dissection.—On raising the dura mater, the surface of the brain had in many places the appearance as if purulent matter was confined under the arachnoid coat. On raising this membrane, however, the appearance was found not to be owing to pus, but to a layer of firm yellow substance, which lay betwixt the arachnoid coat and the pia

mater. It was in general of the thickness of a smooth shilling; some portions of it were thicker, and in some places masses of it of considerable thickness lay betwixt the convolutions. There was also a good deal of it between the hemispheres, which were partially glued together by it. The principal seats of this appearance were the anterior part of both hemispheres, the inferior surface of the brain, especially in the depressions between the lobes, and nearly the whole surface of the cerebellum. On the posterior parts of the brain, where this membrane was wanting, the pia mater was evidently inflamed. The surface of the brain, at these plaecs, had also an inflamed appearance; but it did not penetrate into its substance. The central parts were healthy; there was no effusion in the ventricles; some fluid was found in the base of the cranium, after the brain was removed.*

* Idem, page 284.

Case 8.

A. K. Gr. von Sch., four years old, healthy and lively, fell, eighteen months back, from a height of three feet, with the head on a hard board, wounded himself in the nape of the neck, with a broken piece of a china pot, which, in his fall, he threw upon the ground, and lost from the wound a considerable quantity of blood; he soon recovered, but his good temper and docility changed to a stubbornness, bordering on viciousness. The lids of the right eye were always swollen; the eye itself appeared to be deeper in the head, and smaller than the left; his gait was without steadiness, stumbling; appetite, digestion, and the whole remaining habit of the little patient underwent no change. This first-born of a noble family was, in the winter months, attacked with the croup, for which, at the proper time, the most suitable remedies were applied, by two amiable and estimable physicians. After twelve hours from the begin-

ning of this disease, the symptoms of the croup suddenly vanished; turgescence of the head appeared, and soon after, the symptoms of inflammation of the brain; and the patient died the next day, under the symptoms of the water-stroke.

Dissection.—This discovered the traces of violent turgescence and inflammation in the contents of the cranium. Lymph was found in considerable quantity at the basis of the cranium, but little on the corpus callosum, in the ventricles, and in other parts; but no water in the cavities of the brain. Instead of this, in the right ventricle, were extravasated blood, and an unorganized oviform growth, of the size of a pigeon's egg, which weighed two ounces, and appeared to be indurated lymph covered over with blood; the latter had probably its origin from the fall, and was the cause of his change of character, and the former produced the symptoms of the water-stroke.*

* Treatise on Hydrocephalus Internus, by A. L. Golis, page 249.

Case 9.

Mr. M., aged about sixty, for about two years before his death had been liable to attacks of giddiness, with loss of muscular power, in which, if not prevented, he would have fallen down. In these attacks he did not lose his recollection, and he recovered completely in a few minutes. Before the commencement of this complaint, he had been liable to severe headach, with some giddiness, the attacks of which generally went off with spontaneous vomiting. He was entire in his mind, but considerably fallen off in flesh and strength; he felt an unsteadiness in walking, which made him afraid of walking alone; and for several months before his death, had perceived an increasing weakness in both lower extremities. On the 1st of August, 1816, he was attacked with hemiplegia of the left side, accompanied by headache and giddiness. His pulse was natural, and his mind

was not affected. For four days he continued to be affected with the most complete hemiplegia; he then began to recover a little motion of the parts; and about the 15th was able to raise his arm to his head, and to walk a little with assistance; he still complained of giddiness and noise in his ears, but had little headache; bleeding and purgatives had been employed, with spare diet. On the 19th there was considerable headache. On the 20th he was incoherent; and on the 21st in perfect coma, with some convulsion. On the 22d he was considerably recovered, so as to know those about him, and answer questions rationally; but at night relapsed into coma, and died on the 23d. For the last three days his pulse had been from 112 to 120.

Dissection.—Along the upper part of the right hemisphere of the brain there lay a remarkable tumour, five and a half inches long, two and a half broad, at the broadest part, and about half an inch in thickness. It was formed by a separation of the lamina

of the dura mater, and a deposition of new matter betwixt them. This new matter was, at the posterior part, white and firm. In other places, chiefly about the centre of the tumour, it was more recent coagulable lymph, firm, yellow, and semi-transparent; at the anterior part there was a cavity, containing a yellowish serous fluid. This tumour lay from before backwards, along the right hemisphere; its inner edge was about an inch from the superior longitudinal sinus. The dura mater, in the neighbourhood of the tumour all around, was considerably thickened, as were also the coats of the longitudinal sinus. The surface of the brain, where the tumour lay, was depressed by it, so as to retain the impression of its figure; and on the anterior part, the substance of the brain was, to a considerable depth, soft, and broken down, with some appearance of suppuration. There was very little serous effusion, and no disease in any other part of the brain.*

* Abercrombie; Edinburgh Medical Journal, p. 204.

Section II.

CASES AND DISSECTIONS OF HYDROTHORAX, ASCITES, AND ANASARCA.

Case 1.

February 11th, 1774.—"Francis Hardy, aged 60, a smith, and used to drinking, has been affected for six years with a cough, difficult breathing, pain of his breast, sense of weight between his shoulders, and increase of his complaints when he lies on his back, or left side. Some time ago his legs and body began to swell; a sensible fluctuation in the abdomen; paucity of the urine; belly bound; pulse 100; from a sense of suffocation, when going to sleep, he starts up in an erect posture; 17th died.

Dissection.—Three pounds of fluid in the thorax, mostly in the right side, with some slight adhesions of the lungs with the pleura. Right lobe sound; but on cutting

the left a good deal of pus issued out. The pericardium was much fuller of fluid than it ought to be: in the cavity of the abdomen six pounds of fluid were found; liver harder than usual." *

Case 2.

March 4th.—John Farquhar, aged 60, about the beginning of January last, felt a pain in the region of the liver, especially on being pressed. His belly began to swell about the middle of the month. In the beginning of February his legs became œdematous; can scarcely lie horizontally in the bed, and starts for fear of suffocation, when going to sleep; has not been able to lie on his left side for two months, as it occasions the pain and difficulty of breathing; feels neither weight, oppression, nor fluctuation in his breast; dry cough; belly bound; urine of a deep colour, and diminished in quantity; pulse 110, and not

* Home's Clinical Experiments.

irregular; has had nausea and vomiting for these four days. 8th, died this day, when raised up in bed, and speaking as usual!

Dissection.—In the abdomen was found one pound of lymph; and the intestines adhered in some places to the peritoneum; the liver was considerably larger than natural, but not schirrous; about one pound and a half of fluid was found in the right cavity of the thorax; the under part of the right lobe of the lungs, and the diaphragm, and pleura contiguous to it, were inflamed; part of the pulmonary artery was ossified.*

Case 3.

M. B. aged 40; her legs were very slightly swelled; but the state of the urine, independent of other circumstances, would have instantly convinced me that these swellings were truly dropsical. It coagu-

* Home's Clinical Experiments.

lated by heat much below the boiling; her other symptoms were great debility and languor, with a sallow complexion, purple lips, abdomen greatly distended and tympanitic; pulse 120, weak, regular; inability of lying on either side; some orthopnœa, great dyspnœa, and harsh ineffectual cough, with much pain. She had been brought to bed about ten weeks before. During her pregnancy, she had suffered greatly from cough and pain of the right side; these increased much soon after her confinement, which she attributed partly to the cold lotions used at that period, for the purpose of stopping a severe uterine hæmorrhage.

She was in so weak a state, that evacuations by purging could not be attempted. The foxglove affected her violently in the smallest doses; and the preparations of squills seemed to increase her cough and difficulty of breathing. As she became oppressed with water, I thought it advisable to scarify the legs, which certainly was not

done without temporary advantage; and whilst the discharge from them continued, the urine was more natural. She died soon after.

Dissection.—On examining the body, we found that the tympany observed during life was confined almost entirely to the stomach, which was excessively distended. There was some whey-coloured fluid in the abdomen; the liver rather large, firm and pale, but not otherwise diseased; the kidneys remarkably small and sound, if we except two or three hydatids of the size of a garden pea in the cortical part.

The right side of the thorax completely overloaded with turbid water; the lung compressed to the size of a man's fist, and a very small deposition of pus, about half a tea-spoonful, under the pleura pulmonalis, similar to that described in a former page; the pleura costalis universally much inflamed, and covered with so thick a layer of lymph as quite to obliterate its surface; on the left side the lung sound, and its

membrane free from any great mark of inflammation, whilst the pleura costalis on that side likewise was coated with lymph, and there was a great deal of serum in the cavity; pericardium containing rather an unusual quantity of fluid; heart natural.*

Case 4.

Robert Mock,† aged 50, a sailor, was admitted into the Hospital, 1809, partly on account of a severe sloughing ulcer of the left leg, the tibia of which was enlarged. His constitutional symptoms likewise were very formidable; a general sallowness, great dejection of spirits, and loss of muscular strength; a slight but tense œdema of the lower extremities; a very chorded pulse; a moist, clean tongue, thirst, total loss of appetite, and frequent vomiting, particularly of aperient medicines. He had neither cough nor orthopnœa; the urinary

* Blackall on Dropsy, page 160. 1st edition.

† Idem.

discharge amounted to about three quarts in twenty-four hours, the principal part being made in the night; it was very pale and clear, deposited no sediment, retained for many days its quality of reddening infusion of litmus, and continued long free from any apparent putrefaction; it became opaque at 160° of heat, and soon deposited large and firm flakes; from four ounces of clear urine, placed in a phial before the fire for a few minutes, were obtained forty grains of a solid coagulum, which was in the proportion of two ounces to the quantity of urine discharged daily; it lost by a very moderate desiccation only one fourth part of its weight.

He was very uniform in his statement, that the ulcer had originated, more than twenty years before, in the sting of an insect in North America: for its cure he had been admitted into many hospitals in this country without effect; and had undergone several salivations, partly for syphilitic complaints, of which he had

been the repeated victim; one very long course of mercury he had suffered about twelve months before, and during it some degree of anasarca had come on, which for many months affected only the sound leg, afterwards both; lately he had been taking Peruvian bark, with an aggravation of his symptoms.

The ulcer was soon reduced to nearly a healing state, by the use of the fermenting cataplasm; but with no relief to his constitution. The œdema in a few days partly quitted the limbs before affected, and spread to the covering of the abdomen, and thorax, and to the arms; or it was rather a pale tense tumour, hardly retaining the impression of the finger, and in some slight degree rose to the touch. Aperient medicines were rendered inadmissible, by an extreme irritability of the stomach, and a most painful prolapsus. Of the tincture of foxglove, not more than two or three drops could be borne without vomiting. Blood drawn to the amount of sixteen

ounces was very much inflamed, and cupped, and not watery; the serum of a whey colour. He bore the operation well, and the pulse was somewhat reduced. For a day or two after the urine gave very little precipitate by heat, but it gradually resumed its former character. From the cold weather of January he suffered extremely, not being able to obtain the least sensation of warmth. A dry cough likewise took place, with some stricture upon the chest, and excruciating pain, darting from the sternum to the back, quite through the region of the heart. A tendency to deliquium was likewise observed on raising himself in the bed; but he could lie down horizontally. The pulse was about eighty, strong and hard, but by no means interrupted. It was impossible not to conclude that the membranes surrounding the heart were inflamed. Besides the use of blisters, a large venæsection was instantly directed, and he lost nearly thirty ounces of blood before there was the least reduction of the hardness of

the pulse. At the end of that operation it became nearly natural, and the pain wholly subsided. The blood, though only trickling from the orifice, on account of the difficulty which the œdema of the arm presented, was in the highest degree inflamed and cupped. The relief, however, was only temporary; and his bodily weakness, as well as the anasarca, certainly increased. Several returns of pain and stricture, though less in degree, rendered bleeding again necessary. He lost in about a month somewhat more than a hundred ounces of blood, always in a very inflamed state, and always with present relief, although not in so direct a diminution of the quantity of serum in the urine. The recurrence of his bad symptoms, and a greater softness of the œdema, said to indicate digitalis, induced me again to have recourse to it. He now bore it in doses of twenty drops every eight hours; but it had no beneficial effect upon him, notwithstanding that it produced a great retardation of the pulse, and the feelings

peculiar to its poisonous action. Some diarrhœa ensued, which remained with him to his death. His urine became gradually less serous and more putrescent. He grew feebler, at last tympanitic, and had sloughs on his hips and sacrum. In this way he terminated a most miserable existence.

Dissection.—On opening the body, we found, on the right side of the thorax, twelve ounces of serum, in which were some floating membranes; the pleura in several parts inflamed, and covered with exudations of lymph; the left side nearly in the same state; the fluid about ten ounces; the lungs sound, but rather overloaded with blood in the posterior part, and at their roots; the pericardium, both the investing membrane and its duplicature, thickened and inflamed, and in many places quite woolly, with flakes of lymph adhering to it, particularly about the origin of the great artery; in the cavity three ounces of a turbid whitish fluid; the heart very large, pale and firm, and three or four ossified spots in the inner mem-

brane of the aorta! In the abdomen, the stomach was greatly distended with air; the omentum rather thickened; the peritoneal coverings of the spleen and liver dull and slightly inflamed, particularly that of the former, which was likewise connected by adhesions to the surrounding parts; the latter of these glands rather firmer than ordinary; the kidneys likewise unusually firm; in the left, one very small hydatid, in the right two; more than an ounce of fluid in each lateral ventricle of the brain.

The cellular membrane of the trunk and extremities was every where loaded with a coagulated semi-transparent effusion, which gave an unusual resistance to the knife. This was particularly the case in the parieties of the abdomen, and in the loins, and certainly explained the tension and soreness to the touch, not common in anasarca. The fluid whichdrained off from the incisions was very glutinous, and on exposure to air for some time formed into an apparently gelatinous substance; which

on being heated separated into a solid lymph and thin fluid. The serum of the pericardium coagulated strongly by heat; that from the thorax and abdomen in a less degree, and the water of the ventricles of the brain was the most diluted, though still coagulating to an unusual extent.

THE END.

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