On the Connexion
between some diseases
of the Liver and of the Intestines.

by

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S I

1. The existence of a Connexion of some sort or other between many diseases of the Liver and of the Intestines, has been acknowledged for a very long time. The authors who have written on the affections of these organs are numerous; and of course it was to be expected that a difference of opinion should exist among them with regard to such a connexion. But this difference only relates to its kind, or merely perhaps to its frequency of recurrence; in existence they all hold as of life recognised; and at this Conclusion they had arrived from their own experience of those diseases, and from the observation of facts which are too plain and forcible to be denied. As far as I am aware, however, none went deep into the matter, and endeavoured to bring
out fully the feature; and especially among
the earliest authors, it was mentioned merely
incidentally, and was far from being clearly
apprehended. Now modern writers have given
time explanations, but only of the Connection
between few diseases, and principally between
Scanty and Aches of the Sides when such
disease. And it is not perhaps too bold to say
that, amongst these few, several have not
offered any thing like a satisfactory
solution to the less yet somewhat obscure
problem; whilst others, though certainly
Accounting for some features in these maladies,
have still done so in all but a generalizing
way. Indeed, their theories truly safely be
considered as explaining very well some particular
cases, whilst they cannot be applied to the
greater number. We shall not at present
refer to these, from whom we venture to differ.
As we proceed, we shall come to mention
their opinions, and to express our views of the
truth or fallacy of such, as far as we have been
able to perfect their works and understand
their meaning.

2. Such a Connexion shows itself in
most— if not in all—of the affections of
these organs, provided they are of sufficient
Duration; although it is far from being an
invariable rule that it should become apparent
in every individual, or even that disease in
the one viscére should necessarily involve the

other into some marked success. But those exceptions, even if they were more numerous than they actually are, cannot invalidate the rule, which, we think, must remain a general one. Either of the opinions of so many authorities, and the conclusions drawn from innumerable facts by practical observers, were not sufficient to uphold such a view; we would only point to the anatomical and physiological relations existing between the sets of organs, to prove that they can and must lead upon the other under certain circumstances. According to those who maintain the theory that disease originates most frequently in the liver, the striking feature among these anatomical relations is the circulation through that gland; and to it has been granted by them a far greater influence in the production of mischief than we are ready to concede. We cannot here enter minutely into the description of that circulation; we shall only call the attention to the too well known fact, that any obstacle to the flow of blood through the liver is followed by more or less congestion of the mucous membrane of the bowels. This congestion has been reckoned by Stamy the primary step to dysentery and several other intestinal diseases; some few have gone farther, and thought that the other disease than such obstacle to the liver would be efficient to produce them. Now, although we do not deny that such congestion may lead to some
3. It may be deemed perhaps superfluous to state that, in speaking of the diseases of these viscera, we shall of course take into account the least alterations, not only of structure, but also of function. This, however, becomes necessary, as it would seem that some will recognize disease only in those cases where structure becomes implicated, and will scarcely render an alteration of function a deviation from health; or, what nearly comes to the same thing, doubt that any irremediable process can take place in an organ, because they have not palpable proof after death of a change in its texture. But I certainly think, and very likely few will...
to contrary opinion, that when the products of an organ are derived from those that are
formed in health, it may be safely inferred that
abnormal must be existing somewhere, in the case of
ductless glands especially, such alteration of products
can only depend on two causes: either the gland
itself is structurally changed and therefore cannot
perform its functions satisfactorily, through—and
there must be particularly borne in mind—such change
in its texture may not be apparent to our eyes; or
like the fluid, from which the secretions are derived,
it may be in a worse condition. In this latter case, the
latter condition may not be present at all, so that
the gland itself can scarcely with propriety be
called diseased; yet, as it is the means of elimi-
nating unhealthy products, and as we have hitherto
had no reason to suspect its condition when performing such a
function; we cannot either reckon it healthy and
merit rank it among diseased organs. We shall have
time to revert to this in the sequel of this chapter.

appearance presented by the liver after death, and
we shall at present only remark further, that
functional derangements being so far more frequent
than organic lesion—being also present,
as a general rule; whenever there is structural change
with this condition does not of necessity, and indeed
often does follow that—unless, from those
circumstances, an importance which (we may be
likely to say) has been too often overlooked.

4. The consideration of symptoms in
their different relations to the time of appearance.
of what is sometimes considered the primary disease, as well as to their individual periods of manifestation, is also a rather uncertain subject. This existence is not always readily detected; and to the difficulty which not unfrequently reaches a very high degree in attributing without hesitation the beginning with which some writers have brought forward their opinions, and hence the doubt which must often hang over those. Unfortunately, the obscure situation of some symptoms is a thing that cannot be helped; all, from the present state of medical science, much remains to be done before settled data can be laid down with regard to their detection at the proper time, especially in diseases of the liver. So much is this the case, that it is asserted—*and with too much truth*—by many of the greatest experience, that in many affections of the last named organ, and even in the most fatal, symptoms are sometimes so totally wanting as to give no clue to the detection of the mischief. If such be the case, we may, a fortiori, expect that complaints of a less serious description would, not unfrequently, pass unnoticed; and from the consideration of such facts, we need not wonder at the somewhat hasty statements made by some, lest any more than at the wrong inferences drawn by others. When it is remembered that the rules of precedence in the superelevation of disease in those organs must be founded on such uncertain data at the time of appearance of the symptoms; and this again depend so much on the power of observation of the writer, combined with the amount
of his experience: we shall then easily account for the discrepancies so often met with between even the highest authorities, and plead such difficulties as an excuse for the conclusions of whatever nature they thought themselves entitled to draw.

But whatever Connexions may have been found between diseases of the Spleen and those of the Intestines; and whatever influence disease in the one may have in the production of such in the other; there is a third kind which seems to have been hinted only by few, and completely overlooked by the Majority. We must not forget that both sets of Organs have certain functions to perform in the economy, and are therefore dependent on the general System. What these functions are—besides those of digestion which have been pretty well made out—we shall endeavour to establish as fully as we can; and how, how in the performance of these, they may be on a diseased process; as well as in what situation they then more particularly stand with regard to the general economy. This dependence, which we consider principally exemplified in the constancy of affections in both organs—though it does not thence necessarily follow that existence of disease in the one must be accompanied by the same occurrence in the other—will form the first class of our Connexions; namely, that in which disease, when present in both, is considered by us as the effect of one Cause acting upon them at once, but not originating
in any of these. And therefore in this class, there is no other connection between them at least in the early stages, and certainly during the establishment of the morbid process - than their coexistence, due to the similarity of function of the organs. The next class is that in which disease of the Intestines is the cause of that which makes its subsequent appearance in the Liver. We shall treat of this class next, because such connection seems to have been better settled by modern researches; and the weight of authority in establishing such sequence, greater. Here we have the immediate dependence of one set of organs on the other, and this is also exemplified in the third class which will comprise these diseases which, originating in the Liver, subsequently influence the Intestines.

§ II

Of the affections which may be included under our first class, we shall consider Jaundice, as connected with disease in the Liver. This view - making both dependent on one cause influencing the general economy, and not the consequence of one on another, seems to have been, as far as I am aware, merely hinted by Copland; who even then, made the one consecutive to the other, in so much as he thinks that the Liver becomes the seat of
(a) "The form of the complication of liver disorder is evidently caused by the sudden affection of the hepatic affection; which being very intimately dependent upon the nutrition of the blood, matters from the circulation and the economy in general, cannot be abruptly suppressed, but producing continued or remittent fever, or inflammatory congestion or enlargement of existing organs." Cyclopedia Medical Dictionary, V. 1, p. 705.


An unhealthy action, when the dysenteric affection is suddenly stopped (A)—a theory which certainly does not agree with what we know of the coexistence of disease in both organs at one and the same time. We can perceive, however, that he refers both to a primary general cause, namely: the existence of morbid changes in the circulation. Most authors, on the contrary, make the one disease the direct agent in the production of the other (b), or else again nothing but the symptom of the existence of the latter (c). Whilst Abercornbic says that their coexistence is not sufficient to establish any connexion between the two diseases, and it seems to be now ascertained that the connexion is incidental (d)!

The most prevalent opinion also is that, that series of symptoms which has been called dysentery—whether it be coexistent or not with atresia, functional or organic, of the biliary organ—is to be referred primarily to quite a local affection, which may, and does, in the end react on the system. In our view of the subject, we reverse the proposition, and we think that some primary involvement of the system is the cause of the local disease; which is therefore the mere manifestation of a more general lesion, which may or may not, according to its intensity or individual predispositions, affect also the liver.

As the alvine discharges in dysentery seem to have been made by most writers, up to
(a) First Lines, V.1, chapter on Dysentery (Edin. and
James Gregory, 1829)

(b) Sir J. Ballingall, Observ. on Fever, Dysentery, &c., P. 16, 50. 
Diseases of Bengal, C. 1, 5. — Copland, Med. Sick., V. 1, P. 118. 
Parks, Remarks on the Dysentery and Hepatities of the 
C. 50. — Abercrombie, op. cit., C. 240. — Dr. Brown, in
Cycl. of Pract. Med., V. 1, C. 654. — Sir John Pringle, 
On the Diseases of the Army, C. 227

(c) Op. cit., P. 240
this time, the most characteristic features of the disease; it is not unmaterial that we should, before proceeding any further, enquire into what these discharges are. Cullen(a) and following in his steps, a host of others who saw the complaint only in Europe, set them down as being scanty, insubstantial and bloody, and thereby easily distinguishable from those attending in diarrhoea. But the experience of the Indian practitioners, who have had far more numerous opportunities of studying dysentery in all its forms, has contradicted this absolute statement; and indeed we read in their books that the dysenteric evacuations, at all events at the beginning of the attack, are most often similar in all appearance to those produced by diarrhoea. Even in those forms which have been called athenic or sporadic, the stools, though they frequently assume such appearances as those described by Cullen, often do so only after having gone through a preliminary stage in which diarrhoeic evacuations are present. As the other forms of the disease, named athenic or hepatic, the discharges are always more or less abundant, and not always distinguishable from those of diarrhoea; and when they most approach the ophthalmous and bloody characters, they are then solid, slimy, or luminous(b). Impelled by these facts, Abercrombi came to the conclusion "that this highly dangerous disease may be going on with every variety in the appearance of the evacuations (c)." But this apparently endless variety may, think, he divided into two great chapters, namely:
that in which the stools are scanty, mucous and bloody; and 2° the other in which, whatever character besides they may possess, they are more abundant and do not present pure mucous & blood.

The two sorts of evacuations may correspond with the two primary divisions of Dysentery of Copland, the òtheric and the asthenic. The first we would take to be indicative of a state of the mucous membrane partaking more of the òtheric, Simple Inflammatory, nature *, whether they be present from the beginning of the disease, or only subsequent to the appearance.

* Note. — The Scanty, mucous and bloody stools seem to us to have been made wrongly a pathognomonic sign of Dysentery; for we doubt very much whether they are at all characteristic of Dysentery, a disease undoubtedly so peculiar in its nature — lest to say so specific, as merely of a more or less excited inflammatory state of some portion of the mucous membrane of the intestine. It is a question with us whether those cases which terminate favourably within a short space of time; which are preceded by well marked rigors; in which the pulse is more decidedly affected and those peculiar stools present; and which have been ranked by Copland amongst his milder forms of òtheric dysentery, or called by others — perhaps not wrongly — òtheric: are genuine cases of Dysentery? Supposing we had a simple acute inflammation of the lower portion of the mucous membrane of the intestines, would any other symptoms be present? I think not. We would obtain as in all other injuries, extravasation of blood; as in all cutting bodies, incipitation with diminution of
(a) *op. cit.*, p. 242.
of more diarrhetic discharges; — the second may point out, according to their various characters, either an indigent inflammation, in which condition we know, feversions are increased; or else the development of a specific kind of that morbid process, in which (to borrow the words of Abercrombie) "the difference between diarrhoea and dysentery consists in the nature of the disease, and can be learnt only from a diligent attention to the concomitant symptoms; not — we would add always — from the character of the evacuations (n)." But what we want particularly to draw the attention to in this place, is the fact which obtains in by far the generality of cases, that Dysentery begins with evacuations which are feculent and copious, and presents nearly throughout its most severe forms — the adynamic: the same discharges, only more morbid in quality, if not in quantity: indicating

the limited fluid: thus producing the scanty, mucous & bloody stools, together with a sense of heat or pain, and more or less affection of the circulation. Now, why could we not have in these parts, as well as in others, a simple inflammation produced by simple causes, say cold, form, caused, assisted by sundry circumstances or individual peculiarities? And as this, we imagine, is not at all unlikely, we doubt whether all those instances of disease which have presented the above symptoms and been given to us as cases of Dysentery, can justly be called so.
3. After going over the writings of some of the best authorities on these diseases, I have come to the conclusion that Dysentery is produced by atmospheric agencies of a peculiar nature which, we cannot refrain from thinking to think, constitute a malarial, distinct from that producing different kinds of fever, but certainly allied to it in nature. The experience of those eminent men—especially when they have studied the disease where it is most rife, namely, in warm climates—has led them to such a conclusion; and although they have also admitted a variety of other causes as capable of giving rise to it, yet they have, in general, agreed that these peculiar atmospheric agencies are the most powerful in their action; and that the more intense they are, the more severe forms does the Complaint assume. As for us, we think that those other causes, of which they all speak more or less, tend only to add the influence of the particular points, which we shall denominate for want of a better term, dysenteric malaria. 

*Note: This expression, as far as I can recollect, is to be met with in Lebert's Physiologie Pathologique.
(a) Annesley, Dis. of India, V.2, p.200
breaking out of the malady, or favour its progress, but we do not consider their action to extend any further.

9. Some have thought that Dysentery is a simple inflammation, produced by local irritating Cause. That there is an inflammation of the mucous Membrane of the bowels produced by such, irritating poisoning afforded us an instance; but then we obtain what may readily be anticipated: A less degree of morbid Action, the further we recede from the Spot to which the Cause was first Applied, in this Case, the Stomach. And it should no doubt be the same, were Dysentery produced by irritation of any kind, acting locally; as, for instance, acidity of bile. For those who reckon this as its Cause (a), we would ask whether the bile, by its mixture with Intestinal juices — which mixture becomes greater, of course, the more it recedes from the Liver — is not likely to lose its irritating Characters, and therefore to exert less influence on the Large than on the Small Intestines? And we certainly have no proof that the mucous Membrane of the Large Intestines is so much more sensitive than that of the Small; quite the contrary, for we know that it is constantly subjected to the Stimulus of what may truly be called a foreign body — the feces — and fæces, under ordinary circumstances, scarcely to resent it. Irritation by retained feces, or by particles of food or bile having acquired such properties from


(c) *Histoire des Phtégmaties*, p. 198.

decomposition (a), we scarcely think capable of producing Dysentery. But it cannot be shown that irritation by gases or by irritating - not corrosive - particles of whatever nature can cause such disorganization, obtained sometimes in such an astonishingly short period, as is found in cases of Dysentery. Such irritation, we know, if it acts at all in an injurious way on the mucous membrane of the Intestines, stimulates it to a more abundant secretion of mucus which combined with an increased peristaltic action - also a result of the same irritation - effects the expulsion of the offending matter.

Further, with regard to Constipation, what we use of that Complaint nearly every day cannot enforce upon our minds the possibility of its producing Dysentery; and extraordinary Cases are on record (b) which have simulated, or given rise to, nearly every sort of abdominal affection - diarrhoea and others - but we scarcely think ever to Dysentery. As to the6th post

Corpuscles of N. Transpiration, acting by Contact after having been swallowed with the saliva, they need not arrest our attention (c). Electricity has also been hinted by Annesley as being very probably efficient in the production of Dysentery (d). Without denying that such may possibly be the case, we shall only say that this Agent has been held the cause of all sorts of phenomena, the original source of which was thought, but not clearly preserved, to be in the Atmosphere.
(a) Annesley, op. cit., V. 2, p. 235. - Twining, op. cit., p. 4

(b) Dr. Brown, in op. cit., V. 1, p. 658

(c) Annesley, V. 2, p. 236 & seq., 241

(d) Annesley, Liv. 40, P. 4. - Annesley, V. 2, p. 236, 245
10. **Heat and Cold**, singly applied or in alternation, as well as diet and regimen of a peculiar kind, have been also reckoned as causes of Dyentery (a). But those that have principally given them as such, did not deny the possibility of Malaria existing at the same time (b). Indeed the variations of temperature, often accompanied with sudden alternations of wet and dry weather (c) — the changes of locality from a healthy to a notably unhealthy spot — or the intensity of the heat, Dyentery having seldom been deemed the result of intense heat only — all which circumstances have been observed to precede or accompany general outbreaks of the disease; would tend to enforce the more than possibility of generation and existence of a peculiar poison, which had perhaps already exerted its influence on the constitution, before the immediate exciting cause was applied. What have been called sporadic cases, that is to say, cases thought to have been produced merely by the causes mentioned above; do not prove anything against our position as their existence is more than questionable. Let us select, for instance, exposure to cold. We are far from denying that, in some conditions of the body and under certain circumstances, this may give rise to inflammation of the mucous membrane of the bowels. But the great question to us is: does it and can it generate Dyentery?
We know that the changes which take place in this disease are peculiar, and always fall upon a particular organ. Is it then likely that the general agent "Cold," whatever may be its tendency, should not cause an inflammation of the large intestines and leave the small ones uninjured? I scarcely think this possible, especially when, as at periods and in localities where dysentery prevails greatly, we see those same changes brought with scarcely, if any, variation in their characters. Experience further would point out that the action of cold, when it takes place upon the intestines, is far more apt to give rise to diarrhea, or even to enteritis. It is true that many a dysentery can be traced only to exposure to cold; but, besides that tracing any complaint to its primitive cause is an exceedingly difficult task, we have here an analogy in a numerous class of diseases—the exacerbations from—not every case of which can be traced to their peculiar causes. Yet, nobody is prepared to assert that cold alone can generate, for example, small-pox. In the same way as in these diseases, we reckon cold, heat, &c., as exciting causes, but no more. These two, combined with moisture, especially the latter, have no doubt a great share in determining the breaking out of the complaint. We shall not enter into details to show how they generally predispose the constitution to the reception of
(a) Andræ, Précis d'Anatomie Pathologique, V. 2, p. 206

(b) Andræ, Cl. Méd., V. 1, p. 428.
Any morbid influence; as to the particular laws which they develop under particular circumstances, as in the production of this or other diseases of the bowels and the liver, we shall refer to them at length and endeavor to establish the existence of such laws at a further stage of our subject.

11. Another proof that Dysentery is not a local disease, is that the same alterations have been traced with in fevers or bilious diarrhea as are found in it (a); and that the symptoms which constitute that malady are by no means attendant upon a constant particular state of the Intestines (b). If, in the first case, Dysentery were a local disease, surely we would see its evidence when the condition supposed to produce it are present. And, on the other hand, it may be thought astonishing that it should manifest itself even when the local affection, which constitutes its essence, is absent; and how far such a thing can exist, we have not yet found the means of determining. It cannot be brought against us that, to constitute Dysentery a disease affecting the system primarily, it should have an amount of Constitutional disturbance far greater than is generally witnessed in this complaint. Such an argument, if it prove any thing at all, will indeed tend to prove our position. For in all idiopathic inflammations involving a certain amount
(a) op. cit., p. 40, 46. — See also Twining, p. 41, 6. — Parks, p. 55. — Annesley, v. 2, p. 151.

(b) P. 3.
of tissue - mucous membrane not excepted - we have the affection of the circulation and the constitutional disturbance which supervene upon the local lesion, well marked; whilst in Dysentery those who have had most experience of the disease agree in saying that it is by no means so. One of numerous authorities, we shall quote the words of Dr. I. Ballingall who says: "The dysentery of India often makes considerable progress, and has very seriously, perhaps irreparably, injured the intestinal colon, before any urgent symptoms of pyrexia become either distressing to the patient, conspicuous to his medical attendant (a). If this disease be then a simple local affection, following common general laws, how is it that the system does not resent it to a greater degree? And may we not think with Dr. Parkes, that on such grounds it is hardly conceivable that inflammatory action, in cases of dysentery, so severe as to produce almost universal ulceration of from one to four feet of the Large Intestines could exist without coordinate constitutional disturbance (b)." Many have been the surmises to account for such an apparent anomaly which has struck more than the observer, even those who uphold the local origin of the malady, and we think that the solution of the problem is to

* As in cases of acute Bronchitis, Gastritis, Cystitis, &c. See also Copland, for idiopathic inflammation of the mucous membrane of some parts of the intestines, vol. 1, p. 278; vol. 2, p. 569 & even 575.
(a) Lebert, op. cit., V. I, p. 218, 219, 520. - Copland, V. I, Pgs.
Sir John Pringle, Observ. on the Diseases of the Army,
V. 2, 251 & cq. - Crowdson, in Monthly Journal of
Medical Science, for December 1853. - Sir Bly,
the Pathology & Treatment of Dysentery, in London
Medical Gazette for 1847, V. 5, 29 & cq, 533.

(b) V. I, Art. Dysentery
be looked for in the peculiar nature of the inflamma-
tion, rendered so itself by the peculiarity of
its Cause.

12. To uphold besides the opinion that
dysentery is produced by a certain malarious
poison, we have the authority of the most-
prominent men (a), and a body of facts which is
so strong not to carry with it all but entire
convictions. The instances in which the presence
of such malarial existed for a certainty – as far
as man can be certain of any thing which is
not immediately perceived by his senses – we
need not quote at length; they are to be met
with especially in those writers who have
studied the disease in warm climates. But in
covering affections its existence is apparent, its
action is unmistakable, and its Consequences
so palpable, as in the form of dysentery which
assumes a malignant Character, and has been
called by Copland "Nervous atonic" and "infectious.(b)
It cannot be said that the Cause of that
particular form of the Complaint – whatever it
is, but supposing here that it is not dysenteric
malaria – acts on debilitated or otherwise
unhealthy Constitutions, and therefore that the
peculiar Consequences which follow are due to
this fact, cannot be brought forward to
uphold such a proposition. In the instances
reported by tropical and other writers, the
health of those that were attacked by that
form was, to all appearance, as robust as that
(a) Amnesley, V.2, p.236.

of others who, in different situations, suffered only from milder or less fatal descriptions of the disorder; whilst here the disease developed itself in localities known to be unhealthy, the cause of such unhealthiness being clearly owing to all three circumstances under which malaria becomes generated. It is in the nervous and pulmonary forms that we see thereatest analogy between dysentery and some kinds of fever; and though we do not intend to follow such analogy step by step, yet we must observe that the disease is principally met with in places where fevers are known to be rife; it exists both with them, it interchanges upon them, it even supersedes them. How is such coincidence of existence to be explained? No one, I think, is prepared to deny that fevers are due to atmospheric impurities, whether these be of a general nature affecting each individual as his constitution is predisposed to this or that type, or of a more particular one, that is to say, each type of fever being due to its own peculiar mischief. And if such be the case, are we not entitled to think that the cause of dysentery must be allied to that of fevers? Besides, pursuing the analogy, we see that in fevers the venous membrane of the intestines becomes often more or less involved. In this, indeed, there is a difference from what we meet with in dysentery; but we think that difference...

(b) Abercrombie, op. cit., P. 289 + seq. — also Andral, Ch. V. 1.
to be more in kind than in nature. The pathological principle that most of the diseased depending upon miasmatic emanations had a peculiar influence on that mucous membrane(a), has been proved to be true by what we witness nearly every day around us. How this action on that particular part of the human frame comes to be established, we shall further on endeavor to make out by what we see takes place in the case of dysentery. We shall not enter here into the question whether the bowel affection is a cause or a consequence of the constitutional disturbance by which it may be accompanied; in the case of fever, the latter has been sufficiently established by the British school against a vast body of Continental physicians(b); and we think that the same arguments combined perhaps with a few more which we shall attempt to adduce, can establish the same proposition with regard to dysentery. What we only want to direct the attention to the fact that there is to be found in both kinds of complaint an affection of the intestines; and that, as in every other disease, so in dysentery, through all its forms, severe or mild, the same features can be traced — the difference between the phenomena which they severally give rise to, being one of degree, and not of kind.

13. Our ignorance of the nature and mode
(a) "What avails our saying that epidemic Cancers produce dysentery, when we neither know what the one, nor the body in which they act? We have been defined the origin of these causes, as we have the nature of the epidemic dysenteric agent, but even received a name." Parker, op. cit., T. 132.

(b) Lebert, op. cit., V.1, T. 320
of action of the dysenteric or malaria, is no proof against its existence as some would reasonably object (a). Nobody knows any thing about the nature, or mode of action either of any atmospheric poison, "malaria", if the term must be used (b); even though the laws, under which a particular one becomes developed or checked, may have been partially ascertained, as in the case of that of ague. So many diseases are too probably due to such an atmospheric influence that it is impossible to deny the existence of such agents, and yet not any more in any of those in which they are readily admitted as the main, may the sole cause of the malady, than in dysentery, does any one know what they are or in what way they act. Such an objection therefore is too specious to be of any weight; for, supposing we were all blind, it is not because we could not see the sun that we would deny its existence, as the same time that we were feeling its influence. No one has yet said anything about the dysenteric malaria; and certainly it is not I that will be able to solve the question. But on considering the phenomena to which it gives rise, And comparing them to those which are developed in typhoid fever, we may venture to assert that it is akin to that which generated the latter complaint. The next question is whether it is different in kind or merely in degree; this no doubt is rather difficult to answer; but I think
(a) Sir John Pringle, op. cit., p. 255.
that it may be said to differ from that of
fever in that it is either more irritating in
nature and therefore gives rise to a greater
inflammatory tendency; or that it is act-
ing so powerfully on the nervous system
leaves sufficient strength in the constitution to
deavour to shake it off completely. Whichever
of these two hypotheses be the true one—and
we certainly feel more inclined to adopt the
latter—the important fact is that such poison-
tends to be eliminated by the mucous mem-
brane of the intestines (a), and that the inflam-
mation which supervenes in the bowels and in the liver
(when the latter does take place) is established
during these efforts. This we shall next proceed
to show; and we further think than the
establishment of such action in both those sets
of organs, tends not a little to prove the existence
and mode of action of the dysenteric malaria.

14.—The excreting functions of both the
Liver and the Intestines are perhaps not
acknowledged to be so great or so important
as we think they are. Their action is thought
to terminate with the process of digestion, after
which the general inunction seems to be that
they remain perfectly at rest. That this view
is too limited, is our firm opinion; and their
relation to the whole economy, as depurating
organs, is very likely far closer and of greater
benefit than is commonly received. It may
not be amiss then to say a few words in
(a) Abercrombie, op. cit., 67.

(b) Bichat, Anatomie Générale appliquée à la Pratique et à la Mèdecine, t. 4, 465, 468.
attempt to show how great these excreting functions are, in morbid states of the system, especially. Of course it cannot be expected that we shall run over the whole series of diseases in which they may act as excreting organs, and bring forward proofs of such time their then function; this would occupy us too long and be besides altogether foreign to our subject.

15. Physiology teaches us very little of their excreting powers by direct proof. They are so located in the human body that their secretions or excretions, or both, cannot be obtained sufficiently free from admixture with foreign matters to be subjected to any analysis. From this, however, we might perhaps except the bile. Even their quantity, not merely their quality, cannot be actually estimated; and here we make no exception for the bile. We know however, that

with regard to the Intestines, their mucous membrane, in its normal state, constantly secretes a fluid in great abundance. No precise data are known as to the quantity of this secretion, which has been thought by Haller to reach the amount of 8 pounds in twenty-four hours (a), but by others such a high number has, reasonably, been thought impossible (b). That this fluid, nevertheless, must be thrown out
(a) Abercrombie, op. cit., p. 8.

(b) Liebig, Animal Chemistry (3rd ed.) p. 152. — Bichat, op. cit., v. 4, p. 449 et seq.
pretty abundantly, we cannot doubt for a moment, when we reflect on the length and vascularity of the Canal which yields it. Beside this secretion or excretion, there seems also to take place an exhalation which has been compared to that of the serous membranes. And further, the innumerable glands with which that enormous surface is studded, have also their peculiar products which, in the aggregate, must rise to a certain amount. It is scarcely credible that these phenomena should take place only when the Canal is most active, that is to say, when it discharges its peculiar duties of Chymification and absorption; and that, during the intervals such a large and vascular organ should be useless to the system. Far from this being the case, it is performing active and important functions, even when in a comparatively quiescent state, as has been irrefutably proved by a strong argument of Liebig, who shows that as in starving persons, in many sick persons, or those who take no solid food, the evaporation of the face is not suppressed; it can hardly be doubted that in certain parts of the Intestinal Canal, a secretion of matters which the organism, in its vital state, cannot change, goes on.

The presence of such matters is no doubt due to secondary digestion, which is
(a) Influence of Tropical Climates on the European constitution.

Nothing else than excretion under another name; and points our to the intestines as having a share, and no insignificant one, in eliminating dirty and injurious matters, as well as other organs. But these direct proofs, however highly conclusive, are still not so forcible as those that are furnished by some pathological states of these same organs; and by the phenomena developed, under certain abnormal conditions of the body, through their agency. It is known that in many cases, when the excretions of the skin have been checked, those of the bowels become increased. Such a fact establishes between those organs an antagonism which had been long noticed, although never so fully dwelt upon as by Dr. James Johnson(a); and which has been taken advantage of in the treatment of sexual diseases affecting especially the intestines. A similar antagonism exists between these and the kidneys, and also between them and the lungs(b). From this it is had in several affections of the last named organs, when from the increased action of the intestines and from the relief following this, it cannot be doubted that it then falls to their share to excite, at least in part, those products which can no longer be eliminated by the diseased kidneys or lungs. They in
(a) Andral, Clinique Médicale, T. I, p. 433.

(b) Ibid., p. 424, 426.

(c) Ibid., p. 118, 432.
such cases perform, therefore, a depurative function, which becomes still more clearly
divined in several other complaints. In a
great number of both simple and exanthem-
atoses fevers — which affections are due to
peculiar influences conveyed through the
atmosphere and affecting the blood prin-
cipally — the intestines, especially
towards the end of the disease, show
an increased amount of gaseous and
biliary secretion (a). In such cases, it is
not always that lesions of the canal can
be detected, which will account for such
increased action (b); so that the alteration
of functions assumed by the intestines
cannot be thought to belong to these
local affections, and we are driven, by the
conclusion that it is the result of a
general cause affecting the whole system:
And further, that such a cause, marked
in its nature, is sometimes eliminated by
the intestines during their altered action, is
plainly shown, and what hath been called
Griechek evacuations (c). If we now reverse
the order, we perceive that the bowels
perform their functions regularly so long as
the other secreting and excreting organs of
the body are healthy; and accurate observation
has also proved that in the dark-skinned
races, in whom the secreting functions of
the skin attain such a height, as long
as these remain unaltered, they are

(b) For its composition, see Gregor's Handbook of Organic Chemistry, p. 314 seq.
Remarkably free from all affections of the bowels (a). On the other hand, again, when the functions of other organs, especially the skin and kidneys, are increased to an undue amount, the mucous membrane of the intestines becomes less active than in the normal state, and constipation is one of the results therefrom proceeding.

16. Turning now to the Liver, we see that its excreting functions have been more accurately ascertained and more generally acknowledged. In its separating hydro-carbon in large quantity from the blood, in the shape of bile, it proves itself an organ whose function is to remove from the system what may be called normal morbid products, as they arise and must be constantly met with in the body (b). This action, purely of excretion when digestion is not considered, is decided by antagonistic to that of the lungs; and this antagonism, which has been traced by Anniesley, Liebig and Copland among others, becomes most apparent in the fetus, in which the Liver is so large whilst the Lungs are completely inactive; and during the changes from fetal to external life, when the former organ diminishes in proportion as the latter takes upon themselves more energetic functions. Bile is indeed a secretion; but it is as truly
can excretion * : for with regard to every
family secreting gland, we know that when
its products are to be kept up as to become
absorbed; or when from some Cause or
other the gland can no longer perform its
functions: although the particular process to
the completion of which this secretion is intended
may be deranged, and particular parts or systems
may suffer; yet those absorbed or non-secreted
products do not act on the Constitution in the
same way that we know Bile does, when absorbed
as bile, or when it is not secreted. Further,

* Note. — The Chemical School seem to hold Bile
as a pure secretion on the mere grounds that it is
wholly absorbed by the Intestines. But there are here two
obvious questions which present themselves: 1st. Is it
wholly absorbed? 2nd. Wholly or not, is it absorbed
as bile? — As to the first, Chemists have gone so
far as to say that the colour of the faces is not owing
to Bile or any of its Constituents. Now, then, one is led
to account for the well known fact that, when it is
deficient, the faces are Colourless? And better, that
in proportion to its deficiency, is the want of Colour
in these? And secondly, it seems to me at least,
that an organ of the body, Structure, and Anatomical
structures of the Liver, should have been formed for the
more purpose of elaborating a fluid which, as soon
as it has left it, returns unchanged, to the blood from
which it had been separated. The only proof
that we need adduce to show that bile is not absorbed
as bile — even granting that it is wholly
(a) Liebig, op. cit., p. 61, fig.


(a) See on the one hand, Liebig, Animal Chemistry, Chapter 3, p. 604. - Prin. of Physiology, Gen. & Comp., p. 313.
when a pure secretion is not solicited for some time by the suspension of the actions to which it is useful, it becomes greatly or entirely deficient: such is not the case with the bile, which, even though fed be for a very long time withheld, is separated from the blood in scarce diminished quantity. Of whatever be the reason, it may be in the process of digestion all these facts tend to show that one action of the bowels, and that but its least important, is essentially one of excretion. And on such physiological grounds alone we might safely establish that it is, in a very high degree, a depurating gland.

In short, to us, in its mode of influencing the constitution, greater resemblance with the kidney, an absolutely secreting organ,

absorbed - is the simple pathological fact that when absorbed as bile in the gall-bladder from obstruction of its duct, Jaundice does follow, which is never the case when it is taken in after it has flowed into the intestines. As it leaves the Liver, therefore, bile is as much secretion as a secretion: a secretion because it undoubtedly performs its part in the digestive process; an objection for the reasons stated above, Chemistry, to whatever conclusions it may come by means of its Analyses, cannot overturn the

of its Analyses, Cannot overturn the

Phenomena.
(a) Watson, op. cit., V. 2, p. 182.

(b) Hooper's Physician's Cade incunab., p. 35.

(c) Andral, A. Med., V. 1, p. 405. - Bright's Reports
Medical Cases, V. 1, p. 180. - Louis, Recherches
Cathol. sur la maladie connue sous le nom
Gastro-Entérite, t. 1, p. 444.
than with any of the other freely secreting
Glands of the body. But Pathology, besides
with its innumerable instances of diseased action
and altered functions, comes to point
out to us in an unmistakable manner
the part which the Liver performs in
removing from the economy what we
shall now call abnormal irritable
materials.
In these same affections in which we have
found that the Intestines become, as it were,
containing organs, the Liver acts in a similar
manner. In Pneumonia Pulmonalis, as
well as in many other organic and functional
diseases of the Lungs, we have proofs after
death of alteration of structure of the Livers (a);
not only witness during life, at different periods
of the eviudably, excessive evacuations of
Bile (b) which generally bring a momentary
relief to the patient, where they are not of
sufficiently long continuance to diminish
the strength. In fevers and Malarious
fevers, we see it, or better its secretion, changed
from its normal Character (c), indicating the
efforts of the organ to eliminate from the
system the indurated materials under which
it suffers; and also, in some cases, when
during a high temperature, the
abundant Autonomic exhalation
is suddenly suppressed, we obtain
increased secretion of Bile, as we
shall afterwards see, takes place in
Pneumonic Cholera.
After thus endeavoring to establish the existing powers of the lining membrane of the intestine, and those of the liver—which, though not insignificant under physiological circumstances, acquire, we may say, a vital importance in several diseases—it remains for us to point out that under pathological influences, such as those we have to be productive of dysentery, the fulfillment of such a function, necessarily somewhat altered in its nature and function in its activity, can determine in these organs such a process as may easily turn into inflammation and all the consequences found in them after death. And we shall so far show that such changes are not to be explained by a merely local cause acting locally—such a cause, the maintenance being inadequate to produce them—last can, and are in fact to be accounted for by a more general influence of the system, manifestly more particularly in those parts.

18. That the inflammation, which attacks the intestinal mucous membrane in dysentery, is of a specific character, the body, who considers its attendant phenomena can doubt. We have already spoken of the little comparative constitutional disturbance which accompanies the disease even in some of its worst stages and features; and now, considering the mode of occurrence & progress...

(b) Watson, V. 2, T. 829, 831.
of the inflammation by themselves, we think
that those who hold that it is merely a local
process and the essence of the malady itself,
would be at a loss to account on such grounds
for the rapidity with which it runs on to its
most consequences. To explain such changes,
we must therefore look for something else
than a mere local action. C. W. B. gives
it as his opinion that this inflam-
mation is of an acute pyogenic character. (a)
Whether it be exactly so or not, we shall not
venture to discuss, but so much is certain, if it be the
case, is it somewhat of a specific nature, as
we know that not infrequently is acute pyogenic
inflammation or anaphylaxis (b). It is true that it seems an
established fact in pathology, that congestion
and inflammation of the digestive mucous
membrane shows a greater tendency to
terminate in ulceration than in any of the
other tissues of the body. Why this should
be the case, no one, I think, has yet properly
explained. We do not presume to attempt
of the question; we are satisfied
with the fact. But even this tendency
to run on to that last stage of the
inflammatory process, overstated as it
has been by some, cannot account for
the rapidity with which it occurs in
dysentery, in extensive burns of the
surface, or the ulceration rapidly
produced in the mucous membrane.

Dudd, On Diseases of the Liver, p. 70, 71.
But here, without entering into any consideration why it should at all get inflamed (a), we have such a shock produced on the nervous system, as to affect this greatly; and in all such cases ulceration rapidly supervenes upon the slightest degree of inflammation.

Perhaps an analogous example more in point is to be taken with in typhoid fever. In this affection—between which and dysentery, we have already found so much resemblance—we see ulceration arrived at without its intervening stages being scarcely recognised; and indeed, as has been remarked by some author, we have in what takes place in the skin—bed sores—though in a minor degree and proceeding from different immediate causes, an illustration of what goes on in the mucous membrane of the intestines. In dysentery, true inflammation makes itself there felt and perceived; but in its chief feature, we see a striking analogy with the same process as it takes place in the former affection. So true is it due to a specific cause, and is specific in its nature, that Andral, after his numerous observations, has come to the conclusion that we cannot admit a ratio between the intensity of the hyperemia of the mucous membrane and the rapidity with which ulceration
(a) André, Tractus d'Anat. Path., V. 2, P. 10.

(b) Idem., V. 2, P. 205.

(c) Médec., Clinique Médicale, V. 1, P. 380.
takes place (a), nor are the alterations in a constant proportion with the duration or the symptoms of the disease (b). He seems, however, to be willing to account for such facts by individual peculiarities and supposed he had proved this theory by his experiments (c).

No doubt the constitution of an individual must exert a great influence over such processes taking place in his body; but we think it impossible that the same constitution should be met with in all those who are attacked by dysentery. Although we are ready to allow that such individual tendencies may modify in part the course of the inflammation, yet we maintain that the great reason for its being so peculiar in its features is to be found in the influence of that same cause which originally produced it, namely, the dysenteric malaria, and to that cause also, according as it is intense or not, is mainly to be referred the greater or less rapidity of the ulceration.

To give an example of offered of this latter case, when in those forms of dysentery which from their characters have been called proctitis, we have the ulceration proceeding at a wonderful pace, and even through portions of the mucous membrane occurring soon after the manifestation of the affection. From the consideration of such facts, we cannot refrain from thinking that
Thus all tend to prove that the elimination of the dysenteric poison carried on by the mucous membrane of the intestines, can very well cause and account for the inflammatory changes which take place in it; the peculiar character of those changes, again, tending to demonstrate the specificity of the cause, as any simple and ordinary local action could not have produced them.

14. It may now be asked, if we consider the mucous membrane to be one of the organs that eliminate the poison, why is it not generally affected? Why is it mostly the large intestines? And even in these, why some parts more than others? We confess that we can give no satisfactory answers to such questions, and we feel altogether unable to account for such occurrences, although we are convinced that they take place undoubtedly in obedience to certain fixed laws, otherwise we would not meet with such regularity in their development. We shall only say that dysentery is not the only disease in which such partial affection of the mucous membrane cannot be fully understood; we have the same inexplicable facts in continued fever, in which ulcerations, when they exist, are principally met with in the lower third of the ileum. This has been said to depend upon the glands which are
a) Watson, op. cit., V. 2, p. 740.


d) Andral, Clinique Méd., V. 1, p. 380. - Dr. Baly, the Pathology & Treatment of Dysentery, in the London Medical Gazette for 1847, p. 146.
situated in greater abundance in that portion of the intestine (a); and many authors hold a similar opinion with regard to what takes place in Dysentery (b). Whether the solitary glands, as it is thought they have been seen in this latter malady, are the first to take on a morbid action (c); or whether that morbid action, though it be the same in the surrounding parts, goes on in them sooner to disorganization in account of their greater vascularity (d); we cannot say. We are unacquainted with the nature of the secretion of those glands; we are even totally ignorant of their functions: until such points be ascertained, it will of course be impossible to point out the laws of disease which are apt to influence them sooner than the surrounding tissues. Thus our being unable to explain why such differences should exist, cannot in the least invalidate our inference, with regard to the functions of the mucous membrane in the disease under consideration; this is the great fact which we wish to lay down; that is only a peculiarity which is included within a more general fact, and whose existence or want of existence can in no wise affect it. Other theories cannot explain more satisfactorily the occurrence of a higher degree of inflammation in those familiar situations. The irritation theory
(a) See § 9
has attempted it by speaking of the semicircular or the irritating breathers in those localities, which semicircular is by it attributed to Conformation of the heart or its depending situation during disease. But besides that the theory, as we have shown, is altogether unacceptable (a), the Conformation of the bowel which is the same every where as no more an argument in its favour, than the position of the patient during disease, either in the recumbent or sitting posture, can prove the dependence of such parts as the end of the ascending or the beginning of the descending colon, or its transverse arch.

20. With regard to the Liver, we have already observed, and it is not perhaps needful to repeat it, that change of texture does not alone constitute an affection of that viscus, but that alteration of its secretion is to be considered as an indication of disease as well, somehow or other, connected with the organ. Now, it is the opinion of some that its affection in what has been called Dysentery, is merely an incidental coincidence; whilst others seem to think that, even functionally, it is by no means a common occurrence. That its implication is not merely incidental, but necessary, is what we think may be justly concluded both from what we have
(a) Sir G. Ballingall, op. cit., p. 54, pp. - J. Johnson, On the Perturba-


Already said of its exercising powers in decades, especially depending on atmospheric agencies, and from what we shall state presently. And that its location is more or less modified in nearly every case of dysentery is borne out by facts, and acknowledged by a large majority of writers on this subject, and by almost all those who have studied the disease in warm climates (a). Few exceptions, if any, could be found to this last statement; as the same time we are ready to grant that alteration of the bile may not, of absolute necessity, occur, though it does and must certainly obtain in almost the totality of cases, for reasons which we have already given. On the other hand, structural union do not at all to be considered an important condition to the development of dysentery; for, we may add that of itself it could prove nothing whatever. And yet, though it is often dependent upon other contingencies than the mere increase of action and greater vascularility of the organ determined by its functional derangement, and cannot therefore be deemed a direct consequence of dysentery itself; we have reason to think that it is often present than has been admitted by a few. These latter have founded their opinion on the supposition that every affection of the liver should leave after it a trace of its duration or of its existence. But, first, the difficulty
(a) Parke, op. cit., p. 29222, – Also Budd, p. 78.
Abercombie, p. 314.
of ascertaining the presence of disease in that organ, even in a post-mortem examination, has been dwelt upon by every one who has studied carefully and on a large scale its affections. Of the colour and texture of the liver are such as to make it difficult, with the imperfect means of research hitherto employed, to detect and define in the dead body the various effects of disease, unless where this has gone on to disorganization such be the case; or can it be denied, on any ground, that no lesion of the organ existed in those numerous cases of dysentery in which mere ocular and manual examinations were employed to judge of its condition? And, secondly, supposing that after death we could come to the certain conclusion that it is perfectly healthy, and that even the bile offers no altered appearances: are we entitled to say that no functional, or even structural affection of that viscous existed during life? Surely not. It is by no means impossible that in such cases — and they are rare — the organ may have recovered perfectly. And in support of such an opinion let us quote the words of one whose practical experience of its diseases gives them the greatest weight: "I am by no means disposed to infer from the want of morbid appearances in the liver that this viscous may not have been
(a) Sir G. Ballingall, op. cit., p. 63.

(b) op. cit., vi, p. 520. — Parkes, p. 47.

(b) Parkes, p. 47.
in many cases, the cause of diseased action during the life of the patient (a) we shall further on examine; how change in its structure comes to be established; let us at present consider the alterations of the bile.

21. Some have stated that bile is completely wanting during the acme of the malady, even when the dysenteric evacuations were examined microscopically, as they were by LEBERT (b). If such entire disappearance, whether due to non-secretion or reabsorption, be true, it must be indefinitely temporary, for interiors does not injure the, whatever; in the cases particularly examined by him, it is quite possible that the liver had then reached that stage of the inflammatory process when we know that all glands cease from their function of secretion? Or else that the bile had then become so altered in its nature, as to its constituents no longer presented their normal characters, or had disappeared altogether? in both which cases, the microscope could not of course detect their presence. These two theories, which are the only ones that could account for the absence of bile, would at any rate give us distinct proof of coexistent functional affection of the liver, which is further evinced by
(a) Sir J. Ballingall, p. 57.


(c) Sir J. Ballingall, p. 64, 76. — Dr. Brown, in op. cit., vi. Ch.
the nature of the evacuations at the beginning
and at the termination of the disease,
and by the morbid appearances of the
bile found in the gall-bladder after death(a).
It has been said with great justice, that
attention of the products of the Liver, as of
any other secreting organ, is dependent
not always so much upon any change of
its texture, as upon other lesions which
often escape one's knowledge(b). In the Case
of dysentery, it cannot be said to have
its origin in any organic affection of
the gland, since this, in all appearance, is
the exception(c); it can be the result only
of the bile being derived either from the
blood contaminated by the absorption of
morbid matters from the diseased peritoneal
membrane, as has been held by some; or
as we are rather of opinion, from the
contaminated blood which Circulates
through the whole system, the consequence
of the dysentery maldia*. The first supposition,
so doubt, has many facts in its favour, in as

* We do not reckon the possibility of its being depend-
ent upon depraved nervous influence, for there is no
proof whatever of affection of the cerebro-spinal system,
we insufficiently direct Communication exists between the Liver
and the large intestines, by means of the ganglionic system
inve, to account for it. And we think that no
mysterious sympathy will be brought
forward to explain it.
(a) See § 41

(b) Annesley, V. I, P. 438.

(c) Page, Lectures on Surgical Pathology, V. I, P. 418 & seq., Miller, Principles of Surgery, P. 143 & seq.


(e) Sir John Pringle, Obs. &c, P. 258; Annesley V. I, P. 405; Pringle, P. 140; Johnson, "Arrangements of the Liver," P. 41.
such as many more direct proofs can be brought forward to its support. But against it, we have to argue that absorption of the morbid matters does not take place to that extent which was believed by the older authors; for in chronic diarrhea and dysentery, where affection of the Liver can sometimes be more reasonably traced to such a cause (a), we have it taking place only long after the intestinal Complaint has continued (b). The modern theory of ulceration - and I believe the true one - does not admit of absorption as the cause of that branch (c); and we know also that the blood vessels of the Intestines are, in a case of dysentery, in a state of distension which is highly unfavourable to absorption (d). Further, those morbid matters to the account of which much has been laid, are not so deleterious in their nature as to produce such immediate effects on the Liver. They are mere blood and mucus, with increased urinary secretion in the first stages of dysentery; possibly somewhat altered in their qualities, but not apparently possessing any highly irritating powers: yet altered they are to be met with at the very beginning of the disease (e). Again, affection of the Liver, especially when it runs on to structural changes, does not always proceed in a ratio with that of the mucous membrane; and often when the latter has reached its
(a) Annesley, U.2, Cases palleria. — Parker, c. 394 deg.

Cases palleria.
highest grades, no more or even less alteration is present, either in the quality of the bile
itself in the ducts of the liver, than in other cases when, with less disorganization of the bile ducts, suppuration has supervened in the liver. Probabilities therefore, run strongly against the hypothesis that absorption of such matters is either production of alteration of the bile, or of the structure of the liver, as we shall see more as length. On the other hand, analogy demonstrates that the second proposition is the more likely to be the true one. So if we revert again to diseases produced by atmospheric agencies, and principally to fevers, we often meet with instances of alteration of the bile, without any affection of the intestines whatever capable of generating morbid matters.

22. We have now seen that both physiological and pathological reasons entitle us to think that in any disease resulting from a poison attacking the blood primarily, the liver acts as an excreting organ of the morbid matters. We have also seen that from the nature of the bile or its absence in every case of dysentery, it does so act undoubtedly in that disease. But it is not with these alteration of secretion that we have sometimes to do, but also with organic lesion and even of a serious nature which, we believe, can be as well accounted
(a) Annesley, op. cit., p. 243, 344, 403.

(b) sec § 16, 17.

For a simple deviation of the bile from its healthy characters. From the action which goes on in the Liver, the extra-work which it is called upon to perform, a certain amount of Congestion of this viscera must necessarily exist in all cases of dyspepsia; and this Condition may either remain stationary; or pass into inflammation, chronic or acute, which can be proved on the following ground. It is a known fact that existing organs, when in a state of active hyperemia, are very apt to continue in inflammation, if they are required to perform more work than usual; as we have seen to be the case with the Liver in dysentery. Further, such inflammatory disease as is met with in it, principally, if not exclusively, takes place in certain Constitutions, such as the scrophulous; or in those who have been enfeebled by fatigue, privation or disease; also in persons addicted to smoking, who have often suffered from bowel or liver Complaints, or who have been attacked by fever. In all those conditions, the Liver is irritated and as an organ whose vitality has already been impaired either by direct agencies, as in the last group; or indirectly through the Constitution, as in the two former, especially the first. It is not difficult therefore to conceive how, under such circumstances, inflammation may become engrafted upon the Congestion originally
(a) Budd, p. 124 & seq. - Leber, v. 1, p. 326, 331 & seq.

(b) J. H. Bennett, On Lencoryphemia, p. 88, 116.

(c) Ibid., p. 92 & seq.

(c) Budd, p. 64. - Leber, v. 1, p. 333.
produced by the disease, and it can be easily understood why abscesses do not readily disappear to this last process. For, in supplicative inflammation of all parenchymatous organs, and among them the liver, we know that suppuration is very prone to take place. Where is then the wonder that, with many conditions to favour an already existing tendency, the inflammatory process should, if developed at all, soon turn to suppuration? Many explanations have indeed been offered to account for this occurrence; but we think them all insufficient and liable to too many objections. We shall not take up our time with examining those theories which have made liver-abscesses dependent upon absorption of pus, and stoppage of the pus-globules in the capillaries of this organ (a). This might have been thought valid enough when the microscope had not determined the size of the pus-globules and shown them to be no larger than the white blood ones; and when there had yet been no case of leukopenia, in which singular affection, though the white corpuscles of the blood are greatly increased in size and larger than any pus-globule (a), yet no instance of abscessed in the liver or elsewhere has been met with (b). We shall only glance over the question of their being secondary abscesses dependent upon absorption of morbid matters acting as these do generally (c).
(a) V.1, p.285 & seq. - Andral, Ch. Med., V.4, p.6

(b) p.160 & seq.
But this evidently, cannot hold good on the single ground that in so many cases in which abscess of the liver was found in conjunction with dysentery, as similar ones have been with in many other organs of the body. It is mere true that such abscess of the liver were really a secondary one, surely there was sufficient time in more than one instance to allow the formation of many more. And further, such an occurrence is the exception, not the rule, though in every case of dysentery we have those same mortified matters which, if they did cause such abscesses, would so rapidly produce them oftener. The opinion of Lister is one which I think, Carries great weight, but to which we object on many of the grounds already stated: he speaks of phlebitis as the cause of this abscess (a). I doubt some cases have been demonstrated to have been due to such a cause; and others again, mentioned by Budd, may have arisen resultant from this (b). But however bed we may hold Lister's opinion with regard to some other secondary abscesses, and however willing we are to grant that a few cases may have taken place in the way in which he describes; yet we cannot accept it as the general explanation of the production of liver abscesses in dysentery, on the ground of the infrequency of their occurrence. In every case of dysentery we have the elements of the causes to which

(b) Andral, H. Précis., V. 1, p. 18. — Précis de, V. 2, p. 662.
    Lebert, V. 1, p. 287, 288.

(c) Annesley, V. 1, p. 527+ seq. — Anweilhier, Liv. 11, p. —

(d) Pqq. — Parkes, p. 119 & seq.

(e) V. 1, p. 405.
Seems attributes them, and therefore we might expect reasonably, if this theory were true, that their effects should follow
offriner than facts do prove. And further,
as in the case of absorption of pus by the
wound being on of morbid materials, we would
ask, why is this Abscess formed in the
liver alone? If pus here circulates with
the blood—under whatever form—and as
we know that it does help from one capillary
circulation into the other(a), why does it not
follow the general rule of secondary abscesses?
And cancel them to be generated in all or
nearly all the organs and tissues of the body(b)?
Besides the symptoms of the production
of liver abscesses in puerpery do not at all
accord with those known to accompany
that of secondary abscesses, presenting none
of those sudden bursts which characterize
there(c). Tuning speaks of some sort of irritative
matter which, not being excreted by the
intestines, acts on the liver and produces
abscess in it(d). Copland holds a similar
opinion (with some slight difference),
though his nearly coincides with
what we take to be the true one, still he
makes the one process the Cause of the other(e).
He do not deny that it may have been
apparently so in a few cases; for that the
hidden cause of the intestinal evacuations
may have hastened the morbid process which
developing itself in the liver; yet we
(a) W. Geddes, in Calcutta Med. & Phys. Trans., V. 6, P. 333.

(b) Andral, C. Med., V. 4, P. 18. - Delort, V. 1, P. 140.

(c) Ballingall, V. 33, P. 41. - Annesley, V. 1, P. 403. - W. Geddes, op. cit., P. 284.

(d) Annesley, V. 1, P. 405 & seq., 179.
Think that this process was established before the effusion of the intestinal symptoms, that the establishment of suppuration would have been brought on by any other cause acting in a similarly detrimental way on the liver. We cannot subscribe to the idea that suppuration is of a serofibrinous nature. Still less that the collections of pus found in the liver are mere deposits of a product of a morbid action, unpreceded by any inflammatory action whatever.

Both these theories are founded on the well-known facts, that not infrequently the process preceding the formation of those abscesses is of an exceedingly short duration; and that so obscure and insignificant are the signs of such momentous changes that they have often been discovered only after death, when nothing during life had led to suspect them.

But even in idiopathic inflammation of the liver, the symptoms which indicate it are far from being produced by any means in a way with the mischief which is going on, and in dysentery the natural dulness of the organ, the more urgent sufferings caused by the disease of the bowels, together with the constitutional disturbance which, even at the time, contribute not a little in masking or even completely obliterating any signs that could have led to the discovery of the liver disease. That it is an inflammation of a peculiar nature, nothing therefore tends

(b) Liébert, v. 1, p. 15.
to enforce the view; though we find it greatly in favour of a Scrophulous Constitution, yet it is no less true that we also meet with it in others who do not present the least traces of such a tendency. It is not at all necessary to call to our aid any such theory to explain the manner in which inflammation takes place in the Liver; the consideration of the circumstances under which it is developed sufficiently account for all these phenomena. Besides in Europe, abscess is very seldom met with (2), though certainly no doubt is there found in many scrophulous patients. As to the abscesses being due to deposits of pus, unprecedented by any inflammation, it still remains to be proved that pus can be produced without a certain amount of this process, small though it be under certain circumstances. While, on the other hand, more than one instance has been met with in which decided signs of inflammatory action accompanied its presence.

23. It may not be amiss to say a few words with regard to the presumed difference existing between tropical and that occurring in cold climates, which, no doubt dependent merely upon the circumstances under which both develop themselves, is entirely one of degree and not of kind. All it is need
(a) Bronislaw, histoire des Théogonies, p. 196 v seq.


with in Europe, Dysentery is less severe than in warm Countries; more seldom assumes those forms which have been denominated Adynamic and Fetal; and is rarely accompanied by structural disease of the Liver, though by always greater or less alteration of the bile. If we remember thatarious agencies, to which we have attributed the production of Dysentery, are beyond any comparison more rife in warm than in cold Countries, we readily perceive one reason why there should be such a difference in the prevalence and intensity of the Cause. But this is not all. The peculiar action of heat, above all when combined with moisture, in heightening the sensibility of the intestinal mucous membrane and rendering it more prone to resent any irritation, is the fact that in the disease under consideration, it is called upon to make up by an increased secretion of water for the arrest of those cutaneous exhalations which in warm climates, attain such a high range (a) — and above all, the increased vascularity which is the result of both these Conditions (b) — will readily account again for the different features which Dysentery assumes in different Countries. And thus it is that, on the one hand, the greater intensity of the Cause renders the disease itself more severe; while

On the other, the peculiar condition of the disease in which the malady manifests itself will sufficiently explain, even were the intensity of the cause the same, the difference in the severity of the local affections which it produces. It must not be believed, however, that dysentery never shows itself in Europe as it does in warmer countries; but the circumstances which attend upon its production and the causes which give rise to it are but once with in the same or nearly the same degree; and we see it requiring similar characters either in its epidemic tendency or its fatal severity, as in those latter climates. The greatest implication of the liver in this called tropical dysentery can be accounted for on nearly the same grounds; and as we have been that heat has a peculiar action on the intestinal mucous coat so it exerts a similar influence over the liver. In warm countries it falls to the share of this gland and we believe somewhat to that of the mucous membrane of the bowels alike to make up by increased activity for the diminished power of the lungs in secreting carbonic acid and water. This increased action, besides perpetuating an increased amount of blood in the vessels, further depresses its vitality by its continuance; and therefore predisposes to assume more readily any morbid excess; and when such takes place, impairs

(b) Annesley, Vol. 2, p. 233, 285 —
to power of resistance to its progress. That this is the case, is readily proved by considering under what circumstances the different grades of affection of the organ come to be established. In the natives of those countries to who are by no means exempt from dysentery — in whom it is but reasonable to presume that they have a liver adapted to the climate of their climate; though we meet with great functional derangement of the organ, greater indeed those in other nations, liver structural disease is of exceedingly late occurrence. If we go a step further, we see that such alteration of nature becomes rather more frequent in those who have newly arrived to tropical countries, and in whom the organ as yet performs its excising functions, though in an increased degree, with great vigour; and have not yet been brought under the influence of debilitating causes. But most often do we meet with organic lesion in old residents whose whole frame is entangled by a thousand circumstances, or whose liver has had its vitality depressed by the causes mentioned above, or that have been already affected by disease — or again among those new-comers who having laboured under many difficulties on their passage and meet disease only with impaired vital powers. These facts will explain sufficiently the supposed
difference between Dysentery as it manifests itself in warm or cold climates; and it will be obvious that such differences are only of degree of intensity, both in the cause and effects of the disease; and not one of kind, depending upon causes different in their nature.

I have thus endeavoured to show in the first place, that inflammation of the mucous coat of the bowels, in what has been called dysentery, is not a purely local disease, depending upon those causes to which it had been hitherto attributed, as local irritation, heat, cold, &c., and affecting the economy secondarily; but, in the contrary, is due to a cause exciting its influence on the system generally, first and through it the peculiar tissue and organs of the body; which cause belongs to the class of the Malarial, and of which we see most positively the effects, though ignorant of its nature and mode of action. These also pointed out after establishing the existing powers of the intestinal mucous membrane and of the Liver, that the peculiar malarial poison tends to be eliminated by these organs; and that it is during these efforts that the peculiar affections which present in that disease become developed — at the same time calling the attention to the specific characters
distinquishing the inflammation of the lining coat of the intestines, and to the fact that affection of the biliary secretion, not necessarily of the biliary organ, is present in almost every case of dysentery. And thirdly, I have proved that diseases of those organs are not dependant the one upon the other, just explaining how structural lesion of the liver comes to take place, and lastly showing that there is no difference in the nature of dysentery as it is met with in warm or cold climates. Come now to conclude that these affections of the intestines and of the liver, in the malady called dysentery, are not diseases per se, in either dependant upon one another, but by the Conjoined effects of one Cause; having in other connexion between them than their Occurrence, and their ultimate similarity of Etiology in the primary affection of the whole system.

25. — We shall not enter into any lengthened Consideration of the Affections of the Liver and Intestines in Fever; but sufficiently inquire into these intimately in the different forms of fever and their types. Such a task would be unnecessary; and besides plunging us into researches which would prove but high interminable, would
(a) See §12.
also be rather foreign to our subject. For our object is not to study what kinds of lesion develop themselves in those organs during fevers, but when they occur—what the body derives. What Contraction can be said to exist between them.

26. The principle from which we start is, we believe, one which has been adopted by the British School of Medicine, and particularly by that of Edinburgh, and it is this: That those lesions, enteric & hepatic, are the effects, not the cause of the malady.

27. In spite of numerous & ingenious theories, the question remains still to be solved: what may be reckoned the proximate cause of fever? That is to say, what lifeless fluid of the body, fluid or solid, being primarily affected, influences the whole organism? Thus this is too vast and intricate a topic to venture upon; and in the consideration of our subject, it will be nearly, immaterial whether it be assumed that the blood is the first fluid diseased or that the system of organic nerves is the one that is first disturbed, impressed; for those who are of the latter opinion—and we must say that we do not feel convinced by their arguments—allow that the secretions of the body are disordered, owing, at least

in the advanced stages of fever, to the alteration of the blood. Dr. Graves holds indeed " that the changes in the secretions are simultaneous with changes in the blood; and that they are all the result of a common unknown cause," from which words we may infer that the changes in the secretions are altogether independent of those in the blood. Thus, whatever that unknown cause may be, it seems to us rather incomprehensible that such a one should have under whose agency all the secretions of the body — so different in their nature, and proceeding from organs so various in their structure and in their situation — should, without being influenced through (as it were) a common link binding them all, be thus affected simultaneously. Without referring to the authority of so many who hold an opposite view, how far more likely does it seem that the changes in those secretions should be due to the alteration of the blood, from which they are all derived — the common link between them—becoming more abnormal in proportion as this fluid is more affected; increasing its diseased condition by accumulating in it the effects of products which they should have excreted; or returning their own natural characters as it becomes less tainted; and restoring it, by the elimination of the morbid canes, to its former purity.
(a) Watson, V. 2, p. 942. — Copland, V. 1, p. 905, 910.
Graves, op. cit., V. 1, p. 1024 seq.
It is during these efforts made by the existing organs that we believe the structural lesions, which we sometimes meet with in them, become established. It is not our province to show how these, under the circumstances which attend their development, may occur in the different organs. For it is necessary to point out those local changes at they take place in the livers and in the intestines as in the same way as they are produced in dysentery so they are also in fevers! Though their affections may be present in a comparatively few cases; and in some forms of fever, such as those which have been called bilious and tertian, more than in others; and though their frequency of occurrence may seem, in some slight degree, to be influenced by locality and season, yet they show themselves, in the generality of cases, only some time after the outbreak of the disease; and present in their development, progress, and consequences, features analogous to those which are seen in dysentery. As a general rule, however, it would appear that the bile is far oftener altered in all cases of fever than the intestinal secretion; and very likely this is due to our readier means of testing the healthy character of this former fluid, than the products of the latter organs. In the other hand,
thinks that actual disease of the Intestinal mucous Coat is more frequent than structural change in the parenchyma of the Tissue; though in this again the same fallacy which we have been so apt to mislead in dysentery, may also exist here.*

* From the Consideration of such facts it becomes obvious that the diseases of both organs cannot be considered with regard to each other as Cause and Effect; and that

*Note:—These attempts at generalisation are the result of the impressions left on my mind by various readings on the subject of Fever. I do not know of any particular authority saying exactly the same thing. — As an excelling organ, the villous membrane of the digestive Canal seems to admit of no very marked division into two distinct parts, viz. Small and Large intestines, at least in the way in which most authors have considered such a division to take place: as the Ileo-Cecal Valve. It is true that in some diseases, one or other of these portions appears, as a pretty general rule, to be more affected; but it is certainly not exclusively so in every instance. For if we take an illus-

*trations of our point the lesions of that membrane in dysentery and typhoid fevers, which lesions are usually reckoned as confined to the Large in the first case, and in the second to the Small Intestines; it becomes as once
(a) Copeland, V.1, O.934, 949, 1013.
He more Colours of the Coats of the Duodenum, jejunum and ileum with bile, no more than the purging or vomiting of bilious matters can prove the affection to be primary; seated in the liver, and the union of the intestines to be merely resulting from the effect of acrid bile upon the latter. Bearing in mind that we have already said of the excrétive functions of these organs, we infer that their affections in fevers are the result.

Errors from so many recorded observations that much a distinction is far from holding good in many cases. Thus in dysentery - the true dysentery, not the simple idiopathic inflammation of the mucous coat of the large intestines - we have very often the lower part of the small also implicated, though in a minor degree (Ballingall, Annesley, Ancum; Parkes seems to be of the contrary opinion); and in fevers, the large intestines are, together with the small, very often affected, and sometimes to an equal, if not a superior degree (Andral, Bright, Luce, Chomel, Annesley. - ). It would seem indeed that the portion of mucous membrane, which extends from the middle of the ileum to the middle of the ascending colon is that which, in diseases analogous in their nature to those mentioned above, performs in a most energetic manner the work of excrétion; that as the cause of the disease becomes more intense, the lesions which result from over-action of the mucous
of that one Cause which acts primarily on the System generally, and that, as in the Case of Dysuria, the Connexion between them consists directly in their Existence and their dependence upon the same Cause.

30. We proceed now to the consideration of a disease in which

stand on both sides, but in by far the majority of cases along the remainder of the mucous coat towards the End of the Lecture: and that in some where the blood is contaminated to the highest degree, the beginning of the Canal, even up to the Bladder, becomes involved. It is very seldom, however, if ever, the Case that the whole digestive mucous surface becomes affected, and the involvement of its various parts appears very much to differ with different epidemics of the same Malady. All phenomenon certainly most inexplicable by all that we know of that tissue and of those diseases which are liable to act upon it. As a general rule, however, it may safely be laid down, that the more intense the cause of the disease, Ceteris paribus, the greater will be the amount of mucous surface affected, the severity of the affection itself, certainly influenced by the degree of intensity of the Cause, depending perhaps more on individual peculiarities and Contingent Circumstances.
we find the Liver and Intestines sometimes affected to a very great extent, and only functionally, namely, *Sporadical* or bilious Cholera. In this affection we do not meet with so much discrepancy as to what are to be reckoned Causes and what effects: though here again we have one class of writers holding that the derangement of the intestines is nothing but the result of one previously established in the Liver; whilst the other class merely reverse this order. But I believe it is admitted by most that the original Cause, predisposing at least, is external to the body and to be referred again to atmospheric agencies, deemed by some specific in their nature, by others more general, that is to say, depending simply on great elevations & sudden vicissitudes of temperature. This latter opinion seems the true one, as we shall endeavour to show. Nor do we reckon affection of one of the two organs to originate that of the other; but both to be produced by one common Cause acting on them in the same way.

31. There is not the least doubt that in *Sporadic* Cholera both the Liver and the intestines are involved nearly at the first manifestation of the disease. The evacuations by vomiting and purging, which sometimes go on to such an alarming
(a) See § 44.

(b) Dr. Brown, in op. cit., V.1, p.391. - Copland, V.1, p.36.
extent, bear witness to this statement. The presence of bile is indisputable; whilst
not of an extraordinary amount of
secretion and exhalation from the intestinal
mucous membrane is to be had in the
quantity of liquid ejected. They some it
has both said that the first effect of the
cause of the disease is to produce an
irritation of the mucous coat which is
propagated to the liver by continuity or
sympathy; by others, this order has been
inverted, and it has been conceived that
the irritation of the mucous coat is due to
the altered properties of the bile, we shall
have occasion to revert to the question of
production of morbid action in the liver from
called sympathy with the intestinal
mucous surface (a); these we need only say
that, however possible this is and although
when once the disease is established this
so-called sympathy may tend to keep it up
in the liver, yet it is difficult to conceive
how such intense and general affection of the
organ may at once be produced by it (b). So
sudden indeed is its occurrence, so contra-
versely does morbid action show itself in
both liver and intestines, that on this may
have founded the theory that affection of
the former precedes that of the latter.

The mode of action of the cause of sporadic
cholera is besides too clear and too simple,
and too decidedly influences the liver.
directly, to make it necessary to revert to any such explanation of the establishment of disease in it. As to its propagation by Continuity from the intestines to the liver; local in duodenitis, a higher grade of morbid action than mere irritation and more likely to be propagated along the same tissieu, we have not always Baldwinization of the liver supervening upon that of the bowel; so that we hardly think this mere irritation can be so invariably and so instantaneous only conveyed to the former, as has been presumed to be the case in sporadic cholera. On the other hand, the quantity and quality of the bile have been blamed as the production of the functional derangement of the intestines. It has been said that a great quantity of bile, acid too in its character, had accumulated in the gall-bladder and liver; and that on a sudden the whole burst upon the intestines and produced irritation of their mucous coat (a). But we are not told what had given rise to such an enormous secretion of bile which, according to this theory, must have taken place before the outbreak of the disease? For what had kept it accumulating there? For what had made it acid? These were facts assumed, but not proved, to exist; merely to account for both the undoubtedly great amount of the
(a) Watson, V. 2, p. 483. - Cullen, V. 2, p. 186.

(b) Histoire des Phlegmasies, V. 2, p. 182.
Biliary fluid and the intestinal secretion; and we shall endeavour to show how unnecessary such assumptions are to explain the phenomena of the disease.

Sporadic cholera occurs mostly, and in temperate climates always, during the warm condition of the atmosphere, when the functions of the skin are being performed with the greatest vigour. This warm condition of the atmosphere during its prevalence is invariable: the disease besides breaking out always under such circumstances as cannot be attributed to mere coincidence, becomes more severe and more general, the more this obtains; and it has further been remarked that the earlier the hot season sets in, the earlier also do we meet with instances of the calamity (a). This may be reckoned the predisposing cause, besides the great effect so forcibly insisted on by Pothier, (b) during such a state of the atmosphere, especially when moisture is also present to the air, the intestinal mucous membrane is in a more irritable condition than under other circumstances. We do not therefore need such certain proof of the liver being in a similar state of irritability; but this we know, that during high ranges of temperature it is likely that this gland will be in a certain state of congestion, from its being
(a) See § 23.


 Allied to excrete, in conjunction with the
skin and intestines, that portion of the
Carbonic acid and aqueous vapours which
the lungs no longer separate from the blood.\(^a\)

Yet it does not follow from this simple
state of congestion that there should be such
an enormous secretion of bile; nor that the
bile then secreted should possess acid properties,
so some have gratuitously assumed. It is
admitted on all hands that the exciting
cause of the disease acts when the body is
in the conditions already noticed, namely:

A highly active function of the Cutaneous
surface, an irritable state of the Intestinal
mucous membrane, and a more or less
congested state of the Liver. That exciting
cause is most generally a chill, or a sudden
attenuation of temperature, or anything tending
to upset the nicely-adjusted balance between
the Skin on the one hand, and the Liver and
Intestines on the other; for even when it
cannot be distinctly made out, we have
irresistible evidence that the secretions of the
Skin have been suddenly arrested.\(^b\)

This we believe to be the immediate exciting
cause of the disease: arrestment of the function
of the Skin, while it was in the greatest
activity. Now, bearing in mind the peculiar
antagonism which exists between the Skin
and the mucous membrane of the Intestines
and the Liver \(^c\), it is easily understood
how the mass of blood that was circulating

\(^a\): Refer to text...

\(^b\): Refer to text...

\(^c\): Refer to text...
(a) Annesley, Vol. 1, P. 36, 522.
in the cutaneous surface is directed to those viscera in which there already existed predisposition to irritation, namely: the liver and intestines. This, no doubt, is the origin of that excitation of functional activity which soon comes to take place; the vitality and vigour of the organs thus avoiding the inflammation which would necessarily follow, were not the congested state, into which they are suddenly thrown, reliefd (a). Incredibly abundant in these evacuations sometimes are, increased respiration and exhalation from such an extensive surface as the mucous membrane, together with the increased quantity of bile, the best account for them. We are far from considering that bile is present to an enormous amount than some have believed; at the same time we heed how tender that it can also be considerably augmented in quantity. When we reflect that all the elements of an abundant secretion are not birth in this disease: increased amount in the blood of those materials which are destined to be excreted by the liver, - water vapour & Carbonic acid; a highly congested state of the organ; these materials being thus particularly carried in great quantity to it. Iron absorption of the greater part of its products by the intestine; deranging physiological conditions the whole being thus ejected externally. As to their
(a) Dr. Brown, V.1, p.382. - Copland, Art. "Cholera."

(b) Dr. Brown, V.1, p.382.
Acidity, we have no more proof of this than that the Intestinal Mucous is Acid.
The fluids evacuated have often this character, but I believe that it is due to the
functions of both organs — which we can understand very well — may be altered from
their normal qualities under those morbid
conditions — perhaps rather more to the
one than to the other, but not exclusively
to one of them alone.

33. A further proof that to the arrest
of the cutaneous functions is due the
origin of all the mischief, is that the
reestablishment of these functions, as
evidenced by a return of healthy perspi-
ration — from the cold, clammy sweat —
indicative of exhaustion — is one of the
most favorable symptoms of the abatement
of the disease.

34. Sporadic Cholera has sometimes
been attributed to the influence of a
malaria of some sort or other, principally
on the grounds that it takes place when
malaria is most rife, and that some Cases
of fever are preceded or attended by it (a).

Yet, in the first place, nothing is brought
forward to defend this theory, except a
few facts which may nearly be construed
According to one's own fancy, and have
remnants enough to found any theory upon (b).
(a) Great Britain in general, Edinburgh particularly.

(b) H. T. of Prof. Climaxes v., p. 396 sqq.

(d) Annecy, V. 2, p. 104. — Copeland, V. 1, p. 321.
Besides it be argued that the disease lasts more generally and in greater severity during those states of the atmosphere which favor the development of malaria; we answer that these greater prevalence and severity are more simply due to the greater intensity of the Causes we have mentioned: these very Conditions of the atmosphere. Further, the general prevalence of the disease in Countries which are not known to be malarious to any extent (a), is opposed to that view. And lastly, the agency of a malaria is not needed to explain either its occurrence or the phenomena that attend it; all which we have shown are to be accounted for in a simpler and less exceptionable manner.

Sometimes during the disease, the Stools assume the viscid, watery Characters; and this description of it has been thought by Johnson to be a Variety of the Acute Cholera (b); whilst Annesley thinks, and proves it to be a mere modification of the sporadic (c). The absence of bile, to which the peculiar appearance of the Stools is owing, may be explained either by stagnation of the Bile, or of the duodenum. Causing Constriction of the last (d); or else by the Congestion of the Liver being carried to such a point as to put a stop to its functions. We shall not enter the Considerations of any of the other Symptoms of the disease, in as much as they are beyond
the scope of our subject, and they are readily applicable by general principles. Only, as we have seen that there is no reason to think the bile particularly and exclusively avid in this affection, so we cannot attribute to the agency of this fluid alone the spasms of the muscular coats of the intestines; more likely these are mostly due to the irritation dealt primarily in the mucous membrane itself. And from these views we infer that in sporadic cholera, the functional derangement of both liver and intestines is the effect of a cause originating in neither organ, but acting on both in a similar manner.

§ III

36. After having run over some affections of the Liver and Intestines having no other relation between them than their coincidence, being inevitable effects of distinct causes, we are now going to glance at others which have a more intimate connection, and which stand, with regard to each other, as cause and effect. Formerly it was thought that most of the diseases of the intestines originated in the Liver, whilst those
of the latter diseases were generally idiopathic. The reaction now has taken place, and medical opinion inclines rather the other way. That some diseases of the intestines are primary, and even if not so, may yet react on the liver and cause disease of this organ, no body, I think, can reasonably doubt; and the greater authorities, principally of late, favor this view of the subject. Several points, however, remain yet undecided; though the advance of Anatomy, Physiology & Pathology has done so much to clear many doubtful ones. And several affections of these organs are attended by symptoms for us still to observe and by post-mortem appearances so vague, that much remains yet to be done before we can arrive at satisfactory general Conclusions.

37. The second group of diseases I shall examine will comprise those which originating in the intestines, either directly or otherwise, cause afterwards affection of the liver. We shall merely mention the production of abscess of the liver, from Cholecystitis occurring somewhere in the organs which return their blood to the liver. We have seen that, in dysentery, a distinct school would have all the species of that organ to be produced in that particular way; and though we have opposed that view and pointed out the strong foundations of such
(a) See §22.

(b) Andral, Ch. Méd., t. 4, p. 185 seq.; Mémoires de l'Académie des sciences, t. 2.
A theory, even when supported by such authorities as Hudd and Debar, yet we do see, deny, but that in a few cases it may have been so: maintaining however that these are the exceptions, not the rule, for reasons already given (a). As to those which may truly be ranked under the head of the so-called secondary abscesses, it is not our object to notice them at length. Their pathology is pretty well known after the experiments and researches of modern observers. Among others Cruveilhier, Andral, Debar, etc., who, though they differ in some points, yet agree in the principal ones. They occur in all lives principally, when the Pilebitis takes place any where within the abdomen, just as they are found first of all in the lungs when the primary injury lies in any other part of the body. It is their great feature is that they are not to be found in any one of the organs exclusively, but more or less involve all those of the body (6). Indeed it would seem that Pilebitis occurring in any of the abdominal viscera, by no means causes the production of abscesses in the liver in preference to the lungs. For if we refer to the cases of secondary abscesses resulting from acute pilebitis and angiolenticities collected by Donville—which can be depended on in account of the care bestowed on the post-mortem examinations—we find that in 134 cases,
(a) Archives Générales de Médecine, V. 22, p. 484

(b) Buda, op. cit., p. 70, 71
In which fluid was discovered in the veins and lymphatics of the uterus after death following periperal fever, he ascertained the existence of abscesses in the lungs 8 times, and in the liver only thrice \((a)\). If any circumstance seems to me astonishing, it is that these abscesses are not more frequently met with in cases of extensive disease of the intestines, seeing that all the conditions which might lead to produce them are, to all appearance, to often present \((b)\). In some cases of typhilitis, both secondary abscesses (among other organs of the liver also) and affection of the bowels are found existing together. Such cases are very analogous to some of the worst forms of putrid fever. And the connexion between both complaints seem to us to be capable of explanation in different ways, or rather to be a combination of the two explanations we have already offered: the affection of the bowels is produced in the same way as we have seen it takes place in typhilitis; and abscess of the liver follows the general rule of secondary abscesses which, according to us, partakes more or less of that which determines the production of dysenteric liver.

\* Note — "C'est à une inflammation locale que nous attribuons tous les épanchements..."
38. There are two other diseases which are found Conjoined with affection of the Liver. Chronic diarrhoea and Chronic dysentery. And about the nature of which we shall offer a few remarks, before proceeding to examine their relation to affection of this gland.

39. They are still generally reckoned

It is the existence of an inflammatory process preceding the formation of the so-called secondary metastatic abscesses. This is now a matter of fact. But it still remains a disputed point what gives rise to these inflammatory processes. The latest doctrine seems to be the acknowledge concept of a "adipathie floridante" (as Lebert calls it), or what comes nearly to the same thing, of an irritating property existing in the blood, contaminated by the admixture of pus. Calpably assumed facts these are: if it be allowed to assume, as the foundation for an argument, the existence of peculiar deathness, as in this case; there is no phenomenon, however obscure up to this day, which will fail to be Capable of a satisfactory solution. Without entering into details on the subject (which of course I cannot do here);
as two distinct diseases. But if we consider the symptoms by which they are indicated, their effects on the digestive system in particular, or on the Constitution in general; the fact that they pass into one another, and that they are reciprocally the results of the Causes to which each is more commonly attributed; and the pathological appearances discoverable after death, it will be clear that they are one and the same malady (a). They usually

in citing any arguments against the doctrine the debate have been already profounded, or in support of the explanation which I think may be given of the formation of those so-called abscesses: I shall only say that I believe that inflammation which gives rise to them is the result of a work of secretion which, performed by organs whose vitality is impaired both by the general depression of the nervous powers and by the quality of the blood from which they derive their nourishment, is still greater than what they are accustomed to in healthy conditions. That inflammation modified by the state of the system, of the blood, and of the tissues in which it takes place, goes through the same stages as an ordinary one. The exudation, pointed out under those circumstances, deficient to the extent most in fibrin, becomes immediately transformed into pus; which cell-formation
retain such stances when they have been consequent upon preceding affections which presented either diarrhoeal or dysenteric characters; but it is quite evident that no more should the one be called chronic dysentery because it has followed upon dysentery than the other denominated chronic fever when it has succeeded an attack of some fever. The intestinal lesions in both cases are nothing but symptoms during the disease.

is further more or less abortive as it can take place in perfection only under the influence of certain vital powers and during peculiar conditions of the fluid in which it originates: circumstances which, in this case, are wholly wanting or materially altered. These things are founded on the following grounds, which are merely heads of argument: 1. that excreting organs eliminate all morbid matter existing in the blood; 2. that in health, the fortition in the conditions here existing, inflammation results from their combination; 3. that the secondary abscesses, or inflammations of a low grade, are principally found in excreting organs; that, as a general rule, those white functions are most active in health are also most involved there; that in these, those parts where excretion goes on with greatest energy, are where the capillaries are most luminous, are most
Which gave rise to them; and after this has disappeared, they constitute properly a disease per se. Whether in chronic diarrhea or in chronic dysentery, these lesions are the same in nature and are the results of a chronic inflammation in all its grades, with the several consequences which it can produce secondarily, such as thickening or thinning of the mucous coats, constriction or dilatation, of the digestive canal; all sometimes met together in the same case.

Affected: 4. That the existence of purulentcollections in what are generally reckoned secreting organs, as the serous membranes, prove nothing against this view; as I believe that all secreting may and do become secreting organs in many conditions of the blood—the difference between both having been besides but imperfectly settled by Physiologists: 5. That when recovery takes place in those cases, it is preceded often by evacuations of matter through some secreting organ or organs such as liver, serous membranes of the intestines, skin, kidneys) altogether different from what is seen in health and even in disease in general, and which are obviously critical evacuations.

(b) Abercrombie, C. 246.

(c) Annesley, V. 2, C. 342.

(d) Annesley, V. 2, Cases 207, 208 - Abercrombie, Cases 143, 149.
These lesions, not even according to their situations, but according to some precedent of a certain principal distinction, have been thought to constitute a difference between the forms of so-called diarrheae and dysenteries. As in both we meet with ulcerations, chronic inflammation and enlargement of the glands, of the mucous membrane situated at the same time in the Large and Small Intestines (a), and unless a portion only of these latter or of the lower extremity of the Colon and Rectum be diseased, the depictions themselves cannot guide us in distinguishing between the parts affected (b).

40. After these very few words on the nature and characters of the disease, let us mention the theory which has attributed it to affection of the Liver, especially to alteration of its secretion, whatever this may be, or to removal of the facet or undigested food in some part of the Canals (c). These theories are only corollaries to those others which attribute acute diarrheae and acute dysenteries to the same cause. But, to dismiss them in a few words let us only say, with regard to the first, that disease of the Liver is done with, without the appearances enumerated above existing in the Intestines (d); and, on the other hand, chronic diarrheae and
(a) Annesley Cases 204, 205. Abercrombie, Cases 105, 118,

(b) See § 9.

(c) Parves, A.A. - Andral,취의 vs., U. 2, p. 29, 55.

(d) Budd, 1.748.
Chronic diarrhea are found without any affection of the Liver (a). As to the second, in opposition to it the same arguments which we brought forward against the opinion that the acute disease is due to the same cause (b). And we need only add further that if the cells of the liver and colon have been found convenient for the lodgment, during a great length of time, of the irritating matters; there are no such cells in the small intestines, and yet exactly the same changes are found there as in the large.

It is also argued that when the secretion of the liver has been assisted for a long period, chronic diarrhea may be produced; but it seems to me that there are no facts brought forward to defend this theory.

Cirrhosis is mentioned as a case in which there is found enlargement of the glands of the small intestines; but mere enlargement of these glands does not seem sufficient to constitute chronic diarrhea (c).

In Cirrhosis itself there is a greater tendency to constipation than otherwise (d). We readily grant, and we think there is no doubt, that when the liver is involved from the beginning, or becomes so in the course of the disease, it may directly or indirectly, increase or keep up the affection of the bowels; but we do not believe that whatever be the morbid
a. Annesley, V.2, p.321
Action developed on it, it can cause it altogether.

It is comparatively rare occurrence that these diseases exist primarily; they are usually the consequences of acute affections, such as dysentery, fever, repeated attacks of diarrhoea, &c. (a). In fact, in the great majority of cases, they flow upon those conditions in which there is much reason to suspect that the liver has become also implicated. But by whatever cause they may have been originally produced, and whether the liver had been affected or not at the beginning, we shall assume that at some third of other of the disease, this latter being had resumed its healthy functions. The instances in which this last condition exists are indeed comparatively few; as more usually, the previous affection of the hepatic organ, even though it may have diminished in intensity, does not disappear entirely. A consideration, nevertheless, of the symptoms in some cases, and the knowledge that, together with structural lesions existing even to a large extent in the intestines, the organ had been found healthy, entitled us to hold that sometimes its affection is consequent upon the latter. No doubt that when it has been already
seriously implicated, the state of ability in which it is left, even after apparently perfect recovery, makes it more liable to attacks of the same or other diseases, as it the case with any other organ in the body. We have mentioned very shortly of what nature is the lesion of the mucous coat. With such an affection of this coat, digestion is necessarily very imperfectly performed, and if the food indigestible extemately, it is scarcely performed at all. This is shown in many Cases by the nature of the secretions which contain undigested particles of food, sometimes in great abundance. With whatever quickness food so imperfectly changed may pass through the intestines—so much indigestibility occurs in these instances in which several defecations take place daily, it must to some degree cause further irritation of the diseased parts of the membrane, and moreover be partly absorbed by such portions of it as can still fulfill that duty. These absorbed matters, taken in when digestion has not sufficiently prepared them as in health, are carried on the one hand to the mesenteric glands, or the other to the liver. When the liver is perfectly sound, or even where it is but slightly impaired, it is probable
(a) Amnesley, V.2, p.350.
that it will at first be scarcely influenced by such causes of irritation which we believe, are neither large nor intense in nature. But blood now contaminated being constantly brought to it, after some time, it will begin to receive those causes; and its functions, which may have been altered most or least from the commencement, will become decidedly so. That the blood containing those irritating or at least unhealthy matters can have such an influence on the hepatic organs borne out by the analogous processes which, under similar circumstances, and even in the same case, go on in the mesenteric glands (a). These glands also undergo changes which cannot be referable to the absorbed matters they receive. And the analogy is even closer than at first sight may appear; whether by the absorption or by the partial absorption of the imperfectly digested food, together with constant removal of the effused products of inflammation of the membrane, take place. These are then conducted to mesenteric glands and liver; and in both from blood containing such materials, by processes identical in nature if not exactly similar. A new substance must be formed: chyle on the one hand, bile
on the other. If then we have in the first case, of necessity, as first an unhealthy product formed from that blood—As no doubt Angle from such a source must be—And gradually, though often after a long and always after some time, a kind of irritations set up in those glands, becoming not infrequently to inflammation: Can we not reasonably infer that the same changes will take place—though perhaps less readily—in another organ, placed in the same conditions, and performing similar functions? It may be, that in some cases, either from the very small amount of such absorbed flatus; or from their being nearly free from any irritating properties; or again from some particular constitutional disposition of the liver; it resists all tendencies to become diseased, and gets accustomed, so to say, to those involuntarily causes; as there is no doubt that an organ may remain healthy under circumstances which are not generally met with in health. So that alteration of habit, the sort of immunity from disease, may attribute the fact that affection of the Liver, at least functional, is not more frequently met with in Chronic lesions of the digestive mucous membrane. That indeed is found in the minority,
(a) Amesbey, v. 2, v. 344.
of Cases (a), for when either from
contraction of the tubules or from an
unhealthy state of the organ, it at last
takes on a morbid action, we
think it is due to its becoming less
and less capable of resisting the
constantly renewed irritation; and
from a mere state of functional
arrangement—very likely existing in
nearly every instance to a greater or
ger lesser degree—falls into one of Chronic
and sub-Acute inflammation, which, at
first minor in degree, may, by length
of time or the superintervention of Contiguous
causes, assume a more Acute character, or
some very rare cases end in the
formation of an Abscess.

42. Such we imagine, is the way in which
an disease becomes established in Cases of
many Chronic diarrhoea and dysentery; or
thereafter having been affected functionally or
otherwise, it had returned its normal functions
at some time. And in the same manner
explained how, in other instances in which
it had been from the beginning implicated,
the Continuance of the Intestinal disease,
after its Cause had been removed, produces
increase of its affections.
The connexion between disease of the Liver and that of the Duodenum, to which we come now, is a double one; for it is probable that primary disorder of any of these may react on the other. In which of the two does it more often originate? is a question which lies still undetermined. The opinions of those who have treated of this subject are much divided; but yet it would seem that here again we can trace the modern tendency, which would inadmissible to spring generally in the duodenum and thence influence the liver. If we endeavour to study facts as they are presented to us by the symptoms which accompany their affections, we come to the conclusion that it is difficult during life to state with much certainty, in many a case, that that of one organ preceded the other; and tramini and death have intervened, too often throws no light whatever on the question.

We have evidences that disease was established in both; we may even discover the high which connected the morbid processes together; but still the question of the certainty from which side did the high spring? Of course such uncertainty does not always exist; and its production in one case may be clearly understood, provided we obtained distinct appearances; as that in which
(a) Andræ, cl. Med., V.4, p.20.

(b) Dr. Burder, in Cyp. of Pract. Med., V.3, P.5.
Samudice supervenues on inflammation of the duodenum. In such a case as this, we know, on the one side, that samudice does not of itself produce jaundice: whilst, on the other, we are certain that occlusion, partial or complete, of the mouth of the ductus communis chol- edochus can be caused by inflammation of the mucous coat on which it opens, that inflammation more or less involving generally to some slight extent the lining membrane of the ducts themselves; and however precautionary all other causes of jaundice, this is one of the best ascertained(a).

44. It does not fall to our share to examine how samudice is produced, but merely how its existence becomes established under certain circumstances. Some have asserted that it may also be due to occlusion of the common duct by inspissated mucus; and pretend that many of the cases which have been attributed gratuitously to jaundice, are probably of this nature (b). We confess that but do not at all feel convinced of the truth of this theory; for not only have we no proof that mucus, however inspissated, has occluded that duct, but again that the inspissation of that mucus was such as to produce a complete obstacle—however short a time during which—

(b) *B. M. Ed.*, V.4, p. 53 f seq.
The Jaundice may have lasted to the disturbing properties of the bile, precipitating behind it. Besides this sort of mechanical production of Jaundice — by the inflamed and swollen biliary membrane — there is another which has been attributed by Richet to a certain sympathy existing between the liver and duodenum; as it is of opinion that such a sympathy exists between all glandular organs and the surfaces on which their ducts open; and that irritation of the latter may, therefore, in some way or other, affect the former (a). We shall not examine what he means by the term sympathy; but evidently, in this Case, as we believe in many others, the nervous system becomes the link of communication between both affections, as has been hinted by Androll; and there can be little doubt that, as the latter thinks, it is far from unreasonable to attribute to such an agency some Jaundices for which we can find no other satisfactory cause (b).

Anatomy teaches us that, as far as nervous connections between the Liver and Duodenum are concerned, any irritation of this latter viscus may be transmitted directly to the former, for besides that numerous indirect communications exist between the nerves of the two organs, we have further the Gastro-duodenal
(a) Gurney's Anatomy, edited by R. Gurney & W. Sharpey, 1896 (4th ed.).

(b) Stokes, in Cyc. of Pract. Med., V.2, p.60.
which is furnished directly by the hepatic plexus (a). And principally by means of that distribution of their nerves, he would explain the way in which any irritation, applied to the branches of the former plexus, would be conveyed to the latter. And reflected to the other organs supplied by it. Yet, however plausible such a theory may be, he must not be carried away by the idea that it forms at all an invariable rule; for, he had nearly said a general one. For many cases and met with other combinations of the duodenum, of such a nature as must undoubtedly produce some degree of irritation of the borders of this organ, and still unattended by symptomatology, was nothing can yet be laid down as certain with regard to the production of this latter complaint under the preceding circumstances. After the subject has been more fully investigated, it is not impossible that all the exceptions, which we think now so numerous, may either disappear on closer observation or turn out to be the rule. The mode of action of the nervous system in checking or exciting secretion is yet unknown; although the existence of such an influence is so clearly established in many cases, that the secretions of the bile may also be

(b) Abercrombie, P. 46, 94 v. seq.
affected in similar conditions. Thus that this same irritation, depending on nervous connections, can go on to produce inflammation in the organ, may be deemed of rather difficult occurrence; and although we do not think it impossible, especially if some contingent cause assists in the development of that morbid process, yet we believe that it must take place very rarely indeed.

45. Hepatites is said by others to be often due to extension of inflammation from the duodenum to the liver by continuity of surface. There may be some reasons to doubt whether this takes place so frequently as some authorities represent. Where both organs are involved, it cannot always, during life, depend upon symptoms to point out which was affected first, as the prospects to very few diagnostic signs to guide us in the separation of the one disease from the other; unless the disarrangement of either organ be so marked as to leave no doubt as to its seat and nature. Further, inflammation of the mucous membrane, above all idiopathic as it is likely to be in the duodenum, is not so apt to extend as is imagined; and of this we have continual proofs in the
(a) Quain's Anat., P. 1073, 1075.
Unreconceived patches of that process, but with in the digestive Canal. And when it becomes, in those tissues, modified by its Causes to such a point as to nearly take on specific characters; we still have that same circumscript etion of the morbid action... The length of surface which that inflammation supporting it had a tendency to spread at such a manner, would have to wear before it could reach the Liver, has been perhaps overlooked; the Common duct is 3 inches, and the hepatic duct 2 inches, long (a). And it must surely involve not only all that extent, but again a certain portion of the Pincos Coats of the ducts within the Liver, before it can cause affection of this kind to any remarkable degree. I cannot help thinking also that the lining membrane of these ducts must be somewhat different, both in structure and function, from that of the duodenum and therefore oppose in this way an other obstacle to the spread of any inflammation originating in the latter: though constantly exposed to the influence of the bile to such a point as to imbibe its colour; yet it does not suffer from the contact of that fluid, not least, from the contact of that liquid.
(a) Andræ, V. 4, P. 68, 374.
tion of this latter organ. But, granting these of the whole length of the Biliary Canal, the duodenal portion to be the only one diseased, we have attempted to show that it could produce disturbance of the biliary organ, either functionally or even structurally. There can be no doubt, however, that this order may be reversed (a) and the liver. Consider once for all how primary affection of the liver may affect its lumina best on the Duodenum.

47. The liver, just like any other organ, is liable to disease, which affect it alone and primarily, or which may be the result of causes having previously acted on the systems, or influencing it together with other parts of the frame. Yet in all these cases, the duodenum may be as free from disease, or not liable to be brought under the influence of those causes which acted on the Hepatic organ. But on account of the irritation it is subjected to by contact of altered Bile, a morbid action in some instances, becomes developed in it. Though it be not proved that in all affections of the Liver, bile is changed to any notable degree, certainly these affections involve
(a) Andral, C. Med., V. 4, P. 130. — Precis d'Andral Cathol., V. 2, P. 611, 612.

(b) Andral, Precis V. 2, V. 2, P. 613.

(c) Andral, C. Med., V. 1, P. 374, 406.
A tolerable portion of the gland, is necessary (a); yet in some cases of the former condition, and in nearly all of this latter, we can understand how the characters of the secretion of the diseased organ can be changed; and acquire, among others, irritating and acid properties, the existence of which actual experiment has demonstrated (b). Of bile, having such qualities, flow over the mucous surface of the duodenum, the natural result is that after some time shorter in proportion as the acidity of the bilious fluid is greater—a certain state of irritation is produced in those parts. In the course of this condition or mode of action of the bile at the time, but the feelings of the patient, the development of certain symptoms, together with our knowledge that such may be the case, can point out to us what is going on. That irritation, even if it continue for a short length of time, necessarily disorders the digestive process as this spot, besides that the peculiar action of the bile on the digesta is obviously stopped, and this is still described as duodenal dyspepsia, though originating primarily not in the duodenum. If the irritation lasts still longer, some degree of sub-acute inflammation
May further supervene, which will be constantly kept up by the same cause which originally produced it. Nay, as chronic inflammations of mucous membranes in general, and particularly of that of the alimentary canal, are obstinate; we may have the disease generated in the duodenum producing as great derangements of the system as the original one—though it easily distinguished—and even surviving the former, should this disappear altogether or become less intense in degree. It may be objected that such irritation can be produced in the duodenum, it may extend also to the jejunum. We are not prepared to assert that it is not often so; but we may say that, as in the duodenum, if it is due to a mechanical cause acting locally, the peculiar agency of that cause may be exhausted at that spot; or, in other words, the amount and acridity of the bile may be sufficient only to exert its peculiar influence on that limited portion of mucous membrane with which it first comes into contact.

48. Thus it is that, on the one hand, the duodenum may come to affect the liver only functionally in most cases,
And in some rare cases, one producing organic lesion when the gland is strongly predisposed to it; and on the other, the brain, in a like manner, may originate disease of the duodenum at first functions, and terminating by continued action of the exciting cause, in a certain degree of inflammation. But however closely related to each other they seem to be when we take into Consideration their various connexions, their nearness, the cause which the bile inner take whether in a state of alteration or not, yet it by no means follows that, as far as we have yet been able to ascertain it, affection of the one should be generally followed by that of the other; for in numerous instances, a normal condition on the one side is found consistent with a diseased state on the other. There is reason to believe, however, that when disease exists to some extent in one of those organs, it does cause functional derangement in the other; though such may not be apparent after death, and may, during life, be masked by the symptoms previously and more intensely produced by the primary affection. Herein, indeed lies the difficulty of setting upon for certain, where disease is lying. In some cases of sub-acute inflammation or even functional disorder, the local &
General symptoms which it causes are so very much alike that the diagnosis is frequently difficult & sometimes impossible. Let us hope, however, that as affection of the duodenum have only of late seriously drawn the attention of the medical profession, and as diseases of the liver and its functions are restricted within proper bounds; the accumulation of facts and observations will soon dispel doubts and uncertainties which still hang over this important subject.

§ IV

Our third kind of connection is illustrated by those diseases which, related primarily in the liver, cause subsequent disorders of the intestines. Such sequence was thought the most frequent by the older writers, who had an idea that bile, when altered, exerted a multifarious influence over the mucous membrane of the digestive canal; and that affections of the intestines were nothing but symptoms of hepatic diseases. But further inquiries have
reduced such influence of the Liver and its secretion within proper bounds; and have proved that bile, though greatly changed, and the Liver though extensively diseased, are not always productive of those extraordinary effects on the bowels which were formerly attributed to them.

50. Disease of the Duodenum — whether inflammatory or not — when it follows those of the Liver, belongs to this hid group; and we understand that in its production, the influence of the altered bile, either from acidity not powerful enough or insufficient quantity of the otherwise mitting fluid, is limited to that portion of the digestive mucous coat. This disease is then mild in degree, though their intimate nature might reasonably lead one to presume that they are related in organs not simply altered in their functions, but also somewhat changed in their organisation, as we often and most readily observe, if not general, at least local, in the duodenum. But in what has generally been called Bilious Diarrhea bile is supposed to be secreted in such abundance and of such acid quality as to have an immediately irritative influence over an extensive portion of the mucous surface, principally and generally of the Small Intestines (a). This irritation is naturally followed by increased
(a) See § 32
exhalation and secretion of mucus from the surface, and thus the evacuations which characterize the disease are in great part produced. It is scarcely conceivable that these are composed altogether, or almost so, of bile, as some authorities will have it; but opinions supported neither by the great quantity nor by the quality of the evacuations, however so-called bilious, they may be, nor again by the consideration that if disorder of the liver be such as to give rise to an increase and alteration of its products, the intestines, directly or indirectly, must certainly be to some extent also affected, and thus furnish their share of the abovementioned evacuations. But we may allow to doubt whether the action of the bile, however changed, on the mucous membrane is the only way in which to account for augmented functional activity in this; for we are inclined to think that there are few, if any, causes which can produce an abundant and altered flow of the former, without at the same time having some effect on the intestinal mucous surface. Exposure to cold during warm seasons is generally considered as one of the most frequent exciting causes of bilious diarrhöa; and we have seen how this same Cause Acts in the production of Epidemic Cholera. This consideration has led us to
(a) Cullen, Vol. 2, p. 143

(b) Andral, Pneum. & Vocal. Pathol., Vol. 2, p. 209
believe that many cases which are denominated Bilious diarrhoea come to take place in the same manner as and are nothing but minor instances of that former disease (a). And the only reason why we have separated both — which in by far the majority of cases may safely be reckoned to differ only in intensity — is because we do not think it improbable, though having few sure proofs of it, that the Liver may be alone involved at first (b). This can be due to several causes, among which may be mentioned an impaired vitality of the organ, rendering it more liable to be affected by, or sooner to recover, any cause which, applied either with more intensity or for a longer time, would only have acted directly on the Intestines. Rare instances have been met with in which those purely functional disorders, generally of a momentary duration, have run on to inflammation; but I shall not stop to consider how this may occur; as it is more than probable that it is, in most cases, the result of bad treatment.

57. Only those cases of disease in which the secretion of the Liver is more abundant, or more irritating, or both, than
(a) Abercrombie, op. cit., p. 69.
in health, and owing to those properties acts on the Intestines, have until now all drawn our attention. We shall next turn over one important affection in which the opposite conditions react on the Intestines—necessary in a different manner—and through them from health in general, by disturbing digestion.

52. One of the requisites of this last named process, when performed normally, and perhaps not one of the least important, is a healthy peristaltic action of the Bowels (a). Although it is difficult to conceive exactly why it should be, yet there is no doubt of the existence of the fact from what we see takes place when such a Condition no longer exists. This peristaltic action is promoted in two Caused principally: the natural irritation produced by the food as it passes through the Intestines, and that resulting from the Contact of bile which, even in the latter seems by far the more powerful agency; which is proved by the precipitation of the pericellular movement, when it is in excess; or by the want of any such action giving rise to Constipation, when it is deficient. With this latter case we have to do.

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Some Causes or other the secretion of bile may be arrested; and when this continues for any long period, we think it is generally due to chronic inflammation existing in the liver. Bile may also be secreted of a tarry stimulating quality than in health; and although we have not many direct proofs of what has been seen in the gall bladder in some cases after death, entitles us to assume that similar conditions of this kind do sometimes exist during life. Thirdly, though of a proper stimulating quality, it may be greatly deficient in quantity, not however entirely absent. In these three cases, the most powerful stimulus to the action of the muscular coat of the intestines is partly or entirely withdrawn; and the consequence of such deficiency is constipation which, in general, is a tendency to become more and more obstinate. By other chain of causes and effects constipation, when it has lasted for some time, comes to affect the whole digestive system, for we do not intend to examine of itself, no doubt, can have influence digestion, till in this case under consideration, it must have been overlooked that there is also deficiency of bile, and that the dyspepsia which
might have arisen from each singly, is here the result of both conjointly: the whole disorder originating, however, in the changes in the healthy qualities of this secretion. Here indeed there may be a source of fallacy, for we may be attributing to the Liver what is really not due to it. It is said that the Pancreatic fluid is on the muscular coat of the intestines of the same effect that bile possesses; but the same are the affections of the Pancreas as it is of course difficult to make out whether a given case of inveterate constipation is due to deficiency of the pancreatic or biliary fluids, unless this latter be so completely wanting as to produce the clay-colored stools. However this may be, once Constipation has become established, and especially when it proves obstinate, it tends to react upon the Liver. It is to be presumed that in such a condition, the circulation of blood through the intestines is diminished, on account of its being less solicited to these parts than in health; and thus the quantity of this fluid returning through the Liver being diminished, the secretion of bile is further proportionally deficient.

In all diseases of the Liver in which the secretion of the organ is altered, it can scarcely be doubted that the process of digestion,
rather of Chymification, is more or less disturbed, and this is readily understood when it is remembered that bile acts in important, though yet undetermined, part in that process. Many cases, however, in which there is reason to believe that the digestion is performed as usual, in which at least the patient suffers no actual inconvenience. These indeed must be exceptions which are seldom, if ever, found in the conditions which have been noticed. Whether organic disease of the duodenum gives rise to functional disarrangement of the liver, or whether structural lesion of this organ causes as first functional, and afterwards structural affection of the former, more general atonic and torpor of the digestive canal; there always exists a certain amount of dyspepsia which is altogether inconsistent with health. The last state is, I believe, pretty readily distinguishable from the two former. Between which diagnosis must still remain more obscure. Yet the importance of detecting to which organ primarily the general disorder is owing, in most become evident when we endeavour to remedy it; for as the general features of the affections are the same, as the local signs may be very
much alike; it is probable that we may often be led to treat symptoms which certainly will invariably recur until the cause giving rise to them be removed.

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55. We have now examined the connexion between some diseases of the skin and of the intestines, and endeavoured to illustrate our opinion that this connexion is threefold by considering a few under each head. The subject is necessarily far from being exhausted, and there are many other affections to which we have given no attention; yet the literature of those complaints, and been the subject of the writings of many eminent men in the medical world. Among these maladies in which both liver and intestines are evidently involved, are Asiatic Cholera and Yellow Fever: subjects far too extensive and
difficult for us to presume entering upon, after the signal failures of so many who have endeavoured to handle them. These, however, we feel inclined to believe would be ranked under our first group. Other diseases, affecting especially the Liver, we have left unnoticed. They involve generally its structure, and all its functions, but infrequently from the very beginning, sometimes only when they are far advanced, and more rarely, death takes place without its being apparent that the secretion of the bile has been at all impaired. Cancerous, tubercular, miliary, or hydatid, may be more or less deposited on its texture; fatty degeneration, or hypertrophy of the cellular, or of the glandular structure of the organ may come to take place; and, contrary to the views of the modern school who hold that more often is its disease produced by one existing primarily in the bowels, than the reverse; it would seem but reasonable to think that so many different kinds of action must to some extent react upon the functions of the mucous membrane especially of the small intestines. In such cases, it is true, the primary affection sufficiently of itself impairs the constitution to such a point as to attract all our attention; but no less true is it that digestion may be, and is very likely as
probably, disordered by the direct action of altered bile on the alimentary canal as by the general impairment of the system. It is difficult indeed in such instances, as in any other of slight though inveterate dyspepsia, to separate the symptoms which are severally owing to the lead quality of the bile in its action upon the food, in its influence upon the intestines — their mucous or muscular coats — and to the original involvement of these latter tissues themselves. But it is evident that something must be owing to each of these three conditions; and that in some cases the two former are the first to become established; and that, had we sufficient means by which to guide us, we might sometime or other all the evil, as far as regards the digestive system, to the second. These are truly mere speculations, however probable in their nature; and we shall now in a few words, endeavour to offer with regard to treatment some general remarks founded on the distinction of conditions present in those diseases; as the treatment of a disease, to be rational, must be founded on a knowledge of its pathology.

In the first group, it is clear that rational treatment must attach the
(a) See their enumeration in Copland's Dict., vol.
Source of evil, must remove the Common Cause which acts in a morbid manner on the Liver and the Intestines at once. Unfortunately it is not always possible to do so, very often on account of our ignorance of the nature of that Cause; and should we be acquainted with it, of the means for opposing its progress or effecting its removal. In such a predicament, the first indication is evidently, if we know in what way the system endeavours to shake itself free from its influence, to help, by means often in our power, such a natural process. But, we dare not do so in those cases in which the very process which eliminates the morbid agent by their efforts, thrown into such a state of disease, as to call for all our attention; and indeed as to demand of channels through which the economy of the body have an evidence of this in Poetry and have been put forward against it; some are grounded only on experience, and as variable as itself; others grounded in theories often fall to incompleteness, and therefore hurtful or insufficient. It is impossible to review all those different methods, and we can only point out to notice, but what we should but what we can do. As we have

(b) See Cases reported in his 8th Vol., p. 211.
reckoned Dysentery the result of a Causearious in its nature and tending to be throned out by the Intestines and Liver prin-
cipally; the first thought that strikes us is that we should try to assist such elimination by these organs, and obviously enough the subject of Evacuations occurs to the mind. But when a person is acquainted with the pathology of Dysentery, must not these words of Abercrombie sound full of meaning: "The use of Evacuations in Dysentery is a practice requiring the utmost discretion; being in some Cases proper, in others unnecessary, and in not a few injurious (a)." For those who reckon it to be the consequence of impacted feces or some other such obstacle, Evacuations are necessarily the remedy; but as those of Annesley, it remains to be questioned how far success was attendant upon a plan of treatments so obviously at variance with the general state of the Intestines (b). For after all the condition of these Comes in a practical point of view, is to constitute the disease. As we cannot prevent that which we only reckon a symptom of the malady — inflammation of the mucous Membrane — from developing itself; we must stop it in its onward progress and prevent its fatal tendency. Though of a specific character, still it is an Inflammation; and must be met, in its most
(a) Andral, C. M. D., VI, C. 94.
Marked forms, by antiphlogistic measures. Both general and local bleeding have been upheld by most writers; whether general blood-letting is always or ever imperatively demanded is of course a question to be decided only by experience. But I feel inclined to doubt whether, as we properly mean, to draw blood (as it were) from the very parts affected, local bleeding is not by far the preferable method, repeated if necessary. I do not mean here by local bleeding leeches applied to the surface of the abdomen, as was formerly imagined; but leeches applied to the ano to the hemorrhoidal veins of vicinity. The theories are the next class of remedies which deserve to attract our attention; the almost invariably dry state of the skin is a sufficient reason for their exhibition. As an auxiliary, the skin has, I feel convinced, been too much neglected. If we consider what an exhaling surface it presents, and how rich in capillaries, it seems to me striking that the kidneys should be the organ which, as if by common consent, are always acted upon. The skin affords all the advantages of the latter; and, as much as these, it is known to be one of the channels through which critical evacuations make their appearance. It is needless to recur to the antagonism between it and the mucous
(a) In op. cit., p. 44.
membrane of the bowels; but this is obviously one other reason why I should endeavor to act upon it. The third indication is the exhibition of emollient and sedative enemata: it is still a question whether they act merely upon the body part to which they are applied; as they are known to produce the greatest relief even when the seat of disease is far beyond their reach. Of gargaries absolutely necessary, I would venture only on the very wildest; and would certainly always combine them with opium, as this remedy has been found so beneficial by Dr. Cheyne(a). We have the opinion of men of the greatest experience on the inpropriety of making use of strong astringents in the acute stage of dysentery; and such a practice is sufficiently opposed to all sound theory to deserve no further notice. The preceding are the principal indications which I would feel inclined to follow in the treatment of a case of dysentery; modified of course as contingent circumstances develop themselves during the progress of the disease. Of the treatment of the Bowel and Liver Complaints which Complicate Fevers, we need say nothing. As a general rule, to secondary symptoms in importance, that they fall more under the province of treatment of fevers in general: a treatment
Which, though it has of late so much assumed the expectant form, is still in that form far more rational than those which were directed to nearly every organ of the body in the thought that each was severally the cause of the disease. Since Sydenham, the treatment of Sporadic Cholera has undergone no material improvement, as it appears to require, hence, we would only again enforce here, as in the case of Sydenery, the propriety of acting on the skin. To the arrest of its functions we have attributed the disease, and the restoration of those functions, as the same line that we mitigate the other symptoms, we would look for the removal of the mischief.

57. Casting over the subject of secondary abscess, which does not properly belong to us, we come to Chronic diarrhea and Chronic dysentery. What can be said of the treatment of that disease? It has too often proved the despair of the Physician, and when extensive or very Chronic, he may well wish to deemed powerless to restore the healthy state of the mucous membrane, or cure the ulcerations with which it is covered. And why? This is Andral's answer, which we may be allowed to quote as full length: 'Thick ulcers show such a great variety in their nature,
(a) Translated from his "A. Meit." V.1, p. 430.
that in the wound, or some time after its
healing, the white, grey, or brown colour of
their surface, the nature of the secretion
which is thrown out by it, the inconsiderable
growth, the thickening of the cellular tissues
which form their base, the appearance
and conformation of their edges, the different
degrees of consistence, thickness
and colour of the mucous coat which
forms those same edges, the "detachment"
of the membrane over a greater or less
distance, its condition in the intervals
between the ulcers, and so many circumstancce,
which seem to require a variety of
modifications in the treatment. ..... It
would often be necessary, over one portion
of the intestine, to apply astringent or tonic
substances to the ulcers and cover with
astringent drugs the intervals which separate
them; and vice versa. It is thus that
the surgeon acts in the treatment of
several ulcers situated at the surface of
the body. He arrests them by endeavouring
to keep up the inflammation at a certain
degree, above or below which it could not
proceed to resolution(a). If to this we
add disease which has already perhaps
infiltrated in the liver, mesenteric glands,
or some other abdominal viscera, and
the general and often not unconsiderable
impairment of the constitution, we shall
(a) op. cit., U.2, O.497.
have a true picture of the difficulties that must be encountered in the treatment of these affections, difficulties which can seldom be completely overcome, that Watson says: "Chronic Inflammation usually, in the end, is fatal." But however small is the chance of success, yet perseverance has in these very cases been productive of the greatest benefits. And the following indications which might be followed: counteract the indolent tendency of the intestinal ulcerations, give tone to the mucous membrane in general, and support the system against the exhausting discharge and irritation of the disease. Astringents are the remedies which will meet these; but a wise discrimination in the selection of those appropriate to the case, as well as the greatest attention to diet and regimen, are required to ensure success in healing, if not in curing.

58. Those diseases in which both liver and duodenum are affected by chronic inflammation, are nearly as difficult to overcome as the one we have just considered. The functional derangement of those organs may subsist of themselves or be arrested by some attention to diet; but when it has degenerated into a chronic inflammation which requires more active measures, I fear there is not prospect of few certain means.
by which to oppose the disease. In whichever organ this has originated, it is clear that we know of no remedy which, we can positively say, does act on either of them directly; and even in cases where affection of the duodenum is turning into inflammation from constant irritation by altered bile, it is doubtful whether any remedy has yet been irrefutably proved - mercury not excepted - to restore the healthy characters of the hepatic secretion. All the means which have any beneficial effect seem to promote this indirectly by acting on the digestive system; and this therefore demands all care and watchfulness. When inflammation of the duodenum is of a somewhat acute character, the greatest attention to diet seems to be the main indication of treatment: the blandest nourishment, especially such as is readily digested and absorbed in the stomach, will no doubt be found advantageous; and may not even in some cases procure complete rest to the affected organ, by substituting nutritive enemas for food taken by the mouth? The Conformation and minute structure of the Duodenum, as well as the symptoms which manifest themselves in certain Cases of Hypopectia, show plainly that in it an important part of the process of digestion is performed.
And if rest to an inflamed organ be the first indication to be followed out; if allowing that organ to perform its usual functions, say, if causing directly its irritations be productive of disturbance in an other organ which, by its then altered secretion, may reach on the former, and cause an increase of irritation in it— as in the case of the duodenum and liver—it becomes, I think, strongly advisable to employ such means (however uninviting as first sight) as will promote to the originally affected viscera the rest which it so needs, and avoid those circumstances which could not but tend to increase its diseased condition. I need not dwell any longer upon the treatment of these affections, as such as we are best acquainted with is found detailed in all the works on the subject. There is no doubt, however, that the different modes of treatment which have been proposed are all more or less uncertain, and that when even successful they are nothing but palliative; merely preventing the occurrence of, or removing, those circumstances which might have caused an exacerbation of the disease; and allowing the system to work its cure, by allowing it in as favourable a condition as possible for effecting that purpose. This may be deemed a summary of our treatment.
of dyspepsia depending upon affections of the Liver and Intestines. In some instances, such as the Constipation resulting from want of Stimulating Characters in the bile, or its partial or total absence, we may be more active; and most probably the negatrive plan of treatment, when not pushed too far, may, by Stimulating both Liver and Intestines to Action, restore in them their lost power, at least for a time. But when this depends upon extensive organic disease of the Hepatic organ, how obviously precautions must all means be, and how too often fruitless all our efforts. Palliation becomes necessarily the only resource: a far better mode of treatment and far more consistent with reason than those absurd measures — such as the exhibition of Colonel — which formerly prevailed on the patient uselop discomfort and suffering, and rather tended, by depressing the powers of his system, to hasten towards the progress of the local malady.

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15th March 1855
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