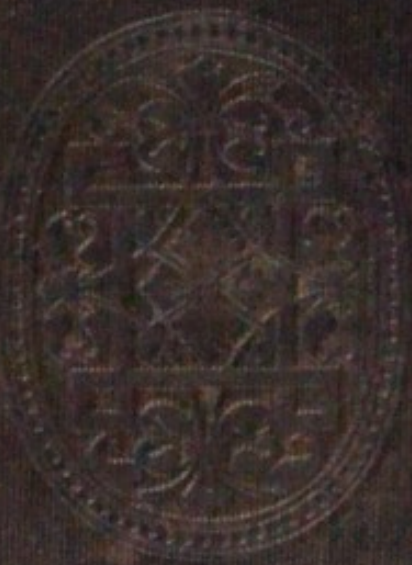
Remarks on the dysentery and hepatitis of India / by E.A. Parkes.



REMARKS

ON THE

DYSENTERY AND HEPATITIS

OF

INDIA.

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DYSENTERY AND HEPATITIS

OF

INDIA.

BY

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1846.

TO

SIR JAMES M'GRIGOR, BART.

IN TESTIMONY OF THE DEEP RESPECT ENTERTAINED FOR HIM

BY THE AUTHOR,

IN COMMON WITH ALL WHO HAVE HAD THE HONOR OF SERVING IN

THE MEDICAL DEPARTMENT OF THE ARMY,

These Remarks

ARE, BY PERMISSION, INSCRIBED.

PREFACE.

In writing the following remarks, suggested to me by a study of tropical diseases during my service in India with H.M. 84th Regiment, it was originally my intention simply to discuss various points about which differences of opinion still prevail. And although, for the sake of convenient arrangement, I have so far modified this intention as to throw the remarks into somewhat of a systematic form, I have abstained as much as possible both from enlarging on points already detailed in systematic works, and from references to the labours of my predecessors in the same path.

Consequently, although I have been obliged in some instances to travel over the ground previously trodden by Annesley, Johnson, Bampfield, Twining, Copland, and many others, in their admirable works, I have endeavoured to avoid entering on any subject which I found already discussed in their pages, and on which I had nothing new to communicate. If, in the Chapters on the Treatment of Dysentery and

Hepatitis, I have appeared to violate this rule, this has been done merely because I consider it ought to be shewn that the treatment of a disease corresponds with the pathology which has been assigned to it.

I must refer briefly to one or two points, which could not be inserted in the body of the Treatise.

1. I observe, in M. Simon's Animal Chemistry, that Rose and Henry found in Hepatitis a deficiency in the quantity of excreted urea. It is true that Simon, Becquerel, and Schönlein, do not confirm this, but it may be supposed that the cases of Hepatitis investigated by them were instances of simple enlargement and congestion without abscess.

The statement made in the following pages, that the quantity of urea excreted by the kidneys seemed to be lessened in suppurative hepatitis apparently in a degree proportioned to the extent to which the secretion of the liver was destroyed by the abscess, derives great support from these observations of Rose and Henry. If the statement be proved by future observation, it is, in my opinion, impossible to overrate its importance in a pathological as well as in a physiological point of view.

2. Since my return to England I have had an opportunity of perusing Dr. Budd's very excellent work on the Liver. I believe he will find my observations in many respects corroborative of his own. With regard to the hypothesis, that abscess of the liver is produced, in the great majority of instances, by the passage of pus with the blood, I must consider the question still an open one. I had, before knowing Dr. Budd's opinion, entertained this view, which, indeed, naturally suggests itself; but the arguments I thought at that time decisive against it, and which appear in the following pages, have not been altered by a knowledge of the arguments used by its advocates.

3. It has been pointed out to me, that Sebastian, and some other German anatomists, have asserted the possibility of the reproduction of intestinal mucous membrane—one of the fundamental facts in dysentery which I consider to have been overlooked by all writers on the subject.

4. I do not think that I have sufficiently expressed in the following pages my conviction of the composite nature of all chronic abdominal diseases. Before long, a different mode of describing the allied abdominal diseases will be necessitated by increasing knowledge. Then it will be found, that each disease, when fully formed, is

but a developed and prominent part of a more general but partially latent affection. I am fully prepared to say, that a chronic affection of an abdominal organ never remains simple.

5. My field of observation has been chiefly among the Europeans of my own regiment, or among those under the medical charge of friends, who allowed me to see and dissect many cases of dysentery and hepatic abscess. But, in addition, through the liberality of the civil surgeons of one military station, I was enabled to observe the diseases of several Asiatic nations, and to dissect the bodies of those who died in jail. The difficulty in obtaining the bodies of both Musselmans and Hindoos—who are influenced by motives of religion and of caste—has considerably retarded the efforts of the medical officers of the Company's Service to investigate the diseases of the natives; and I have consequently given some of the dissections made, to illustrate the identity in the morbid anatomy of dysentery among both Asiatics and Europeans.

12, Upper Berkeley Street, Portman Square,
London, May 20th, 1846.

CONTENTS.

ERRATA.

Page 8, line 21, *for* "system irritating causes," *read* "systemic irritating causes."
51, 6, *for* "glandular enlargement; yielding slime and fæces," *read* "glandular enlargement yielding; slime and fæces."
73, 5, *for* "Case XV. p. 29," *read* "Case XIX. p. 31."
74, 29, *for* "Case XIV. p. 28," *read* "Case XVIII. p. 30."
77, 16, *for* "Case XI. p. 25," *read* "Case XV. p. 29."
95, 14, *for* "position," *read* "portion."
181, 15, *for* "evident abundance of water," *read* "evident abundance of urates."
186, 32, *for* "Case VIII." *read* "Case X."
189, 7, *for* "see p. 23, Case VII." *read* "Case X. p. 217."
245, 9, *for* "Case of J. C. p. 96," *read* "Case of J. C. p. 196."

REMARKS,

&c. &c.

ACUTE DYSENTERY.

Dysentery is probably the most common disease in India, and undoubtedly it is the most important, on account of its numerous alliances, and of the gravity of its consequences. It has been a matter of surprise to me, to find from conversations held with a great number of Indian surgeons, that considerable difference of opinion, and some uncertainties of practice, prevail, as to the nature and treatment of dysentery, more especially as to the way in which it combines itself with hepatic and other complaints.

Discrepancies also exist in the works of esteemed writers on this subject.

Mr. Twining, and many others, consider dysentery to be a simple inflammation of the mucous coat of the large intestine, sthenic or asthenic, as the case may be.

Others refer it to a peculiar inflammation having a great tendency to complicate itself with spasm, and in the advanced stages with ulceration.

Mr. Annesley says, rather undecidedly, "The inflammation of the mucous coat of the large bowels in some cases is coeval with the dysenteric symptoms, or supervenes rapidly on them." *

Other writers hold a very different opinion. Dr. Johnson says, "I am in every case inclined to regard inflammation rather as a sequence than as a cause of dysentery; as a contingent effect, and not as an uniform result."†

The views of Dr. Copland are again different. He describes colitis, or inflammation of the large intestine, apart from dysentery. In the article on Dysentery, he certainly appears to refer this disease to inflammation, while in the article on the Intestine, he writes, "Dysentery is not always identical with inflammation of these parts." He also separately describes the pseudo-membranous inflammation of Powell and Bretonneau, and finally, while he describes with precision the ulceration of the acute sthenic form, he seems to think that ulcers are not present in adynamic cases.

My observations were made on Europeans and Asiatics. I have dissected about fifty cases of acute dysentery fatal in Europeans, and about twenty cases fatal in Asiatics. I have dissected also about twenty-four cases of hepatic abscess, in the majority of which dysentery was present. I have seen a great number of cases of dysentery at two stations—one in India, and one in Burmah. Most of these cases are given in the following pages as the bases of my statements.

The following statement is now postulated; the proofs will be given in the following pages.

* Researches, &c., 2nd Edit., 1841.

† On Tropical Diseases, 6th Edit. p. 194.

Admitting the inflammatory nature of dysentery, the peculiarity about it seems to be, that ulceration of the large intestines occurs with great rapidity, and, except in one rare form, a case never presents true dysenteric symptoms without ulceration being present. It is evidently not from the severity of the inflammation that ulceration is so rapidly and so constantly produced, for it occurs in the comparatively slight cases, as is proved by the opportunities we sometimes have of examining these, after sudden death by cholera or coup-de-soleil: the proofs of inflammation, apart from ulceration, are often only just visible on post-mortem examination. Moreover, the same amount of inflammation exists every day in the stomach and duodenum without being followed by ulceration; and, to view it in another aspect, 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 large intestine, could exist without coordinate constitutional disturbance. If the same amount (in point of space) of inflammation and ulceration occurred in the skin (the analogue and prototype of the mucous membranes), the pyrexia would be extreme. And yet cases of very severe but nonfebrile dysentery are constantly witnessed.

The question then arises, as to the cause of this rapid ulceration. I cannot but think, that none of the writers on dysentery, however admirable in other respects their works may be, have sufficiently investigated the state of the colonic mucous membrane immediately prior to the formation of the ulcers. In the Madras Medical Journal for 1843 and 1844, I reviewed this subject, and published certain statements respecting the anatomical signs of dysentery, which I shall now shortly detail. In these papers I endeavoured to substantiate the view, that it is owing to the glands of the mucous membrane being particularly impli-

cated in the inflammatory action, that ulceration so rapidly and so readily occurs in the common form of dysentery.

Since that time I have dissected many cases confirmatory of this opinion, and several of my medical friends in the Madras Presidency have expressed their belief in the entire correctness of the observations.

First Statement.—Solitary Glands.

There exist on the inner coat of the large intestines, a set of solitary glands peculiar to that particular mucous membrane.

Certain glands exist in the colon which appear to me to be very different from the common follicles generally distributed over mucous membranes. They are very evident in many diseases of the liver, particularly in cirrhosis, with ascites, when they are often much enlarged. At other times, when the membrane is healthy, they are hardly visible, or seen in small numbers. They are enlarged and very evident at the commencement of dysentery, but as few cases are dissected at this early period they have been generally overlooked.

I have considered them not to be large mucous crypts, for the following reasons:

They present the appearance of round opaque bodies, without apparent orifice, imbedded in the mucous membrane, and even apparently attached to the sub-mucous cellular tissue.

In the early stage of dysentery their contents are white, yellowish, and apparently thickened and starchy. They are sometimes streaked or striated on the surface, and bear on the summit, in some cases, a small black point, which looks

like an orifice closed up. This is not, however, general, or even common. Under the microscope, the mucous membrane around them presents the usual appearance of small honey-comb cells. In a dysenteric case which has lasted two or three days, they are still more obvious. A minute vascular ring surrounds them, and they become prominent, and a little hardened to the touch. In distribution these glands appear equally numerous in the sigmoid flexure, as in the cœcum; and on this account I am disposed to regard them as perhaps the excreting organs of the colon.

I have not been able to ascertain any thing more decisive about them; but if they are merely mucous glands, they certainly are large in size, and comparatively few in number. When enlarged they have some resemblance to the solitary glands of the small intestines.

Whatever opinions may hereafter be entertained regarding their nature and functions, one point has been fully established by my dissections, viz. that they are the seats and centres of ulceration in tropical dysentery.

They have been noticed in dysentery by various observers, viz. Hodgkin, Copland, Ballingall, Raciborski, Dr. Murray, of the Bengal Medical Service, Dr. Lorimer, of the Madras Service, and they are alluded to indistinctly by Twining, in the second edition of his "Diseases of Bengal." Most of these writers appear, however, to have regarded their existence as incidental, and not to have proclaimed their relation to dysenteric ulceration with sufficient accuracy and distinctness. Ballingall and Twining speak of them as if they were pustules. Murray describes them very accurately, but calls them vesicles and pustules.

Second Statement.

Inflammation and ulceration of these glands are the earliest morbid changes in Dysentery.

Whatever be the nature of these glands, whether they are simply mucous, or possessed of a peculiar undetermined secretion, is, as I have said, of little consequence. I now pass to my most important position: viz. that inflammation and ulceration of these glands constitute the earliest morbid change in tropical dysentery, and that the process from the small ulcered gland to the irregular spreading ulcer, may be traced in every stage.

I shall give the dissections proving this and the following position at the end of these observations, in order to present as clear an account as I can of the progressive changes of the mucous membrane.*

The first alteration in the glands is an enlargement of them, and a change in their contents. The contained substance becomes thicker, and now resembles flour and water in appearance and consistence. In all probability this condition occurs every day, and giving rise to slight diarrhœa, relieves itself, and the glands return to their normal condition. That alternation of constipation and slight diarrhœa, with deranged secretion, which is often termed torpor of the liver, may be something of this kind, and at any rate is

* It is almost needless to state, that all these statements are compiled from dissections, made with as much care as I could bestow on them. The glands and small ulcers have been shewn by me to many individuals.

always best treated by a reference to the colonic mucous membrane.

If, instead of relieving themselves by secretion, the glands continue enlarged for some time without being acutely inflamed, that appearance is presented which has been incorrectly compared by Ballingall and others to a variolous eruption. I have seen this several times, and the resemblance is about as great, as might have been anticipated from the loose nature of the statement. The characteristic marks of the variolous eruption are a slough or disorganization of the cutis vera (phlyctidium), with vessels radiating from a central point or stigma, which by its adherence to the cuticle, elsewhere raised by a peculiar pus, produces the umbilicus. It is needless to say, that in dysentery there is no process of this sort; there is the simple gland easily dissected and isolated, with an occasional dark point on the summit, or side, of undetermined nature. I make this comparison, as an otherwise accurate observer, Dr. Murray, of the Bengal Horse Artillery, has insisted strongly on the coincidence between small-pox and dysentery, and even appears to think that this connection will both establish and explain the contagious nature of the latter disease in certain cases. (Calcutta Transactions.)

If a greater degree of inflammation be present, the vessels around the gland become enlarged and conspicuous, and form a ring or halo, spreading a short distance into the mucous membrane.

This condition presents the earliest symptoms of dysentery, viz. slimy stools, increased in number without blood, causing perhaps slight griping and tenesmus when passed, and generally unattended by pain on pressure.

Immediately after this, and in severe cases during the very first days, ulceration begins and is always denoted

by slimy and gelatinous stools, streaked with blood and attended by tormina, tenesmus, and pain on pressure, varying according to the *seat* of the diseases, and its *intensity*.

Ulceration begins in three ways.

(*a*) In the glands themselves.

(*b*) Around the glands.

(*c*) By effusion of a fluid beneath intermediate mucous membrane.

(*a*) Ulceration commencing in the glands themselves.

Here the ulcers present two forms. In one of these, the apex of the gland is chiefly affected. The ulcer is a round point with raised edges, seated at the summit of a conical elevation. In the other, the whole surface of the gland ulcerates at once, producing a round flattened ulcer, with the edges less raised, and disposed to spread more rapidly into the surrounding membrane.

In a paper published in the April number of the "Madras Journal" for 1844, I surmised that the former kind of ulceration might be chiefly owing to local, and the latter to system irritating causes. Without entirely surrendering this opinion, some further observations have led me to believe that the intensity of the inflammation and consequent rapidity of the process has a great deal to do with the kind of ulcer developed. Thus, if the inflammation be slight, the glands acquire a considerable size, without any ulceration, and when this does occur, it is chiefly at the apex, and the thickened contents of the glands are not immediately discharged; in the more acute cases, the glands are suddenly increased in size, and press equally upon the mucous

membrane covering them, thus causing its uniform destruction, and the immediate discharge of the glandular secretion.

In the majority of instances the intermediate mucous membrane is little affected until ulceration has advanced to some extent. The exceptions to this rule occur in those cases generally complicated with gastro-enteritis, or with scurvy, in which there is a superficial erysipelatous inflammation, implicating the whole of the mucous membrane.

(*b*) Ulceration commencing around glands.

I have as yet seen only one dissection of this form; it was a fatal case of dysenteric hepatic abscess, in which before death slight dysenteric symptoms had again returned. Many of the ulcers were formed in the usual way, but in addition some glands in the descending colon presented an appearance as if hypertrophied; they were enlarged, round, and very hard to the touch, and around them the mucous membrane was ulcerated away for a distance of from one to two lines; probably, if the patient had lived a few days longer, these glands would themselves have been detached, and a common ulcer formed with the muscular fibres for its floor.

(*c*) Ulceration commencing by effusion of fluid beneath mucous membrane.

This form never occurs without ulceration of the usual kind being present. I am unable to give the comparative frequency of its occurrence. I have seen it in very rapid cases, and also in chronic cases, where an acute attack had supervened. The effused matter is white or yellowish, in points, or raising a piece of membrane the size of a shilling,

or even half a crown; this membrane is softened, and when rubbed off an ulcer is left. I have never seen a gland on this raised membrane, and I have been unable to determine whether rupture of the glands and effusion of their contents into the already inflamed and partly softened submucous tissue has any thing to do with the process.

For the sake of convenience, I make the following arrangement of the stages of simple dysentery, unattended by sloughing:—

First Period.—Of enlargement, and commencing ulceration of solitary glands.
Second Period.—Of complete and spreading ulceration.
Third Period.—Of cicatrization.
Fourth Period.—Of abortive cicatrization, commonly called chronic dysentery, a disease which is a resultant of continued subacute inflammation, and ulceration, combined with ineffectual efforts to produce the usual cicatrizing process.

It would be easy to make a great number of stages, particularly if the complicated states are included, but in an abridged treatise of this nature it is impossible to treat the subject as fully as could be wished.

In the dissections afterwards given, the details of these four periods are given with some minuteness. I shall now merely give a recapitulation.

The first period has been already described. The glands vary infinitely in number and size, according to intensity and extent of inflammation; they are most numerous in the cæcum, ascending colon, and sigmoid flexure; and

are less numerous in the transverse and descending colon.

The second period, viz. of complete and spreading ulceration, is characterised by the existence of ulcers, more or less numerous, of various shapes, sizes, and degrees of development, round, oblong, or irregular; if small and round, often with raised edges; if irregular, with flat and levelled edges. In the same case every form may be seen, from the commencing punctiform ulcer to the complete large spreading ulcer, with lymph on its surface in nodules or layers.

This period is attended with various kinds of stools; first, these are slimy and gelatinous, becoming more and more bloody; then the stools become scanty, lymphy, and shready, streaked with blood, or watery, muddy, and with sanious discharges. At a later period, the stools become like the washings of meat, dark, and perhaps offensive. If the ulcers heal, the stools become generally, first, like lymph floating in an albuminous fluid, then yellow fæculence streaked with blood is mixed with this, and then the stools recover gradually their healthy appearance. If the disease be arrested before or immediately after ulceration of the glands, the stools are often increased in number for a few hours, and are very dark, semifluid, perhaps frothy, and passed with little pain or tenesmus.

With this degree of ulceration there is generally pain on pressure, but not always; there is always a white creamy tongue, red at the edges and tip; there is generally harshness and dryness of the skin, which may be attended with sensations of heat and partial sweating; the urine is high coloured, perhaps scalding, and the urea rapidly decomposes, more rapidly than can be accounted for by the heat of the climate. The pulse is often not at all raised, it

may be slower and weaker than usual; the heart's action and respiration are natural.

If the ulceration be attended with erysipelatous inflammation of the intermediate mucous membrane, or with implication of the serous coat of the colon, there is a sense of heat along the course of the colon; this is a valuable sign when present, but is very uncertain;* the tenesmus is dependent on the site of the disease, as pointed out by Annesley.

Such are the coincident phenomena of the early stage of ulceration; but ulceration, after lasting for a few days, is invariably attended by the effusion of lymph or fibrine either upon the ulcers, or between the coats of the intestine. Then there is irregular thickening of the coats, producing contraction of the intestines wholly or in part. This effusion of lymph is always the cause of contraction; the spasmodic constrictions alluded to by some writers do not exist in dysentery after death, and are much less common during life than Mr. Annesley and some others would have us believe. When the lymph is effused upon the ulcers, it is in layers or in nodules; sometimes it is effused between the muscular fibres forming the floor of an ulcer. In this case the ulcer is rather peculiar: it is generally irregular in shape, and shallow, the edges are flat, pale, and the circular muscular fibres are plainly seen to form the floor, which is pale and glistening; the muscular fibres are evidently compressed by the effusion of the false membranes. Such an ulcer pours out no blood, and

* Some of my medical friends attach more importance to this sense of heat, believing that it indicates the extension of the inflammation to the muscular and serous coats, as well as to the connecting cellular tissue. They regard its combination with a small, hard, wiry, enteritic pulse, as a most unfavourable sign.

probably no secretion at all, and is to all intents and purposes healed, and I have remarked that the future cicatrizing changes progress very slowly in an ulcer of this kind.

In the majority of dissections, however, the dysentery has been more severe; the inflammation has spread from the glands into the surrounding mucous membrane, and has then implicated the muscular, and it may be the peritoneal coats. Lymph is in this case effused copiously between and among the different tunics, and upon the rapidly extending ulcers, forming irregular, gelatinous, whitish or dark coloured projections, and masses; the whole gut may be covered in this way, and the ulcers are then disposed to become gangrenous.

A somewhat rarer form of this second stage is that in which three or four clusters of ulcers exist throughout the cæcum and colon, while large patches of intermediate mucous membrane are wholly free from disease. Perhaps this form may be always produced by local irritants, which adhere for some time to the parts which are seen ulcerated, or at any rate limit their acrid agencies to these parts in some peculiar way; these ulcers may have flat edges, or sometimes dark partly everted edges, caused by effusion of lymph without arrest of inflammation.

Two important anatomical varieties of dysentery, are those in which ulcerations are found chiefly in the cæcum, and those in which they are principally confined to the rectum. These varieties are also generally the result of local irritants, and produce peculiar symptoms.

Thus when the cæcum is the part affected the tenesmus is often absent or slight, the stools sometimes are partially fæculent, but there is great pain on pressure over the cæcum, and a very perceptible fulness in that region,

arising either from arrested fæces or secretions, or from spreading of inflammation to the other coats and surrounding parts, producing inflammatory swelling and œdema, or in a later stage from absolute thickening of the coats of the cæcum from effusion of lymph. If the inflammation runs high, certain effects ensue, viz. ulceration of the ilio-colic valve, and the intussusception and strangulation of some parts of ilium in the cæcum. I have seen the commencement of this state of things, but have never witnessed that extreme ulceration which is mentioned by Mr. Twining.

The anatomical variety of ulceration solely or principally in the rectum also has its peculiar symptoms; here there is generally intense tenesmus, and the stools are often nearly pure dark blood, and if the case is neglected some portion of the mucous membrane speedily sloughs, and protrudes from the anus.*

The mesenteric glands are always enlarged in dysentery, and are sometimes acutely inflamed. I have never seen them suppurated.

* Except in this variety, the occurrence of sloughing and discharge of the mucous membrane is not common. I have seen two or three cases in which something so like membrane was discharged, that it was only after death its true nature was detected. In these cases there was no loss of mucous membrane, except from the usual ulceration; but there were membranous exudations of fibrine. In some other cases, in which large portions of the mucous membrane were found wanting after death, no appearance of membrane had ever been observed in the stools.

Third Statement.—Cicatrization.

Dysentery, when it does not prove fatal, either becomes chronic, or the ulcers heal.

The healing process is peculiar, and takes place with great readiness, so that an ulcer which to-day is extending itself and pouring out blood, to-morrow will be completely cured, that is to say, lymph is effused over its whole surface in layers, preventing the flow of blood, and arresting the progress of the ulceration. The very rapid cure, which often occurs, does not prove that ulceration has not taken place. I met with a good instance of this in 1842. A young European, of very stout and plethoric frame, came into the hospital with dysentery; the symptoms were well marked, but not severe. He was leeched two or three times, and on the 5th or 6th day his stools were natural, and he was allowed to get out of bed and walk about. This man previous to admission had never been ill, and had only been ten months in India; during this time he had never suffered from dysentery. On the second day after he had been permitted to get up, he very imprudently exposed himself to the sun; he was sun-stricken, and died comatose, and with stertorous breathing, in three hours.

On dissection there were found the usual post-mortem effects of one variety of a coup-de-soleil, viz.—congestion of cephalic veins and serous effusion; in the sigmoid flexure and rectum were several ulcers, of a round shape, and with slightly rounded edges, evidently in an early stage, from their size and appearance; the edges were pale, the inter-

mediate mucous membrane natural, and on each ulcer was a deposit of lymph, which was soft and had not commenced to contract.

From this, and from another case somewhat similar, I draw the conclusion, that the sudden cessation of the symptoms does not prove that no ulcers exist, but merely that the healing process has commenced.*

* Since this treatise was written, I have had an opportunity of perusing Mr. Raleigh's work on "Idiopathic Dysentery," and also of conversing with several Indian surgeons of great experience, and of acknowledged talent. I find that the general belief of the non-existence of ulcers, except in the advanced stages, is even stronger than I fancied. Some even agree with Mr. Raleigh that a case in which there is extensive ulceration is necessarily fatal. This opinion arises chiefly from a supposed impossibility of cicatrization occurring in intestinal ulcers, although, as I have proved beyond a doubt, this process daily happens with much greater readiness than, and in a different way from, the allied process in cutaneous ulcers. This objection being at once set aside as quite inconsistent with observation, let me ask the disbelievers in ulceration the following questions:—

1. What notion have they of the condition of the mucous membrane in acute dysentery?

2. Have they ever dissected a single case, except the rare form of general inflammation of glands and membrane, which I have called colonitis, and which occurs not oftener than once in thirty times, or the most protracted cases of the common form in which all the ulcers are healed, in which there were not ulcers numerous, and advanced in direct proportion to the previous symptoms?

3. How can they account for many cases detailed in this treatise and elsewhere, in which, during early dysentery, life was destroyed by cholera, coup-de-soliel, or by some other cause, thereby affording an opportunity of witnessing the early stage of dysentery, and of seeing the very commencement of the formation of ulcers? These and all other similar cases give us a certain amount of ulceration corresponding to the symptoms, and it is therefore an inference from which there is no escape, that patients who have recovered from similar symptoms have had the same amount of morbid change.

I shall now proceed to describe the mode of cicatrization. The examples of this period are necessarily few in number, and are chiefly taken from patients dying of hepatic abscess after cessation of the dysenteric symptoms, or from cholera. Those authors who have mentioned the healing of ulcers have generally used the term "granulation," to denote the mode in which this process takes place. (Vide Mr. Annesley's works, and various volumes of the Calcutta and Bombay Transactions, and of the Madras Medical Journal.)

This term, however, is incorrect; the process is peculiar, and has not, to my knowledge, hitherto been properly described. After a certain time, in dysentery, when the inflammation has diminished, lymph begins to be effused over the surface of the ulcer, and between the muscular fibres, if these form its floor. In an ulcer disposed to heal, the lymph is regularly diffused over the surface, forming a gelatinous-looking coating, which becomes gradually darker in colour, rises to a level with the edges of the ulcer and the surrounding membrane, and then slowly contracts, puckering to a greater or less extent the adjacent mucous membrane. After an uncertain length of time, varying from one to four months, the only marks by which it can be distinguished from normal mucous membrane, are by its greater and darker vascularity, its greater smoothness, and peculiar slightly glistening appearance, and by the slight contraction ronnd it.

After a longer period the cicatrix becomes absolutely undistinguishable by the eye from the adjoining membrane. In the majority of instances, however, the process is less regular than this; from some cause or other, greater quantities of lymph are deposited on some parts of the ulcer than on others, and hence results a granular or nodular appearance, which after a time disappears, and the false membrane

becomes levelled and uniform. In some cases the lymph is deposited between the muscular fibres, apparently compressing these; the ulcer is then healed, that is to say, it will not spread, and no blood escapes from it. Afterwards, on this compressed muscular floor, lymph is slowly deposited.

In many cases, either because the inflammation is only partially checked, or from some unexplained cause resident in the constitution, or belonging to a particular form of the disease, an unusual quantity of lymph is effused, forming those nodular masses, and general thickening, so frequently seen in dysentery: in these cases convalescence is protracted, and the disease disposed to become chronic. A degree beyond this, where deposition of lymph and ulceration go on at the same time, constitutes one form of "Chronic Dysentery."

I have never seen anything like granulation as it occurs in the skin, and I believe that the statements on this point are erroneous.

These statements are drawn from a considerable number of cases in Europeans and Natives. I have subjoined a few of these to illustrate the positions.

Fourth Statement.—Abortive Cicatrization.

In a number of cases, either from severity of attack, from neglect, or from inefficient treatment, fibrine is deposited in immense quantity upon and between the coats of the intestine. This forms the disease called "chronic dysentery," which is not, as stated by some, merely unhealed ulcers, but a resultant from these, and from a misdirection of the usual process of cure.

A stage beyond this, when the ulcers are all healed, presents merely a thickening of the coats, and diminution,

partial or universal, of the calibre of the colon and rectum. No ulcers can be seen in this case, and often all traces even of their cicatrices have disappeared.

A common result of chronic dysentery is a stricture of intestine from contraction of the effused lymph.

In the dissections now given are two or three illustrations of this period,—a number quite sufficient for my purpose, as the disease is unfortunately too common.

Appearances after Death.—Large Intestines.

Summary :—First Period of Dysentery, viz., enlargement of solitary glands, vascularity at their bases, ulceration at their apices, or over the whole surface ; afterwards small ulcers, generally round, with raised or flat edges, distinct, or running into irregular confluent ulcers. Intermediate mucous membrane natural, or as a variety inflamed, thickened and a little softened.

I have not thought it necessary to describe these appearances more fully in this place, as all their various forms are taken notice of in the post-mortem examinations.

Case I.—G. S., an old, broken-down European : severe dysentery, suddenly succeeded on second day by cholera ; most elementary form of dysentery. Mucous membrane of cæcum and colon presented a slate colour, with here and there considerable patches of ecchymosis; (the same appearances existed in the small intestines, and were probably owing to cholera). In descending colon there was considerable enlargement of the glands, which were distinctly visible to the eye, and presented the appearance of small white granules, about the size of millet-seeds, most of them with a round dark spot in the centre ; around these were

dark rings of vascularity. In the cæcum these appearances were also distinctly marked. No ulceration.

Case II.—T. B., a stout European. Severe and rapid dysentery, fatal in seven days, at one time checked temporarily, but fatal relapse followed the improvement.

Cæcum and Colon:—Thickening of the coats of both throughout, depending not so much on effusion of lymph on the mucous membrane, as on absolute thickening of the tunics of the intestines themselves. The ulcers occupied the whole of the cæcum and colon, being thickly crowded together: in the ascending colon, the solitary glands, with their white contents and central dark spots, were plainly seen.

The ulcers were of all stages, some were very small, about the size of a large pin's head, with raised edges, evidently the first stage of ulceration of the glands; indeed, several of the glands could be seen just commencing to become ulcerated. These small ulcers, as well as the glands, had a dark vascular circle round them. The ulcers presented a stage beyond this elementary condition, in which the edges were seen to become level, the circumference more reddened, and the ulcer altogether more developed. These small ulcers were generally situated on the plicæ of the mucous membrane, and as they increased in size, spread along these, and thereby acquired an oval, or elongated form, the long diameter of which was in the direction of the plicæ, round the intestine. Higher up, in the ascending colon, there was a partial deposition of lymph on the surface of many of the larger ulcers, giving them a slightly fungous look. In no place was the vascularity or redness very great, although the ulceration was so general. The intermediate mucous membrane was not red; it was a little softened in some places, where the ulcers were much crowded together.

Case III.—G. H., a young European: a case of simple uncomplicated dysentery.

Throughout the whole course of cæcum and colon, enlarged glands were scattered about, some slightly enlarged, others much enlarged, and some ulcerated on the surface. The passage between these and other ulcers was well marked; some glands were ulcerated at the apex, others were more advanced, presenting round, excavated, well-formed little ulcers. In other spots the ulcers were stilll more advanced, beginning to spread into the mucous membrane, becoming oval, and having the edges flatter: from this stage there was every phase into the irregular spreading ulcers, which were scattered about here and there with the longitudinal or circular muscular fibres for their floors, and being, some of them, covered in the centre with small masses of lymph. Between some of the ulcers the membrane was natural, in other places it was dark, and covered with thick viscid mucus.

Case IV.—T. H., a European of weakly habits: severe dysentery, complicated with hepatic abscess. More than 80 abscesses in liver; uncontrollable melœna.

Cæcum and Colon:—Ulcerated throughout: the progress of ulceration was seen in all its stages, from the enlarged gland, with its central dark speck, to the same reddened and ulcerated at the apex, and from this to the small ulcer with raised edges, gradually increasing in size from 2 lines to 1½ inches in diameter, in various parts of the intestine. The glands were as large as mustard seeds, and in various places, where slightly ulcerated, they were seen coalescing. Many of the ulcers had the muscular coats for their floor; many had a central deposition of granular lymph. Some had raised, others had rounded edges; the sizes and shapes

were various. No spot where mucous membrane had sloughed could be seen, and no apparent vessels from which the great hæmorrhage could have proceeded. The intermediate mucous membrane was not red, in many places it was whiter than natural, and not softened; in other parts it was softened.

Case V.—G. H., a young and healthy European. Dysentery chiefly affecting cæcum; hepatic abscess.

Cæcum and Colon :—The coats of cæcum and ascending colon were thickened by the effusion of a gelatinous and granular lymph, which in some places partially, in others totally, concealed large ulcers. The mucous membrane, and lymph covering it, were softened, and easily stripped off from the muscular coat. In one point an ulcer had almost perforated the cæcum, but its margins were not red, and lymph had commenced to be deposited upon it. Higher up, in ascending colon, the ulcers were in a less advanced stage, were less confluent, and were traced up in all phases from enlarged glands. In the sigmoid flexure the ulcers were round and oval, with smooth lymph on surface. All stages could also be seen here; there were glands distended with white substance, ulceration of these at their points, then destruction of glands, and production of small ulcers with raised edges, then the edges flattening as the ulcer increased in size; then the usual ulcers of all sizes.

Case VI.—A Mussulman. Dysentery, then sudden death from cholera.

Cæcum and Colon :—In cæcum, dark hæmorrhagic effusion, with small ulcerated points, with raised edges here and there. In the ascending colon these existed chiefly on the transverse plicæ, and were interspersed with numerous

solitary glands, in various degrees of development. Higher up, the enlarged and reddened glands were also seen, but most of them had commenced to be ulcerated at the apex: every stage was seen, some of the glands were a little reddened and hard, others were redder and larger; others had a minute orifice at the apex, and others were completely converted into small ulcers. In descending colon these appearances were also seen in a less degree, and here and there also were evidences of healed ulcers, of a former attack of dysentery, which had occurred a few months before death: there were dark patches, the mucous membrane was altered in appearance, smoother and contracted; no glands were seen on these patches.

Case VII.—A Mussulman. Slight dysentery, nearly well, then sudden death from cholera.

Cæcum and Colon:—Healthy till within half a foot of sigmoid flexure; here a number of points were seen, evidently consisting of enlarged glands, which were in some places acuminated, in others flattened; the peripheral redness was dark, and minutely striated; besides these there were numerous small ulcers with level edges, and the floor nearly up to the top of the walls; a minute redness surrounded these also. The intermediate mucous membrane was dark, and apparently smoother than usual; no appearance of a large ulcer.

Case VIII.—C. C., an European. Simple acute dysentery, fatal in an early stage.

Cæcum and Colon:—Ulcerated throughout; coats universally thickened; distinct ulcers throughout intestines in all stages; a few glands were seen. Many of the ulcers were punctiform and quite in an early stage; others were more

advanced, round, or spreading along the transverse colonic folds. The round ulcers were deep, very irritable in appearance; the edges were elevated, sharp, and overhanging. A dirty lymph formed the floor; in several places the ulcers were darkly striated, and here and there were small granular depositions of lymph. The edges were often red, and in several places the entire ulcer had a vivid red colour. The ulcers were most numerous towards the cæcum; they were more advanced but less numerous towards the rectum; every stage could be readily traced in them; the intermediate mucous membrane was thickened and softened, and in some places becoming slightly vascular.

Case IX.—An Englishwoman. Simple acute dysentery, fatal in an early stage. Uncontrollable bleeding.

Cæcum and Colon:—Ulcerated throughout; pale and blanched, from excessive loss of blood; every stage of ulceration could be distinctly seen, from the gland, to the large irregular or confluent ulcer; the ulcers and edges were pale; no effusion of lymph anywhere.

Case X.—Boughee: Hindoo convict. Treated with very large doses of nitrate of silver.

Cæcum and Colon:—Of a dark colour throughout, and somewhat corrugated. Coats not thickened; some few enlarged glands; several small ulcers, with raised, rounded, and pale edges: the sides and floors of these ulcers were pale; there was no lymph on them; in some the muscular fibres formed the floor. In size they varied from one to three lines in diameter. In one or two places the ulcers were becoming irregular, and were losing their rounded edges. The process of ulceration of the glands could be traced distinctly in some places.

Case XI.—Gajee: Hindoo convict. Rather long continued subacute dysentery, sphacelation of cæcum, apparently from immoveable collection of scybala.*

Cæcum and Colon:—Adhesions existed between cæcum and surrounding parts, which with the coats of the guts were lacerated by removal. Cæcum and ascending colon thickened, so also the rest of the colon and rectum in a less degree; the thickening was chiefly in the mucous membrane, which, where unulcerated, was pale and pulpy. In the cæcum and first part of colon the ulcers were numerous, of various sizes, but the majority small; the larger ones had irregular margins. The smallest ulcers seen were the size of a pin's head; the largest were about four lines in diameter. Many glands were seen, and the ulcerative process could be traced. The intermediate mucous membrane was pale, but thickened and white; all the ulcers, large and small, throughout the intestines, had pale margins and floors, and many were covered with white and creamy substance—in fact, pus: when scraped off, the floors were seen to be formed by the circular muscular fibres, or a false membrane. In the ascending colon some of the ulcers were coated with lymph; this was thinner than usual and more purulent in appearance, and, in fact, so like the pus in the rest of the ulcers, that the question as to the respective connection of the pus and lymph was at once suggested to the mind. All the ulcers were in a passive state, in one point only was there any redness; the intermediate mucous membrane was covered with the purulent substance probably, derived from the ulcers. In the transverse and descending colon the

* I was not present at this examination till after the large intestines had been removed. I did not see the scybala, but the friend who allowed me to see the case told me their influence on the cæcum was very evident. This must be put in opposition to a former statement of mine.

ulcers were smaller and less numerous. The process could be traced here, in numerous cases, from the gland, just perceptible, to the round, small, and spreading irregular ulcer. In addition, on various points of the rugæ were small points of pus burrowing under the mucous membrane; whether derived or not from glands could not be determined. The peritoneal coat was uniformly red.

I am aware that no description can give an adequate conception of the complete demonstration of the different early phases of dysentery which the preceding cases gave me.

In many of the cases illustrative of the more advanced stages, some portion of the intestine shewed more or less distinctly the transition states. It will not surprise any one that I have been unable to give more well-marked cases of the first stage, as few cases of dysentery die in so early a stage, and the examinations are chiefly in those in whom an attack of cholera, of malignant fever, or of general hepatitis, supervenes on commencing dysentery. Of course, in the majority of post-mortem examinations, the dysentery is in an advanced stage; the ulcers are numerous, spreading, perhaps gangrenous; the inflammation has implicated all the coats, and lymph is effused between and among the tunics, and upon the rapidly extending ulcers, forming irregular, gelatinous, perhaps dark and black, projections and masses: here necessarily all traces of the process are concealed, and it is only by the gradual comparison of cases that we can prove these immense and frightful looking ulcers to have commenced in the solitary glands.

Second Period.—Of Complete and Spreading Ulceration.

Summary.—This period is characterised by the existence of ulcers of various shapes, sizes, and degrees of development; round, oblong, or irregular: if round, often with raised edges; if irregular, with flat and levelled edges, the floors formed either by the muscular fibres, compressed by effusion of lymph among them, or by the serous coat, or by a false membrane of various thickness, effused upon either the serous or muscular coats. In colour, ulcers pale, reddish, or in a more advanced stage blackly striated; surrounding and intermediate mucous membrane, natural, reddened, softened, or at a later period thickened, as well as other coats, by deposition of fibrine; in most instances deposition of lymph upon ulcers in small points, in rounded soft nodules or in layers.

Case XII.—G. D.; simple acute dysentery in a young strong European; fatal in twenty-six days.

Cæcum and Colon:—In cæcum there were several ulcers of various shapes and sizes, in various degrees of development, some very small, others an inch to an inch and a half in diameter, edges rounded or slightly raised; intermediate mucous membrane sometimes softened, but not to a great extent, sometimes nearly or quite natural, never red. There was one long patch, about six lines wide and six long, in which the mucous membrane was raised from the subjacent tissues by the effusion of a white substance beneath it; the points of the scissors could be passed beneath this membrane, and when rubbed off it left an ulcer. The

same appearance was seen less conspicuously in other parts of the cæcum and colon. In the ascending colon the ulcers were very numerous, and of various kinds; several enlarged glands were seen, and the gradual ulceration of these could be traced in a few instances, but most of the ulcers were past this stage. Intermediate mucous membrane often white, and very little if at all softened. Some of the ulcers were coated with lymph of gelatinous consistence and irregular form; some were round, with raised and rounded edges, and rather congested at the bottom. These were more numerous in the rectum. The coats of the greater part of the gut were excessively thick to the touch, chiefly from the effusion of the gelatinous lymph before referred to.

Case XIII.—T. C.; simple acute dysentery in an European; fatal in eighteen days.

Cæcum and Colon:—Numerous irregular and spreading ulcers scattered over the whole intestines; they were not always close together, but were in patches, with intervals of apparently healthy mucous membrane, in which were only a few enlarged and redly circled glands. The floor of the ulcers was formed, in most instances, by the circular fibres, compressed and rendered whiter and more glutinous than usual by the effusion of fibrine upon and between them. In some few instances ulcered glands were seen in various stages.

Case XIV.—P. F.; acute dysentery in a scrofulous subject, complicated with and rendered fatal by acute hepatitis.

Cæcum and Colon:—Coats generally thickened; mucous

membrane presented numerous ulcers, of a ragged and irregular appearance from an effusion of lymph, and by a partial cicatrization and contraction; in form these were generally oblong, situated on the transverse folds; in the descending colon the process was less obscured by effusion of lymph, and here the floors were formed chiefly by the circular muscular fibres; here also ulcers being more recent were more rounded in form and smaller, and some few could be seen which had evidently only just passed the stage of granular ulceration. Two enlarged glands were seen with red areolæ, and commencing ulceration at apices.

Case XV.—P. G.; dysentery in a young European, complicated with and rendered fatal by hepatic abscess.

Cæcum and Colon:—Coats generally thickened; whole surface of intestine studded with ulcers in every stage of development. The whole process could be seen, from the gland simply enlarged, then slightly ulcerated, to the round ulcer, and spreading or confluent ulcer. Still, most of the ulcers had passed into the second stage, and were spreading in the mucous membrane, having chiefly the muscular fibres for their floors. In descending colon many of the ulcers were darkly striated. In two places ulceration seemed to be commencing round the glands at their bases, and not as usual at the apices.

Third Period.—Of Cicatrization.

Case XVI.—C. M., a young European; dysentery checked, then supervention of hepatic abscess.

Cæcum and Colon:—Enlargement throughout colon of solitary glands, many of them with a dark vascular circle.

In descending colon and rectum numerous small ulcerations; effusions of a very slimy, gelatinous mucus, particularly round glands. In various places signs of large healed ulcers, viz. a round or irregular space, with a vascular ring round it, and puckering of the peripheral membrane. The membrane covering this space perfectly smooth, and slightly vascular. In some places the process was less complete, and the outline of the ulcer could be traced without reference to the vascular ring, but even here the lymph was nearly on a level with the edges.

Case XVII.—P. H., a young European; subacute dysentery, becoming complicated with a low remittent fever. Dysenteric symptoms continued till death.

Cæcum and Colon:—Various ulcers of irregular form throughout the whole course, most of them partly cicatrized; some with the surfaces covered with lymph, and evidently contracted; lymph on a level with the surrounding membrane; other ulcers having the circular muscular fibres for their floors, but pale, and covered with commencing effusion of lymph. Mucous membrane between ulcers natural, and studded with small glands, many of them with a dark central speck. The process of ulceration of these glands could not be distinctly made out.

Case XVIII.—P. Q.; dysentery in a young European, succeeded by hepatic abscess. Before death dysenteric symptoms ceased.

Cæcum and Colon:—In the cæcum were the irregular cicatrices of numerous ulcers of various shapes and sizes, some round and distinct, others confluent and irregular. They presented various stages of cicatrization; in some instances the surfaces were streaked with layers of lymph,

which had caused a puckering of the surrounding tissues by their contraction; in others the lymph had only reached the form of a thick, whitish, gelatinous, yet firmly adherent deposition, accurately covering the surface of the ulcer, but not presenting any appearance of contraction. This was particularly the case with a number of small round ulcers, which were distributed over the whole colon, and which evidently were glands in which the progress of ulceration had been arrested in an early stage. In other places the whole process of ulceration could be seen: in these partially healed ulcers there were enlarged glands; then these with ulcerated apices; then large but still round ulcers; then ulcers three or four lines in diameter; then either irregularly spread ulcers, or numerous smaller ones cohering, and forming by their coalescence one large irregular ulcer. Most of the small ulcers and glands had a dark vascular circle around them. Intermediate mucous membrane no where softened; in many places quite healthy to the eye.

Case XIX.—W. B., an European; not very severe, but intractable dysentery; then very obscure symptoms of an insidious attack of hepatitis terminating in abscess; dysenteric symptoms nearly absent for some time before death.

Cæcum and Colon:—Coats thickened greatly and uniformly throughout, and shewing a number of healed ulcers; some of these were covered uniformly with a partially contracted lymph. On the smaller ulcers the lymph was minutely granular. Some of the ulcers had no false membrane effused on them, but their floors exhibited the circular muscular fibres, whitened, glistening, and apparently compressed by the effusion of the fibrine, which was distributed so fully among all the coats.

Case XX.—A Mussulman; slight dysentery, cured in a few days. Shortly afterwards death from cholera.

Cæcum and Colon:—Natural till near sigmoid flexure, then some dark injection, and several ulcers nearly healed; they were dark on the surface and smooth; the cicatrices consisted of lymph effused nearly uniformly over each ulcer; there was no granulation.

Case XXI.—A Hindoo; slight dysentery, then death from cholera.

Cæcum and Colon:—A very few small and nearly transparent glands, most numerous, and most opaque in descending colon. In sigmoid flexure four healed ulcers, one not much larger than a gland, the others two, three, and five lines in diameter. Their surfaces were level with the surrounding membrane, but they were whiter, smoother, and apparently firmer; there was a halo or ring of slate-coloured vessels round each.

Case XXII.—B. C., a middle-aged European; severe dysentery, cured; then an obscure attack of hepatic abscess.

Cæcum and Colon:—Throughout the whole course of the intestine were the cicatrices of large recent ulcers; these were very numerous in the cæcum and the ascending colon: the surface was often minutely and darkly vascular; the round and irregular form of the ulcers could generally be perceived, covered by lymph, which was on a level with the surrounding mucous membrane, but distinguished from it by appearance and colour, and also in many instances marked out and defined by a ring of striated and retiform vessels. In some places this lymph had contracted and puckered the surrounding parts; this was most evident in the descending colon, where the diameter of the intes-

tine was sensibly diminished by the contraction of the effused fibrine. In one or two places the fibrine had been effused also between and among the other coats of the intestine, producing slight thickening of the whole gut at that part; not one unhealed ulcer could be seen.

Case XXIII.—Slight dysentery in an European cured; and sudden death from coup-de-soleil.

Cæcum and Colon:—Cæcum slightly reddened, otherwise healthy. Towards the lower part of the colon were several ulcers, about half an inch or a quarter of an inch in diameter, of various shapes, round, oval, or irregular; the mucous membrane round them was thickened, but not reddened; the edges of the ulcers were rounded and a little inverted; the surfaces of the ulcers were in most instances covered with a white thick substance, which could be scraped off, disclosing the floors formed either by the muscular fibres, or by a denser layer of lymph or false membrane than that nearer the surface. The ulcers did not extend much farther than the sigmoid flexure; the rest of descending colon was healthy.

Fourth Period.—Abortive Cicatrization.

Case XXIV.—J. R., a young European, of scrofulous diathesis. Chronic dysentery; a recurrence of acute dysentery a few days before death.

Cæcum and Colon:—Much distended, dark on the surface. On opening intestine, the mucous membrane was seen covered with a thick, grumous, dirty white substance; the membrane beneath this was very dark, in many places almost black, and presented an irregular tuberculated sur-

face, arising from ulceration, and partial deposition of lymph. The coats of the intestine were, in some places, much thickened by effusion of fibrine between their coats; in other places they were thinned by ulceration unattended by effusion. On looking attentively at the membrane of the cæcum its blackness was seen to depend on an immense number of little streaks, evidently the vessels filled with blood, which had assumed a dark colour; there were numerous ulcerations, oblong or round, with slightly raised and rounded edges, streaked with black lines, and with a white glistening floor; at one or two points in the cæcum were seen elevations of the membrane, caused by effusion of a white matter beneath it; the membrane over this effusion was excessively softened, and easily swept away. In the ascending colon, the same dark, almost metallic, appearance was seen; the whole surface was irregularly ulcerated. It appeared as if a whitish substance was diffused over the surface, assuming the form of round and flattened bands, running irregularly and intermixed with each other, forming a number of compartments, so to speak, differing in form and size: in the bottom of many of these were the black irregular ulcers: in many parts, particularly in the transverse colon, the mucous coat had altogether disappeared, and the circular muscular fibres were very evident to the eye. Towards the descending colon the intestine was much thickened, and this arose from the pressure of lymph-like matter, which formed here rounded bands passing across membrane. In descending colon and rectum these lymph bands were reddened, and presented ramifications of vessels. In the intervals between, the ulcers were thickly crowded together, running into one another, and laying bare the muscular fibres.

Case XXV.—F. A., a young European; chronic dysentery, rendered fatal by pneumonia.

Cæcum and Colon:—Mucous membrane of cæcum and colon of an universal dark red colour, presenting an immense number of ulcers of various sizes and shapes, some having the serous coat, and others the circular muscular fibres for their floors, and a considerable number having these tunics covered by a false fibrous membrane: upon many of the ulcers was an extensive deposition of a gelatinous matter, and this was also diffused in some places on the intermediate mucous membrane, forming irregular rounded elevations. The coats of the sigmoid flexure were considerably and uniformly thickened.

Case XXVI.—J. N. Chronic dysentery in an European, followed by hepatic and renal dropsy.

Cæcum and Colon:—Coats very much thickened, and excessively dense to the feel; this thickening was dependent on a deposition of dark granular and stratiform lymph over the whole of the mucous membrane: in the cæcum and ascending colon large ulcers were seen partially covered and concealed by granular lymph: in the transverse colon, descending colon, and sigmoid flexure, a great quantity of dark grey, and in some places nearly black, lymph concealed all traces of ulceration. There appeared to be also a deposition of lymph between the coats of the intestines.

Case XXVII.—J. G., European soldier; chronic dysentery; life terminated by supervention of a very acute attack.

Cæcum and Colon:—Externally a number of dark red

patches were visible. The coats were thickened. It was singular to see how completely the disease was circumscribed and limited by the ilio-colic valve. The last part of the ilium was pale, and perfectly healthy. The very commencement of the cæcum was highly inflamed and gangrenous.

On laying bare the intestine the coats were found thickened throughout, and in a great degree, partly from the effusion of lymph between the coats, and partly by the deposition of lymph in nodules and masses. The greater part of the mucous membrane was occupied by old ulcers, the floors of some of them covered with nodular lymph, of others formed by the muscular fibres, compressed by lymph. These last ulcers had a very dark red colour, but had suffered no other change. The ulcers on which lymph had commenced to be deposited were beginning to become gangrenous. The whole of the cæcum was occupied by dirty looking ulcers, partially covered by lymph, and coated with a grumous, thick, reddish fœtid pus. In one or two places the intermediate mucous membrane, which had not been ulcerated during the chronic attack, was now dark red, and very soft. The muscular fibres beneath it were also dark red. The serous coat could be peeled off the muscular fibres with great facility; the muscular fibres, in some places, were reddened also on the surface; they were much thickened and very hard.

In one or two places in the ascending colon, where the ulcerative process was least obscure, several of the ulcers were round, from one to three lines in diameter, and uniformly covered with a white lymph. The acute attack had evidently not reached these ulcers.

Case XXVIII.—J. W., a European soldier; very chro-

nic dysentery in a bad subject, debilitated by syphilis and mercury.

Cæcum and Colon: — Intestines generally thickened; surface covered with uniform nodules of very hard lymph, rounded or flat. These were so numerous, that in cæcum and greater portion of colon they rendered the mucous membrane universally tuberose, and permitted to be seen only very slight outlines at different spots of rounded and irregular ulcers. In rectum several round, defined, small ulcers, red at edges, were destitute of lymph.

Case XXIX.—Doonah, Bengal Mussulman; chronic diarrhœa in an old worn-out subject.

Cæcum and Colon:—Thickened throughout, contracted; mucous membrane dark, and studded with large round and irregular ulcers. In cæcum nearly the whole surface had been one ulcer, on which granular lymph had been deposited in small quantity. In other parts of cæcum the muscular fibres, dark, red, and indistinct from effused fibrine, formed the floor. In ascending colon the intermediate mucous membrane was dark and smooth; the ulcers had defined edges, and were most of them covered to the level of the surrounding membrane by a yellowish lymph, which increased in density and adherence towards the floor of the ulcer. The smallest ulcer seen was round and about two lines in diameter; the largest was about half an inch. In descending colon were the same appearances; many ulcers, but still much clear mucous membrane. In sigmoid flexure the ulcers were more numerous, covered with granules of hard lymph: lymph also on floors. In lower part one large ulcer had surrounded the whole gut; here the circular muscular fibres could be seen, though indistinctly; they were compressed as in the cæcum

by lymph effused between them. Colour of this part of intestines dark red; no fœtor.

Appearances in other Organs.

The cerebral and thoracic organs are never implicated in simple acute dysentery, and incidental changes in them need not be detailed here.

The chief changes in the other abdominal organs are arranged in a tabular view. This table is constructed from twenty-five post mortem examinations of patients belonging to the European garrison of Moulmein, Tenasserim Provinces. These men were treated by different medical officers, who kindly allowed me to dissect their fatal cases. I have excluded all cases having a scorbutic taint, all cases of primary hepatitis followed by dysentery, and all cases of chronic dysentery; and I have also not given those cases of decidedly consecutive hepatic abscess, in which the case was chronic, or in which the dysentery had ceased to afford the most prominent symptoms. In fact, these cases are solely those of acute dysentery, fatal without complication, or of acute dysentery complicating itself with rapid development of hepatic abscess.

Vide Table, *next page*.

TABLE.

No. of Case.	Ulcers in Colon numerous or otherwise.	Mucous Membrane of Stomach and Sm. Intestines.	State of Liver as described in Report.	State of Gall-Bladder and Bile.	State of Spleen.	State of Pancreas.	State of Kidneys.	Remarks.
1	The earliest state enlarged glands.	Redness in great cul-de-sac and lower part of ilium.	Slightly enlarged and somewhat granular.	Filled with very dark viscid bile.	Small and contracted.	Small, pale, empty of blood.	Right kidney slightly granular, left kidney healthy.	Acute dysentery, cut short by cholera.
2	Not numerous.	Red patches in great cul-de-sac and lower part of ilium.	Enlarged, somewhat congested, mottled.	Not noted.	Natural.	Natural.	Natural.	A man of intemperate habits debilitated by fever.
3	Numerous in descending colon, and rectum.	Redness in ilium.	Much enlarged and congested.	Filled with viscid bile.	Small and contracted.	Not noted.	Natural.	Intense pain in region of liver the whole time of illness.
4	Very numerous, colon, adhering to duodenum.	Some enlargement, without inflammation of the glands.	Pale.	Not noted.	Natural.	Natural.	Natural.	Simple acute dysentery never arrested.
5	Very numerous.	Healthy.	Hard, granular, pale on section; blood in large vessels.	Gall-bladder full of bile, thin, green, not viscid.	Small and hard.	Reddened.	Healthy.	A very severe case in a woman pregnant (fourth month); no abortion.

No. of Case.	Ulcers in Colon numerous or otherwise.	Mucous Membrane of Stomach and Sm. Intestines.	State of Liver as described in Report.	State of Ga ll-Bldder and Bile.	State of Spleen.	State of Pancreas.	State of Kidneys.	Remarks.
6	Numerous.	Healthy; Peyer's glands not seen.	Pale, natural in size, apparently healthy.	Gall-bladder contracted, containing about ʒii. of pale red transparent, very slightly viscid bile.	Rather soft, and red on section.	Pale; of cartilaginous hardness.	A small cyst, with thick dark red secretion in each kidney, otherwise healthy.	In a man debilitated by syphilis.
7	Universal.	Healthy; solitary glands of ilium just visible.	Unusual size, rather firm on section.	Moderately full; state of bile not noted.	Small, healthy.	Healthy.	Congestion of cortical substance of left kidney, otherwise both kidneys healthy.	A very rapid case.
8	Very numerous.	Healthy.	Enlarged, granular, pale, rough on surface, and when cut.	Much distended; bile thin; mucous membrane of gall-bladder minutely vascular.	Enlarged in a slight degree.	Not noted.	A small serous cyst on surface of left kidney, otherwise both kidneys healthy.	This man was an invalid for chronic hepatitis; abscess had been diagnosed, but incorrectly. The pain in liver was chiefly over gall-bladder.

9	Universal.	Healthy.	Natural in size and appearance.	Moderately full; bile thin, brown, transparent, with a brownish granular substance floating in it, which by rest became deposited, leaving a clear supernatant fluid; on the top of this floated some small, apparently oleaginous particles.	Natural.	Natural.	Natural.	A very acute case, never checked.
10	Few.	Some hæmorrhagic points in stomach; small intestines healthy.	Smaller and harder than natural.	Filled with a thin brownish bile, containing a number of crystalline particles.	Healthy.	Not noted.	Not noted.	A case convalescent from dysentery; died suddenly from coup-de-soleil.
11	Very numerous.	Healthy.	Pale, bloodless, hard; evidently in a state of commencing cirrhosis.	Moderately full; dark yellowish green, containing particles apparently crystalline.	Healthy.	Not noted.	Congested.	A severe attack.

No. of Case.	Ulcers in Colon numerous or otherwise.	Mucous Membrane of Stomach and Sm. Intestines.	State of Liver as described in Report.	State of Gall-Bladder and Bile.	State of Spleen.	State of Pancreas.	State of Kidneys.	Remarks.
12	Universal.	Stomach healthy; solitary glands in small intestine enlarged throughout; hæmorrhagic congestion of Peyer's glands.	Contained more than eighty abscesses.	Much contracted; bile thin, brownish.	Pale, healthy.	Healthy.	Natural.	Probably a case of latent primary hepatic abscess. The evidence is not conclusive either way,
13	Very Numerous.	Natural; Peyer's glands a little enlarged.	Large and congested.	Full; state of bile not noted.	Natural.	Natural.	Natural.	A severe acute case.
14	Numerous; omentum forming adhesions, effusion from perforated cæcum.	Healthy; orifices of Brunner's glands enlarged.	Two small abscesses on surface, each the size of a filbert.	Full of dark green bile.	Congested, enlarged, or softened.	Very hard and firm.	Healthy.	The disease in the liver and colon appeared to be coetaneous; the illness altogether only lasted twelve days.
15	Universal.	Healthy.	Numerous abscesses occupying whole of right lobe, four smaller abscesses in left lobe.	Empty; contracted.	Congested; soft.	Not noted.	Apparent deposition of white hard substance in cortical substance. Healthy.	This case lasted nearly three months. It was doubtful whether the hepatic disease was primary or secondary. It was quite latent.

16	Numerous.	Healthy; solitary glands distinct, Peyer's glands indistinct.	Liver pale.	Not noted.	Healthy.	Not noted.	Healthy.	A very rapid case.
17	A good many, but scattered.	Stomach healthy; redness of lower part of ilium; minute injection of one patch of Peyer's glands.	Large, congested; nothing very abnormal.	Full; condition of bile not noted.	Healthy.	Not noted.	Healthy.	A simple acute case.
18	Several; a large abscess in walls of colon, containing Oss. of thick pus.	Healthy.	Healthy.	Not noted.	Healthy.	Healthy.	Healthy.	This case was a complication of typhlitis produced by dysentery.
19	Numerous in descending colon: solitary glands generally enlarged.	Healthy.	Large, congested, not very much so.	Not noted.	Healthy.	Not noted.	Healthy.	This was rather a chronic case; there was for the last two months great pain in right side; abscess was incorrectly diagnosed. The history of the case clearly proves that at no time was there any just suspicion of abscess.
20	Numerous.	Healthy.	Enlarged; bloodless; very pale.	Gall-bladder filled with light coloured bile.	Healthy, or a little congested.	Healthy.	Healthy.	A case three or four times cured, and readmitted.

No. of Case.	Ulcers in Colon, numerous or otherwise.	Mucous Membrane of Stomach and Sm. Intestines.	State of Liver as described in Report.	State of Gall-Bladder and Bile.	State of Spleen.	State of Pancreas.	State of Kidneys.	Remarks.
21	Universal.	Healthy; not carefully examined.	Crowded with abscesses.	Empty.	Not noted.	Not noted.	Large; congested.	A case of consecutive perfectly latent hepatic abscess, correctly diagnosed before death.
22	Numerous.	Healthy.	Enormous abscess.	Not noted.	Enlarged; soft.	Not noted.	Healthy.	A case of consecutive latent hepatic abscess.
23	Numerous.	Some vascularity, and slight softening, probably cadaveric, of mucous membrane of cul-de-sac.	Enlarged; pale; indurated.	Not noted.	Healthy.	Healthy.	Healthy.	A simple acute case unchecked, becoming subacute before death.
24	Universal.	Healthy.	Two small abscesses; remaining part of liver pale; granular; friable.	Not noted.	Healthy.	Healthy.	Healthy.	A very rapid case.
25	Universal.	Stomach healthy. Solitary glands in upper part of duodenum, and in ilium, very conspicuous.	Enormous abscess.	Contracted; empty.	Healthy.	Not noted.	Healthy.	A case of partially latent hepatic abscess.

It results, then, from these cases :—

First.—That in seven out of twenty-five cases of dysentery dying in the acute, or subacute stage, abscess is found in the liver. If, however, from these twenty-five cases we take two in which it was doubtful whether the abscess was not a latent primary one, it leaves us five out of twenty-three. Add to these thirty-nine cases occurring in one quarter in the King's Own Regiment at Secunderabad, (published by Dr. Innes, Her Majesty's 84th Regiment, then in charge of the corps,) among which were seven cases, in which hepatic abscess was found, and we get thirteen cases of hepatic abscess for sixty-one cases, or about twenty-one per cent. in patients dying in the acute stage.

Second.—The state of the liver, where there is no suppuration, varies.

(*a*) It is often pale, bloodless, slightly granular, or merely pale and small. It was so in six cases out of twenty-five.

(*b*) Sometimes it is granular and enlarged; but generally here also pale, and containing blood only in large vessels. In was so in four cases out of twenty-five.

(*c*) In five cases out of twenty-five it was enlarged, dark, and congested, exuding blood on section.

(*d*) In three cases it was natural, or at least no alteration in its molecular structure could be seen by the naked eye.

The most common change is the pale granular appearance; sometimes the liver has a yellow colour, somewhat of a sulphur tint. When abscesses exist, the intermediate hepatic substance often presents this hard, pale granular appearance. At other times the hepatic substance is

minutely and darkly injected. In some of these dissections the granular appearances approached or indicated cirrhosis.

I have not dwelt upon the changes in the liver, as they are so exceedingly difficult to be described—the morbid anatomy of this organ, as well as of the spleen, is in a most imperfect state. The terms used in describing its changes are as vague and unsatisfactory as can be conceived; and a liver which may be materially diseased is often called healthy because there are no very strikingly evident morbid appearances.

As functional disease implies a proportionate certain amount of change in the molecular structure of organs, either primary in the organ itself, or secondary to changes in the blood or vessels, the most delicate test of the condition of an organ will in time be the chemical constitution of its secretion, when this knowledge is attainable. We already see this test beginning to apply itself in the case of the kidnies and urine.

Judging from this test, the liver is found to be more or less diseased in every case of dysentery.

The bile usually presents two states.

First.—The most common condition is when the gall-bladder is moderately full or half-empty, the bile is thin, transparent, of a brownish red colour; not stringy, sometimes with particles suspended in it apparently crystalline, and sometimes like particles of Cayenne pepper, and when of this form they do not seem soluble in alcohol. The nitric and hydrochloric acids in small quantities give a dirty-green tint or precipitate; in larger quantities, a dark greenish yellow, or a green purple hue. Alcohol gives a cloudy precipitate, insoluble by heat. If abscess exists, the gall-bladder may be empty, or moderately full of bile similar to the above.

Probably much of this thin bile is formed from the mucous membrane of the gall-bladder; this must be the case when abscess presses directly on the cystic duct, as is sometimes seen. At any rate it is very evident that in many cases of dysentery, the secreting function of the liver is temporarily suspended, as no bile passes by the stools, and none is taken into the circulation; otherwise it would be denoted by icterus.

How far this non-secretion determines to abscess, future experience must show.

In twelve cases in Europeans in which the bile was particularly examined, it presented this dun, transparent, or semi-transparent red appearance in eight. The condition of the liver which generally accompanied this state of the bile, was the pale, somewhat granular appearance, already noticed, or else the liver appeared healthy.

Second.—In other cases the gall-bladder is full, perhaps distended with a thick dark green, very stringy viscid bile. It is very different from the bile in cholera, which is never viscid to the extent observed in dysentery. I have seen the bile in this state able to be drawn out in strings for three or four feet. It occurred in four cases out of twelve. It so happened that all these four cases had been treated on the salivation plan, and two or three of them had taken scruple doses of calomel up to the last day of life.

Whether this was a mere coincidence or not, I cannot undertake to say.*

In other cases of acute dysentery, the bile has been less stringy, and very dark green and thick. I may mention

* Since this was written, I have dissected a Moorman, in whom the bile was exceedingly viscid and stringy, and who had taken no calomel for three weeks before death.

that the most extreme case of viscidity I ever saw occurred in the bile of a Mussulman, who had also been treated with large doses of calomel; here it was with great difficulty that the tenacious adherent bile could be detached from the gall-bladder. In this case the liver was somewhat congested, the ulcers in the large intestines very numerous, and the effusion of lymph there very great.

Pancreas.

The morbid anatomy of the pancreas is even more undetermined than that of the liver; extreme pathological changes, as scirrhus, cartilaginous or other transformations, calculi, &c., &c., are the only ones noticeable by the eye. Like the liver, the pancreas often is pale and bloodless; sometimes it is reddened. But in the greater number of instances in which I carefully examined it, I could not undertake to detect by the eye any morbid changes. In chronic dysentery, indeed, its changes are more marked.

Spleen and Kidneys.

The same remark may be made of the morbid anatomy of the spleen; the terms enlarged, contracted, softened, &c., &c., useful as they are, are not sufficiently minute. We must be contented to wait till a more extended knowledge of the healthy structure of the part will allow the microscope to be applied to the elucidation of the morbid appearances.

The changes in the kidneys in acute dysentery are inappreciable; what changes are seen are probably antecedent to the intestinal disease.

Gastro-Enteric Membrane.

Healthy: in all cases of simple dysentery the alterations in the canal are circumscribed by the ilio-colic valve. In scorbutic dysentery the ilium is affected, as is mentioned under the head of that complication. Gastro-enteritis is at certain times an accompaniment of dysentery, and is a dangerous complication, on account of the obstinate exhausting vomiting which may attend it. There are various shades of vivid, dark, or hæmorrhagic redness in small intestines, particularly ilium; enlargement and occasional ulceration in a small degree of Peyer's and of the solitary glands, most usually of the latter.*—Bladder: painful micturition during dysentery seems sometimes to depend on sympathetic irritation. Often, however, there is more than this. I have known the bladder acutely inflamed during and subsequent to dysentery, and have dissected one case in which chronic dysentery was at the end of the case complicated and rendered fatal by intense inflammation of bladder, producing general thickening of coats, and ulceration and sloughing of mucous membrane.

I have thus finished the proofs and description of my first position, viz. that the anatomical characters of dysentery consist in inflammation and very rapid ulceration of the solitary glands of the large intestines.

I have described fully these alterations, and have named the chief symptoms by which we may always recognize the

* I have not mentioned the adynamic variety, because this is almost always a case complicated with remittent fever, or with typhus. As I have observed in a subsequent section, among the dark races the ulcers are atonic, and may require stimulants; but by the term adynamic dysentery is meant more than this, viz., a failure of the powers of life, with dysentery superadded. I have never seen this apart from fever or cholera.

kind of state these present, and I have briefly alluded to the accompanying marked conditions of other organs.

I shall now proceed to a very brief consideration of some of the chief

Symptoms of Dysentery.

These are so fully described by writers, that a short statement is all that I shall subjoin.

Dysentery commences either gradually or suddenly: the general commencement, however, is by diarrhœa.

First.—As to the kind of stools.

These are, first, simply numerous, perhaps fæculent, in a few very rare instances scybalous. I state this on the authority of Mr. Annesley and Dr. Copland, for my observations agree entirely with those of Mr. Bampfield and Dr. James Johnson, that in true dysentery scybala are seldom present.

After this the stools become numerous, slimy, gelatinous, bloody; blood in streaks, or mixed with a dark watery fluid; in another form pure, perhaps clotted. Afterwards, stools watery, muddy, sanious, like washings of meat, or gelatinous-looking, lymphy, shreddy, offensive in odour. Sometimes after this the stools present an appearance something like pus, or this is mixed with mucus, slime, and blood in such a way as to form a variously coloured stool, which causes great griping and tenesmus when passed.

The following arrangement is, I believe, a tolerably correct statement of some of the varieties in the stools. I cannot enter into the whole of this subject here, important as it is. The stools peculiar to the stages have been determined in most instances by dissection, and in a few from the symptoms and gradual progress of the case.

The stools in simple acute, and in hepatic dysentery, vary as follows.

1. Glandular enlargement and commencing ulceration.—Slimy and mucous, with bloody streaks, sometimes in masses, sometimes like the albumen of an unboiled egg.*

2. Glandular enlargement;—yielding slime and fæces, stools often numerous, sometimes dark coloured and frothy, sometimes yellow, sometimes like bran suspended in a fluid. Causes of these differences not known.

3. Complete ulceration. — Stools slimy, gelatinous, lymphy, bloody, watery, muddy, or partly liquid, partly solid, like washings of meat, or chocolate-coloured, or resembling treacle and water.

4. Irritable ulcer.—Florid blood in streaks, with a reddish mucus. The stools often resemble brick dust.

5. Scorbutic ulcer.—Dark bloody offensive serum, mixed with fœtid, grumous, chocolate-coloured secretion.

6. Healthy ulcer.—Lymphy masses with no blood, or a few florid streaks, mixed with a clear or slightly turbid fluid. Stools small in quantity; fæculence gradually added; sometimes stools granular.

7. Sloughing ulcer.—Dark coloured, sanious, and offensive discharges, generally mixed with albuminous and gelatinous masses, and, if the rectum be principally affected, sometimes with dark, soft, and unnatural-looking fæculent stools. If the whole of the colon be affected, stools often nearly pure dark, perhaps clotted blood, broken down into a muddy fluid.

* A medical friend, for whose opinion I have a great respect, has informed me, that on breaking open these mucous lumps, he has often found a small hard black scybala inside. I have never been able to confirm this in true dysentery, although scybala are common enough in diarrhœa following constipation, which may then pass into dysentery.

8. With primary universal hepatic abscess.—Often nearly pure blood, with a little mucus and slime.

9. With primary partial hepatic abscess.—Always much blood, but also mixed with dark slimy mucus, perhaps frothy and variegated, with yellow apparently fæculent streaks. (This yellow substance seems in this case to be secreted by the glands in the pyloro-valvular portion of the duodenum, or by the pancreas.)

10. With secondary hepatic abscess.—Frothy, beaten up, yellow or brown, yeasty, little solid part, giving sometimes a burning sensation when passed; not numerous.

11. Subacute and chronic dysentery.—Stools variegated, green, yellow, brown, grey, slimy, clayey, fatty, gelatinous, often like lymph partially dissolved in bloody serum. Many other appearances too numerous to be detailed here.

12. Rare form of dysentery, attended by general mucous inflammation; glands enlarged, but ulceration much less rapid than in other forms; sometimes complicated with gastro-enteritis.—Stools numerous, liquid, yellow, sandy-coloured; at a late period dark, frothy, somewhat beaten up, inodorous for some days after attack. The stools are something like those seen in latent hepatic abscess, but can always be distinguished.

Second.—Tormina and Tenesmus.

These symptoms are often very distressing, but are sometimes absent. In one of the most severe cases I have ever seen, in which after death the whole colon was covered with ulcers, there was no tenesmus, and, I may mention it here, no pain on pressure, not even over cæcum.

If ulcers exist lower down in the rectum, the tenesmus is often extreme. There is one form, chiefly occurring in robust

Europeans, in which at the very commencement of the illness there is great straining, but only a small quantity of red mucus or slimy blood passed, or there is simple straining without any passage. This is I believe an inflammation chiefly of the rectum, and attended with spasm, almost the only instance in dysentery where I have had any reason to suspect the existence of spasmodic contraction. This state only lasts two or three days; afterwards the more usual form of dysentery comes on.

The spasms causing tormina are quite temporary, and only occur at the time of going to stool. I have never seen any proof of the state described by Mr. Annesley, in which spasms exist, allowing only fluid matter to pass, and retaining fæces and solid secretions; this is not true dysentery, but a complication either from simple diarrhœa or from constipation.

Third.—Pain on pressure.

Is generally present, particularly over cæcum and sigmoid flexure. In some of the worst varieties it is absent, and the progress of ulceration is often unattended by any tenderness whatever. The absence of this symptom is never to be taken as an indication for treatment. The indications for treatment are afforded by the stools; this and other symptoms are merely accessary indications, valuable when present, but proving nothing when absent.

Fourth.—Heat in course of colon.

Occurs in some of the erythematous varieties; it indicates either a rapid spreading of the inflammation over the mucous surface, or an implication of the serous coat and mesenteric glands.

Fifth.—State of skin.

Almost always dry and harsh: in some chronic cases remarkably so, with furfuraceous desquamation. In latter stages of acute dysentery sometimes hot and sweating.

In the majority of cases, and in the worst varieties, dry and cold, or hot only in the abdomen.

Sixth.—State of urine.

In advanced acute cases, when the bladder is affected, urine scanty, red, sedimentous, scalding or suppressed, or passed in drops.

In all cases its chemical constitution is much altered.

In severe cases, the bladder being unaffected, I have found the specific gravity to vary from 1015 to 1025; its colour is light yellow; it is turbid and slightly sedimentous. It very rapidly decomposes and acquires an ammoniacal smell, much sooner than the urine of a healthy person exposed to the same circumstances. When thus decomposed, nitric acid clears it with disengagement of gas. Heat clears it and makes it quite transparent. Chemical analysis will probably discover hereafter very important indications in the urine. I shall return to this subject, and to the state of the skin, in speaking of the pathology of dysentery.

Seventh.—State of tongue.

Generally covered with a white fur; in complication with remittent fever, red, glazed, brown; in latent hepatic dysentery, sometimes clean, but preternaturally smooth and red, sometimes covered with yellow fur, and red at edges and tip; sometimes pale and sodden.

In latter stages, glazed, dry, brown; in splenic dysentery enlarged, very red, chapped, glazed; in gastro-enteritis, red, glazed, coated, disposed to become dry and brown.

Many other changes too numerous to be detailed here.

Eighth.—Thirst.

Generally this is considerable; when the dysentery is partial it may be absent.

Ninth.—Pyrexia.

In some particular forms there may be attendant feverishness, with quick and sharp pulse, quickened breathing, &c.; but in the majority of cases there is no pyrexia, in the common acceptation of the term. Often there are no rigors or pains in limbs, or any affection of the general health; the appetite is even sometimes retained.

Tenth.—Pulse.

Generally unaffected in uncomplicated dysentery, except in the worst form, when the inflammation is asthenic; here it is usually slow and feeble; in the last stage of the sthenic form it is quickened and small, but sometimes hard. I have never known it wiry.

Eleventh.—Sometimes nausea and vomiting are present in the uncomplicated varieties.

I have known vomiting of fæces in three instances in one year, and have seen a dark coffee-like, or black vomit, in two cases, which after death was found to have come from the colon.

I have thus gone shortly over some of the more prominent symptoms of uncomplicated dysentery. It is unnecessary to occupy more space on a subject so fully described by Copland, Annesley, Twining, Bampfield, and numerous other writers.

The symptoms in the complicated forms are very impor-

tant; but this extensive subject must be left till I speak of those varieties of the disease.

The symptoms in the adynamic and bilio-adynamic forms are fully described by Dr. Copland. The last form, however, has always appeared to me to be a complication of dysentery with a low form of bilious remittent fever.

When on the subject of treatment, I shall review rapidly the leading symptoms of chronic dysentery.

Complicated Dysentery.

The complications of dysentery are the most important complaints of tropical climates. The fatality of dysentery is chiefly owing to these, and in the progress towards a fatal termination of hepatitis and splenitis, dysentery constantly occurs, aggravating the sufferings of the patient, while at the same time it augments the disease.

The only complications I shall notice here are those with suppurative hepatitis, remittent fever, and scurvy. The other complications, with gastro-enteritis, delirium tremens, rheumatism, enlargement of the spleen, and granular disease of the kidneys and liver, with or without dropsy, will not be discussed at this time.

These, although very important, are comparatively unfrequent, and from their obscurity and difficulty require more extended examination before an accurate history can be given.

Suppurative Hepatitis with Dysentery.

Two forms of this complication are distinguished by the best writers, viz. hepatitis preceding, and hepatitis following dysentery.

Some difference of opinion, however, still exists regarding the connection of the two diseases. I cannot refer now to many authorities, but almost every writer I am acquainted with passes over this subject, although the most important in the whole history of dysentery, with great rapidity.

Dr. James Johnson, who appears to refer dysentery always to deranged hepatic functions, in his work on Tropical Diseases gives no definite opinion that I find under the head of dysentery, with the exception of the statement that "Indian hepatitis is generally attended with a flux;" using the term "hepatic dysentery," and making some remarks under the head of hepatitis.

Mr. Twining does not seem to be quite decided what to say:—

He writes thus in one place. "The general relation of these diseases, (viz. ulcerous disease of the great intestine, and abscess of the liver,) as cause and effect, may be reasonably questioned." (Vol. i. page 58, 2d Edit.)

And in another place he says: "The greater number of cases of acute hepatitis, which occur in this part of India, are at their commencement either complicated with some other local disease, or with some disordered state of the constitution; fever, dysentery, diarrhœa, or vomiting, being often the premonitory symptoms." (Vol. i. page 288, 2d Edit.)

Dr. Copland states, "that inflammation of the liver occurs, either previously to, coetaneously with, or consecutively on the dysenteric affection." (Dictionary of Medicine: Acute Dysentery.)

Mr. Annesley, whose descriptions of many Indian diseases are the most comprehensive that are known to me, describes two forms of complication, "dysentery supervening to disease of the liver," and a second form, viz. "when the

affection of the liver supervenes to dysentery." (Diseases of India, 2d Edit. 8vo. 1841, pages 391, 392.)

The following arrangement may be used for the sake of description :—

Hepatitis being primary or antecedent.

Hepatitis being secondary or consecutive.

(*a*) Declared.

(*b*) Latent, the inflammation producing suppuration, being apparently slight.*

Primary Suppurative Hepatitis.

I shall return to the symptoms and treatment of this form under the head of Hepatitis. I shall now merely remark, that no satisfactory explanation has yet been given of the way in which the dysentery is produced.

It cannot be from deranged secretion, as asserted by Annesley and many others.

First.—Because, when this deranged secretion does occur, we have bilious diarrhœa, and not true dysentery.

Second.—Because there is often no irritation of the mucous membrane of the small intestines, to which we should suppose the so-called irritating hepatic secretion to be at least as hurtful.

Third.—Because, under this supposition, the dysentery should be present during the whole course of the disease, and in every case.

* In the following account I have confined myself to the suppurative form of hepatitis. Another common complication is enlargement of the liver and dysentery : here the dysentery is often consecutive, though not always. Gastro-enteritis is also often present, and in fact this complication is altogether a more obscure and more compound disease than the one under consideration.

Fourth.—Because dysentery, in like manner, complicates some diseases of the spleen which pour out no irritating secretion.

Fifth.—Moreover, the secretion has not been proved by chemical analysis, or any other test, to be possessed of irritating qualities; its irritating properties have been supposed, and the supposition has been received as if it were an established fact.

Sixth.—In some cases, in which the secretion really does appear to be irritating, viz. by producing excoriation round anus, and scalding the patient when he goes to stool, the mucous membrane of the colon, previously ulcerated in antecedent dysentery, has been found by me to be healing rapidly.

So far from irritating secretion producing the consecutive dysentery, I have been led to think that the absence of all secretion has been the cause of this disease; in other words, when hepatitis has terminated in partial suppuration, and bile is still secreted, although altered in appearance, then there is no dysentery; whereas, when from extent or peculiar situation of abscess no bile is secreted, dysentery appears to supervene. This opinion is founded on a few observations only, and I mention it here simply that its correctness may be tested by the observations of others.—(See Hepatitis.)

As an instance of the difficulty of ascertaining, in many cases, the relative priority of dysentery and hepatitis, I insert the following case: whether my conclusions are warranted or not, it will answer my purpose of shewing the difficulty of correctly reasoning on these cases till such time as more information is collected.

W. W., an European soldier, of Her Majesty's 84th Re-

giment, admitted June 28th, 1844; dysentery: died July 17th, 1844.

This man was not my patient, but I examined him after death. I made particular inquiries about his health previous to his admission into the hospital, and could not discover that he had ever complained of pain or uneasiness until two days before admission. Then he began to suffer from diarrhœa, for which his comrades could assign no cause. Six months before he had been in the hospital three days with very slight jaundice, which yielded at once to purgatives.

He died in nineteen days after admission, and during that time no suspicion was ever entertained of hepatic complication.

At first the stools were nearly pure blood, and averaged thirty-five in twenty-four hours; *the mouth was severely affected with mercury*, and they then became of a light yellow colour, frothy, beaten up, and in number about fifteen in twenty-four hours, and offensive.

There was no vomiting at any time, no hardness of abdomen, no jaundice, no unusual tension of right rectus muscle, and no pain or enlargement of the hypochondrium. The urine was not examined.

Sectio, fourteen hours after death.

Thoracic organs: perfectly healthy.

Abdomen—Liver: crowded with abscesses, twenty-six were counted on the upper surface; on section, the right lobe of the liver was literally riddled with them. There were at least sixty abscesses of a tolerably uniform size in right lobe, and four or five in left. One abscess, the largest in the liver, was

situated near the gall-bladder, compressing the ductus communis choledochus; the pus was thick, creamy, and laudable, except in the abscess near gall-bladder, where it was thinner. The hepatic substance round the abscesses was, in some instances, darkly congested, in others apparently natural; in the left lobe it was pale, but harder than natural. Many of the abscesses were mere round excavations in the hepatic substance; others were commencing to be lined with a thin very soft layer of lymph; in one or two instances there were minute granules upon this soft cyst. The abscess near the gall-bladder, and one or two others, were spongiform, as if they had been formed before the rest, but from deposition of lymph in the minute lobular structure the pus had burrowed among the lobules instead of forming a clean excavation or abscess by its pressure, as in the other cases.

The gall-bladder was nearly empty, containing only about one drachm of thin red serous looking fluid; no crystalline particles were seen; intense hæmorrhagic congestion in patches of mucous membrane between the areolæ.

Spleen: large, rather softened; on section a good deal of the strawberry-jam appearance.

Kidneys: congested; blood flowing from surface of section.

Pancreas: redder than usual; nothing else abnormal.

Stomach: distended with a thick inodorous yellow secretion, quite similar in appearance to the stools; this secretion was also present in large quantities in the small intestines. Some hæmorrhagic points; a few of the large veins were dark with blood; mucous membrane in points stained with yellow secretion.

Duodenum: considerable vascularity of upper portion, and development of the orifices of Brunner's glands; the surface

of the valvulæ conniventes was stained deeply yellow, as also the intermediate mucous membrane in a slighter degree.

Ilium and jejunum: occasional ramiform congestion; surface here and there slightly stained.

Cæcum and colon: no thickening of coats, a perforation or rather laceration in rectum; but no escape of contents into abdominal cavity.

In cæcum and commencement of colon, three or four large irregular ulcers, with the circular muscular fibres, slightly thickened, for their floors. Higher up mucous membrane healthy, or with a few small round ulcers here and there; only two or three glands seen. In descending colon the mucous membrane for about four inches had peeled altogether off the gut, leaving the circular muscular fibres bare. Below this, mucous membrane, softened, but unulcerated, was again seen; it peeled off readily. Below this again, in rectum, the mucous membrane was again absent; the other coats were softened, very dark, and offensive to the smell. The veins running from the small and large intestines in the mesentery and meso-colon were full of blood; this could be pressed out of them, and appeared natural: in no case was there any appearance of pus in them, or of inflammation of their coats.

Observations on this Case.

First, as to the Liver.

I am inclined to think that the earliest formed abscess was the one pressing on the gall-duct; it was spongiform, and spongiform abscesses, resulting as I have fancied from attempts to circumscribe by effusion of lymph

into the interlobular cellular tissue, are generally of slower formation than the excavated or encysted abscesses. Moreover, in this abscess the pus was thinner, not thick, and altogether laudable as in the other abscesses; and this thinness is itself an accompaniment generally, if not always, of an abscess of some duration. Again, the gall-bladder was nearly empty and acutely inflamed, evidently from the pressure of the abscess. Again, this abscess was the largest in the liver, whereas the majority of the remainder were tolerably uniform in size and appearance; consequently, they were probably developed by a common cause, and were in an equal state of advancement; this common cause may have been the abscess pressing on the ductus communis choledochus, abolishing the secretion of the liver, and thereby infallibly leading to abscess. Now, as to the relative priority of hepatic or colonic disease,

I believe the hepatic disease was primary—

First.—Because the very first stools were nearly pure blood, a peculiarity always depending on very extensive and rapid ulceration; on complication with scurvy (in which case, however, the blood is peculiar), or on complete abolition of the secretion of the liver, very rapidly accomplished. This last proviso is necessary, as, if the secretion of the liver be slowly abolished, by gradual development of a tumor, by enlargement of the head of the pancreas, or by gradual accretion of a gall-stone in the ductus communis choledochus, abscess does not always and necessarily follow.

Second.—But there was no scurvy, and as the colonic ulceration, though considerable, was not of that kind which produces such incontrollable melœna, the blood-stools must have resulted from the colon being called upon to supply the place of the liver, and being unable to do this, its mu-

cous membrane became engorged, inflamed, softened, and swept away.

Third.—Because the state of the colon was not that which is almost always found in consecutive hepatic abscess, viz. extensive implication of the glands, and universal affection of the mucous membrane.

Fourth.—Because the symptoms were not those usually attending latent consecutive hepatic abscess.

As to the Colon.

The large ulceration, the loss of the mucous membrane during life, and the absence of the development of the glands, and the softened condition without ulceration of the mucous membrane in the rectum, seem to point out that there was rather an acute and erythematous inflammation than the usual form of dysentery, beginning in the glands, and attended by early ulceration and effusion of lymph.

The peculiar stools seemed to come from the stomach and duodenum, perhaps from the pancreas; whenever they follow long continued dysentery, or rapid dysentery attended by pure blood stools in the early stage, we may conclude them to be almost pathognomonic of hepatic abscess.

Secondary Suppurative Hepatitis.

In this disease diarrhœa or dysentery is the antecedent disease, and on it the hepatitis supervenes; the primary disease may be apparently cured before the accession of hepatic symptoms, or may prevail with these

partially, or throughout the whole course of the illness. This complication has been often observed. Ballingall apparently means this when he speaks of "hepatic flux." There are two kinds of dysenteric hepatitis; one in which the symptoms of liver complication are comparatively declared and prominent, and another in which they are so slight and obscure as often to be overlooked.

As to this second or consecutive form, the question at once arises, whether the disease in the liver may not be primary, and the cause of the slight or severe dysentery, as the case may be, which naturally first attracts the attention of the patient and of the physician.* I answer in the negative; first, because in some of these cases the natural secretion of bile is completely restored for a time after the cessation of the dysentery; and secondly, if the state of the liver be the cause of the dysentery, this ought never to admit of alleviation, much less of cure; for the cause which first, according to this view, caused the dysentery, ought, as long as it exists, still to continue to produce it, (as seen, indeed, in antecedent abscess), but on the contrary, the dysentery at some period is often completely cured, and all the ulcers are cicatrized, while the now uncomplicated hepatitis has pursued its course to a fatal termination.

I shall first briefly discuss the general symptoms, and afterwards the mode of production of this secondary hepatitis.

I have made two varieties of it—declared or latent; these are the two extremes, and pass gradually into each other.

I. The course of the declared variety generally is this: dysentery having become chronic, a pain in the right side

* This is, indeed, the opinion of Marshall, and many others.

and shoulder gradually declares itself, and after a time some enlargement of the liver is generally detected by percussion and manipulation. The stools are loose, greyish, or yellow, beaten up, yeasty; sometimes very offensive, at other times perfectly inodorous. I am not acquainted with the causes of these differences. There is never any jaundice, or rather, I should say that I have never witnessed such an occurrence. If the abscess be near the lung, there may be sympathetic cough and mucous expectoration. The mere fact of pain in the side accompanying dysentery does not proves abscess, but it is a suspicious circumstance; when with this there is gradual emaciation, anorexia, occasional attacks of shivering, &c. &c. the diagnosis is tolerably certain. However, it must be confessed that in many cases there may be many of the symptoms of abscess, when after death you find merely lobular congestion and enlargement of the liver. One fit of shivering is of no value as a diagnostic mark. The vomiting is often peculiar, something between a cough and vomiting, as seen occasionally in hæmoptysis. The skin is generally relaxed and washy—urine of low specific gravity, copious and pale, or as a variety sometimes scanty and red.

2. But if the diagnosis of what I have termed, from the comparative readiness with which it is recognized, "declared hepatic abscess," be a difficult matter, as will readily be credited by all who know the obscurity of the diagnosis of many abdominal diseases, still more obscure and more difficult is the case when hepatic disease is latent, evidencing itself by no sign of pain or tenderness, or enlargement, and diagnosed solely by the influence it exerts upon the disease that first produced it, and by the joint effect of both diseases upon the constitution.

The course of symptoms is generally as follows:—

A case of dysentery, either exceedingly severe, or intractable without being severe, is under treatment for some time. After the usual means have been employed, it is observed that the patient, although relieved, does not rally so rapidly as in other cases; the stools have become fæculent, and may be passed without uneasiness, but they still average three or four daily; perhaps one day there may be no stool, and the next day six or seven, with some abdominal tenderness, and the following day again there is no passage at all. These symptoms continue for three or four weeks with various intervals of amendment and relapse. The stools are loose, fæculent, yeasty, beaten up, or very thin, greyish, or yellowish grey, frothy, and slightly scalding. At times the stools get thicker, of a light yellow; but they are never dark, pitchy, and thick, as is the case in chronic dysentery, with congestion of the liver, producing derangement of secretion, but not leading to abscess. At least my very limited experience has led me to this conclusion.

After a time the dysenteric symptoms generally sufficiently improve to allow the patient to be called convalescent. If a soldier, he goes to his duty, and in the course of two or three weeks again makes his appearance in the hospital, complaining of diarrhœa of the same nature as before, without tormina or tenesmus.

It is probable that at this period the hepatic changes are in their earliest condition, and the disease is chiefly in the colon, and though highly dangerous is by no means incurable. A soldier, however, who cannot be sent from place to place for change of air, who is generally impatient of hospital, and yet immediately on leaving it is obliged to return to duty often harassing and severe, has everything against him, in the subsequent treatment of his case. Again, his diarrhœa subsides, and he may be a second time

discharged; shortly afterwards again to be readmitted. He now rapidly begins to lose flesh. The functions of the skin and kidneys are both much deranged. At times he passes a large quantity of very pale urine, of sp. gr. 1004 to 1011; at other times he passes a very small quantity of equally pale watery or turbid urine, while occasionally, but rarely, the urine is high coloured, but never very much so, and I have never seen it loaded with urates. The skin too at times pours out an abundant secretion, at other times is dry. In a state after this there is irregular hectic, with diaphoresis at night, and after meals, with heat in the palms of the hands, soles of feet, and quickened pulse. These irregular increases of the functions of the kidneys and skin do not alternate with or antagonize each other in every case, although they may do so in some instances; the skin pours out its copious secretion, and the kidneys their pale abundant urine at the same time. There is anorexia—a peculiar washy unhealthy state of the skin, with dryness and harshness of it in the intervals of perspiration, and gradual emaciation. The stools still keep up in number, from three to twelve in twenty-four hours, and are of the same character. When the abdomen is pressed upon, the patient complains of no uneasiness, or there may be some occasional tightness across the chest, and transient pain in the right side. In the latter stages there is generally nausea, perhaps vomiting, and sometimes distressing hiccup, and there may be various pulmonary symptoms according to situation of abscess. Sometimes, in a case that has been latent for some time, pain in the side and shoulder will come on for two or three weeks before death. In some cases the dysenteric symptoms are quite cured, then gradually the health fails, and obscure symptoms of hepatic disease manifest themselves; then the stools take on the characters before de-

scribed, and the case follows the ordinary course. Although there may be no diarrhœa, that is to say no increase in the nominal number of daily stools, still the stools are never healthy, and are in quantity above the natural amount.

Sometimes ascites occurs, probably from some degree of chronic peritonitis, or from vascularity of the omentum, or from obstruction to the portal circulation. Œdema of the feet does not accompany it at first, but in a very protracted case anasarca may occur. In most of these cases of anasarca consequent on dysentery and hepatic abscess, I have found albuminous urine, and enlargement and commencing granulation of the kidneys.

In the latter stages the case may suddenly assume a decided character, from the abscess gradually enlarging, and coming into a situation where it may be felt; this is generally to the right of the epigastrium; when it is in the situation of the gall bladder it cannot often be distinguished from enlargement of this latter cavity. The rules laid down for the diagnosis of abscess of the liver from enlarged gall-bladder, applicable in some cases, are fallacious in others: who can decide, in cases where the tissues are thickened and enlarged, whether a tumor be circumscribed, or can be followed into the surrounding hepatic substance? In some cases the circumscription is easy; in others, I must confess that I have not been able to attain to this perfection of manipulation. The general symptoms in a case of this kind are valuable auxiliary diagnostic marks.

If the abscess burst into the abdominal cavity, or open into the pleura or bronchial tubes, the resulting symptoms cannot usually be mistaken.

Before proceeding farther, I shall subjoin a few dissections of secondary hepatic abscess, in order to exhibit the relative diseases in the liver and large intestines.

As most of these cases pursued the course just described, more or less declared, or latent, as the case might be, I have not thought it necessary to give more than a summary of their cases, for fear of occupying unnecessary space.

Case I.—W. D., a European soldier, aged 21.

In May, 1843, this man was in the hospital several times for diarrhœa, which was alternated with constipation. After a time the diarrhœa became more constant, and the stools light yellow, granular, or greyish and frothy. Occasionally for a day or two there was no diarrhœa. Some hepatic affection being suspected, he was bled, leeched freely, and salivated profusely; there was no difficulty in doing this: after this he improved.

In July, 1843, he had an attack of regular dysentery, with bloody and slimy stools, tormina and tenesmus; this was easily subdued, but instead of assuming their natural appearance, the stools reassumed their light-coloured, cloudy, and granular appearance; and they occasionally appeared to scald him when he went to stool, and did actually produce excoriations round the anus. After this, there ensued great hardness all over the abdomen, not more than elsewhere over the right rectus muscle; there was no pain or tenderness anywhere; the liver could not be felt, it was supposed to be diseased, but the enormous extent of this was never guessed at; he lost appetite and flesh, and becoming gradually emaciated to the last degree, died, July 16, 1843.

Sectio.

I pass over the alterations in the cerebral and thoracic regions, as unconnected with the fatal disease, with the ex-

ception of there being large vomicæ in apices of both lungs.

Abdomen: Mesenteric glands all much enlarged.

Liver: Enormous cavity ruptured in removing it; the liver was much enlarged, although this was not detected before death. A great quantity of thin greenish pus flowed from the rupture; on being cut out the liver was found to be almost literally a mass of abscesses, the whole structure of the right lobe seemed destroyed; the pus was clotted, scrofulous-looking, with a mixture of greenish thin fluid.

The left lobe was more healthy than the right; there were four abscesses in it; the walls of the abscesses were thick, granular, and soft; in one or two abscesses there was no thin pus, but a quantity of tuberculous-looking matter; the intermediate hepatic substance was studded with a white substance disposed among the lobules, giving it a hard and granular feel; it was pale and bloodless.

Gall-bladder: contracted, empty.

Spleen: weight 5 oz. 4 drs.; congested, softer than usual.

Right kidney: 6 oz. 5 dr.} deposition of a white hard
Left kidney: 6 oz. 6 dr. } substance; only one or two pyramids distinct.

Stomach and small intestines: healthy; some yellow, apparently fæculent matter in small intestines.

Large intestines: ulcerated throughout, most of the ulcers healing, with granular lymph on their surfaces, and with puckered edges; membrane around and surface of ulcers dark coloured; in descending colon some enlarged glands; many of these were seen to have passed into small ulcers, on which granules of lymph were effused; lymph in some parts gelatinous.

Case II.—W. B., æt. 23, European soldier: this man was admitted in July, 1843, with acute dysentery; he was discharged cured; the symptoms of dysentery were not very severe, but intractable, and cured with difficulty. After a week's duty, readmitted for return of diarrhœa; then very obscure symptoms of an insidious attack of hepatitis occurred; no recurrence of true dysentery. Gradual emaciation and loss of appetite.

Sectio.

Abdomen: liver much enlarged, adherent to the diaphragm over the greater part of right lobe; in the right lobe, towards the anterior sharp margin, was a large round abscess, holding about three-quarters of a pint of thick creamy pus; the abscess was covered anteriorly and superiorly by the peritoneum, and a false membrane, which was ruptured by removing the liver; its walls were formed by a very thick, dense, fibrous membrane; on the inner surface of this there was a deposition of flattish bands, crossing each other, and having a honey-comb appearance; the rest of the liver was hard, and of an uniform pale colour; there was an evident enlargement of the interlobular cellular tissue, whether from deposition of fibrous tissue, or from simple hypertrophy, could not be determined.

Spleen: soft and congested.

Kidneys: quite healthy.

Stomach: healthy.

Small intestines: enlargement of the orifices of the glands in the pyloro-valvular portion of the duodenum; enlargement of solitary glands throughout intestines; no

enlargement of Peyer's glands, which were nevertheless very visible.

Large intestines: the change in these were described in the appearances in the cœcum and colon, in the cicatrizing stage. (Case XV., page 29.)

Case III.—P. Q., æt. 26; an European: admitted in July, 1843, for dysentery: two days after discharge, on the 18th August, he was readmitted for a return of all the acute symptoms. For a day or two he had dysenteric stools, with tormina, tenesmus, and tenderness of abdomen; after a little time the pain left the abdomen, and he passed mucous, and afterwards loose yellow fæculent frothy stools, without pain or straining. The mouth being made very sore with mercury, the stools became more natural, but he began to suffer from tightness across the lower part of the chest, and towards the middle of September he experienced considerable pain in the right shoulder. At this time there was no tumefaction of the side, the liver could not be felt, and the respiratory murmur was very audible low down on the right side. Abscess being, however, considered to be certainly diagnosed, and puncture appearing to afford the only chance of life, an exploratory needle was passed into the liver, between the eighth and ninth ribs, without, however, discovering any pus. He died about a fortnight after this, much emaciated, and constantly tormented by hiccup.

Sectio.

Abdomen: before opening the body a small trocar was passed into the liver, both anteriorly and at the

angles of the ribs; matter passed freely out through the canula; from one puncture this was thick and laudable pus, but from the other it was thin, and exactly like bile diluted with water.

Liver: when the liver was laid bare it was seen to be crowded with abscesses; the left lobe was nearly as large as the right, and reached across the abdomen, lying over the stomach, and displacing this and the transverse colon. During life, the stomach, although covered by the left lobe, had given a resonant sound on percussion; a false membrane covered most of the upper surface of the liver, adhering to the diaphragm; at one point on the superior surface of the left lobe this membrane was two or three lines in thickness, and was the boundary of an abscess which had evidently been pointing at this place. The abscesses were numerous—some distinct, some confluent; some were very large, others not bigger than a walnut.

There were throughout the liver two very distinct kinds of abscesses: one kind was filled with thick creamy pus, and had for its walls an irregular, netted, or honey-comb false membrane; the other kind was filled with a thin bilious-looking fluid, did not exceed anywhere the size of a small apple, had a round shape, and was lined apparently by a thin cyst, or false membrane. No connection could be traced between the second form and the portal canals.

On account of some difficulty in examining the body, the other abdominal organs could not be observed, except the large intestines.

Large intestines: already described. (Case XIV., page 28.) Ulcers all healed.

Case IV.—P. C., an European soldier, æt. 33: this case was so far doubtful, that though the dysenteric symp-

toms were first complained of, and had lasted with improvements and relapses for some time, yet there was not that evident succession which occurred in the other cases: the affection of the liver probably was coetaneous with the dysentery, or succeeded to it very rapidly. The man was admitted first for dysentery, and complained then in addition of pain in the right side and shoulder. He died in twenty-four days after readmission.

Sectio.

Abdomen—Liver: Weight, 4 lb. 6 oz.: immensely enlarged, stretching quite across abdomen. On taking it out, an enormous abscess was ruptured posteriorly, and a large quantity of thick pus exuded. The left lobe was almost as large as the right. On removing liver were found two very large abscesses; one, of immense size, holding a pint of thick pus, was on the superior surface of right lobe; a granular false membrane lined the cavity. Another large abscess, on the under side of the right lobe, was the one ruptured in removing the liver; it held also about a pint of pus, and its inner membrane had the same granular character. Rest of liver red and hardened.

Spleen: enlarged; weight 8 oz. 4 dr.

Right kidney: weight 7 oz. 4 dr.

Left kidney: weight 8 oz. 2 dr.

Stomach and small intestines: healthy.

Cæcum and colon: mucous membrane covered with a dark brown thick secretion; on washing it off, the mucous membrane was found to be in some parts nearly healthy, with the exception of numerous enlarged glands; in other parts there were numerous irregular sloughing ulcers; in

one or two places near cæcum a white thick fluid was effused beneath the mucous membrane, raising it from the subjacent tissues; some large glands were seen in process of ulceration, and the process could be followed throughout, but not so perfectly as in some instances. Many of the ulcers were sloughing; the coats near rectum were thickened, and the calibre of the intestines for some distance was lessened.

Case V.—J. C., æt. 27, an European soldier: admitted for acute dysentery, which was never checked: the dysentery altogether was not above a month in duration. Abscess of the liver was just commencing: had the dysentery been arrested, the hepatic disease would then probably have gone on as in other cases.

Sectio.

Abdomen—Liver: much enlarged, especially left lobe; on section granulated, pale and friable; in upper portion of right lobe were two small round abscesses, containing thick pus.

Spleen and kidneys: natural.

Stomach: hæmorrhagic congestion of great cul-de-sac.

Small intestines: healthy.

Cæcum and colon: coats very much thickened, and studded with large isolated ulcers, most of them with their edges dark and sloughing; effusion of dark, soft lymph; sigmoid flexure and rectum one complete mass of sloughing ulceration.

Case VI.—P. G., æt. 22, an European soldier: dysentery, recurrent several times, then gradual emaciation, and

towards the end of the case some tenderness below false ribs on right side, and usual train of symptoms.

Sectio.

Abdomen—Liver: much enlarged; an immense abscess in right lobe, containing about Oss. of thick pus: at one place this abscess was not above three lines from surface of liver; the cyst was slightly honeycomb, and lined by a soft coating of fibrine, which peeled off in strips. The hepatic substance externally appeared condensed: the rest of the liver was of a dun uniform colour, rather softer than usual, and with no apparent congestion in the venæ portæ or hepatic veins.

Gall-bladder: contracted, empty.

Spleen, kidneys, and stomach: healthy.

Small intestines: solitary glands very conspicuous in upper part of duodneum and lower part of ilium.

Large intestines: described page 25, Case XI.

Case VII.—H. P., æt. 25, an European soldier, Her Majesty's 84th Regiment.

As this is rather an important case, I shall detail it more at length. Four years service: last two years in India, good health in England; was on detachment from Moulmain for fifteen months; was nine months of the time in and out of the hospital with recurrent attacks of dysentery.

In November, 1843, he came into the regimental hospital at head-quarters. At that time he complained chiefly of debility; he was of very powerful frame of body, and though not emaciated had a peculiar unhealthy anemiated look; the stools were fæculent, loose, averaged three or four

per diem: if the bowels were not opened for twenty-four hours he felt uneasy; when the bowels were loose he felt no uneasiness; there was slight tenderness over cæcum and sigmoid flexure; no where else. All functions tolerably natural. Contraction of intestines diagnosed. After various measures had been tried, he went out of the hospital in good health, but with the stricture of intestines in the same state. After this he was admitted once or twice for pain in the abdomen, apparently resulting from neglecting to keep the bowels loose.

In January, 1844, he came into the hospital with return of diarrhœa, and continued in the same state for some time. At this period he had tenderness over abdomen, from five to fifteen liquid, frothy, beaten up, yellow stools every day, a dry skin with intervals of perspiration, and a passage of pale abundant urine, which was not particularly examined. In March, 1844, he had a relapse of dysentery, with great tenderness over abdomen, for which he was actively leeched. On the 15th of June, he complained, for the first time, of a slight pain in the region of the liver; no enlargement of the liver could be detected. He became subject after this to most acute neuralgic pains in both thighs, sometimes the left, sometimes the right; his strength and appetite failed: he had no nausea or vomiting; occasional difficulty in micturition, which was always relieved by the warm bath, and never required the catheter. The urine was not particularly examined, but was paler than natural. He became much emaciated, his stools continued to average four per diem, and were liquid, brown, and beaten up. He died the 3rd of July, 1844.

Sectio.

Head: not examined.

Chest: lungs healthy; a great deal of black matter in them. (The patient was a Yorkshireman by birth; a collier by trade).

Heart: large, valves healthy; cavities large; walls red, thickened.

Abdomen—Liver: on the surface were numerous abscesses, varying in size from a small pea to a small apple; one or two of the smallest on the surface had apparently opened into peritoneum, discharged contents, and formed small cicatrices. On cutting into the liver innumerable abscesses were opened; these were peculiar, not encysted, but with irregular boundaries; they were somewhat spongiform, and it appeared as if the uncircumscribed abscesses were burrowing in the hepatic substance, undermining it on all sides, and causing, as it were, a number of little cells, communicating like those of a sponge with each other. It was impossible to count these abscesses, so numerous were they, both in the right and left lobes. The size of the abscesses varied; often they ran together and formed spongiform abscesses about the size of an apple; others were very small in points. The intermediate hepatic substance was sometimes apparently natural, pale, and not softened; in other places, where the abscesses approached each other, it was reddened and rather hardened. The form of the smaller abscesses was round, their margins were slightly irregular.

Gall-bladder: moderately full; bile uniformly transparent, of a dark red colour, gelatinous and stringy; no particles in it.

Nitric acid produced first a bright yellow colour, and apparent separation of this from a lighter thinner portion. More nitric acid made thinner portion green, and gradually, by stirring the thick portion, became also green.

Muriatic acid caused the colour to become dark brown.

Kidneys: right kidney containing a large calculus in the pelvis, in form pyramidal, the apex towards ureter; the base divided into two divisions, which again bifurcated; these four extremities each opened into four dilated calyces or cysts, which reached to the surface of the kidney, and were merely divided and surrounded by a small portion of compressed cortical substance. The stone weighed six drachms, and was granular on the surface. The pelvis was stretched over the stone; the ureter below was natural, and mucous membrane of pelvis red.

Left kidney greatly enlarged: weight 7 oz. 7 drs.; pale and uniform; very little distinction between cortical and medullary substance.

Pancreas: pale, but exceedingly hard, almost as hard as a cartilaginous tumor, and this not only at the head, but towards the small end.

Spleen: large, soft, easily tearing; granular; on surface of section a strawberry-jam-like matter was scraped off.

Stomach and small intestines: in the centre of the small curvature, midway between cardia and pylorus, were five ulcers; four were small, not more than one line or one line and a half in diameter, covered with lymph, and with the peripheries slightly reddened; the fifth was half an inch in diameter, round; its edges were flat, and even with the surrounding sound mucous membrane; there was a narrow line of uniform redness round them. Rest of membrane healthy.

Duodenum: redness of valvulæ conniventes; lower down, membrane quite healthy.

Jejunum and ilium: healthy.

Cæcum and colon.—Changes in diameter: at two points, viz. commencement of ascending and first part of descending colon, the circumference for some distance was lessened, without there being any band or sudden narrowing round these parts. Above and below the circumference of the laid open gut was natural, and much wider than the contracted portion.

Changes in coats: there was general but inconsiderable thickening; at the narrower portion the coats were fibrinous and hard.

Mucous membrane: healed ulcers throughout. In descending colon, sigmoid flexure, and rectum, their irregular outlines were denoted by retiform vessels of a vivid red. The membrane of ulcers was on a level with surrounding membrane, and the peripheral vessels formed the only marks of distinction. In the rest of the gut the form of the ulcers could be dimly traced by the white appearance of the healing false membrane, by a zone of vessels, and by a peculiar look.

Mesenteric glands of this intestine large, and very hard.

Case VIII.—B. C., æt. 38, D. Company, 2d Battalion Madras Artillery.

In this case the hepatic and dysenteric affections were almost coetaneous.

Good health in India, with the exception of a severe attack of dysentery at Trichinopoly ten years ago. Stationed in Moulmein since November 1842. Admitted 23rd Sept. 1843.

Symptoms: constant calls to stool; tormina; tenesmus; heat of skin; thirst; acute tenderness over umbilicus. Ill two days; took castor oil the day before admission, and was relieved till the midnight before admission, when all the symptoms returned with increased severity. He was bled to syncope, and took calomel and Dover's powders.

Vespere: several dark, slimy, and fæculent stools, attended with great tenesmus.

Hirudines xx. Abdomin.

He continued to have leeches applied several times, and was bled twice more: his mouth became slightly affected, but free ptyalism was never perfectly established.

On the 29th, the evacuations are described as fæculent, and only slightly slimy.

On the 30th, the stools were frothy and fæculent; no abdominal pain whatever.

Oct. 3rd, stools have become looser, watery, and bloody looking, exactly resembling the washings of raw meat, and containing large quantities of bloody mucus, with traces of fæculence interspersed.

Till the 7th Oct. he continued to have from three to six stools in twelve hours, partly fæculent and frothy.

On the 10th, the frothy yeasty stools continued; complained much of debility; no abdominal uneasiness; no signs whatever of hepatic complication.

On 19th, it is observed that the stools are still yeasty, and contained something like pus; loss of strength and flesh going on rapidly; no pain or tumefaction of side; no pain in shoulder; no shivering; no jaundice. The report diagnoses, from the debility and stools, abscess of the liver.

Up to 31st Oct., the debility increased; still no pain in the side, or any uneasiness of any kind: stools purulent, fæculent, and frothy.

Nov. 2d. Pus reported to be observed in urine.

Died.

SECTIO CADAVERIS, nine hours after death.

Very considerable emaciation; no external swelling over region of liver, or in any other situation; liver not felt on manual examination.

Chest: old adhesions of both lungs; nothing else abnormal.

Heart: apparently healthy.

Abdomen—Liver: greatly enlarged; indented by the ribs on the right side; gall-bladder distended, and stretching below liver; on removing liver a large abscess, situated behind and below, was ruptured, and about one pint of pus escaped; this abscess seemed to press on the ductus communis choledochus. On cutting into the liver three or four large central abscesses, either communicating with each other or separated by but thin partitions, were laid open, and about three pints of thick creamy pus flowed out. One of these abscesses had approached nearly to the surface, the hepatic substance covering it being not more than two lines in thickness. The spot where this occurred was at the part in the liver corresponding to the fifth and sixth ribs, about midway between cartilages and vertebræ; these abscesses had no connection with the inferior one. The cysts of the abscesses were about one and a half or two lines in thickness, and granular or honeycomb interiorly.

Cæcum and colon: described in page 32, Case XXII.

Case IX.—I did not witness this case, as it occurred at sea, and the man died on the day of his disembarkation at Moulmein; it is, however, very interesting, as exhibiting the very commencement of hepatic abscess.

G. W., an European soldier: Madras Artillery. Admitted Jan. 21st, 1843. Resident in India six years. Ill three days, with frequent calls to stool, which are scanty, and attended by tormina and tenesmus; no tenderness of abdomen. Treated by oleaginous purgatives and Dover's powder.

On Jan. 30th, the report says, frequent stools of slimy mucus continue, with bloody and scanty fæculence, some tenderness of abdomen, and much tenesmus.

Feb. 2d. Symptoms the same; stools muco-fæculent, with slime and streaks of blood; skin hot and dry; thirst; tongue covered with a white fur.

V. S. ad ʒxii.

3rd. Great pain in rectum, and tenesmus.

4th. Cannot pass urine; intense pain in rectum; motions scanty and watery, with bloody slime.

8th. Stools watery and dark; small scybala; some mucus; no blood.

9th. Stools exceedingly offensive; urine drawn off with the catheter; skin covered with a greasy perspiration.

10th. Frequent watery, mucous, and slightly fæculent, dark and very offensive stools.

13th. Sinking.

Sectio Cadaveris, ten hours after death.

Thoracic organs healthy.

Abdomen: the liver adhered at different places to the large intestines.

Stomach and small intestines healthy.

Liver extensively diseased; small abscesses, looking, the report says, like tubercles, existed, in different stages of maturation, very generally throughout the hepatic substance; many contained distinctly formed pus; the right lobe was the portion most affected, and on its inferior surface one of the small abscesses had burst, leaving a small ulcer the size of a shilling.

Cæcum and colon: extensively ulcerated, and in some places perforated. The omentum adhered round the spots of perforation, preventing effusion; there were numerous small points (which the report says looked like tubercles) distributed under the mucous coat of the large intestine, and the mesenteric glands were generally enlarged and indurated.

Although I was absent on duty when this very interesting case was dissected, I cannot refrain from inserting it; from the description I received of it from the medical attendant, it was evidently a case of very rapid consecutive abscess. The abscesses were all very small, and the mucous membrane of the large intestines was almost universally diseased.

Case X.—This was a case in some degree similar to the last. The dysentery was very severe, and was complicated with abscess between the coats of the cæcum. This was the primary disease, and produced universal disease of the large intestines; the hepatic abscess was just commencing.

G. H., æt. 25, admitted June 29th, 1843; died July 7th, 1843. Complains of pain low down in the right side, increased by a deep inspiration; bowels have been costive

for three days; tongue very much furred. On examination the cæcum is found tender, and there is swelling in that region.

V. S. ad ℥xii.
Hirudines, xv. p. d. Olei Ricini, ℥i. st.

June 30th. Much tenderness still over cæcum; bowels freely open.

Hirudines xxiv. p. d.

July 1st to 4th. Diarrhœa, and constant desire to sit on the stool, with great tenesmus; motions dark. Freely leeched, and took calomel, ipecacuanha, opium, and castor oil, occasionally.

4th. Cæcum is exquisitely painful; stools partly bloody, and partly fæculent; pulse very quick; tongue dry in centre, clean at edges. Freely leeched.

5th. Pain of cæcum nearly gone, except on firm pressure; tongue dry and brown; stools consisting of lymph and blood, and a light ochrey supernatant cloud.

6th. The cæcum has a perceptible fulness; tongue dry and brown; headache; delirium; pulse very quick and sharp.

7th. Tenderness over cæcum has returned; very evident enlargement of the part, and dulness on percussion: five motions during night; motions minutely granular, cloud-like, of a dirty ochrey colour; tongue dry and brown; tenderness over sigmoid flexure.

Vespere: sinking.

Sectio, 8th July, 1843.

Head: weight of cerebrum	...	2 lbs.	12 oz. 7 drs.
,, ,, cerebellum and pons			5 oz. 6 drs.

Some congestion of veins of dura mater; brain perfectly healthy, no red points; lateral ventricles empty.

Chest: right lung, weight 14 oz.; left 13 oz. 6 drs. Some cadaveric œdema and congestion.

Heart: weight 7 oz. 7 drs.

One of the flaps of aortic valves lengthened and held out from the side of the vessel by a speculum of osseous substance running from the vessel along the centre of the flap to the corpus Aurantii; the flap thus partially closed the opening, was immoveable, and formed a pouch, into which the blood must have been forced during the elastic rebound of the artery. Walls of left ventricle about three-quarters of an inch thick, and flabby; ventricle not contracted; mitral valves healthy.

Abdomen—Liver: weight 3 lbs. 7 oz. 1 dr.; cut, washed, and drained, 3 lbs. 5 oz. 5 dr.

Two small abscesses on the surface, each about the size of a filbert, of a round shape, covered by the proper coat, and lined by a thin false membrane, not honey-comb or reticulated; pus thick and creamy; apparently a layer of lymph had commenced to be deposited on the lining membrane; no redness or congestion of surrounding substance; substance of liver at a distance from abscesses dun yellow, apparently œdematous.

Gall-bladder full of a dark green bile.

Spleen: weight 11 oz. Much congested and softened.

Right kidney: weight 3 oz. 1 sc. Left, 4 oz. 2 drs. Healthy.

Pancreas: weight 2 oz. 7 drs.; very hard and firm.

Stomach and intestines: On opening abdomen, the omentum was seen to be all collected on the right side, adhering firmly to the cæcum and ascending colon. On detaching it, the cæcum tore and effused a turbid yellow

granular fluid, similar to the stools: the coats of the colon were thickened and dark in patches; ulceration could be seen through the coats, and the serous tunic was dark over these spots. Neither omentum nor peritoneum were reddened.

Stomach: healthy.

Duodenum: enlarged glands in first portion; otherwise healthy.

Ilium: Peyer's and solitary glands enlarged.

Cæcum and colon: see Case V. page 22.

Case XI.—This was a case of secondary abscess, presenting in a marked degree the symptoms I have formerly described.

Th. Gr. æt. 21, an European soldier. Admitted 1st May, 1843, complaining of diarrhœa; stools loose, dark, feculent and offensive; no fixed pain, but general feeling of abdominal uneasiness; tongue whitish; pulse and skin natural. Has been ill for two days; previously had good health.

Treated on the calomel plan, with oleaginous purgatives.

On the 10th the report mentions that the dysenteric symptoms have nearly disappeared.

Improved up to the 29th, being called in the reports convalescent. At this time the diarrhœa returned, and on the 2d June the report states that he laboured under all the symptoms of dysentery; stools presented a variegated appearance with much blood; tongue dry; pulse slow and feeble. Mouth had been sore from mercury.

Commenced the Sulphate of Copper.

3d June. Five greenish, variegated, mucous and bloody

stools; tongue furred and dry; pulse of moderate strength and rapidity.

4th. Motions numerous and fæculent, without mucus or blood; skin hot and dry; tongue moist; countenance anxious.

6th. Evacuations becoming more fæculent and consistent.

9th. Daily improvement is now manifest; the stools consist of entirely of thin fæculence, and contain no bloody mucus; no pain on pressure over any part of abdomen.

10th. Some pain on pressure round the umbilicus; the stools consist of a brownish yellow fæculence; tongue red at edges.

14th. The stools continue numerous, fæculent, and frothy; there is somewhat of a hectic look about the face; the pulse is quick and compressible. He is certainly becoming emaciated.

17th. Stools same yellow frothy fæculence; the pain about the umbilicus continues.

20th. Much improved; stools less in number; tongue getting quite clean and moist; no thirst. Tartar emetic ointment is relieving the pain complained of in the vicinity of the umbilicus.

21st. The report says, he is convalescent, but very weak.

24th. Going on well.

27th. Going on very favourably.

30th. Had a fit of ague the night before last, and a shivering fit last night. Quinine prescribed.

July 4th. Complained all day of a severe pain in the right hypochondrium; pulse soft and slow; pain relieved by a mustard poultice. Had a fit of shivering yesterday.

7th. No pain in side; no shivering; a sediment has appeared in the urine.

10th. Report says, he is getting quite convalescent; shoulder uneasy; no pain in side.

12th. Progressing satisfactorily.

13th. Return of pain in right hypochondrium, which is rather tense and full.

20th. Is not progressing satisfactorily; bowels loose; no pain of side.

August 1st. Stools again becoming bloody and dysenteric.

3d. Died.

Sectio Cadaveris, four hours after death.

Thoracic organs healthy.

Right lung œdematous and congested.

Liver: the right lobe occupied by an immense abscess: liver altogether much enlarged; pus thick and creamy.

Cæcum and colon: covered with cicatrices of old healed ulcers; a few fresh ulcers in cæcum and descending colon. The case was a good illustration of the more advanced stage of cicatrization.

The case from which I have extracted the foregoing short memoranda was a most interesting one. I was informed by a medical friend whose case it was, that there never was any permanent tenderness of the abdomen, or but transient pain, and I can state, that the gradual supervention of the emaciation and peculiar diarrhœa on the dysentery was conspicuous.

Case XII.—J. B.; hepatic abscess, consecutive to dysentery, opening into right lung. This man, a soldier, was in hospital in the early part of 1843, for hæmorrhoids. Good health after this to 8th July, 1844. In hospital then for

severe dysentery, for which he could assign no cause. Discharged July 31st; being, however, still rather loose in the bowels. Did not improve much after discharge, and, on 20th November, was readmitted for return of all the bad symptoms. There was severe tormina, tenesmus, and dark coloured, bloody, somewhat frothy and scalding stools. Discharged Nov. 25. Readmitted three days afterwards, with return of the dysenteric symptoms; pain over cæcum and sigmoid flexure, great straining, difficult micturition, bloody, and sometimes pale, frothy, and copious stools. At this period there were at times great prespirations; urine not particularly abundant, but kind not noticed; no vomiting, either now or at any subsequent period. The dysentery subsided into a more passive condition. On the 5th January, 1845, he was suddenly seized with an acute pain in the right side, extending all over the side to the shoulder; great tenderness on pressure along margin of false ribs; shivering, with a hot skin; when lying on the left side had a dragging sensation. Stools clay-coloured; tongue furred and dry.

8th January. Not much pain, except when he turns on the left side; there is a peculiar sallow tinge all over the surface.

12th. Some tenderness along false ribs; stools watery and reddish; hectic flush of the cheeks.

15th. Purging of brown or yellow stools continues; about six in twenty-four hours; this morning great pain in the side and shoulder; tenderness in epigastrium and along false ribs; pulse quick and jerking; tongue furred.—Vespere, 15th.—Can lie only on the back; pain very severe.

18th. The pain in the shoulder more troublesome. He is becoming much emaciated.

30th. Is gradually becoming weaker; the pain is not

very severe, but there is a constant gnawing in the side, and pain in the shoulder; stools of a light yellow colour; countenance sallow and anxious; urine copious; perspirations very great, and there is some flatulence.

Feb. 1st. Stools clay-coloured; dyspnœa; skin clammy; countenance anxious and sallow.

2nd. This morning, while in a hot bath, was seized with a fit of coughing, and expectorated some purulent matter, mixed with blood and thick frothy mucus; dyspnœa; less pain; stools same, yellow and copious.

3rd. Has expectorated more than half a pint of thick reddish substance since last report; not so much mucus; pulse quick; skin hot.

4th. Expectoration continues; about half a pint of same reddish substance; some œdema of feet.

5th. Great expectoration since yesterday, very thick, of a red or brick-dust colour, very tenacious, but not, as at first, frothy; pulse quick and feeble, and skin hot and moist; urine copious.

7th. Same expectoration since last report; stools to-day watery, but not fæculent, and with something like pus floating in them.

12th. Has continued in same state; expectoration becoming more profuse and more bloody; night sweats; stools six in twenty-four hours, thin, watery, yellow.

19th. Expectoration has been some days less, some days more; is more purged, with tenesmus.

28th. Expectoration very profuse, of a dark brick-dust colour, and more purulent; is very weak, and perspires much; stools light brown, and streaked with blood.

March 5th. Six stools on the average in 24 hours, thin, whitish or yellow, frothy; some little straining; no scalding; no vomiting; some flatulence; appetite good; urine

copious, not otherwise noticed; no enlargement of side; ribs rise equally on both sides; dulness on percussion from on a level slightly above nipple to below the false ribs on the right side and in epigastrium; about two inches below false ribs, on both sides, the sound became tympanitic; percussion of right lung above nipple gave a clear, almost a bottle sound; sternum clear; left side normal.

Respiration: on right side puerile, and tubular under clavicle, in axilla, and in mammary region; also an indistinct and somewhat minute crepitation, with expiratory murmur; at mamma, or a little above this, the loud respiration was suddenly arrested; at first it appeared as if the respiratory murmur were abolished; however, after listening for a moment or two, a sound could be heard as if air were passing along a distant tube; there was also an occasional sibilus. Lower down a large mucous rale was indistinctly heard, almost to margin of ribs; in fact, heard over the hepatic region. It was certainly not like cavernous respiration, although the voice was very resonant; indeed, there was imperfect pectoriloquy; no metallic tinkling; on left side respiration very audible, almost puerile; some rhonchus and sibilus here and there, and also over sternum.

Expectoration: blood mixed intimately with a gelatinous frothy fluid; no pus; states that it is similar to what he always passed.*

Diagnosis: large abscess in liver pressing on lung, and communicating by a very small opening.

Prognosis: unfavourable, chiefly on account of the pre-

* I have seen another case of abscess opening into the lungs in which the expectoration consisted, as in the above instance, of a red, gelatinous, frothy, and non-purulent substance. In this second case, unfortunately, no examination could be made after death.

ceding dysentery, by which the colon has been so much altered in structure.

March 7. Urine examined, quantity about natural, pale colour, transparent, or slightly turbid. Sp. gr. 1010. Nitric acid no effect; heat no effect; hydrochloric acid gave, after a time, somewhat of a reddish tinge.

8th. Urine examined; turbid, sp. gr. 1012. Heat and nitric acid cleared it; some of it evaporated down to a 12th, and, nitric acid added, no crystallization or other effect.

9th. Seized with acute pain in the abdomen; the lower part of abdomen, below apparently the transverse colon, is evidently swollen. An abscess of the liver has opened into peritoneum. Urine same appearance, rather turbid; turbidity removed by heat and nitric acid. Sp. gr. 1010.

10th. Sinking. Two stools during night—a yellowish, thin, watery fluid, with masses of ragged lymph floating in it; urine not very copious, pale, neutral. Sp. gr. 1012. Heat and nitric acid make it more transparent; pulse very quick and weak; excruciating tenderness in abdomen. Sinking. On account of the pain he suffers, it is impossible to examine him with the stethoscope.

11th.—Died.

Sectio Cadaveris, one hour after death.

Head not examined. The abdomen was first opened, and about five pints of sero-purulent fluid removed. The omentum was seen to be exceedingly vascular; the parietal peritoneum was here and there reddened, but not in any great degree. There was much lymph effused over the colon, and that gut felt thickened throughout its whole course; it adhered firmly to the liver and gall-bladder, and

at this place, and at the cæcum, there was vascularity of its external surface. The intestines, and spleen and pancreas, being removed, the liver was found to be firmly adherent to the ribs and diaphragm for nearly the whole extent of the right lobe; the left lobe was not adherent, it did not extend much below the margin of the ribs; the gall-bladder was slightly distended, containing 2 oz. of fluid. The liver ascended into the chest, and compressed firmly the right lung. There were universal and firm adhesions of the pleura of this side, and a dense membrane covered the lower part of the lung and upper part of the liver. The diaphragm was much thickened, or its place was taken by a false membrane, which was connected with the exterior false membrane. The convex position of the right lobe of the liver was covered, where not adherent, by pus or by lymph, and a probe was passed round into an abscess on the upper portion.

Left lung: weight 13½ oz.; very large and non-adherent; crepitant, and exuding bloody serum on section; unusually white; bronchial tubes white, and containing only frothy mucus. Some enlarged glands in anterior mediastinum.

Heart: pericardium contained a small quantity of clear yellowish serum; left ventricle contracted; valves healthy. Weight 7½ oz.

Right lung: weight 1 lb. 5 oz. As before said, there were universal adhesions; the upper lobe was crepitant and natural, but unusually white, like the left lung; the lower lobe was much compressed, and when the ribs were removed it gave a dull sound on percussion to the level of the mammæ, while above this the upper lobe gave a clear sound. Some part even of the lower lobe was crepitant, and white, but the remainder was of a yellowish grey colour, very hard, dense, and sank in water.

The abscess in the liver was nearly midway from the anterior and posterior margins, and consequently the portion of lung most affected was the central and lower part of the lower lobe, and here there were two or three minute abscesses communicating by many small openings with the hepatic abscess. A little way from this point the colour was greyish, or at some places singularly yellow; and the bronchial tubes when cut through appeared unusually distinct. The trachea and large tubes were not inflamed, but the mucous membrane was white and coated with mucus.

Liver: weight, without gall-bladder, 2 lbs. 10 oz. A single abscess existed on the superior surface; it was about the size of an orange when empty; it had communicated with the lungs by several minute openings, and with the peritoneal cavity by a larger opening; it was nearly empty, containing some grumous pus, and some sloughy lymph adhering to its cyst. The cyst was very firm, about three lines in thickness, minutely granulated on the internal surface, and extending some way, at different points, into the surrounding hepatic substance by means of firm fibrous prolongations, or extensions of itself. The surrounding hepatic substance was rendered dense for half an inch or more by these prolongations, but in addition it was itself dark and hard. At one place it was rendered very dark by numerous minute striated vessels, but elsewhere it had the same characters as the remainder of the liver, namely, darker than usual, rather dense, and with the lobules distinct.

Gall-bladder somewhat distended, containing 2 oz. of fluid. Two enlarged lymphatic glands close to duct, but not pressing upon it, as it was full and round below them. Bile brown or reddish brown, consisting of a liquid, red, transparent, and somewhat viscid portion, and a thicker adhesive mucous-like substance adhering to the internal lining, and

detached with difficulty. When detached, membrane yellow, not red any where, and with areolæ distinct. After standing about half an hour the thinner and thicker portions of the bile could not be separated, but the whole had acquired viscidity, though still partially transparent. Muriatic acid, in small quantities, gave a green colour, but in excess a deep bistre colour. Nitric acid gave the yellow of the bile both a red and a light green colour; the latter seemed to result from a mixture of a very beautiful pink colour with the natural yellow; in larger quantities nitric acid gave a deep red or bistre colour.

Spleen: weight 4½ oz. Small, dark, and dense, like muscle in colour when cut through. No softening or strawberry-jam appearance.

Right kidney, 6 oz.; left kidney, 5 oz.; large, but natural, to all appearance, on section.

Bladder: containing some very clear yellow urine; coats perfectly pale and natural.

Stomach: pale and perfectly healthy, somewhat corrugated.

Small intestines: pale throughout; no solitary glands seen, and no agminated glands, except very indistinctly in ilium. In one or two places the coats appeared thinner, and the intestines seemed contracted, but this was after all not very apparent.

Cæcum and colon: a perforation existed in the appendix vermiformis, but which apparently had not allowed passage during life. Coats of large intestines much and generally thickened; throughout the whole gut there were numerous healed ulcers; they were very numerous and small for the most part, but some few were long and passing round the gut; others were of a circular shape. Between these and

the smallest ones, which were about a pin's head in size, there was every gradation. In addition there were numerous glands very visible, though not much enlarged; the smaller ulcers were all healed by the effusion of uniform lymph, but on all the larger ulcers the lymph was minutely granular, consisting of small nodules closely crowded together, like some description of venereal warts, and elevated to some little extent above the surrounding membrane. These ulcers were, as before said, distributed universally over the mucous membrane; the intermediate mucous membrane was pale.

Diagnosis of latent Dysenteric Hepatic Abscess.

The chief difficulty here consists in the fact, that chronic dysentery will sometimes follow a course so similar to that just described, that hepatic abscess may be wrongly diagnosed. This mistake is important only as to the prognosis; it is probable that consecutive abscess is quite incurable, unless it opens into the intestines or bronchial tubes, in both of which cases recovery sometimes takes place. Cases in which pus has been absorbed and discharged with the urine have never been observed by me. I have seen thick apparently purulent deposits in the urine, and have heard them called "decidedly purulent;" but these are mere collections of vesical mucus, of a particular kind, and exactly similar appearances* are seen in pyelitis and catarrhal

* I am aware that this opinion is opposed to that of many Indian surgeons, who attach great importance to this so-called appearance of pus, and believe they can distinguish it by the eye from the vesical mucus, resulting perhaps from reaction of acrid or altered urine. (Conwell

inflammation of the bladder, where there is no suspicion of pus being formed any where. These deposits are soluble with effervescence in acetic and nitric acids. No coagulation was ever observed from heat or nitric acid.

On the other hand, mere chronic dysentery with functional derangement of the liver, without that peculiar and unexplained complication which leads to abscess, although a very difficult and troublesome disease, is yet curable.

The diagnosis between the two must be drawn from the general course of the symptoms. In chronic dysentery the stools are often for a day or two dark and pitchy, or, on the contrary, nearly white and fatty, or like white of eggs; this last stool being generally a consequence of very slight dysentery becoming chronic, and appearing to be more a secretion from the solitary glands than any thing else; it often alternates with slime and mucus. After continuing in this way for two or three days, the stools, in chronic dysentery, become yellow, frothy, yeasty, &c. &c., and alternations of this kind are common during the whole course of the complaint. In chronic dysentery, too, the stools less regularly average some number above their natural amount; and three or four stools are passed within half an hour, approaching lientery, while for the next twenty or twenty-four hours no other stool is passed. The skin again is generally dry, and may become furfuraceous or scaly; the countenance is sallow, and there may be cutaneous eruptions; the urine is turbid, thick, with a mucous sediment, soluble by acids and sometimes by heat, and there is an occasional deposition of lithates. Again, there is not the

and others). One thing I must protest against, viz. the opinion that pain and prominence of the right side, subsiding after such an appearance in the urine, is a proof that abscess existed and has been cured. Such an opinion is a complete begging of the question.

gradual emaciation, anorexia, and peculiar appearance about the patient, which are striking circumstances in latent hepatic abscess. If there are any symptoms referable to the liver, of course they will materially assist the diagnosis. In chronic dysentery the liver is sometimes enlarged without abscess, but here there is a weight and dragging sensation in right side and shoulder, not the tenderness elicited only by pressure, of hepatic abscess.

The diagnosis is rendered still more difficult by the fact of the occurrence of abscess in chronic dysentery being very common: such a supervention must always be kept in mind.

This may be confidently asserted—that it is only by a study of the phenomena from day to day that a correct diagnosis can be given.

Still more difficult cases are seen in some forms of chronic dysentery, in which obscure affections of the spleen, pancreas, and kidneys, arise, and in which the liver is also in an abnormal state, though there is no suppuration. In a paper published in 1844, in the Madras Medical Journal, I referred to an "obscure connection between affections of the spleen, kidneys, and large intestines, the links of which are very difficult to be made out." During the last two years I have seen several of these cases, and have failed in arriving at any conclusions as to the mode of production. Perhaps the obscure processes of nutrition, which in these cases play important parts, require to be known more fully before our knowledge can be extended. But in the meantime I may briefly refer to these interesting though comparatively speaking uncommon cases.

Thus, in these cases, dysentery has been the first disease; that is to say, there is in the history of the case no evidence of ill health previous to its occurrence. At the same time

it is very likely that in temperate climates it may be consecutive. After recovery from dysentery the patient regains his health slowly, and perhaps has a leuco-phlegmatic or cachectic look, and gradually anasarca supervenes, with albuminous urine. Attacks of diarrhœa or dysentery occur from time to time, and I have seen hepatic abscess complicate the case, and every large abdominal organ has, as in this intance, been affected.

In other instances, and these are with great difficulty diagnosed, there is nothing seen during chronic dysentery but a gradual emaciation, which is not so rapid as during abscess; the urine is pale, of a very low specific gravity, and not albuminous. The stools are sometimes loose and yellow, as in hepatic abscess, but sometimes they are more consistent and yellow, and very similar to stools seen in diseases of the pancreas with arrest of the hepatic secretion. The pancreas seems particularly to be affected, and there is sometimes flatulence and pyrosis; there is no anasarca in these cases, although sometimes a foreign tissue of fibrous or fibro-cartilaginous nature occupies the place of the pyramids. I shall give one case of this kind.

Case of J. S., an European soldier: æt. 37. Diarrhœa.

This man enjoyed good health till November 1844, when he was some time in the hospital for dysentery. After his discharge from the hospital he did not rally, but continued very weak, and did his duty with effort. In January 1845 the diarrhœa returned, and was attended by griping and nausea, but without tenesmus.

On 27th January, he came into the hospital again. At this time the report states him to be "a thin, delicate looking man, whose constitution appears to be breaking up; he

complains of pain in the right side, and has about four or six brownish or watery stools in twenty-four hours." Mercury commenced with a view to salivation.

Feb. 1st. Great pain in the right side; tenderness on pressure along margin of ribs; no fulness; abdomen flaccid; diarrhœa continues. Vespere: about four o'clock, P. M., he had a fainting fit, with shivering, cold skin, and small almost imperceptible pulse: after rallying, the skin became hot, the face flushed, and the pulse quick and full: there was great tenderness over abdomen.

2nd. Great tenderness all over abdomen; cannot bear the slightest pressure; bowels twice opened; stools dark; tongue furred and dry; great thirst.

3rd March. Better; no tenderness over abdomen; some tenderness along margin of ribs, and over liver, on pressure; four stools, copious and dark; mouth very sore.

5th. The report says, stools light brown colour, tinged with a small quantity of blood and pus.

12th. Reports the same up to this date. Report to-day says, "when he lies on the left side he has a dragging pain on the right;" stools watery and pale.

Up to 8th March, the reports mention nothing but debility. On the night of the 8th, I was suddenly called to see him. This was the first time I saw him, having been absent the two previous months on duty. I found him lying on his back, perfectly cold, with an almost imperceptible pulse, and unable to articulate a word. It was a very curious state, as the man was not fainting, but evidently sensible though unable to move; the pulse too, though so small, was slow, not rapid and tremulous as it is in a man dying in syncope. He had been violently vomiting an hour or two before, and had been purged during the day. After three or four hours, warmth gradually returned,

and there was copious perspiration. From this time he remained subject to shivering fits of short duration.

March 9th. I made a careful examination this morning: there was considerable emaciation and debility: no œdema or ascites. The liver was not enlarged, the abdominal walls were rather hard under the false ribs, and there was tenderness on pressure over liver. There was also tenderness on pressure over cæcum and sigmoid flexure; stools, three in number, consistent and yellow, not truly fæculent, but what I have termed a "pancreatic stool," viz. that kind seen in the form of pancreatic disease when no bile passes; urine pale, clear, in small quantities; faint acid reaction; sp. gr. 1008; non-coagulable by heat and nitric acid; skin dry, cool.

The only thing which prevented me from calling this case hepatic abscess, was the peculiarity of the stools; they were not such as are seen in abscess, but were exactly like what I had seen in five or six cases of pancreatic disease. In abscess they are usually more watery, and deeper in colour, being yellow or greenish; beaten up and yeasty. There had been anorexia, too, and pyrosis, and the emaciation was too prolonged and too great for abscess: for hepatic abscess; so large as to stop all flow of bile, and to cause complete absence of urea, is a rapidly fatal disease.

From this date to the 22d of March the symptoms remained the same; the same tenderness over liver, the same number of slimy, pasty, or consistent stools; occasional vomiting, shivering, and increased debility. I shall merely subjoin the examination of the urine.

March 10th. Urine turbid, like decoction of pale bark; very slight tinge given to litmus, sp. gr. 1004; heat and nitric acid no effect.

11th. Urine tolerably copious, pale and yellow: sp. gr.

1008; nitric and hydrochloric acid and heat no effect; neutral reaction.

12th. Pale, slightly turbid, sp. gr. 1005.

15th. Pale, slightly turbid, sp. gr. 1005; heat and nitric acid no effect.

17th. Sp. gr. 1010; acid reaction.

18th. Sp. gr. 1012; acid reaction; pale; slight turbidity removed by heat.

19th. Perfectly clear; transparent; natural colour, sp. gr. 1006. Neutral reaction, non-coagulable.

20th. Sinking.

21st. Died.

Sectio Cadaveris, twelve hours after death.—Great emaciation.

Head: not examined.

Chest: universal and old adhesions of both lungs.

Left lung: small, crepitant, healthy. Right: containing in upper lobe one small cluster of hard, gray, unsoftened tubercles.

Heart: small, left ventricle extremely contracted.

Pericardium and valves healthy.

Abdomen: liver natural size; not reaching below ribs; reddish colour; when removed natural in shape; lobules distinct; some blood in portal canals; a granular appearance here and there; substance easily lacerable. No trace of abscess.

Gall-bladder: contracted; containing 4 drs. of viscid, stringy, variegated, green and yellow bile.

Pancreas: small and very hard; lobules distinct.

Spleen: small, firm, of an uniform dark colour, like congealed black currant jelly.

Kidneys: large, round: on section cortical substance natural, but several of the pyramids were obliterated or displaced by a deposition of a very firm, apparently cartilaginous substance, which the knife cut with difficulty it was so hard. This new substance assumed the shape of the pyramids, and was most completely deposited at the small end; at the larger or peripheral extremity in some pyramids the natural streaky substance could be seen. As before said, the cortical substance did not appear altered in any way to the naked eye; the appearance of the cartilaginous or foreign deposit was very conspicuous.

Stomach: some hæmorrhagic points; nothing else abnormal.

Small intestines: natural; a portion of head of pancreas left adhering to duodenum, extremely hard; yet with the lobules distinct; dark cadaveric congestion in ilium; agminated and solitary glands not visible.

Large intestines: one immense ulcer had formerly existed in cæcum, and first part of ascending colon; this had healed, and now evidenced itself by a dark colour; thinness in parts of the mucous membrane, and small dark hard nodules of lymph here and there, giving a net-work appearance in some parts; higher up, membrane tolerably healthy; in descending colon and sigmoid flexure many small ulcers, few of them more than one to two lines in diameter, with a well-defined vascular outline, and looking exactly as if points of mucous membrane had been dissolved out in some way; some of them were so small as to be only just visible; one or two enlarged glands could be seen with the naked eye, but for the most part these seemed to have formed ulcers, the progress of which had been arrested in a very early stage.

This case illustrates a disease which, as far as I know, would be distinguished from hepatic abscess with great

difficulty; the diarrhœa, the peculiar stools, the pale urine, the perspirations, and the attacks of shivering, with the syncope and temporary failure of strength, are all symptoms seen, and sometimes alone seen, in hepatic abscess; add to these, as in the present case, tenderness on pressure over region of liver, and abdominal hardness, and the diagnosis becomes still more obscure; at the same time this obscurity only occurs in a small class of cases occurring in the tropics; and in temperate climates, it would appear, from the accounts of writers, that hepatic abscess is attended by more marked signs of pain and inflammation than it is in hot countries (Stokes, Graves, and others). The condition of the kidneys which was noticed in this last case gives us a form distinct from Bright's disease, and though I have mentioned these two sequences together, I have done so merely for the purpose of shortening the description. I do not know whether they are allied diseases, or liable to pass into each other. The spleen and pancreas, when affected consecutively to dysentery, also present different conditions as yet untraced and unexplained: I have seen the spleen large, small, soft, hard, with and without false membrane; I have seen the pancreas hard and small, and soft and small, and, as before intimated, the changes in the different organs seem to accompany each other: that is to say, after dysentery, disease of the kidneys appears not to supervene without concomitant disease of pancreas, spleen, and probably of the liver.

It is an inference that the relation of these diseases to dysentery may be changed, and that they may sometimes be primary, but, as before said, I have not seen these cases sufficiently often for satisfactory explanation.

To sum up the diagnosis so far:—

1st. Dysenteric hepatic abscess is often diagnosed with

certainty by the character of the dysentery, and by signs referable to the liver itself.

2d. Chronic dysentery sometimes resembles it.

3d. Chronic dysentery, complicated with certain other abdominal diseases, often resembles it.

These diseases are—

(*a*) Granular liver, with arrest of secretion
(*b*) Cartilaginous degeneration of pancreas.
(*c*) Atrophy of the pancreas.
(*d*) Enlargement and softening of the spleen.
(*e*) Hardening and diminution of the spleen.
(*f*) Enlargement of the kidneys, with commencing granular degeneration.
(*g*) Fibrous deposit in pyramids of kidneys.

Several of these diseases are usually combined, and hepatic abscess may also be present.

4th. The circumstances which appear chiefly to assist the diagnosis, are—

(*a*) That in abscess the stools are generally more numerous, yellow and frothy.
(*b*) That the liver may generally be felt, or signs may be derived from situation or progress of the abscess.
(*c*) That the case is less tedious, and there is a more rapid and peculiar failure of the bodily health and strength.

I need not enlarge on the diagnosis of abscess from diseases of the lungs, or abdominal parietal abscess. These diseases cannot be confounded, if sufficient examination be made. Enlarged pancreas, distended gall-bladder, or diseases of a like kind, are generally easily distinguished as being unattended with dysentery.

Note.—I have referred now only to the severe cases of these particular complications; but slight and curable cases constitute many of those instances of obscure abdominal diseases under which persons long resident in hot climates often labour. There are several diseases compounded of duodenal hepatitis,* pancreatic changes, gastro-enteritis, and chronic dysentery of various intensity. A minute consideration of these diseases must be left for a regular treatise on dysentery, and its consequences. The fibrous deposit in the pyramids of the kidneys is not a common pathological appearance. I have only seen one other case, which I shall shortly detail; it was considered before death a case of uncomplicated chronic dysentery, and was unattended by any of the perplexing symptoms which rendered the case given above so difficult to be diagnosed.

Case of I. K., a young European, æt. 25. This man was in hospital for acute dysentery, once or twice in the early part of 1845, and afterwards for chronic dysentery. He came for the first time under my charge on the 17th August. He had been labouring under bowel complaint, which had been now better, now worse, for several months. He was emaciated, with an unhealthy pallid look. He had from six to sixteen greenish stools, streaked with blood, and passed with tormina and tenesmus, in the twenty-four hours; there was tenderness on pressure over the regions of the cæcum and sigmoid flexure; there was no pain in liver, and the sound on percussion was clear to nearly the fifth rib superiorly; inferiorly below false ribs it was tympanitic; the liver could not be felt, and the firmest pressure over it

* By this term "duodenal hepatitis," I distinguish one form of chronic liver disease, which is secondary to disease of the duodenum, and which is more fully considered under the head of hepatitis.

gave no pain. As he had been subject to cough, the lungs were carefully examined; the respiratory murmur was distinct and clear over the whole chest, but was perhaps unusually loud, and under the left clavicle there was at times almost a puerile respiration. The skin was warm and dry, not hotter over the abdomen than elsewhere; there was considerable thirst and anorexia; no vomiting or flatulence; eyes perfectly clear; urine tolerably copious, of a pale yellow colour, but it could not be particularly examined. The diagnosis was, "uncomplicated chronic dysentery." He was cautiously leeched, and took small doses of blue pill, opium, and ipecacuanha, and used injections of opium and acetate of lead. By these means the tenesmus was relieved, the tenderness of the sigmoid flexure and cæcum was much reduced, and he bore firm pressure without its giving him pain; the stools lost the greenish hue, and became yellow, gritty, somewhat cloudy and liquid, not at all resembling the stools seen in abscess. They still kept up in number, however, but lost all traces of blood.

On the 26th of August I was unavoidably absent, and he was ordered by another practitioner, who did not know the case, but who put great faith in large doses of calomel on all occasions, a scruple dose of calomel, followed by castor oil. He was much purged during the twelve hours succeeding the administration of the calomel; the stools consisted of nearly pure blood, and were passed with great tenesmus. He became comatose the next day, with tremors and subsultus tendinum when partially roused, and died on the 28th August.

Sectio Cadaveris, three hours after death.

Head: not examined.

On opening the body, the transverse colon was seen to be much distended, and to form a bend, or loop, downwards, nearly to the pubis, pushing downwards the small intestines, which were externally natural in colour and size. This displacement of the transverse colon appeared to be caused by adhesions of the omentum to the cæcum and sigmoid flexure.

Chest: old adhesions of upper part of right lung to cartilages; no adhesions on left side.

Right lung: weight 1 lb.; bronchial tubes enlarged slightly, and thickened.

Left lung: weight 15 oz.; bronchial tubes also enlarged; some granular lymph in lower lobe, denoting chronic lobular pneumonia. These appearances need not be noted here.

Heart: weight 9 oz.; valves healthy.

Abdomen—Liver: weight 4 lbs. The liver was found to be circumscribed to its natural position; it did not extend below the false ribs, nor higher than the fifth rib; it was, however, enlarged, chiefly at the posterior thick border. On looking at its surface it was seen to be minutely granular; on two or three spots was a yellowish discolouration, presenting on section, for two or three lines below surface, a nearly uniform straw tint. On section the liver was less granular than on surface; it contained no blood, but presented a pale light grey section, with the lobules distinct; the peritoneal coat peeled off with great readiness; little masses of hepatic structure remained attached to it.

Gall-bladder: contracted; containing about 4 drs. of a yellowish, thin fluid, not at all like bile; its coats were thickened; the lining membrane was pale, and preserved its areolar structure; the interlacing lines, however, appeared thickened.

Pancreas: weight 4½ oz. Exceedingly dense and hard, with a complete cartilaginous feel under the finger—the knife cut it like cartilage; the lobules were perfectly distinct, but seemed enlarged and pale; each lobule was so hard that it was difficult to crush it with the fingers. This appearance was as well marked at the smaller end as at the head.

Spleen: weight 6½ oz. On section, hard, firm, with a dark-red, tolerably uniform section.

Right kidney: weight 6 oz. Healthy.

Left kidney: weight 5 oz. 6 dr. At the lower end of the kidney, two of the pyramids were occupied by a dense cartilaginous-looking substance, having the form of the pyramids, and with an uniform pale section, without any of the parallel lines which may generally be seen marking the course of the uriniferous tubes. At the upper end of this kidney the pyramids were natural, as also in the right kidney; the left kidney seemed rounder than natural, but there was no granulation.

Stomach: the greater part of the mucous membrane of the large curvature was occupied by minute round ulcerations, or losses of the mucous membrane. These presented, except as regards size, a very uniform appearance, being perfectly pale, and having their edges rounded; they looked as if they had been produced by some chemical solvent. When the stomach was opened, a whitish substance, or powder, was seen to cover the places where these ulcerations were afterwards found; this was inadvertently washed off, disclosing the ulcerations; the floors of the ulcers were composed of the submucous cellular tissue; in some of the smaller ones the upper stratum only of the mucous membrane seemed to have been removed. (I have seen these ulcers produced by calomel in another case; it was that of

a child, five weeks old, in whom violent cephalic symptoms followed the administration of three grains of calomel, given from some notion that the liver was not acting properly: the stomach was rendered honey-comb by these round pale ulcers.) The mucous membrane of cul-de-sac was healthy, with a few venous trunks; towards pylorus it was perfectly pale and healthy.

Duodenum: enlargement of glands in the first portion of duodenum; rest of small intestines perfectly healthy; Peyer's glands visible, not enlarged. Cæcum: coats of cæcum immensely thickened by effusion of lymph between and upon them; in some parts these masses of lymph were one and one and a half inches in thickness, and when peeled off, irregular ulcers, with the muscular fibres for their floors, were discovered. The ascending colon, for six inches above cæcum, was not thickened, but presented several glands and small ulcers; above this, again, were several isolated patches of irregular ulcers, covered with sloughy lymph; perforation had occurred, but effusion had been prevented by adhesion of omentum; intermediate mucous membrane was pale, with a few glands; transverse colon presented the same character; lower part of descending colon and sigmoid flexure presented many ulcers, covered by thick, half purulent, half gangrenous lymph; rectum more healthy; stratiform thin lymph on mucous membrane, with a few glands.

Production of Secondary Hepatic Abscess.

I have carefully dissected ten cases of secondary hepatic abscess, and several others, in which the dysentery and hepatitis appeared coetaneous.

1. As ulcers exist in every case of common dysentery, and abscess only follows in some cases, the absorption of pus cannot be the true cause of production of abscess, as stated by some writers: besides, in certain cases, the ulcers in intestines, in secondary hepatic abscess, although very numerous, are small, and are in their earliest stage.

2. I have carefully looked out for venous inflammation, and am certain that in many cases there is no process of this kind going on.

3. If the abscess be owing to spreading of inflammation by contact, it ought always to be situated at the point nearest to the inflamed colon; but this is by no means the case.

The mesenteric glands are enlarged and inflamed in all cases of dysentery; but,

4. I have never seen any suppuration of them in secondary hepatic abscess.

5. In all the cases I have examined the duodenum was free from disease, if we except an enlargement of the solitary glands generally, and of the orifices of Brunner's glands.

6. So far from there being an immense secretion of vitiated bile, in many of my cases the hepatic secretion was suppressed; the gall-bladder was generally empty, or contained merely a thin red or brown fluid. Whatever influence these causes may have in certain cases, they are certainly not the general agents in the production of abscess.

7. Dr Copland offers an opinion that seems to me to approach much more nearly to the truth. He says, "more frequently the hepatic disease follows dysentery, or does not appear till this latter begins to decline. In these cases the patient is irritable, the cheeks present a hectic flush, and upon examining the abdomen the right rectus abdominis

muscles resist pressure by an involuntary action. Little or no enlargement of the organ is at first felt, but either enlargement or tenderness become manifest, especially when blood has altogether disappeared from the stools, which are generally scanty, viscid, and dark. This form of complication is evidently caused by the sudden cessation of the dysenteric affection, which being very intimately dependent upon the excretion of morbid matters from the circulation, and the economy in general, cannot be very abruptly suppressed, without inducing continued or remittent fever; or inflammation, congestion, or enlargement of excreting organs."—*Dictionary:* article "Dysentery."

I trust I shall not be deemed presumptuous if I stop for a moment to review this passage. And, first, the tension of the right rectus muscle has always appeared to me a most equivocal sign. It is very possible, that Mr. Twining, with his great practical knowledge of liver disease, may have been able really to detect a resistance which would be imperceptible to another person. For my own part, I have given a diagnosis of central hepatic abscess, and verified it by post-mortem examination, in cases where both recti muscles appeared to give an equal resistance on pressure. Secondly: I have not generally observed the stools to be viscid, scanty, and dark; but on this point I will not put my limited experience in opposition to that of Dr. Copland. Thirdly: As I have described before, in many cases the dysenteric stools do not "abruptly cease" in cases of consecutive hepatic abscess. And, fourthly, by extending the operation of the case to fever, Dr. Copland seems to have partially overlooked, that it is not the mode of production of fever that is wanted, but a solution of that peculiar connec-

tion between the liver and large intestines which implies some nearer alliance than a general share in the constitutional effects produced by morbid matters circulating with the blood. In reviewing this question, in a paper published in the Madras Medical Journal for April, 1844, I advanced an hypothesis, that considering the intimate alliance, in point of excretion or secretion, between the large intestines and the liver, the non-action of the former organ, by chemically altering the blood, might give rise to that condition of the liver which ultimately, if unchecked, produces abscess. This is very much like the opinion of Dr. Copland, with this exception, that instead of speaking of morbid matters circulating with the blood, such morbid matters being generated by a vitiated state of the constitution, I should term it a passage with the blood of those substances which, under ordinary circumstances, are excreted by the colon.

The connection between the liver and the colon appears to be generally recognised by pathologists, and in all probability it is during disease that it becomes most apparent. It is well known, that colonic dyspepsia, as it is termed by Dr. Todd, will produce hepatic derangement, and by far the greater number of cases of torpid and active liver complaints, in temperate climates, appear to originate in, or to consist of, colonic disorder. Dr. Holland, in his "Medical Notes and Reflections," has some admirable remarks on this point. But, leaving out of view this somewhat problematical argument, such a connection may be reasonably assumed, if we find that certain changes in the one organ are indicative of certain changes in the other. We find this in England in the most common disease of the liver there; viz., in cirrhosis, one of the accompanying post-mortem appearances is an enlarge-

ment, or, as it may be called, an hypertrophy of the solitary glands in the colon. The same thing is true of congestion of the liver, not terminating in abscess: here, as a general rule, the duodenum is also affected. In abscess, as already said, in most cases dysentery ensues, and if the hepatic secretion be suddenly interrupted, always comes on. Whether the solitary glands are mere mucous follicles or not, must be decided by a more correct dissection than I have been able to bestow on them: but the decision will not affect conclusions drawn from a study of disease—after all, the most correct guide to physiological truth.

Conversely, we should expect, that if hepatic disease will affect the colon, disease of the large intestines will affect the liver. And this we find to be the case in dysentery, a disease whose origin is most decidedly in the large intestines alone, but which always speedily produces an influence on the liver. In the dissections that I have given, I have found the bile altered in every case in which it was examined. I have examined it also in Hindoos, in several cases, and have noticed the same appearances I have described as occurring in Europeans. The alteration of a secretion is the best test of the changes in the organ Also, these changes are often visible to the naked eye, and may be always expected to be noticed, when the morbid anatomy of the liver is better understood. Moreover, in acute dysentery, these changes go on to such an extent as to produce abscess in more than twenty out of one hundred of the fatal cases. And it must be remembered, that this influence on the liver is not owing to any implication of the small intestines.

I should think, that without being termed speculative, this alliance, in point of excretion or secretion, may be admitted.

When I examined cases of consecutive hepatic abscess, I observed that the dysentery was general, though perhaps not very far advanced, or very acute.

The ulcers were sometimes small, and had healed early, but they were numerous, and distributed universally over the mucous membrane of the large intestines. Or if not everywhere ulcerated, all the glands were very large, and hard to the touch. In other cases of dysentery without hepatic abscess, the ulcers were, perhaps, very much larger, gangrenous, and altogether the colon may have appeared more diseased, but still there were clear spaces of undiseased mucous membrane. I therefore at length came to the conclusion, that the type of dysentery generally associated with the consecutive abscess is one in which there is universality of affection with or without a high degree of intensity of inflammation. In both cases,—in those where some part of the mucous membrane is undiseased, and in those where its whole surface is occupied by ulcers, or enlarged and hardened glands,—we see, perhaps for weeks, that the stools are destitute altogether of the colouring, and, probably, of the other excreted ingredients of the bile. As there is no jaundice, and no unusual high colour of the urine, the bile is not secreted and taken into the circulation, but appears to be nearly or quite suppressed. These cases are alike so far, and yet supposing them to be unchecked, hepatic abscess will follow in one case, and merely chronic dysentery in the other.

The difference in the case is, that in one instance there is sound mucous membrane still excreting, in the other there is none. Is it not an allowable hypothesis, that the normal action of part of the mucous membrane will prevent abscess by excreting some undetermined ingredient, which in the other case must be circulated with the blood, and

then, by its effect on the liver, produces suppuration in that allied organ?

I state this as an hypothesis, that is, as an imaginary arrangement of facts, which is to be tested by experience. The facts are, the intimate connection of dysentery and abscess, which is undoubted, and the universality of affection of the colonic solitary glands in secondary hepatic abscess—a fact which requires further observation to confirm it. If this hypothesis involved any modification of treatment I should not have advanced it, as treatment sanctioned by experience should only be changed when the reasons for alterations are unequivocally sound; but, in the light in which I have advanced it, I do not think I can be accused of giving undue importance to a premature speculation.

It may be considered that I have not attributed sufficient influence to the circulation of pus with the blood in the production of hepatic abscess. It is true that the experiments of Cruveilhier, and others, have demonstrated the great pathological influence of phlebitis, and of purulent circulation, but I cannot persuade myself that these processes have anything to do with consecutive hepatic abscess; for, as before stated, in hepatic abscess the colonic ulcers are often in an early stage, or may have healed completely; often, when there is no hepatic suppuration, they are large, and secrete great quantities of pus. Again, I have looked in vain for evidence of phlebitis, or pus in the veins; and, lastly, in Asiatics, in whom for weeks together there are often purulent stools to a great amount, and of the most decided character, abscess of the liver is so uncommon, that in a great number of dissections of dysentery I have never found it. This last statement is, I conceive, fatal to the hypothesis of purulent circulation, whereas, according to the

view I have taken, the difference between Asiatics and Europeans may be attributed to the difference in food, and consequent difference in the composition of blood and excretions, and to the difference of the skin, which in the former nations excretes more oily and carbonaceous perspiration. Hepatic abscess, however, though less common in natives, does sometimes occur, as proved by the following case, kindly given me by a friend. Before death there was no suspicion of abscess, and the case was returned as dysentery; the man was a convict at Moulmein, and it was the only case of abscess dissected in the jail hospital for two years, although the mortality from dysentery was three or four per month.

Case of a Hindoo convict, æt. 35.

March 25th, 1845: an emaciated weakly subject; four times previously in the hospital either for diarrhœa or fever, and employed for several months in the lighter duties of a convict. Admitted into the hospital on the 20th instant, on complaint of having been loose in his bowels for the last ten or twelve days; passing dysenteric stools, which are found to consist of a reddish slimy matter, accompanied with but slight uneasiness at hypogastrium, and anal irritation; no tenderness experienced in bowels on pressure; abdomen retracted. Pulse small, weak, and quick; tongue pale; skin cool, but parched and dry; urine scanty, &c. &c.: has been taking, since admission, pills containing Ipecac. grs. iv. Pil. Hyd. et Ext. Gentian, aa. grs. ij., Opii gr. i. 4ta qq. hor. with an occasional dose of oil; leeches to the hypogastrium, and very often to the anus, &c. &c.

27th. Five calls to stool in the day, and a like number number during night; dejections a scanty loose fæculence

containing muco-sanguineous matter; pulse, skin, and tongue, as before; anal uneasiness relieved.

28th. The same number of stools as the day before, and of the same character, with the addition, perhaps, of containing some pus. The right side was carefully examined, and not the slightest uneasiness was discovered; there was not the slightest enlargement of the liver; in fact, the organ appeared to be circumscribed to its natural position. Anal uneasiness but slight; pulse 90, very feeble and weak; skin and tongue as before; growing evidently weaker, with corresponding loss of flesh; rests well; appetite tolerably good, &c. &c.

29th. The same in every respect as the other day, with increase of weakness and emaciation.

30th. Several ineffectual calls to stool during the day and night, with passages of a few drops of a thin sanious fluid; no uneasiness in abdomen complained of, or pressure causing it; pulse, skin, and tongue, as before. Is now unable to sit up in bed without assistance; attenuation increasing; urine secreted in smaller quantities, &c. &c.

1st April. Evidently beginning to sink; an offensive odour from his person; continues to pass the same sort of fluid in bed; refuses taking any more medicine; countenance hippocratic: continued nearly in this state till the 6th instant, when he expired without any apparent suffering or pain.

Appearances on Dissection.

Head not opened.

Thorax: old and new adhesion of the lungs to the pleural coat; otherwise in a normal state.

Heart natural.

Abdomen and pelvis: stomach and small intestines apparently in a perfectly healthy state. Cæcum, with its appendages, totally destroyed by a sloughing ulcer perforating in some places all its coats; similar ulcers found in the colon at its ascending portion and sigmoid flexure, as well as in the rectum, perforating also the different tissues. Bladder healthy; omentum found adhering to the intestines, particularly about the ulcerated portions of them. Liver smaller than natural, and containing throughout its substance numerous small abscesses filled with a viscid pus.

Spleen, kidneys, pancreas, &c., were not examined.

Remarks.—I think this must have been an instance of latent secondary abscess: this was also the opinion of the friend who gave me the case. It gives another example of the fact I have often noticed and recorded, that when abscess does occur, the remainder of the liver is not so generally enlarged as is asserted by some authors.

The treatment of latent secondary hepatic abscess is considered under the head of Chronic Dysentery, and the treatment of antecedent hepatic abscess under the head of Hepatitis.

Scorbutic Dysentery.

A complication little less important than that of dysentery and hepatitis is one in which dysentery is combined with scurvy or purpura, or with a state of the body approaching to these diseases. The primary disease is completely

modified in all respects by the complication; and he who comes to the treatment of scorbutic dysentery, determined to employ that vigorous depletion which is so useful in common acute dysentery, or that active purging and mercurializing which is so successful in common colonitis, will find himself exceedingly disappointed. And although in common garrison practice in India we do not find that union of the worst dysentery, and the worst scurvy, which proved so fatal at Rangoon in 1824, and which, on other occasions, was a wasting pestilence in transports and slave ships, we yet find in some stations a scorbutic taint in many men, requiring to be looked out for by the surgeon, not pointed out by the patient, which complicates not only dysentery, but every disease which such men may labour under, and which it may safely be affirmed will tax the utmost resources of the art before it can be removed. And, moreover, in any future operations, conducted on the principles of the last campaign in China, where men are for months on board of vessels, this complicated disease may always be anticipated, and will assuredly prevail some time or other, to the great detriment of the public service.

I cannot enter into the question of the nature of scurvy or purpura, as the secondary changes, those in the blood, are undetermined, and the nature of the originating element of the disease, primary malassimilation, cannot be guessed at in the present condition of organic chemistry. But a soldier will often have a certain amount of scurvy for a short time, for which he never thinks of coming into the hospital; he is annoyed with various symptoms of dyspepsia, with rheumatic pains in the legs, perhaps with an occasional eruption in the same parts of a few purpuric spots or slight ecchymoses; the rheumatic pains are chiefly in the

calves, hams, or ankles, and sometimes there is burning of the feet; there is occasional bleeding from the gums, and when these are examined they are found to be slightly swollen, and of a dark red colour. The whole amount of the disease, however, is trifling, and a man will generally do his duty, and gradually recover without medical aid. If, however, from any cause an attack of remittent fever or of dysentery supervenes, then this constitutional taint at once appears in the way in which it modifies the course of these complaints.

In scorbutic dysentery the first most important difference is, that the anatomical marks of the disease are not limited, as is almost always the case in common dysentery, by the ilio-colic valve, but that the ilium participates in the disease, and is sometimes more affected than the large intestine; the cæcal and colonic solitary glands ulcerate in the usual way, but the lymph thrown out does not circumscribe the ulcers; perforations are common; the intermediate mucous membrane is darkly vascular, and often softened, and appears to effuse blood even when unulcerated. Blood is also effused from the vessels in the ilium, and in some cases circular bands are formed partly round the intestine from effusion of blood, and subsequent coagulation of fibrine upon the veins, while the serum passes away with the stools. This appearance is very peculiar; the trunks of vessels entering by the mesentery and proceeding round the ilium are marked by this effused lymph, which does not destroy the mucous membrane: when the vessels divide the lymph-bands also divide, and the small nodules of fibrine composing them are scattered over the mucous membrane.

In other cases there is enlargement and ulceration both of Peyer's and of the solitary glands, and general gastro-

enteritis; and in the severe varieties there are the ecchymosed patches and dark livid colour which other structures also present in scurvy.*

The symptoms also vary; the stools are sometimes numerous, but more often do not average more than from four to fifteen in twenty-four hours. There is often no tormina, and very little pain on pressure; sometimes both these symptoms are quite absent; there is generally, however, tenesmus, sometimes in a most distressing degree; the stools are scanty, composed of a thin, dark, serous fluid, mixed with soft lymph; fæculent substance, dark, or clayey and pale, is sometimes passed, leading one to expect amendment; but the next stool is, perhaps, the same dark, sanious, or serous fluid that was passed before. In the worst forms, and in an advanced stage, the stools are very fœtid, consisting of dark blood mixed with altered secretions, and partially disorganized fibrine. But in the slighter forms which I am describing things seldom reach this stage, but after some treatment the bloody stools become smaller in quantity and more florid in appearance, and the tenesmus subsides into an inclination to remain a long time at the stool, without actual pain. This slight form then is usually curable, and is chiefly important on account of the constant tendency to fresh attacks which it leaves behind. But in cases where severe dysentery is complicated with the scorbutic taint, it is invariably intractable. The true dysenteric stools are darker, and mixed with more sanious matter, and in the end become very offensive; and in the

* In the first dissection I made of scorbutic dysentery, I was much puzzled by this appearance of bands round the ilium; it was only after a very attentive examination of them that I made out their nature.

worst form, where the scorbutic taint is prominent, are so from the commencement. The mouth is readily affected by mercury; but this produces no good result. I have known 8 grs. of blue pill produce extensive salivation, and have seen in several cases very severe ptyalism from a few grains of calomel; astringents are hurtful; ipecacuanha is useless, and the usual combinations of ipecacuanha and opium quite inert.

The treatment that I have found most useful—and I must premise that all treatment is unsatisfactory—is cautious depletion by leeches, the application of which must be regulated by the stools,* the administration of small doses of Pil. Hydr., Ipecacuanha, Nitric Acid (which is sometimes useful), warm baths, opium in form of enemata to allay tenesmus, farinaceous diet with vegetables and lemonade. In fact, a cautious mixture of the usual modes of treatment.

I know of no mode of treatment that is infallible, and in the worst form the medical attendant must prepare himself for disappointment. If the acute attack passes off, if after the first week there be any sign of improvement, then creosote cautiously administered with opium, and pushed to the extent of from fifteen to twenty minims, will be sometimes found useful; and during convalescence this medicine should always be given, and its dose may be pushed farther than above stated; during the purging, however, its use even in small doses must be cautiously watched. The anti-scorbutic diet should be continued, and if possible change of air should be recommended.

I do not wish to speak too highly of creosote, as my ex-

* Which are not, however, so good a guide as in common acute dysentery.

perience of it in purpura and scurvy has been of course limited; but I have certainly never seen such good effects from any other remedy in these diseases, when properly administered.

Perhaps some of the combinations of the different varieties of turpentine might be useful; the prophylactic treatment is much easier than the curative.

Dysentery with Remittent Fever.

This association is very common in certain places; the forms vary according to the several varieties of the remittent fever or of the dysentery. The following are the chief varieties:—

1. Regular ague with dysentery; the ague being generally of the quotidian or tertian type.
2. Irregular ague (that is, ague with short irregular intervals) with dysentery.
3. Either of these forms with asthenic diarrhœa.
4. Common bilious remittent fever with diarrhœa or dysentery.
5. Malignant remittent with diarrhœa or dysentery.

The third form will not be treated of now, as its proper place is under the head of Remittent Fever, to which it is more nearly allied than to dysentery.

The last form I have not seen, and have merely included it to complete the series. From the extreme difficulty of treating the fourth form, I should imagine the malignant form, if the dysentery be at all severe, to be almost incurable.

I shall describe the two first varieties together, and afterwards the fourth variety.

1. Regular or irregular ague, with dysentery or diarrhœa.

The ague, when regular, does not appear at all affected by the accompanying disease: the fits, whether of quotidian or tertian, occur with perfect regularity. I have happened to see several cases of double tertian, a fit occurring every day at different times. The dysentery is generally modified.

It seldom presents the acute sthenic form; the stools are not scanty, fibrinous, and passed with great straining; on the contrary, they are copious as well as numerous; yellow, or dark and fluid, and although there is straining, this is not severe; there is generally pain over the cæcum and sigmoid flexure. I have not noticed whether the diarrhœa is most severe in the intervals or exacerbations. If the ague be irregular, there are constant successions of chills, heat, and partial sweating; in this case there is generally only a watery diarrhœa. Both these forms are easy to treat; free leeching on the abdomen, and a combination of quinine, opium, and astringents, are the measures I have found most useful. The quinine, combined with opium, does not seem to increase the diarrhœa in the slightest degree. Leeches to the anus, and anodyne injections with acetate of lead, always control the tenesmus.

2. Bilious remittent fever, with dysentery.

This is a much more difficult disease to treat, chiefly I have fancied from the liver being doubly deranged; being acted upon by the remittent fever, which exerts its effects chiefly on it, and on the spleen, and by the dysentery, a disease of itself giving rise to certain hepatic changes.

The stools in this disease are numerous, liquid, dark, or

occasionally yellow, streaked with blood, passed with some straining and tormina.

There is often pain in the hepatic region, and a feeling of weight and oppression across the lower part of the thorax. The headache is often very acute, passing in darts from the back of the head to between the eyes. There are sometimes spasms and pain in the muscles of the neck, and often great pain and cramps in the calves of the legs. The skin is generally cold, shrivelled, and dark, in the intervals of the flushes of heat and exacerbations. The feelings of weakness, debility, and oppression, are sometimes most distressing.

When it is remembered that the changes in the liver, which are so conspicuous in malignant remittent, occur in all probability in common bilious remittent fever in a slighter degree, and moreover as we have seen some reasons to expect hepatic changes to be the immediate result of dysentery, it will at once be conceded that the complicated disease now under consideration is a very formidable one. I have myself seen no fatal case, because I have never witnessed a severe form of dysentery with it, and in fact diarrhœa has been the usual accompaniment, if by that term we mean numerous stools without blood, and with only slight tenesmus.

At Moulmein, in June and July, 1843, this union of dysentery and remittent fever was very common. Cholera had prevailed among the Europeans, and still continued to be fatal among the natives in the bazaar. Although, at this time, the cases of uncomplicated dysentery, and uncomplicated bilious remittent fever, were exceedingly severe, no sooner did the two diseases combine, than the severity of each seemed to be mitigated, or, in other words, the slighter

forms of each disease seemed to be the only complicated ones.

Although there was this mitigation in point of severity of symptoms, yet the fever appeared to me always to impart a peculiar adynamic type to the dysentery; thus the non-effusion of lymph, the loose dark serous nature of the stools, approaching in some cases to cholera, looked more like a passive flux, than an acute inflammation of the solitary glands.*

The treatment consisted in depletion, particularly in free leeching over the liver and in the iliac fossæ, and the exhibition of a combination of quinine with the salts of mercury and with opium. I have generally used calomel, but some circumstances have led me to believe the bichloride of mercury to be a better preparation: the sixth or one-eighth of a grain of this, or two grains of calomel and one of opium, should be given every four or five hours, with five or six grains of sulphate of quinine. Sometimes this quantity cannot be borne, but causes griping and increase of diarrhœa. It should then be combined with opium and astringents, and mercurial inunction should be used. The rapid exhibition of quinine was the point I aimed at, and I was always satisfied if I kept the dysenteric symptoms within moderate bounds for the first four or five days, by leeching, and opium by mouth and anus. The diarrhœa being more passive, or adynamic, astringents may be employed more safely than in common uncomplicated dysentery; and alum, kino, catechu, &c. with opium, may be used according to circumstances.

* In Asiatics this form is often fatal, and the ulcers in the colon exist as in all cases of dysentery, though of course paler, and with less effusion of lymph. There is often also some vascularity about the lower part of the ilium.

The Burmese treat this disease by aromatics and astringents; among them the indications for treatment are widely different from those in Europeans. In a Burman an external sore requires some stimulating dressings; under the water dressing treatment, so useful in Europeans, it would assume a phagedenic and irritable sloughing character. This is probably to be attributed to their vegetable and fish diet, which is often innutritious and scanty. So also, in dysentery, the astringents and the stimulants, which would increase the ulceration in the large intestines, and the effusion of lymph in Europeans, are the only measures to stop these processes in Burmans. They require less depletion, and more stimulating or irritating remedies. Now this character, constant among the Burmans, is that which dysentery seems to assume in Europeans, when complicated with remittent fever; that is to say, the blood is deteriorated, if I may be allowed to use a term which expresses no definite meaning beyond intimating an alteration in a certain direction from the healthy standard.

But whether this be a just analogy or not, the practical fact is, I conceive, decided, that, although depletion, and in robust people free depletion, is necessary in these cases, yet that astringents are also as necessary at an early period of the disease.

I pass thus rapidly over this important complication, as my experience of it has been comparatively limited. But in a malarious country, subject alike to dysentery and remittent fever, this disease would demand the strictest investigation, as the chronic states would probably be combined with enlargement and inflammation of the spleen. In fact, in such places, the spleen would be as often diseased as the liver. This actually occurred during the Peninsular war, and is mentioned by Sir James M'Grigor.

Causes of Dysentery.

I shall pass over this difficult subject very rapidly, as the causes of dysentery are as undetermined as its pathology.

We may admit as both predisposing and exciting causes, according to circumstances, the following agents :—

1. All acrid agents, whether produced by irritating ingesta or secretions ; as bad or too rich food, bad water, fruits, or retained excretions, derangement of biliary or pancreatic secretion, or both.

2. Suppression of secretions rapidly accomplished ; as that of the skin by cold, wet, sudden changes of temperature from hot to cold, or as that of the liver, by abscess or other causes, suddenly arresting the secretion, or the exit of bile.

3. Epidemic states of the atmosphere, producing dysentery alone, or complication of this with remittent fever, cholera, &c. These probably act through the medium of the blood.

4. Alterations in the blood, effected by some peculiar and at present unknown changes in the process of assimilation : scorbutic dysentery is the most prominent example of this type, and perhaps the rheumatic diathesis may be taken as another instance.

Or, for the sake of convenience, the causes may be divided into—

1. Local—acrid ingesta.
2. Systemic—diseased secretion ; epidemic agents, and blood changes.

So far this statement is undoubted ; but it is very evident that the enumeration of these obvious causes is only a very small part of the subject, and in fact we have already gone

beyond our knowledge: what avails our saying that epidemic causes produce dysentery, when we neither know what these are, nor the way in which they act? We have not yet defined the origin of these causes, as we have those of ague, and the nature of the epidemic dysenteric agent has not even received a name. Again, contagion undoubtedly does not act in common dysentery; but it is certain, if the statements of many highly esteemed authors are to be admitted as evidence, that at times, in slave ships, and after some campaigns, or in besieged cities, asthenic dysentery has become contagious, being then complicated with a low fever. This low or typhoid fever has been supposed by some to be the cause of the contagion; but to this is replied, why should the dysentery be always the resulting disease, and not the fever? But it is a question if contagious dysentery is ever seen separated from the accompanying fever: are not the two diseases always propagated together? Are there instances known in which pure uncomplicated dysentery, sthenic or asthenic, as the case may be, has been derived from a case compounded of dysentery and typhus?

A most important question here arises as to the reason of the frequency of dysenteric diseases in hot climates, and especially in India. It appears to me, that giving the utmost latitude to every supposition that can be made,—allowing much influence to the use of highly seasoned and stimulating food among all classes of Europeans in India, to the use of fruits, of which such great abundance exists, to bad water, and other causes of the like nature,—admitting the endemic influence in some places of certain unknown causes which make dysentery prevail at certain times of the year, and whose presence and action is inferred from the negative argument of the absence of all other usual causes,—there

must still remain to be accounted for an unusual proneness in the mucous membrane of the large intestines to be acted upon by the exciting causes.

The nature of this proneness is the problem to be solved, and perhaps its solution will be found, when the chemical changes produced on the secretions by the long continued action of heat have been determined.

The effect of a tropical climate on the different excretions and secretions of natives of cold or temperate places, has received hitherto very little attention, and, like the whole subject of climate, its difficulty is extreme, on account of the number of modifying circumstances. Thus the common opinion is, that in Europeans the effect of an Indian climate are, diminished action of the pulmonary organs, diminution of renal action, and increase of the biliary and cutaneous secretions. From the experiments of Copland, Allan, and Pepys, it appears that the quantity of expired carbonic acid is lessened in tropical countries.

There is little doubt that the solid as well as the watery parts of the urine are diminished, and that calculous complaints are comparatively infrequent among Europeans in the south of India.

As to the liver, the influence of the stimulating diet made use of by Europeans has not received due attention. When the diet is unstimulating, moderate, and devoid of alcoholic liquids, I have never in myself, or in any other person, seen any increase of the biliary secretions; and have never known any case of bilious diarrhœa the cause of which could not be traced. Besides, in common cases of bilious diarrhœa, the mucous membrane, and its numerous and important glands, are generally more concerned than the liver. Mr. Annesley has some excellent remarks on this head. In speaking of hepatitis I shall return to this subject, and shall then dis-

cuss the supposed antagonism in point of excretion between the liver and lungs.

If, as I have reason to believe, the doctrine of increased action of the liver be erroneous, the effects of heat are to diminish all the secretions except that of the skin. We can then easily conceive, that as the cutaneous excretion plays a more important part than in colder climates, so alterations in it are followed by graver consequences. Why these consequences should implicate the colon so particularly, is at present impossible to determine.

Pathology of Dysentery.

The anatomical signs of dysentery are, enlargement and ulceration of the cæcal and colonic solitary glands, consequent on acute inflammation of these glands; just as enlargement and ulceration of the iliac agminated and solitary glands are the anatomical marks of one form of typhus, as a peculiar change in the liver is the mark of yellow fever (Loins), or as certain alterations in the liver and spleen are the anatomical appearances of malignant remittent fever.

But the pathology of a disease is a term which includes all the relations such a disease may have to other allied affections. The pathology of dysentery cannot be said to be known till we understand all the causes which produce its anatomical marks, the steps which changes so induced pass through, and all the phenomena they generate.

It is at once apparent how much remains to be determined before this comprehensive pathology can be made out. The causes must be understood, the alliance between

the colon and liver, and skin, more fully investigated, and the way in which dysentery combines with fever and certain blood diseases, as we may call them, must be obtained.

To attempt to explain the pathology of dysentery now, would be as premature as it would be to explain that of fever; the blood changes being undetermined. All these things must be left to time and energy—the great discoverers; and we then may perhaps be able to modify our treatment of the chronic forms, understanding more fully the great changes in assimilation which take place so rapidly in certain organs, and less prominently throughout the whole system.

In concluding these very imperfect remarks on the pathology of a disease the importance of a correct knowledge of which cannot be overrated, I must be allowed to defend in a few words the course I have taken in describing it. I have attempted to describe it rightly, and have not wished to describe it newly. I am not of the opinion of those who believe that the old paths of investigation—the study of symptoms and of post-mortem appearances—are now exhausted. If this be the case, how is it that the morbid anatomy of dysentery has not, to my knowledge, hitherto been fully described? How is it that in cholera, in spite of ample opportunities, every new writer discovers something that his predecessors have overlooked? How is it that the most important renal diseases have only been described within the last few years? Because new modes of investigation have been opened to us, why should we give up the old ones?

I estimate most highly the value of microscopic investigation, and of chemical analysis, in the study of diseases; but can these be applied yet with any degree of safety? The

chemical analysis of organic fluids is most difficult, and partial or imperfect examination is useless. The recondite operations of nature have not yet been imitated in the laboratory of the chemist, and the condition of the disordered secretions during disease presents an immense subject for investigation, which can hardly be said to be as yet even touched.

Supposing, for a moment, that the analysis of the several organic secretions is now fully understood,—that the composition of the bile is at last determined, the nature of the pancreatic fluid and of the secretions from the numerous glands in the small and large intestines accurately fixed,—what have we gained by our knowledge, when we apply these facts to dysentery? Has there been yet any analysis of the bile in dysentery? any analysis of the stool or of the urine? any analysis of the other disordered secretions? any examination of the blood?

When all these points have been determined,—not by the analysis of one chemist but of several, not by examination in one type of dysentery but in all,—then a chemical theory may be formed and submitted for public discussion.

But till then, all that can be done is to note down any chemical facts that can be made out, and, not combining them into a hasty hypothesis, to allow them to preserve their character of simple unconnected facts till the proper time arrives for assigning them their appropriate places. At the same time, in hepatic abscess, there is such a remarkable alteration in the nutrition of the whole system, and, doubtless, such peculiar alterations in the secretions of the kidneys, skin, and perhaps of other organs, that we may anticipate the discovery of some signs referable to these processes which shall bear upon dysentery as well as on the allied disease of hepatic suppuration.

If I am disinclined to offer a chemical theory of dysentery, however plausible this might be made, I am still more indisposed to offer a microscopic hypothesis. It requires no penetration to perceive that the greatest benefit must result from microscopic observations in morbid anatomy. For instance, what is the nature of the white starchy substance which, in the first few days of dysentery, occupies the solitary glands? What becomes of the epithelium, which, according to some pathologists, is deeply concerned in secretion, and must consequently be particularly altered in a disease like dysentery? What is the nature of the pale, slightly hardened condition of the liver, in many cases of simple dysentery? And, in fact, there are many points which the microscope alone can clear up. But then the difficulty of using a powerful microscope, the fear of misdescribing the appearances, and of misinterpreting the mode of production, have been sufficient to deter me from introducing into a treatise, purely practical, observations of the truth of which I feel uncertain.

Treatment of Dysentery.

Perhaps no one individual ever can have during a lifetime opportunities of accurately studying all the varieties of dysentery,—its complications with remittent fever, with cholera, with gastro-enteritis, and with typhus,—its union with scurvy and purpura, with several kinds of hepatitis, with delirium tremens, with pancreatic and spleen diseases, and with concomitant diseases of the spleen, pancreas, and kidneys, or with diseases of the mesenteric glands; its numerous chronic states, depending on various stages of alteration, hypertrophy, ulceration, or otherwise, of the

colonic and cæcal solitary glands, and thickening of the intestinal coats. In this place I intend merely to speak of common tropical dysentery, such as it generally presents itself in India among the European and native soldiery. The most common forms seen here are—

1st. Common acute dysentery, consisting in inflammation and very rapid ulceration of the cæcal and colonic solitary glands.

2nd. The complication of this with primary or secondary hepatitis.

3rd. The complication of this with scurvy.

4th. The complication with remittent fever.

5th. Adynamic dysentery—remittent fever being sometimes present—tendency to sloughing, and phagedenic ulceration in large intestines.

6th. General colonitis, redness of whole of cæcal and colonic membrane, less effusion of lymph than in common dysentery, enlargement of solitary glands throughout, but much less ulceration and ulcers smaller: a much rarer form than the one first mentioned, apparently often combined with gastro-enteritis, and very much more easily cured than common dysentery.

The treatment of some of those forms will be noticed when their respective symptoms and pathological appearances are described. I shall now confine myself to the first and two last forms, and shall not enter fully into the subject, as this has already been done by so many able writers, and in particular by Dr. Copland, in his admirable Dictionary.

The common acute form of dysentery, as seen in European soldiers in India, is in general a tractable disease: the mortality on the average should not be above three per cent. The mortality, when from any cause it has become chronic or complicated, is considerably above this.

The indications of treatment are, I conceive, fully evident.

1st. To subdue the inflammation of the solitary glands, and of the ulcers, where these are formed, as is always the case after the first few days.

2nd. To assist the healing of the ulcers, when the ulceration has been arrested.

The first indication comprises several others, viz.:

(*a*) The removal of the causes, whether these are local or systemic—often, however, a very difficult point to determine.

(*b*) The removal of morbid secretions, which in the first instance effects of the morbid process, may in their turn become supporters of the disease.

(*c*) The restoration of the functions of the liver, skin, and kidneys, always disordered in a varying degree, according to universality of affection of the solitary glands, to constitution of the individual, or to peculiar epidemic or endemic influences.

In the treatment of common acute dysentery we have an infallible guide in the appearance of the evacuations. Many other symptoms, as general pyrexia, tenderness of abdomen, heat in course of colon, tormina, and tenesmus, when present, are valuable as accessary phenomena, but the absence of any or all of these is never an indication, when the stools point out an opposite course of treatment.

For the purpose of subduing the inflammation, depletion is indispensably necessary in Europeans, and is indeed inculcated by all sound writers on the subject. As long as the stools are numerous (the attack being recent and uncomplicated), bloody, sanious, dark, and copious, or scanty,

lymphy, shreddy, or like meat-washings;* or a mixture of blood and slime with or without partial fæculence; or nearly pure blood, florid, or dark, mixed with a peculiar red mucus; or fæculent, yellow, copious, liquid, and stained with blood; and more particularly when with these symptoms there is pain on pressure, and great tenderness, as is the case in most instances, or heat in course of colon, depletion must be actively employed.

The comparative merits of general and local depletion have each their advocates, and probably every one uses best his own favourite measure. My practice has generally been the following:—

A soldier comes into the hospital on the second or third day of attack, if this be severe; or he continues at his duty for a week or more, if the diarrhœa be trifling. When admitted, he is, perhaps, purged from ten to forty times in twelve hours; the stools are a mixture of slime, blood, and dark fæculent mucus, passed with great straining, and attended with tormina. One or two full general bleedings are had recourse to, followed by opium, with or without calomel to allay tormina, and afterwards by oleaginous purgatives with opium. In six or ten hours after the general bleeding, if this is not repeated, leeches are applied to the cæcum and sigmoid flexure three times in twenty-four hours, till the stools become fæculent. Supposing twelve

* Many Indian practitioners will not bleed when the stools are muddy, sanious, and like meat-washings, believing that sloughing is commencing, and that the strength requires to be supported. I am certainly no advocate for indiscriminate bleeding, but a physician ought to be able to regulate the quantity of blood taken without too much reducing the strength; and not to bleed in these cases generally, or more often topically, is to consign the patients to almost certain death.

leeches are applied each time, thirty-six are applied in twenty-four hours; each leech, with the after bleeding, which is to be encouraged, draws about half an ounce of blood, so that the whole number is equal to seventeen ounces of blood. This must sometimes be persevered in for three or four days, after which the daily number of leeches may generally be lessened. If there be much tenesmus leeches to the anus give great relief.

This amount of leeching is, of course, meant for a severe case. In a very intense case I have sometimes been obliged to leech for six or seven days before the stools became more healthy; afterwards leeches are to be more sparingly used, and must be proportioned to the severity of the attack, and the constitution of the patient. There is one form of dysentery in which there are remissions, or a lessened degree of purging every now and then for twenty-four or thirty hours; in this case it is necessary not to discontinue leeching too soon. This is, however, generally a slight form.

The first appearance of recovery is evidenced by the stools becoming less slimy, perhaps copious and fæculent, or bran-like; or dark and slightly beaten up; or, while one part of the stool is slimy and bloody, the remainder consists of natural fæculence.

The application of leeches must not yet be discontinued, and a little experience, with the stools for a guide, will soon enable every one to fix the required number.

I cannot forbear again insisting upon the great importance of free depletion, general or local, according to the judgment of the physician, in the common acute tropical dysentery. In some other forms bleeding is less efficacious. Thus in anæmiated and debilitated people, and in certain places, much depletion seems to induce an atonic or passive

state of ulceration, in which no lymph is thrown out. However, in the generality of cases in robust Europeans, the effusion of too much and not of too little lymph is the thing to be guarded against.

The accessary measures which are most useful in the early stage are mild purgatives; in fact, the practice is altogether that of Sydenham. It is necessary also for the comfort of the patient to administer opium, and I have fancied that the combination of three or five grains of calomel with the first dose of this gave more ease than the opium by itself. There is one form, occurring chiefly in robust Europeans, in which there is slight tormina, no tenderness, and great straining, with only a small quantity of red mucus passed. It is in these cases that a one scruple dose of calomel seems really to exert a very beneficial effect, as noticed by Twining.

After the employment of mild oleaginous purgatives with opium—a practice which is to be followed even if the disease be of some standing—the employment of blue pill, opium, and ipecacuanha, in small doses, will give great relief, as far as the spasms and tenesmus are concerned, and also appears to aid the antiphlogistic effect of the depletion, which is going on during the period of their exhibition.

In this place the question of the propriety of the salivation system by calomel presents itself. I wish to speak with respect of the many eminent supporters of this practice, nor do I deny the occasionally striking results that follow its employment. I have had unusually favourable opportunities of seeing, and at one time of practising myself (on my first arrival in India) this plan of treatment on a considerable scale.

The results to which I have been led are the following:—

1. In common acute dysentery, in many instances, great relief follows the establishment of profuse ptyalism.

2. In a certain number of cases no relief whatever follows the establishment of ptyalism. I am unable to state the relative proportion, and I believe this to vary in different years and stations, according to the type of this dysentery.

3. In some cases salivation cannot be established.*

4. In all cases, as the salivation is rapidly produced, it is beyond the power of any medical man to produce merely the required degree. Very profuse ptyalism, therefore, is often excited, to the great detriment of the general health.

5. In adynamic or malignant dysentery, calomel is absolutely contraindicated: salivation universally does harm.

6. If there be a scorbutic taint in the constitution, ptyalism is easily produced, and is injurious.

7. In all cases in which the cure is accomplished by salivation alone, convalescence is some days more prolonged than after the depletion treatment.

8. The real indication for salivation is the effusion of lymph, and consequently in chronic dysentery, and in the after stages of very severe acute dysentery, in which convalescence is so protracted as to approach chronic dysentery, ptyalism slowly produced, and carried to the point of a very gentle action on the mouth, is invaluable.

9. The supposed existence of hepatic abscess is not only no indication for the employment of mercury, but ought to be a final argument against its use. I will not venture to assert that profuse ptyalism will excite hepatic disease of any

* The non-production of salivation is attributed, by a clever friend in the Madras Medical Service, to sloughing of the colonic ulcers. I have, however, notes of one case, in which the whole of the rectal mucous membrane was sloughing, and yet profuse ptyalism was produced.

kind, but most certain am I that it will not cure it; and in hepatic abscess in particular mercury in any quantity appears to have an injurious, depressing, and lowering effect upon the constitution. The therapeutical action of mercury seems to consist, in part at least, in relieving congestion of the capillaries, and in causing absorption of effused lymph; the proofs of these actions are daily furnished in diseases of the eye. But these conditions or indications are not present in many liver diseases which complicate dysentery. A great majority of the cases of latent and declared consecutive hepatic abscess occurred in patients who had been profusely salivated, although they certainly were not confined to these.

10. As depletion, to a greater or less extent, was always employed as a subsidiary measure to calomel, it may be that I have been too favourable in my judgment of this practice in the cases I myself witnessed.

Considering that recovery is certainly slower with this treatment than with the depletion and alterative plan, that in India a scorbutic taint or an adynamic habit of body often accompanies dysentery in European soldiers, and remembering the great difficulty of limiting the effects of mercury, when rapidly administered, to a moderate action, it must be confessed that the utility in dysentery of this very powerful remedy has been rated too highly by some of its supporters.

The practice of giving simple doses of calomel once or twice a day has the support of Annesley, the most copious writer on Indian diseases.

I must confess that here also, except in the class of cases already indicated, I have in vain looked for any striking benefit. Moreover, I have often seen profuse salivation produced, which Mr. Annesley professes to avoid. I have witnessed

in many cases aggravation of the tenesmus, and increase of blood in the stools, and as calomel, in poisonous doses, in men and dogs, causes intense and hæmorrhagic congestion of the colonic and rectal mucous membrane, I am unable to conceive the therapeutical indications on which its use is founded.

A union of the depletion and salivation practice is followed by some practitioners with great success. For my own part I have ceased to use mercury in dysentery, in any other way than as an alterative, except in chronic and long protracted and recurrent acute cases. I never aim at ptyalism, and can confidently assert that my recoveries have been greater in number, and more complete, since I in a great measure abandoned the use of mercury, than when I gave it in large quantities.

If, from any cause, depletion cannot be used, then, in common acute dysentery, mercury must be had recourse to, as the next most useful plan of treatment.

Another remedy has been much praised in acute dysentery, viz. the nitric and nitro-muriatic acid. This is certainly very useful in natives, and occasionally produces beneficial results in Europeans. It is, perhaps, more beneficial in the form of colonitis, or general inflammation of the mucous membrane, and in those cases which approach this. It appears most useful in the cases in which the evacuations are slimy, fatty, and mucous, without much blood. Many slight cases are readily cured by it, and by purgatives. (Madras Medical Reports, and Calcutta Transactions).

The ipecacuanha practice, supported by Mr. Twining, in which ipecacuanha is given in doses from four to eight grains, alternated with the occasional use of large doses of the compound powder of jalap, is certainly very unsatisfactory in its results in common dysentery. The large doses of ipecacuanha, viz. from 30 grs. to 1 dr., are much more efficacious;

the practice of giving drachm doses of the compound jalap powder seems now very much discarded in India. In colonitis, where ulceration is slow, and the inflammation of the mucous membrane more general, depletion is of less use, and purgatives in the early stages of the greatest possible benefit. If Mr. Twining's cases were chiefly of this kind, the discrepancy between some of his observations and those of observers in other parts of India, would be accounted for. In these cases also ipecacuanha is more useful: certainly, this latter disease, in the southern parts of India, is comparatively rare; but it may be more common in Bengal, and Mr. Twining's dissections seem to countenance this supposition.

To return from this digression, the essential measures in the early stage of common acute dysentery have been stated to be:—

1. Very free depletion, to arrest the progress of an acute inflammation.

2. Oleaginous purgatives, with opium, to remove secretions.

3. Opium, to allay tormina and diminish the excess of nervous sensibility, which is one link in the inflammatory process; the combination of blue pill and ipecacuanha with the opium seems to increase its powers.*

4. Occasional production of salivation.

Certain accessory measures must also be adopted.

Injections of opium, ipecacuanha, acetate of lead, cold water, suppositories of opium and ipecacuanha, give graet relief to the tenesmus. Injections of the acetate of lead in

* I have been in the habit of combining from three to five grains of blue pill, with from one to two grains of opium, and the same quantity of ipecacuanha, and giving this every three, four, or eight hours, according to the severity of the case. In natives the Pulv. Ipecacuanhæ Compositus, with or without Pil. Hydrar., is often very useful, and in mild cases may be used without depletion.

large doses, such as one drachm every four hours, are sometimes very useful.

The warm bath relieves tenesmus, and the irritability of the bladder, which so commonly produces frequent painful and difficult micturition. Cold water injections sometimes relieve this also.

If there be pyrexia, the addition of tartar emetic is useful. I first employed this remedy in doses of from a quarter to half a grain, believing that it resembled ipecacuanha in its action, and might be productive of good results. For some time I employed it in combination with blue pill, or calomel and opium, in every severe case of dysentery, using at the same time depletion as before; in some slight cases I used it alone, with the beneficial effect of producing numerous dark fæculent stools, instead of the blood and slime previously passed. As on the whole, however, it did not appear to accelerate convalescence, I now restrict its use to pyrectic cases, on the principle of not complicating the treatment of a disease by unnecessary remedies. In pyrectic cases it is very useful, producing nausea, lowering the action of the heart, and sometimes causing diaphoresis.

It never increases the purging when used in the early stages, and in small doses its primary action seems to be confined to the stomach and duodenum; in hepatic abscess, consequent on dysentery, it appears hurtful, reinducing the purging.

Squills are sometimes beneficial, on the same principles as ipecacuanha, and are to be used in large doses. The good effects are not very prominent, and like ipecacuanha this remedy ought to have quite a secondary place after both the depletion with opium and purgative plan, and after the salivation practice.

The other and rarer form of acute dysentery, which, for the sake of distinction, I have called colonitis, is characterized by inflammation being more general, the solitary glands universally enlarged, but ulcerating more slowly than in the former type, the stools being more copious, less bloody (as a general rule), yellow or sandy coloured, frothy, or slimy, and greenish, and attended with considerable tormina, and sometimes with great tenesmus; by pain on pressure generally over the course of the colon, and sometimes by heat in that situation: pyrexia also is a more constant attendant.

Depletion also must be employed here, but will not alone cure the disease; mild purgatives must be used, as rhubarb and castor oil, now and then, with opium after the inflammation has been reduced by the depletion; if the stools continue copious, and become watery, without tormina and tenesmus, astringents with opium are very useful, as the disease partakes more of the character of a passive flux.

Indeed, in all cases of dysentery there may occur a state which I have called "passive," inasmuch as it is best described by saying that acute symptoms are absent, or have been subdued by treatment. It appears as if the inflammation were subdued, but from some cause sufficient lymph is not thrown out to heal the ulcers. Opium is always indicated in this stage, and its action here, and its anodyne action in the acute stages, constitute its chief merits in dysentery. This state is also to be treated by astringents, as catechu, kino, &c. with opium, and is the only instance where astringents of this nature can be relied upon.

In this condemnation of astringents I do not include sulphate of zinc or alum; the action of these differs in some unknown way, and, as will presently be mentioned, in some adynamic forms alum in particular is useful.

I conceive that, in the acute stage of dysentery, the treatment now described, and which is essentially that of Sydenham, is in strict accordance with the knowledge we at present have of the pathology of the complaint. Slight cases may be cured in various ways; but the severe cases must always be treated in the manner above described. Further researches on the pathology of dysentery will throw fresh light on the antecedent states, and will necessarily modify this practice. The adynamie variety will be presently treated of.

But if we pass this early and acute stage, if the intestines become thickened from effusion of lymph between their coats, and upon the ulcers, circumstances which occur more or less in every case, if functional or organic derangements of the liver and pancreas complicate the dysentery, and augment still more the derangements of the skin and urinary organs, we have a disease to treat which is one of the most complex in the whole range of medicine.

I trust I shall be excused if I take another course in treating of the treatment of this chronic dysentery. Ignorance of the real action of medicines in the molecular structure of organs, and a want of knowledge of the links of morbid action in this complicated disease, will not allow anything more than an empirical statement of benefits supposed to be produced by medicines. This statement is, however, given so fully in many authors, that going over the ground here, would be merely a compilation.

In the advanced stage of acute dysentery, when the disease is slowly subsiding, and in all the forms of chronic dysentery, the second indication of treatment comes into force, viz. "to assist the healing of the ulcers."

1. Immediately on ulceration being partly checked, the reparative process begins, and vast quantities of lymph are

thrown out upon the ulcers, and between the intestinal tunics. If to this we have superadded, from time to time, attempts at fresh ulceration, followed as before by effusion of lymph, we get a bad form of chronic dysentery, in which the intestine becomes immensely thickened, and as a consequence partially lessened in calibre in different parts of its course, and enormous masses of nodular or granular lymph are effused on the mucous membrane, and the ulcers, wholly or partially concealing these parts.

2. Or subacute dysentery being unchecked and becoming chronic, we get a state of parts in which all the ulcers may be healed, and no fresh ulceration going on, but the coats being densely thickened, and the functions of the mucous membrane completely interrupted, we have a long continued and exceedingly intractable form of lienteric dysentery; in the latter stage of which, if the thickening be universal, hepatic abscess may probably supervene.

Between these two forms there is every grade of thickening and effusion of lymph, generally with, sometimes without, recurrent attacks of fresh ulceration.

3. Another form of chronic dysentery, and a very common one, is that in which the original attack has been almost chronic from the first, or at any rate not severe, and in which the glands get hypertrophied, and slightly ulcerated, and a small quantity of lymph thickens at intervals the coats of the large intestine. Now if this be universal, hepatic abscess may follow, but if partial it merely produces dysenteric symptoms, which require somewhat of a different treatment from the former case.

4th. Another form of chronic dysentery is more passive, following colonitis or erythematous dysentery, and consisting of pale ulcers with the muscular fibres for their floors, prevented from spreading by effusion of lymph, which

is yet not effused in sufficient quantity completely to heal them.

The indications for the two first forms are apparently sufficiently manifest. We may always be certain of nature throwing out sufficient lymph, and healing the ulcers, and all the physician has to do is to prevent her from effusing too much of this. Cautious local depletion is necessary here, and a strict farinaceous and unstimulating diet; and now mercury is really the most valuable medicine that can be used; it can be administered slowly, and therefore there is no fear of excessive salivation; a slight action on the gums is all that is required, and even this is not always necessary. The preparation I have found most useful is the bichloride of mercury, commencing with doses of one-eighth to one-sixth of a grain in combination with the preparations of cinchona. I know that this combination has been called unchemical, but it certainly loses no part of its activity by the changes that occur; nor is there any insoluble salt of mercury formed. The blue pill, or small doses of calomel with ipecacuanha, gentian, and taraxacum, may be substituted. Blisters, and frictions over the abdomen with a mixture of iodine and mercurial ointment, are to be used according to circumstances; nitrate of silver by the mouth, and as an injection, is also beneficial; this has been supposed by some practitioners to act as a direct stimulant to the ulcers, but when given by the mouth it is absorbed into the circulation from the stomach, and never reaches the colon; it may act by its tonic or astringent action on the capillaries, an action which seems to be generally admitted.*

The nitro-muriatic acid is decidedly very useful, but neither of these two last remedies are to be employed until

* I cannot agree with the encomiums which have been bestowed on the nitrate of silver in acute dysentery. I have never seen any striking effects

the depletion and mild mercurial course has been gone through.

The nitro-muriatic acid bath seems useful in the dry furfuraceous state of the skin, and when a large quantity of very pale urine is passed, the skin being dry, or with partial sweats.

Astringents are never to be employed in the two first forms of chronic dysentery.

The prognosis of a case of chronic dysentery depends upon its duration: if the intestinal coats be enormously thickened, and I have found them half or three quarters of an inch in thickness, perhaps no medicines can have any effect, or at least a very slow one. If the case be recent the effused lymph is easily reabsorbed.

It must be remembered, however, that in chronic dysentery the liver and pancreas are always more or less affected, and we require to be on our guard lest abscess or granulation in the former, or cartilaginous hardness in the latter organ, should ensue.

If chronic dysentery be complicated with hepatic abscess, depletion and mercury must still be employed to remove lymph, but salivation should not be aimed at, or should be very slight.

I have studied this subject attentively, and, in opposition to Marshall and many others, am convinced that mercury produces salivation in patients labouring under hepatic abscess, as rapidly, or even more so, as in other instances, provided depletion be also used.

Equally certain am I that I have seen a case of hepatic

from it, except in subacute or chronic cases, and then chiefly when used in the form of injection. I have seen colonic ulcers blackly striated during its use by the mouth, but I have also seen this appearance when none of it has been taken. As an injection it is a valuable adjunct, as it is in several diseases of the skin, when subservient other measures.

abscess, slowly progressing, acquire a very rapid course when ptyalism was established.

In hepatic abscess the indications are essentially the same, with the exception of the employment of depletion in the region of the liver, if there be any inflammatory enlargement of the organ: cases of latent hepatic abscess often occur without any apparent inflammation.

Abscess of the liver is a very unusual occurrence among natives; in them the other organic changes, as enlargement, hardening, &c. are more common; and the study of these may eventually throw some light on the production of abscess, and its connection with dysentery.

In the third form of chronic dysentery, the stools, instead of being fæculent, loose, lienteric, sanguineous, or occasionally serous, are lymphy, fatty, dark, viscid, or variegated; or these varieties alternate with the former. In this form, and in the following, the use of the metallic astringents, as sulphates of copper, of zinc, or iron, are beneficial. I feel inclined to restrict their use to this state, and indeed to an advanced stage of it, as I have given them cautiously several times in chronic dysentery of the two first varieties, with the effect of reinducing some of the acute symptoms.

After the foregoing measures, then tonics, combined with various alteratives, are necessary to restore the proper action of the liver and pancreas, which, though primarily deranged by the disease in the large intestine, have now probably become permanently disordered: however, if there be no hardening of the pancreatic substance, and no suppuration or enlargement of liver, change of air, proper diet, exercise, and other measures, will soon restore their functions. Iodine is also often useful.

This subject is fully treated of by Drs. Copland and Johnson: so that I shall not enlarge on it here.

In natives, dysentery requires exactly the same treatment,

with the exception of ipecacuanha appearing more useful, especially in the form of Dover's powder. In the adynamic forms, in natives as in Europeans, alum combined with catechu and camphor is the best treatment, with small, frequently repeated doses of Dover's powder between each dose of alum. Injections of alum are very useful in that variety where the intestine is so disorganized as to tear like wet paper after death.

The nitric acid is more useful in natives than in Europeans, apparently from slight dysentery in natives often consisting in enlargement and increased secretion of the solitary glands; I state this, merely from witnessing very rapid cures in them by this agent, when the stools were slimy and mucous; in my dissection of natives, chiefly Hindoos and Mussulmans, I found exactly the same changes of the large intestines as in Europeans, and often in as great a degree.

I need not enlarge on the subject of diet in chronic dysentery, as it must be evident that all remedial measures will be frustrated by injudicious food. No beer, or wine, or very little wine, should be allowed. The diet should be chiefly farinaceous, the meals frequently repeated, and the quantity taken at each meal very small: these remarks apply chiefly to chronic dysentery; in an acute attack there should be abstinence from solids, but diluents may be freely allowed.

The treatment of complicated chronic dysentery cannot at present be properly described. I have before mentioned the numerous diseases of the kidneys, spleen, pancreas, and liver, which arise during its continuance; but the pathology of these complications is, as far as I know, not understood, and all treatment is empirical, and directed to symptoms connected with the kidneys, pancreas, or liver, according to the circumstances of the case.

HEPATITIS.

I PASS over the subjects of increased and diminished hepatic secretion, and of biliary concretions, as being fully detailed by several authors.

I shall consider only the disease generally termed inflammation of the liver.

"Indian hepatitis," says Dr. James Johnson, "is usually attended by a flux."

Mr. Twining writes, "The greater number of cases of acute hepatitis, which occur in this part of India, are at their commencement either complicated with some other local disease, or with some disordered state of the constitution; fever, dysentery, diarrhœa, or vomiting, being often the premonitory symptoms." (Vol. I. page 288, 2nd Edit.)

Mr. Annesley says, "Inflammation of the liver generally *supervenes* either as a primary disease, or as a consequence of one or more of the functional derangements to which we have now directed the attention of the practitioner. This latter mode of commencement appears to us the most common within the tropics, and particularly in India, and is frequently to be recognized in those cases of hepatitis which supervene upon intermittent, remittent, and continued fever and dysentery."

Another opinion, however, appears to prevail. Acute hepatitis is sometimes described by writers, following Pem-

berton, as if it came on abruptly, like peripneumonia. In Dr. William Thomson's very excellent article in the Library of Practical Medicine, and in Dr. Stokes' articles in the Cyclopædia of Practical Medicine, the early stage of hepatitis is said to be like gastric fever. The truth is, that gastric and duodenal dyspepsia, complicated with hepatic congestion and its attendant train of phenomena, is a common disease in the tropics, particularly in new-comers; and doubtless sometimes acute hepatitis may follow in this case; but in by far the greater number of cases, when hepatitis is primary it is latent, and when secondary it follows gastric and duodenal disease, dysentery, and remittent fever, in a manner presently to be described.

As this subject is a very difficult one, I shall first give a short statement of some of the cases observed by myself.

The 84th regiment landed in India in September 1842. In two years 176 cases were returned as hepatitis. When these cases were analysed, and some slight cases and some wrongly diagnosed, and those who had been admitted more than once deducted, we have remaining 72 cases.

Of these—

There occurred in the first six months, five cases, of whom two were admitted twice.

There occurred in the second six months, fifteen cases, of whom two were admitted twice, four were admitted three times, and two were admitted five times; four died.

There occurred in the third six months, twenty-four cases, of whom four were admitted twice, three were admitted three times, and two were admitted five times; two died.

There occurred in the fourth six months, twenty-eight cases, of whom three were admitted twice, and one three times; none died.

Some of the above cases were, after admission, always in the hospital till invalided.

Excluding again from this list some obscure cases, some cases in which previous dysentery was *very evidently* the exciting cause, and some whose cases I could not myself sufficiently investigate, the number of cases of true hepatitis is reduced to forty-two, as shewn in the following table. I must state, that by the term gastric and duodenal dyspepsia, I mean the presence of the following smptoms :—

Impairment or not of appetite; weight and oppression immediately after eating, or in an hour or more; nausea; eructations; pain and fulness at the epigastrium, or over region of duodenum and gall-bladder; inertia and drowsiness an hour or two after food; headache heavy, oppressive, and supra-orbital, or darting, rheumatic-like, and situated in the neck or back of the head; occasional twitches in the side, and pain in the shoulder; occasional pains in limbs; high coloured and scanty urine; bowels sometimes confined, rarely loose; stools mucous, dark, or sometimes clayey; if loose, lienteric.

TABLE.

Name.	Age.	Tropical Service.	Antecedent Disease to which the Hepatic Affection was traced.	Manner in which the Pain in side commenced.	State of Bowels previous to treatment.	Remarks.
		Yrs. Months.				
George Humphries	25	0 8	Dysentery	No pain	Loose	Died.
John Blake	27	1 0 E. I.	Dysentery several times, recurrent.	Slowly	Loose	Relieved, not cured.
Thomas Stott	33	1 4 E. I.	Gastric and duodenal dyspepsia; pain at the right of the epigastrium; sickness and vomiting after food; headache	Slowly	Natural, or confined occasionally	Invalided.
Thomas Kelly	22	0 10 E. I.	Dysentery	Slowly	Loose	Died.
Michael Sullivan	23	1 5 E. I.	Duodenal dyspepsia	Slowly	Variable	Cured.
William Brereton	23	1 2 E. I.	Dysentery	Slowly	Loose	Died.

William Browne	26	1 2 E. I.	Gastric and duodenal dyspepsia for several months	Very slowly	Confined	Invalided.
James Crowe	23	2 1 E. I.	Gastric and duodenal dyspepsia for several months	Very slowly	Confined	Invalided.
Martin Coyne	23	1 0 E. I.	Dysentery	No pain	Loose	Died.
William Swift	32	1 2 E. I. 4 11 W. I.	Gastric and duodenal dyspepsia	Very slowly	Confined	Invalided.
John Rea	29, 10	1 4 E. I.	Gastric and duodenal disease; hypertrophy of heart, and disease of mitral valve	Very slowly	Natural	Invalided.
Denis Mahen	20	1 0 E. I.	Dysentery	Slowly	Loose	Died.
John Mahen	24	1 0 E. I.	Dysentery, then gastric and duodenal disease	Very slowly	Confined	Cured.
William M'Dowall	22	2 0 E. I. 4 0 W. I.	Duodenal dyspepsia	Slowly	Confined	Cured.
Jonathan Carnell	29	1 0 E. I.	Duodenal dyspepsia, then catarrh, then sudden development of pain	Suddenly	Confined	Invalided.
James Easton	33	2 0 E. I. 5 0 W. I.	Duodenal dyspepsia, and apparently a congestion of the kidneys, approaching to nephritis	Slowly	Confined	Invalided.

Name.	Age.	Tropical Service.	Antecedent Disease to which the Hepatic Affection was traced.	Manner in which the Pain in Side commenced.	State of Bowels previous to Treatment.	Remarks.
		Yrs. Months.				
Edward House	33	2 0 E. I.	Duodenal and obstinate gastric dyspepsia	Very slowly	Confined	Invalided.
Joseph Thorpe	31	1 3 E. I. 2 0 W. I.	Duodenal dyspepsia ; dysentery terminated life	Very slowly	Confined	Died.
Joseph Gibson	32	1 6 E. I.	Duodenal dyspepsia	Very slowly	Natural	Invalided.
James Sullivan	25	1 2 E. I.	Duodenal dyspepsia	Very slowly	Confined	Cured.
Patrick Allen	22	1 4 E. I.	Duodenal dyspepsia, and dysentery	Very slowly	Loose	At commencement of illness, the cæcum and colon were implicated: a case of recovery.
Robert Costello	26	1 7 E. I.	Duodenal dyspepsia	Slowly	Confined	Cured.
Samuel Bunn	21	1 0 E. I.	Dysentery, then duodenal dyspepsia	Slowly	Confined	Invalided.
Michael Brewin	25	1 4 E. I. 11 0 W. I.	Dysentery, then duodenal dyspepsia	Slowly	Loose	Invalided.
John Brogden	33	2 0 E. I.	Duodenal dyspepsia	Slowly	Confined	Invalided.

Matthew Shannon	35	11 0 W. I. 2 0 E. I.	Ague and remittent fever in Jamaica, then recurrent pains in side for some years, sharp pain in side and shoulder, no apparent duodenal symptoms	Slowly	Confined	Under treatment at the time of making table.
Denis Carroll	24	2 0 E. I.	Slight pleurisy, and then very evident duodenal dyspepsia	Slowly	Confined	Palpitation of heart subsequent to hepatic disease.
Hugh Crossen	35	2 10 E. I.	Dysentery, then duodenal dyspepsia	Slowly	Loose	Cured.
Joseph Kendrick	25	2 0 E. I. 8 4 W. I.	Dysentery, then duodenal dyspepsia	Slowly	After dysentery ceased, bowels confined	Under treatment.
Matthew Lennon	37	2 0 E. I.	Duodenal dyspepsia	Very slowly	Confined	Relieved, not cured.
David Vaughan	24	11 0 E. I.	Diarrhœa	Slowly	Loose	Invalided.
Thomas Powell	26	1 0 E. I.	None traceable	Slowly	Regular	An obscure case, implicating only left lobe. Invalided.
James Ashworth			Duodenal dyspepsia	Slowly	Confined	Under treatment.
James Bradshaw	21	2 0 E. I.	Duodenal dyspepsia	Slowly	Regular	Cured.
Martin Payton	30	1 0 E. I.	Dysentery recurrent	Slowly	Loose	Under treatment.

Name.	Age.	Tropical Service.	Antecedent Disease to which the hepatic affection was traced.	Manner in which the Pain in the Side commenced.	State of bowels previous to Treatment.	Remarks.
Thomas Coates	24	Yrs. Months. 2 0 E.I.	Duodenal dyspepsia, then dysentery	Slowly	After cessation of dysentery bowels confined	Under treatment.
Robert Browne	25	2 1 E. I.	Duodenal dyspepsia	Very slowly	Regular	Cured.
John Thomas	24	2 1 E. I.	Duodenal dyspepsia	Very slowly	Regular	Cured.
Edward M. Cormick	27	2 0 E. I.	Duodenal dyspepsia	Very slowly	Confined	Relieved, not cured.
Thomas Hall	24	1 2 E. I.	Diarrhœa, then duodenal dyspepsia	Slowly	Loose	Invalided.
James Killen	35	9 3 W. I. 1 6 E. I.	Duodenal dyspepsia	Slowly	Confined; one or two dysenteric attacks during illness	Cured.

Although the cases in this table presented at an advanced period the nosological symptoms of hepatitis, viz. pain in the right side, and perhaps in the shoulder, fulness of the side, and derangement of hepatic secretion, as proved by the urine and stools, without any disease of the lung or pleura of same side, it does not include all the cases of hepatitis which really occurred. Many, and these the most dangerous cases, were generally returned under the head of Dysentery, and I have not included these in the table, as I wished to give in this place an analysis merely of those cases officially reported as Hepatitis.

The insertion of these cases would swell this treatise to an unreasonable bulk, and I have therefore combined them into a general description, as accurate as I have been able to make it. This account is, therefore, a literal transcript of recorded cases, and it will be found to differ materially from the accounts of most authors. The varieties of hepatitis which I have myself met with are the following:

1. Hepatitis succeeding gastro-duodenitis, with which hepatic congestion may or may not be combined. This is the common form of liver disease in India. It is a chronic disease, generally leading to enlargement, and rarely ending in abscess.

2. Hepatitis succeeding dysentery, to which however it is not immediately consecutive, as in the complication described under the head of Dysentery, but is generally connected by an intermediate stage of duodenal dyspepsia and hepatic congestion. This is often attended with temporary enlargement.

3. Hepatitis nearly latent, till it has terminated in abscess. This disease is generally returned as dysentery, but the course of events is quite dissimilar to that which prevails in hepatic abscess consecutive to dysentery. This is

probably an incurable disease. It corresponds to one form of Twining's "Central Abscess."

4. Hepatitis secondary to dysentery, remittent fever, or cholera. The two first-named diseases are common precursors of hepatitis, and it may be reasonably inferred that in certain districts fever will be a very general forerunner.

5. Hepatitis suddenly arising, and denoted by the usual nosological symptoms. This appears to be a disease seen chiefly in new-comers, and is probably a consequence of great overaction of the liver, consequent on change of climate, and on too rich diet. According to my limited experience, although sometimes seen, it is by no means the most usual form, nor has it much tendency to terminate in suppuration.

I shall first describe the first and second form together, and afterwards the third form. The fourth belongs to the subjects of Remittent Fever and Dysentery, and the fifth form is so fully described by writers, that any further notice of it is unnecessary.*

1. The majority of European soldiers in India admitted into the hospital for true duodenal hepatitis give the following account of themselves† :—

Some time previous to admission, from two to six months, it is observed that there is an oppression and weight at the epigastrium after meals; sometimes there is vomiting, sometimes flatulency; often there is a disrelish for particular kinds of food. There may be no weight immediately after

* Mr. Annesley's and Dr. Copland's accounts are elaborate, and on the whole the two best I know. On a future occasion I shall enter into an analysis of the multitude of observations which have been made on inflammatory diseases of the liver.

† I employ the term "duodenal hepatitis" as expressive of the sequence of disease, and as a convenient antithesis to the terms primary and dysenteric hepatitis.

meals, but great oppression an hour or two afterwards, with drowsiness and tense headache. There is often some degree of pain in the region of the duodenum: the bowels are generally confined—in about one-fourth of the whole number of cases they are stated to be regular: as the disease advances, headache, either frontal, or, if the duodenum be affected, occipital, becomes common; occasionally there are pains in the legs, or slight cramps; the urine is generally high-coloured, but jaundice is uncommon, being seen only in three cases out of seventy. I do not mean that these were the only cases of jaundice seen, but merely that they were the only cases in which commencing hepatitis was undoubtedly present.

These symptoms continue for a month or two, being really primary; that is to say, not symptomatic of hepatic disease. This is proved by the comparative facility with which they are removed by treatment directed to their apparent seats, and by their occasional disappearance as the hepatic disease declares itself. If neglected, however, there gradually ensue slight attacks of pain in the right side, which never last more than an hour or two, and appear relieved by food and alcoholic liquids. Although I have said there is often a disrelish for particular articles of diet, yet the general appetite is not impaired, nor is there any degree of emaciation. There is generally lowness of spirits and partial hypochondriasis.

In other cases, again, slight dysentery is the earliest symptom; perhaps an attack of this disease has lasted four or five days, and, as I have proved by dissection, produces four or six ulcers in the large intestine, whose cicatrices may be seen after death, if hepatitis terminates life by abscess. The patient states, that after the attack of dysentery his bowels continued regular or were constipated, and that he then began

to experience all the symptoms of dyspepsia which I have above described. This is quite different from hepatic abscess directly consecutive to dysentery; in this latter case the anatomical marks of dysentery are universal; it always remains a prominent disease, and is often quite unaccompanied by any symptoms or post-mortem marks of disease in the small intestines or stomach.

The preceding symptoms of duodenal dyspepsia last for a variable length of time before any pain in the right side is felt: after some weeks or months the pain appears; it is very trifling, and is often termed a "stitch:" it is generally situated over the gall-bladder, or in a parallel line with this near the angle of the ribs, or half-way between this point and the gall-bladder. It gradually increases in severity, and from time to time there may be slight and fugitive pyrectic attacks.

At this period the liver appears to be for the first time seriously implicated, and if the disease increases in this slow manner any farther, it becomes intractable.

This period, too, seems to be a starting point from which the hepatic disease may pursue various courses. Thus, if from a debauch, from exposure to cold, or a blow on the part, the liver be much excited, a proclivity to disease existing, there may be all the symptoms of congestion and active secretion described by Mr. Annesley; or this may pass into rather acute inflammation, as I have seen in one case in which the liver being predisposed to congestion by duodenal dyspepsia of some standing, and being further excited by exposure to cold, which produced ephemeral fever, a sharp pain in the right side, with pyrexia, was developed by the action of an emetic unadvisedly given. In this case the attack became chronic from treatment, and was very obstinate: there was no pleurisy.

Or again, jaundice may ensue in this case from inflammatory thickening of the duodenal mucous membrane, from inflammation spreading along ducts, from enlargement of the lymphatic glands described by Twining, or from some unknown cause, left undetermined under the vague term of "sympathy." Here again the patient comes at once under treatment, and is generally easily cured.*

Or again, if from any cause dysentery occur, then hepatic abscess may be produced, particularly if the ulceration be universal.

The most common course of events is, however, that the disease being comparatively slight, and little noticed by the patient, progresses in its former slow course, until the urgency of the symptoms sends the sufferer, now labouring under an obstinate and difficult disease, to his medical attendant.

From this time the disease pursues the usual course of enlargement of the liver, with pain in the part, dyspnœa and cough, according to circumstances. This is described by writers, and need not be repeated here. The chief varieties at this time arise from the presence or absence of inflammation of the gall-bladder and ducts, of dysentery or of gastric dyspepsia, and at a later period of suppuration in the liver. It is not possible to distinguish between inflamma-

* I have often been struck with the apparent implication of the pancreas, as evidenced by pyrosis and hiccup, and yellow appearance of stools. The diseases of this organ are sometimes termed obscure; they are so, undoubtedly, but they are not less common. In some of the most important forms of duodenal dyspepsia the pancreas is greatly affected, and it has occurred to me whether this organ be capable of temporary enlargement from congestion or œdema, or some other cause; if so, it might be one cause of jaundice, by pressure on the ductus communis choledochus.

tion of the upper or under surface. The right lobe is oftener affected than the left.

Cholecystitis is a very common occurrence, and its anatomical marks are, various shades of redness and vascularity, loss of the normal reticular structure of the mucous membrane, altogether, or in patches, and distended cavity from accumulation of a brownish, or red, or green thin watery bile; or, on the contrary, of a thick viscid apparently mucous brown fluid. In the very chronic forms there may be thickening of the coats of the gall-bladder from effusion of lymph, and subsequent slow contraction of its cavity. Constipation is a usual attendant of this condition, and there is considerable pain on pressure over the gall-bladder, which when much enlarged can be sometimes felt; and then, unless the patient be naturally thin or emaciated, cannot be distinguished by manipulation alone from hepatic abscess.*

If attacks of dysentery complicate the advanced stage of liver disease, and if with this there is emaciation, great perspiration, pale urine, of low specific gravity, anorexia, and occasional rigors, abscess may be suspected. However, in this form of liver disease, abscess is comparatively rare.

After death, the liver in this form of hepatitis is generally found enlarged, sometimes in a great degree; there are often adhesions between its upper surface and the diaphragm; its substance is mottled, or in parts red, and in parts pale or of a brownish colour; it tears with a granular fracture, and in parts highly granular the colour is always

* The diagnostic marks given by Petit are inconclusive; sometimes there are from one to seven pints of fluid in the gall-bladder, which may form an uncircumscribed tumour in the epigastrium, or in its usual situation, or below and posterior to this.

pale. In more acute cases it is dun-coloured, or red and mottled universally, and exudes blood on section. It is probable that after a time contraction may occur, and the disease assuming the nature of cirrhosis, ascites may result, but I have not proved this sufficiently by transition cases, nor do I know if it has been satisfactorily proved by other observers. The various appearances noticed after death in the liver are described by Mr. Annesley and others, so that further recapitulation is unnecessary in this place.

It is evident from what I have said, that if no complication occur this complaint is chiefly obstinate and tedious, without being in itself absolutely dangerous to life. It is, however, highly dangerous, by reason of its complications and terminations. Dysentery often terminates life, or the pancreas becomes implicated, when, if there be cholecystitis also, jaundice and other symptoms, as pyrosis and hiccup, seem often to result. Or again, the organic changes in the liver (chiefly consisting, as I have fancied, of effused lymph around the lobules, in the molecular structure) gradually produce contraction and dropsy. Or two or more of these states may be combined, or abscess may slowly form, and kill with attendant dysentery or hectic fever.

I am very far from asserting that the acute stage of inflammation of the liver, suddenly occurring, and leading to abscess or to chronic disease if unchecked, does not often occur. I say merely, that my limited experience has not met with it, while the disease above described seems that which is chiefly prevalent.

2. Latent primary hepatitis, or primary hepatic abscess.

Although an active acute inflammation of the liver, primary and apart from the aggravation of the slow form just described, has appeared to me to be a rare disease, there is

a form of primary hepatitis, fortunately rather rare, which is one of the most dangerous hepatic diseases, on account of the great tendency to suppuration. I have used the term latent, as expressing a character which is general, though by no means constant. I have only seen a few instances, and cannot venture on any thing like a full description.

The course of events is this: there may be in the first instance a very slight dysenteric attack, lasting only for four or eight days.

This does not seem essential, but it often occurs. After this, there occur from time to time very slight attacks of pain in the side or back; these are felt chiefly after exercise, at which time there is often some little feverishness. The appetite is good, there is no dyspepsia, and at first no loss of flesh. If questioned, the man states that he is in perfect health, and often treats as trifling the transient pain in the side: after lasting, without apparent increase, for some time, from three weeks to three months, or more, dysentery supervenes. The period of this supervention depends on the situation of the abscess which is forming in the liver. If this be near the gall-bladder, and compresses it, and more particularly if it compresses the ductus communis choledochus, dysentery supervenes early, and is acute. If, however, the abscess be formed at the extremity of the right lobe, or the posterior and superior surface, (very usual sites,) it may attain a large size without any apparent alteration in the bile. Sooner or later, as a general rule, dysentery comes on. If the patient be a soldier he now comes into hospital; his complaint is returned as dysentery, and the hepatic disease is sometimes not discovered till after death. In a preceding page, under the head of hepatic dysentery,

is a case of what I have no doubt was primary latent abscess: here no idea of liver disease was ever entertained by the medical attendant.*

The dysentery now produced is peculiar, and continues till death, or relief is only temporary; it has no resemblance to the dysentery, which is primary to abscess, described in the section on dysentery. If the case be a rapid one, the stools are often nearly pure blood, or loose, yellow, apparently fæculent, yeasty or beaten up, or green, spinagy, and like bile, or granular; and these are immediately produced, and do not gradually come on after partial recovery from acute dysentery; or, if the case be more chronic, the stools are brownish or purplish, variegated or yellow, and beaten up, with blood gradually added as the abscess increases in size. Sometimes primary abscess seems to form slowly, and the affection of the bowels increases very gradually: at first there are occasionally two or three days of loose yellow evacuations, from three to eight in number, then for two or three days the bowels are more regular, and then again loose; the diarrhœa then gradually increases, apparently according as the abscess slowly arrests the hepatic secretion. At other times the abscess is small, and its formation is attended by pain in the side and shoulder. Dysentery may be absent when the abscess is situated towards the upper surface and is circumscribed.

A consideration of the nature of the dysentery leads usually to a careful examination of the liver, and then some degree of enlargement is detected; or if this be not perceptible there is generally some little pain confessed to at times. Suddenly, perhaps, a very sharp pain may come on,

* The question whether abscess, once formed in the liver, ever becomes cured by absorption of pus, must be considered still undecided.

apprising the physician for the first time of liver implication; and, in addition, irregular rigors, or attacks of what appears to be remittent fever, occur, and to my knowledge have been treated with quinine, as the primary affection.

After death two or three enormous abscesses are found in the liver, or a vast number of smaller ones; the cæcum and colon are ulcerated, but not so universally as in consecutive hepatic abscess. I have very seldom found any marked disease in the stomach or small intestines; the orifices of Brunner's glands in the pyloro-valvular portion of the duodenum are enlarged, and sometimes there is general enlargement of the solitary and agminated glands, and patches of uniform or ramiform redness in the ilium.

The diagnosis of the latent form of hepatitis is very difficult, or impossible, in the early stages. When dysentery has supervened, the type and progress of this afford the best signs. The other signs I shall now briefly enumerate, and make a few cursory remarks on each, relative also to the duodenal form of hepatitis.

1. Pain in the side.

I have attentively observed twenty cases of abscess, nine of which were primary, and eleven secondary to dysentery.

(*a*) As to primary abscess.

In two cases there was at no time any pain in the side.

In one case there was pain for two days, apparently at the time of commencement of abscess, but none afterwards.

In one case no pain till four days before death, and then very severe pain in the right hypochondrium.

In one case slight pain for about four weeks before death.

In four cases pain in side for a long period before death; but this was in three cases slight, and for days together was spoken of as an uneasiness or dragging; in the fourth case it was tolerably severe, and confined to one spot.

(*b*) As to secondary abscess.

In six cases there was no pain, or this was so slight as never to be complained of by the patient, or noticed by me.

In one case there was slight and transient pain.

In two cases pain towards the end of the case, and in one of the two cases the pain was very slight.

In one case slight tenderness below false ribs for some time before death.

In one case pain tolerably severe for a long period before termination of case.

From the six cases in which there was no pain it is necessary to exclude two, in which the abscess, or abscesses, were small, and evidently in an early stage.

On more particularly examining these cases I can discover no constant relation between the size of the abscess and the development of pain; in one case of primary and two of secondary abscess, in which the absence of all pain was most remarkable, the greater part of the liver was in a state of suppuration; either, as in one case, the whole of the right lobe being converted into one immense abscess, or else there being a very great number of smaller abscesses, as in the two other cases. In another case, in which the pain was absent till a few days before death, and then came on very severely, the abscess was of great size, and the liver was much enlarged.

The cases in which there was pain were apparently the chronic cases, where after death a thick cyst was found, or in which the abscess was small, and situated near the upper and anterior surface.

I have noticed several other cases of abscess, but not so attentively; they confirm the result deduced from the recorded cases, viz., that pain in the side by itself is a diagnostic symptom of no value as regards abscess.

As to sympathetic pain in the shoulder in abscess, it was present in three cases of primary hepatitis, being in one case a mere uneasy feeling.

In three cases of secondary abscess the pain in the shoulder was severe; in another case there was a gnawing sensation complained of.

In one case, in which the pain was considerable, the liver was crowded with abscesses.

In a second case, in which the pain in the shoulder was only complained of for twenty-four days before death, there were two enormous abscesses; and the third case, one in which the pain in the shoulder was most excruciating, was a case of perforation into the lungs.

In all the other cases it was absent, or if present was mentioned merely as an aching or uneasiness which never lasted any time.

In addition to the case of perforation into the lungs mentioned above, I have seen another similar case, not recorded here, in which there was not the slightest pain in the side, but a most severe pain in the shoulder—so acute at times as to cause the patient, a strong, determined man, to roll in agony on the ground.*

* It is still the custom in military hospitals in India to call every case "hepatitis" which presents any hepatic symptoms, although pain of the liver is so commonly sympathetic in many diseases. No medical men have so many opportunities of observing errors in diagnosis as the Queen's inspectors of hospitals in India. I have been informed by the late deputy inspector of the Queen's troops, Madras presidency (Dr. Nicholson), that very few cases sent down to the presidency for invaliding are true cases of hepatitis; and I may mention, that this experienced physician told me he could not recognize the nosological form of hepatitis—viz., that beginning suddenly with acute symptoms. I have already mentioned, that after an examination of one hundred and seventy-six

To return to pain in the side: my cases are too few in number to draw any deductions from them wlthout risk of error, but I may perhaps be allowed to make some general remarks on this symptom, drawn from the observation of a considerable number of cases of different kinds.

Very severe pain in the right side, not neuralgic, and not produced by pleural or pneumonic disease, or malignant hepatic disease, has appeared to me generally to depend on an advanced stage of central hepatic abscess, or on a smaller abscess close to the surface, or on some spasm of the gall ducts, or duodenum, with or without gall stones, or on contraction of the abdominal muscles, or on spasm of the colon; sometimes, during duodenal hepatitis, there will be a severe pain for some days from some unknown cause. Slighter pain, or pain developed only by pressure, or simple uneasiness, or dragging, depends more usually on duodenal hepatitis, or sometimes on abscess, or is sympathetic of disease in the colon, kidneys, lungs, or heart, apparently in the order of frequency now given.

If the acute pain be caused by large abscesses, these will in all probability have been previously diagnosed by the dysenteric and other symptoms. The pain in one case was so severe as to produce neuralgic tenderness of the surface. If the pain arise from a small abscess without dysentery, the diagnosis is very difficult, but in reasoning on the point it

termed hepatitis, I could only discover forty-two in which the liver was probably diseased, and these were cases of primary or secondary abscess, or of duodenal hepatitis. All numerical returns of hepatitis are, in my opinion, useless, as not distinguishing that form leading to abscess, and that tending merely to enlargement; and also on account of erroneous diagnosis. I have known cases of primary suppurative hepatitis returned as dysentery or as fever, and I have, on the contrary, seen cases of pleurisy, of a slow form of pneumonia, of duodenal, colonic, and renal diseases, returned as hepatitis.

must be remembered that mere pain in one spot, however long continued it may be, can never be considered by itself as at all decisive of abscess. I have seen cases of this kind, in which after death the naked eye could discover no anatomical alterations. The accessary symptoms must be well marked to prove the presence of abscess.

An acute pain in the side sometimes seems to arise from spasm of the gall-bladder or ducts, without gall-stones. I have seen several cases, in which, without previous warning, an exceedingly severe pain, at first intermittent and spasmodic, commenced in the region of duodenum and stomach, and then spread towards the right side. Afterwards, during the paroxysms, the pain seems to pass from the right side towards the epigastrium. At this time the symptoms are exactly like those attending the passage of gall-stones, yet on carefully examining the stools, which are copious, lead-coloured or blackish, no concretions can be seen; for some days after the pain has been relieved, there is tenderness to the right of the epigastrium, or generally over the liver.

Some affection of the colon is perhaps the most usual cause of pain in the right side, imitating liver disease. After dysentery this is very common: perhaps some of the muscular fibres of the cæcum and colon may be paralysed by effused lymph, and there may be a stoppage at the bend, or thickening, or partially healed ulcers at that point, or the hepatic pain may be sympathetic, that is really seated in the liver, but not attributable to disease in that part, or there may be adhesions of the omentum, as pointed out by Twining

This gives a most difficult form of disease, for if the stools at all resemble those present in abscess the diagnosis is uncertain, being drawn chiefly from the duration of the case, and the constitutional symptoms: slight sympathetic pains

in the liver are very common in the early stage of gastro-duodenal dyspepsia, and in some forms of kidney disease, as in the Case of S. S., where the pain was along the margin of the ribs. Diseases of the lungs and heart are well known to cause sympathetic hepatic pains.

It is not my intention to enter into the subject of the detection of these complaints from hepatitis.

In previous pages I have adverted to almost all the signs necessary for diagnosis.

As to the seat of pain: In recent duodenal hepatitis this is over the gall-bladder alone, or under the ribs on the right side, or at the angles of the ribs, or more rarely general. In large abscess, if there be pain, it is over the whole hypochondrium. In small abscess over the part, or along the margins of the ribs. In chronic enlargement it is most usually along the margins of the ribs, or in the back. In renal complaints along the margins of the false ribs.

As to sympathetic pain in the shoulder, not depending on abscess:

In cholecystitis and duodenal hepatitis there is usually pain in the shoulder; it is seldom severe, but has generally been described to me as a "gnawing." Pains in the back and hips, and down the legs, when present in duodenal hepatitis, generally depend on its advanced stage, when the liver is enlarged. As to the causes of sympathetic pains, I can offer no explanation; they are certainly not confined to hepatitis. In atonic gastric dyspepsia there are often severe flying pains in the chest and shoulders; in chronic dysentery some pain in the right or left shoulder is generally present. In numerous other complaints, splenic and nephritic, there are pains in the shoulders and down the arms.

2. Rigors are often absent in abscess. By themselves they prove nothing; I have seen them prevail with pain when

there was no abscess, as proved by the speedy recovery of the patient. Sometimes, however, during abscess, a succession of rigors occurs, and often resembles ague. I have known them to occur sometimes at the commencement apparently of a case, but more generally a few days before death, when the abscess is large. By themselves, or with pain alone, they prove nothing, and even with pain and dysentery must be received only as an accessory symptom.

Some practitioners place so much dependence on rigors as to believe that their presence during hepatitis always denotes abscess. The supporters of this opinion are necessarily compelled to admit the possibility of abscess being often cured without discharge of pus—a very unlikely thing.

3. Cough and dyspnœa: I have nothing to add on this point to the remarks of authors; if abscess form gradually, there is often no cough, and no dyspnœa, although the lungs are pressed upon. Sometimes there is dyspnœa, or costal breathing without cough.

4. Percussion and manipulation afford very valuable signs. If (pleuritis being of course absent) the liver can be clearly felt, if there be hardness below false ribs on right side, emaciation, pain, and dysentery, abscess may in the majority of cases be diagnosed; the only disease I know of with which it can be confounded is enlarged liver, or malignant disease complicated with dysentery.

It must be remembered, however, that the parietes of the abdomen are often tense under the false ribs on both sides, and here it is in my opinion impossible to feel clearly the liver; this hardness of the abdominal muscles is not always owing to abscess. Moreover, I have recorded a case in which, for several weeks before death, and at all periods of the day, a tympanitic sound was given by an enlarged liver, extending for two inches below false ribs, and lying over a

distended stomach and transverse colon. On the other hand, I have been informed by a very clever surgeon in Madras, that he has seen cases in which the abscess descended for two or three inches below the ribs, and yet gave no hardness to the walls, and could not be felt, being in fact a complete yielding bag of pus.

5. Pus in urine or stools: The deposits in the urine called purulent, I believe not to be so in reality; pus in the stools is so common in chronic dysentery, that it is by itself a worthless sign. I have given one case in which I made a false diagnosis by depending on this symptom. The natives of India are peculiarly liable to these purulent stools.

6. Hiccup, vomiting, pyrosis, and flatulence: These are accessory signs of doubtful value; vomiting is sometimes present, but I think in the majority of cases it is absent. I have seen four or five cases, in which the liver, containing large abscesses, lay over the stomach, and yet there was no vomiting. Some writers say that inflammation of the inferior surface of the liver is attended by vomiting; this is certainly a mere opinion, unsupported by dissections. The most obstinate instances of vomiting and of flatulence which I have seen dependent upon hepatic disease, were cases of non-suppurative enlargement of the liver following duodenal hepatitis.

7. A dry, white, excited tongue, with enlarged papillæ, is a symptom much dwelt upon by Annesley. I have certainly seen this tongue several times, particularly when the dysenteric symptoms were severe; but in other cases, the tongue has been, as far as I could judge, perfectly clean.

8. Unusual tension of the right rectus muscle: I have already alluded to this sign. I am quite certain that in many cases of hepatic abscess no unusual resistance is given

by the right rectus. In dysentery, however, there is often some tension, either of the right or left rectus muscle, according as the principal seat of the inflammation is in the cæcum or sigmoid flexure. I have seen this tension very prominent in a case of phthisical diarrhœa in which there was extensive alteration in that part of the ilium, situated immediately under the muscle.

9. Inability to affect the mouth by mercury: I have elsewhere alluded to this statement.

10. Position of patient: It is only in the advanced stages, when the abscess is large, that the decubitus assumes a constant form; the position is on the back, or half way between the back and side, with the legs drawn up, and the body slightly turned towards the right. In cases of primary abscess, this position, and some peculiar look about the countenance, depending probably on the rapid alteration of the nutritive functions, often create the first suspicion of abscess being present.

11. Condition of the urine in hepatic abscess: I have already stated, that my observations are different from those of Conwell, Mouat, and many other writers, inasmuch as I attach little credence to those cases of purulent metastases, in which the pus of hepatic abscess is supposed to pass off with the urine. The statement made by Conwell, at page 49 of his work on the Liver, relative to the hepatic veins, is, I am certain, incorrect. In the great majority of hepatic abscesses, a cyst of various density encloses the pus, and if the pus be taken at all into the circulation, it is by absorption from the interior of such cyst, and not by means of open vessels. The turbid urine, resembling decoction of cinchona, is by no means a constant, though a frequent condition in hepatic abscess; it is not confined to this disease; when it does occur the turbidity is altogether

or nearly removed by heat, acetic and nitric acids, and appears to result from increased secretion of the mucus of the urinary passages, and not from pus. In general, in hepatic abscess the urine is copious and pale; or, if not copious, is still pale; the ordinary smell is lessened; the sp. gr. averages from 1004 to 1012; there is a neutral, or a faint acid reaction; there is no coagulation from heat or nitric acid, and tested by nitric acid and evaporation in any given quantity, the proportion of urea appears to be lessened, although I have not ascertained the degree of diminution, or what quantity is secreted in twenty-four hours.

These characters of watery and weak urine, without albumen, are very general. In some few cases I have seen the urine scanty and red, with a high sp. gr. and evident abundance of water; this is, however, uncommon, and is generally seen in small abscesses following fever, and complicated with disease of spleen, kidneys, and mucous membrane of small intestines, stomach, &c. The aqueous character of the urine is common to both primary and consecutive abscesses. It is, indeed, a very striking circumstance to observe, during primary abscess, large quantities of blood passing by stool, and a highly febrile and excited state of the general system, while the urine is pale and non-sedimentous. Often, in common acute dysentery, the urea does not seem diminished, as the sp. gr. ranges from 1015 to 1037; but here also the urea appears altered, rapidly decomposing, and causing the urine to become alkaline. In those forms of chronic dysentery attended with arrest of hepatic secretion, and liable to be followed by abscess, the urine is like that during abscess, pale, and with low sp. gr. In duodenal hepatitis, with cholecystitis, the urine is scanty, red, and of a high sp. gr., and with a strong acid reaction, as it is in the allied condition, jaundice.

At the time when I made many observations on the state of the urine in three or four cases of hepatic abscess, the urine of a healthy individual living on animal food, without wine or beer, generally gave for the sp. gr. of the morning urine, 1030 to 1036, and for the urine passed during the day, 1020 to 1028. These experiments were made during the hot season, with a high thermometrical range.

The experience of one observer is necessarily so limited, that I am afraid of drawing conclusions from these few observations; but I cannot refrain from making the remark, that perhaps it may be found that the suspension of the secretion of the liver, but not the interruption to the exit of the bile, is attended by a state of the blood in which urea does not pass off by the kidneys. Whether the urea be still n the blood is a point to be determined. In the remarks on the pathology of hepatitis I shall return shortly to this subject.

The obscurity which still exists regarding the development and diagnosis of primary hepatic abscess, appears to me to have arisen: First, from an opinion that a large abscess requires a long time to form, whereas I have often had occasion to believe that this may, under certain circumstances, form very rapidly. Secondly, from an imperfect examination of the type and progress of the accompanying dysentery, or symptoms referable to the large intestines. Thus Mr. Annesley, under the head of primary hepatic abscess, relates some cases in which antecedent dysentery was doubtless the real disease. I refer particularly to Cases XCII. and C.

In the sixth volume of the Calcutta Transactions is an exceedingly good paper on hepatic abscess, by Mr. Geddes. His observations, on the whole, agree with mine, with the exception that Mr. Geddes does not seem to attach an equal degree of importance to the dysenteric symptoms.

I cannot refrain from noticing, that Mr. Geddes had evidently observed the infrequency of acute hepatitis leading to abscess, as commonly described. Thus he says: "Inflammation of the liver has long been distinguished into acute and chronic, and there is reason for a distinction in the inflammatory diseases of this organ, although not from being, I am inclined to think, more or less atttended with inflammatory symptoms, as has been generally understood by these terms of acute and chronic, but inasmuch as one is an acute inflammation, occurring most probably in the peritoneal covering of the liver, and having a tendency to terminate in resolution or adhesion, while the other is only an occasional aggravation of a disease which has existed for some time, most probably in the parenchyma of this viscus, and which may continue its progress after the more inflammatory symptoms have been subdued. The latter, in short, is the disease under which inflammation of the liver most usually proves fatal."—(Calcutta Transactions, Vol. vi. p. 335.)

To return from this digression to the subject of hepatic abscess, I may observe, that I have not been able to classify Mr. Geddes' cases in a satisfactory manner. Thus, from the tables, I should say that Cases 4, 6, 16, 17, 19, and 25, are cases of abscess secondary to dysentery, while the others are referable to the two forms of hepatitis now described.

But when Mr. Geddes classifies the symptoms a different view may be taken. Mr. Geddes appears to consider the dysentery as always a mark of hepatic disease. He says, "It does not appear to me that we have in general any sufficient diagnostic indications to enable us to say whether the abscess is a cause or consequence of the former." (Loc. cit. page 290.)

Perhaps the obscurity of some of Mr. Geddes' cases arises from the state of the cæcum and colon not being

minutely noted: in many cases of secondary abscess, the ulcers in the colon cicatrize, and, unless this be known, such an intestine may be termed healthy.* How is it, otherwise, that many cases are stated in the paper to commence with dysentery, and in the table dysenteric symptoms are included, while the intestines are called healthy, or slightly diseased, as in Case 19?

Although, from the brevity of the cases, I am unable satisfactorily to classify them, yet Mr. Geddes makes some remarks which throw a light on the subject. He writes thus:—

"The large intestines appear peculiarly to sympathize with the state of the liver, and few of the above cases of abscess in this organ have been unattended with a disordered state of the bowels in some part of their progress. The degree, however, to which this disease has extended, the period of the abscess at which it has shewn itself, and the permanency which the dysenteric symptoms have exhibited after they have commenced, have considerably varied. In one class of cases the patient has been subject for some months or weeks to occasional attacks of dysentery, or had been affected severely once with this disease, sometimes accompanied with pain about the liver or abdomen; but as the affection of the liver became more prominent in the latter period of the complaint, the dysenteric disorder became less conspicuous, and the affection of the bowels was not a very urgent symptom at the death of the patient.† Such was the progress in eleven (Nos. 9, 10, 11, 14, 15, 16, 19, 20, 25, 26, and 27) of 26 instances of the disease, and the abscess in all of them, with one exception, where it

* Many of the recorded post-mortem examinations of abscess are incomplete on this account.

† These are evidently cases of secondary abscess.

was situated in the upper part of the left lobe, was found in the upper part of the right lobe. These afforded the most chronic cases which were met with, and presented the greatest number of admissions into hospital from the appearance of the first symptoms of hepatic disease till the fatal termination. The affection of the bowels in these cases is in general seldom of a very acute nature, or with difficulty checked for a time. The stools occasionally only vary from those of health in being more frequent and loose than are natural, and they are generally attended with either griping, or more frequently tenesmus, or with both of these affections. At times the evacuations were of a muddy greenish hue, or of a pale yellow, or greenish yellow, or a spinachy appearance, indicating, it is to be supposed, deficiencies or vitiation of the bile. In other cases the dysenteric disorder became more marked; the evacuations were streaked with blood, or had some blood or mucus upon their surface. Or, if the disease proceeded to a greater degree, they became more frequent, and were composed entirely of blood or slime, attended with pain of the belly, and other symptoms of acute dysentery. * * * *

"In another description of cases the fatal termination has evidently been accelerated, if not immediately produced, by the severity of the dysenteric affection. This has been observed in seven cases, in two of which the abscess was a solitary one, in the right lobe of the liver, and the remaining five composed all the cases which presented numerous abscesses in that viscus."*

"In the remaining two cases, both of which quickly ran their course, there was little affection of the bowels. The stools were more frequent than is natural, loose, and of an

* These were probably cases of primary abscess leading to dysentery, when the abscess had acquired a certain size.

unhealthy colour, chiefly of a dark, greenish, or greyish green hue." (Loc. cit. pages 323—326.)

Mr. Geddes concludes, from a consideration of all his cases, "there is ground for supposing that the liver, like the lungs, is subject to an insidious degree of inflammation, whereby pus becomes gradually procured within its structure." (Loc. cit. page 333.)

Mr. Conwell relates some cases at the end of his work on the Liver. More detail is given of these cases than of those of Mr. Geddes; consequently they are easily distributed under the proper heads, viz.—

Case 214. Primary abscess.
„ 215. Secondary abscess.
„ 216. Primary abscess, (perfectly latent.)
„ 217. Secondary abscess.
„ 218. Doubtful; probably primary abscess.
„ 219. Primary abscess, (latent.)
„ 220. Probably secondary abscess; but case shortly reported.
„ 221. Secondary abscess.
„ 222. Primary abscess, (nearly latent.)
„ 223. Probably primary abscess; case very shortly reported; hepatic disease latent.
„ 224. Secondary abscess.
„ 225. Probably secondary abscess.
„ 226. Secondary abscess.
„ 227. Primary abscess, (latent.)
„ 228. Primary abscess, (latent.)
„ 229. Doubtful; probably secondary.
„ 230. Not a case of abscess, but very similar to one I have reported in this section. (See Case VIII.)

Case 231. Secondary abscess.

„ 232. Not a case of abscess, but similar to No. 230, viz. chronic hepatitis, producing enlargement of liver, complicated with chronic dysentery.

That these cases confirm my views of the two chief forms of abscess, I think no one can doubt after a careful perusal of them. As, however, I had written my description of these two forms before I read the works of Mr. Geddes or of Dr. Conwell, I am to a certain extent open to the charge of classing the cases according to a preconceived arrangement.

I must remark that, judging from the reports, almost all the cases of primary abscess recorded by Dr. Conwell appear to have been latent; that is, such symptoms as pain in the region of the liver or shoulder, and great enlargement of the side, are not mentioned, while the emaciation and dysenteric signs are always noted.

I refer particularly to Cases 216, 219, 222, (in which case hepatic pain is mentioned), 223, 227, and 228. These are all, or nearly all, the cases of abscess recorded in a work written especially on the subject; there is evidence that they originated in the way I have described, and not, as usually supposed, as the sequences to an acute, well marked, unchecked inflammatory enlargement of the liver.

Hepatic abscess may, therefore, be distributed under the following heads:—

1. As consecutive to dysentery—a very common complication, or to remittent fever.

2. As supervening in the course of the chronic hepatitis which I have now described. In this rarer case it com-

plicates itself usually with diarrhœa or dysentery, or hectic fever.

3. As supervening on a low, insidious, or perfectly latent form of primary inflammation of the liver. In this case it generally combines itself with dysentery, but not universally.

It is necessary here to recapitulate shortly the diagnosis of primary hepatic abscess.

In some cases this is comparatively easy: thus, if there be pain and enlargement of the liver, as evidenced by increased dulness on percussion, by hepatic cough, and by the edge being felt below false ribs; if there be gradual emaciation, and hectic or irregular intermittent fever, combined with occasional attacks of dysentery of a certain kind; or with constant diarrhœa, if the disease be advanced; then abscess may be diagnosed with tolerable certainty.

But, as I have seen in three or four instances, there may be very acute pain in the side, and enlargement, with rigors, indicative merely of congestion and enlargement of the liver. In fact, these signs are worthless apart from the condition of the large intestines.

Far more difficult cases arise when (during primary hepatitis) there is no pain in the side, but merely dysentery and diarrhœa, and gradual emaciation. The type of the dysentery is now of infinite importance, and has been already described; the urine is usually clear: there is sometimes a dark and sallow hue about the face or surface generally, but occasionally the colour of the skin is perfectly natural. The pulse is quickened at some periods of the day, and there are at times great perspirations, and generally a clammy feeling of the skin. There may, again, be accessory signs, as vomiting, hiccup, dry or mucous cough, &c.

The diagnosis does not derive its certainty from the

mere presence of the signs, but from their mode of combination and succession; and when these are properly considered, few cases will remain in which there can be any doubt about the real state of things. Enlargement of the liver (chronic hepatitis) may arise from, or complicate itself with, dysentery, and then results a certain obscurity about the case. (For some remarks on this point, see page 23, Case VII.) If the abscess be small and circumscribed, dysentery may not be present, as is proved by two or three cases presently to be detailed. I have found that in these cases there is more constant pain over the suppurated portion of the liver; but still there is much uncertainty as to diagnosis.

While on this subject, I may remark, that the presence and the kind of bile in the stools is very difficult to determine. The yellow stools, which are present when the bile is not secreted, as proved by finding only a small quantity of red fluid in the gall-bladder after death, or is not permitted to pass, as when an abscess compresses the ductus communis choledochus, cases of which I have dissected, seem to derive their colouring matter from the pancreas, or from Brunner's glands, or from the general mucous membrane of the duodenum, which is generally stained yellow after death.* The reason which has led me to think that this yellow matter is secreted by the pancreas is, that when the stoppage of bile arises from this organ being itself diseased, perhaps scirrhosed, and pressing on the gall-duct, then the stools are throughout the disease perfectly colourless: and this may, perhaps, be hereafter proved

* I am aware that the pancreatic fluid is usually stated to be colourless (Tiedemann and Gmelin): in the cases referred to above it is probably in an abnormal condition.

to be a good diagnostic mark in obstructive pancreatic disease.

Again, I have observed, with Annesley and Twining, that the cystic duct may be compressed or obliterated, and yet the stools appear to be as regularly bilious as usual, from the bile which passes through the hepatic duct. And in one case, in which the gall-bladder, thickened and hypertrophied, was firmly contracted round a large pyramidal gall-stone, which also filled completely the cystic duct, there had not even been constipation or jaundice, or apparent deficiency of bile in the stools.

The black, tarry, evacuations have of late years been considered to come from the intestinal mucous membrane; the chief cases I have dissected, in which evacuations of this kind occurred, were cases of remittent fever, and here the liver was much enlarged and congested, while the alimentary mucous membrane throughout its whole course was natural, or with mere patches of vascularity. The black stools probably came from the minute structure of the liver, and passed at once into the common duct without entering the gall-bladder. The black, coffee-grounds-like matter, which I have seen vomited in dysentery, comes evidently from the dark striated vessels occupying the bottom of sloughing ulcers in the colon.

Again, it is a very common thing in hepatic abscess, as in dysentery, to call a loose yellow stool, containing certainly a large quantity of fæculent matter, healthy: this is a mistake which apparently often occurs, and the medical attendant is perplexed at the slow convalescence, or at the sudden recurrence of acute symptoms. The mere absence of mucus or blood, and mere presence of hepatic bile, does not constitute a healthy stool; some degree of solidity is also necessary.

Cases sometimes occur in which the patient states that the bowels are regular: when more closely investigated, however, the number of stools is found to average three, four, or five in the twenty-four hours, and when examined they are found to be pasty, watery, yellow, or greenish yellow, as already described. From all I have seen I cannot but think that cases of great suppuration never can and never do occur without some signs derived from the large intestines. The exceptions to this rule will be evident from my whole course of reasoning on this subject. If the abscess be small, circumscribed, and out of the way, so that healthy bile is still secreted, then dysentery may be absent. Here we have the converse of the proposition discussed in the article on Dysentery, viz. that universal suspension of the normal action of the cæcal and colonic mucous membrane is the cause of hepatic abscess.

The suspension of hepatic secretion must be complete and rapid, in order to produce true dysentery; that is to say, mere obstruction slowly arising, as from gall-stones, inflammatory thickening of duodenal mucous membrane, enlarged head of pancreas, or tumors pressing on ductus communis choledochus, will not suspend the secretion; they may interrupt its exit, and then nature endeavours to remedy it by absorbing the bile, still secreted, into the circulation: hence jaundice results.*

* I have never seen any reason to believe that the non-secretion or the non-separation of the bile from the blood will produce jaundice. I have never seen jaundice in any case of hepatic abscess, and, in fact, in no case in which secretion has been totally arrested. I therefore, with all respect, differ from those pathologists who suppose that the liver merely separates the biliary principles from the blood, as the kidneys do urea. In these cases of complete suspension of secretion, cephalic symptoms are uncommon, contrary to what we should expect, if the opinions of Dr. Alison be well founded.

In abscess there is seldom any jaundice, as either there remains a free exit for the bile, or else secretion is totally arrested.

I have already stated that pus in the urine is a very fallacious sign of hepatic abscess. I have seen many cases of abscess without it, and seen it apparently in enlargement of liver without abscess.

If my observation on the diminution of the urea be correct, the condition of the urine will become a very important diagnostic sign.

Mr. Annesley states, that the occurrence of night perspirations, with clamminess of the skin of the extremities, is one of the most certain signs of the formation of internal abscess: and, taken in connection with the dysenteric symptoms, they are valuable accessory signs. But I have seen abscess occur with a constantly dry, harsh, hot skin; and in the section on Dysentery I have recorded a case in which the skin was unusually clammy, and there were shivering and nightly perspirations, without abscess.

To sum up the diagnosis of abscess: its presence is to be detected by the type and progress of the accompanying affection of the colon, assisted by various signs referable either to the liver, which are not constant, or to the general implication of the constitution.

If this view prove to be correct, the diagnosis of hepatic abscess will acquire great certainty and precision. If the dysentery, or diarrhœa, be merely an accidental circumstance, occurring in some cases only, which is the general opinion, then, when abscess is latent, and percussion discloses no sign, I do not think its diagnosis can be anything beyond a lucky surmise.

The diagnosis of hepatitis leading to enlargement and not terminating in abscess, is a simple matter, when uncom-

plicated. If the history of the disease be made out, pleuritic effusion can never be mistaken for it, even without the stethoscopic signs, which are themselves decisive. Disease of the colon sometimes causes a fallacy, as will be presently noticed.

When hepatitis is complicated with pneumonia of the right lung, or with pleurisy, the diagnosis is more difficult, or indeed impossible, unless abscess occur, when the dysenteric symptoms may afford some clue.

Enlarged liver, causing swelling in the side, cannot always be distinguished from pleuritic effusion by the equal distension of ribs and intercostal muscles, for, as remarked by Dr. Copland, the ribs may press and indent on the liver; but if the liver be thus enlarged it can generally be felt in the abdomen, and the general signs and history of the case will distinguish this from displacement consequent on pleuritic effusion. But it must be remembered, that an enlarged liver will sometimes cause no projection of the side, but will push up the lung and encroach on the cardiac region without descending into the abdomen. These cases can hardly be mistaken when the general history is compared with the auscultatory signs. In hot, as in temperate climates, a sharp pain low down on right side, suddenly arising, is more often attributable to pleurisy than to hepatitis.

One of the most difficult cases I have ever seen was one in which hepatic abscess was complicated with phthisis and with enlargement of the bronchial tubes. Here the affection of the bowels was considered symptomatic of the thoracic disease; however, from the occasional appearance of the stools, and from there being evident enlargement of the liver, the abscess was suspected before death.

Before quitting the subject of the symptoms and diagnosis of hepatic abscess, I must again repeat that I have

endeavoured to describe only what I have myself had opportunity to observe. I have seen some cases in which, from the sharp pleuritic-like pain, without much biliary derangement, the surface of the liver seemed to be affected; but I have not verified this by post-mostem examination, and have, therefore, left it undescribed. In Mr. Annesley's great work is an excellent and elaborate description of hepatitis. Although I have described this disease in a somewhat different manner from that able physician, any person may see that Mr. Annesley has taken nearly the same view of the chronic nature of the disease in many cases, and of the insidious structural inflammation, that I have done.

Thus he writes: "The most dangerous form of hepatitis, namely, that seated in the internal structure of the liver, often proceeds with a silent activity to an almost irremediable length, without evincing a single acute symptom."—(Vol. 1, page 580.)

And again: "We well know that inflammation of the liver, when attacking chiefly its internal structure, is an extremely silent and insidious disease, assuming often the appearance of dysentery."—(Vol. 1, page 589, 590.)

Dr. James Johnson mentions a good instance of primary declared hepatic abscess. In this case attention was at once drawn to the liver by the acute pain in the side. There was also dysentery, of the kind above described. This case accords with some I have seen, which seem to indicate that when dysentery is excited by the same cause as hepatic abscess, this latter disease is not generally so latent as in those cases in which the colonic disease is attributable to the abscess alone.

The following propositions I insert here as a summary of some of the opinions I have advanced differing from the common views of writers:—

1. The state of liver, congestion of it, depraved function of it, which gives origin to gall-stones of different kinds, is different from the state which leads to abscess.

2. The state giving rise to enlargement, and occasionally, but more rarely, to abscess, appears, from a consideration of symptoms, to be a sequence of, or to be allied in some way with, disease in the duodenum and stomach.

3. The state leading to hepatic abscess is generally in some part of its progress allied to dysentery; most commonly dysentery precedes it; at other times follows it. The occurrences of pain in the right side and shoulder, with rigors, are valuable diagnostic marks, in so far as certain dysenteric symptoms are present or absent. By themselves they are inadequate to prove abscess.

The exception to this statement occurs when hepatic abscess is small and circumscribed, not interrupting secretion.

4. The process in the latent hepatic disease appears to be peculiar, the inflammation seems to be atonic, and sometimes there is no enlargement of the liver.

5. The enlargement of the liver in malignant remittent fever appears to have been sometimes described as acute general hepatitis.

6. General inflammation of the structure of the liver, causing great enlargement, pain, and pyrexia, leading rapidly to abscess, and apart from dysentery, or aggravation of the chronic form, is a rare disease.

Before proceeding to the detail of the anatomical appearances of hepatitis and hepatic abscess, I shall subjoin a few cases to illustrate my position. I cannot spare space to insert many cases; and as both Annesley and Twining have given many instances of the slighter and curable forms, an insertion of cases of cured hepatitis would be an unnecessary recapitulation. I shall give three or four cases of

primary abscess, two or three of abscess following remittent fever, and a case or two of enlargement of liver presenting peculiar symptoms.*

Case I.—J. C., æt. 23: died Oct. 5th, 1844.

Latent insidious hepatitis, first manifesting itself by dysentery.

This man I saw on the night of October 4th, 1844, when for the first time he complained of severe pain in the right side. Although previously hepatic disease had not been suspected, yet from the type of the accompanying dysentery, and the signs of enlargement of the liver, there was a certain diagnosis of hepatic abscess. He died in two or three days after this. The following is an abstract of the case.

This patient was in hospital in July 1844, for four days, with slight dysentery; first, slimy and bloody stools, which were natural three days after admission. After discharge he felt occasional pain in the side when he had been walking far; he used to take a great deal of exercise, and was rather addicted to intemperance. The pain in the side was never of long duration. On the 20th September he was admitted into hospital for diarrhœa. He had griping pains across the abdomen; the stools were mucous, and apparently scybalous, for a day or two; afterwards they became in appearance fæculent, but yet were yellow, liquid, and averaged a good many per diem. Sometimes he had no purging for twenty-four hours, and the following twenty-four he would have twelve or twenty stools. His appetite remained; there was no vomiting, and no pyrexia. On the 1st of October he had what was considered an attack of ague; on the afternoon of that day he had a shivering fit, followed by heat and great diaphoresis; he took quinine,

* At page 59 is described another instance of latent primary abscess.

and after recurring every afternoon for three days, this irregular ague ceased. On the night of the 4th October he was suddenly seized, for the first time, with severe lancinating pain in the right side. When seen the pulse was full, but very compressible: 120. There was increased dulness on percussion over the liver, and the liver gave a hardness to the epigastrium and hypochondrium for two inches below ribs on right side. The right rectus muscle had not more tension than the left; the tongue was clean; the urine not noted; the stools were thin, yellow, and inodorous; there was no vomiting or hiccup. Next day he was dying, and expired on the following day. Salivation had been produced, and the mouth three days before death was still excessively sore.

Sectio Cadaveris, ten hours after death.

Head: not examined.

Chest—Lungs: right lung natural, dark with blood, which seemed to stain the tissue; not much blood in the minute texture; no pleurisy; no adhesions.

Left lung: as dark as the right; bronchial mucous membrane of a dark red colour.

Heart: walls flaccid, cavities not contracted; some loose dark coagula in right ventricle; lining membrane, and also substance of heart, stained darkly red. Valves healthy; also stained red.

Abdomen: liver much enlarged, reaching across stomach and for two inches below ribs, apparently pushing up diaphragm also. In taking it out, a large abscess on the under surface was ruptured, and about half a pint of thick laudable pus flowed out. The cavity of this abscess was first examined; when distended it must have been

three or four inches in diameter; an irregular, slightly honeycombed, or reticulated layer of lymph, lined it, and in some parts it was slightly spongiform. The surrounding hepatic substance was for two or three lines of a very dark red colour, and hardened. Although at the place where it had opened it was only about a line from the surface, no lymph had been effused externally, and there was no adhesion with surrounding parts.

On the upper surface the colour of the liver was a sulphur yellow in most part of the extent. Towards the right of the organ, however, it became very dark, and there was a bulging of the surface, and fluctuation. Another abscess was denoted by these appearances, and when cut into about one pint and a half of laudable, thick, creamy pus flowed out, as in the former case. The cavity was very singular, and seemed to have been formed by three or four abscesses, each about the size of an orange, opening into each other. There were irregular septa or dissepiments, and the lymph forming the cyst was imperfect, slightly honeycomb, and with small nodules of firm adherent lymph here and there. The hepatic substance, for three or four inches beyond the abscess, was exceedingly dark; there was no gradual transition of this dark colour into the pale substance, but a well defined line marked the boundaries of each. Some bile was seen staining the portal canals. The left lobe was enlarged, very pale and granular, exuding no blood. In some parts of the right lobe there was evident congestion in the hepatic veins, forming dark points, surrounded and isolated by large spaces of a pale yellow colour.

Gall-bladder flaccid; about two drachms of pale brownish, not transparent, but turbid watery bile: no crystalline particles in it.

Reagents :—

Nitric acid, in small quantity, gave a dark purple colour, and small particles formed on side of the vessel; in larger quantity, clear red solution. Liq. Potass added, still solution, but less red.

Muriatic acid: dark green in small quantity, light green in large quantity. Potass added, green still lighter.

Liq. Potass.: green, in larger quantity, a solution formed with difficulty.

Alcohol: precipitated a flaky mucus-looking precipitate, which at the same time acquired a yellow tinge: heat applied to this did not dissolve it.

Pancreas: pale, not hardened, apparently quite natural.

Spleen: rather large, soft; on section softened; much soft strawberry-jam like substance; when a thin slice was washed, this was all carried away, and the trabecular structure left unusually distinct.

Kidneys: moderate size. Right kidney, only one pyramid seen, rest of substance white and streaky. Left kidney, two or three pyramids seen; rest of substance streaky.

Stomach: natural, containing some brown fluid, like washings of dark putrid meat; mucous membrane with some dark arborescent streaks in great cul-de-sac.

Small intestines: duodenum ash coloured; Brunner's glands not seen; not one solitary or agminated gland visible. In lower part of ilium some vivid patches of arborescent redness; no softening of mucous membrane.

Cæcum and colon: five or six healed ulcers in cæcum; mucous membrane dark ash coloured; ulcers irregular in shape; margins dark and puckered: in ascending colon, mucous membrane ash coloured; numerous glands could be seen, darker than surrounding membrane, not enlarged

or prominent. In transverse colon same appearances, only one or two glands were larger, more transparent, and had a dark central spot. In descending colon mucous membrane in patches red, but not much so; not softened: same appearance of small glands, darker than the surrounding ash-coloured membrane, with sometimes a dark circle round them. If healed ulcers, cicatrices could not be seen.

Case II.—M. C., æt. 23. This was a case precisely similar to the last, with the exception of pneumonia of the lower lobe of the left lung complicating the termination. The patient was admitted June 26th for dysentery: he had no pain in the side for a month after admission. The stools were not truly dysenteric, but were numerous, yellow, fluid, streaked with blood, and decreased in number before death. Before death the pain in the right side and shoulder was severe, and there was hardness of the abdominal walls without any increased dulness on percussion. He died August 28th, 1843.

Examined five hours after death.

Head: not examined.

Chest—Right lung: weight 9 oz., healthy; small; no pleurisy or pneumonia.

Left lung: weight 15 oz., lower lobe hard and enlarged; on section found to be in a state of hepatization; non-crepitant and sinking in water: no pleurisy.

Abdomen—Liver: six abscesses occupied the substance of the liver. They varied in size from a small apple to a size capable of holding a pint of pus; the pus was thick, creamy, and yellowish; the cysts were thick, rather dense,

and honeycombed, and reticulated internally; the rest of the liver was dark, but on section exuded no blood.

Spleen: weight 6 oz., contracted and very hard.

Pancreas and kidneys: apparently healthy.

Stomach and small intestines: perfectly healthy.

Cæcum and colon: patches of congestion, and capillary redness here and there in the course of the colon, and marks of small healed ulcers.

I do not feel certain that doubts may not be entertained regarding the connection of the two diseases in this case, although the course of the symptoms was not like consecutive abscess.

Case III., W. R., æt. 25. This was a case of hepatitis and abscess following malignant remittent fever, and uncomplicated with dysentery. The patient recovered from a most severe attack of fever in December 1842: the symptoms of his case will be considered in the proper section. After discharge he began to experience a dull aching pain in the side, which gradually increasing, in the course of three months he was readmitted for hepatitis. He was bled, leeched, blistered, and profusely salivated two or three different times. The pain in the side became dull, heavy, and dragging, and there ensued a slight dry cough, which being referred to the liver excited no attention, and no stethoscopic examination appears to have been made. After being in the hospital from June to August 1843, he still suffered from pain, had become much emaciated, and had hectic fever: the bowels were always constipated. On the 25th of August he complained of sudden acute pain in the abdomen, which was attended by great vomiting and hiccup; at this time I saw him,

and diagnosed rupture of hepatic abscess into peritoneum. In three days this pain subsided, and there remained only tenderness, which likewise subsided in two or three days; he remained without alteration for eight days, when he died rather suddenly.

The cause of the absence of dysentery is probably to be found in the fact that the abscess was single, small, circumscribed, and situated on the anterior and superior surface of the right lobe; the rest of the liver was tolerably healthy, so that much secretion went on.

Sectio Cadaveris, eight hours after death.

Head: not examined.

Chest—Lungs: compressed by the ascent of the diaphragm.

Left lung: collapsed, pale, œdematous, and pitting: some tubercles in upper lobe.

Right lung: lower lobe universally and completely engorged; hard, dense, dark, and red coloured, in a state of very intense inflammation. On taking out the lung slight adhesions to the diaphragm were broken through. On section the whole lower lobe presented the appearance of acute pneumonia in the second and third stage. A number of small circumscribed collections of lymph were cut through; when sponged away the section presented a number of round minutely tuberose elevations of lymph very close together, and connected by very dark red dense pulmonary tissue; these elevations were more like dense tubercles, partially softening in the centre, with lymph effused around them from supervention of acute pneumonia. In the upper lobe were two or three smaller depositions

of this tubercle or lymph, also with partial softening in the centre of each mass of lymph. In the apex of upper lobe was an external irregular puckering, and beneath a small hard cretaceous body. In the left lung were some tubercles of the ordinary kind, and a puckering and cretaceous deposit.

Abdomen: on opening abdomen a quantity of red, turbid fluid escaped; and the intestinal and parietal peritoneum were seen to be in a state of dark inflammation, with deposition of soft flaky lymph. The lymph was in some places in thick masses of a dark red colour, as if partially organized.

Liver: somewhat enlarged, and dark in colour; an abscess existed on the superior and anterior surface of the right lobe; the boundaries of this were the substance of the liver and lymph effused in it, the walls of the abdomen, the falciform ligament, and effused false membrane. The abscess had opened into the abdominal cavity, and had excited the peritonitis. The lining membrane of the abscess was exceedingly dense, and with small hard granulations on the interior. It was at least four lines in thickness; this was the only abscess, and the rest of the liver, though rather dark and congested, was not apparently very much diseased.

Spleen: healthy.

Kidneys: healthy.

Stomach and intestines: perfectly healthy.

Case IV.—D. M., æt. 20. This was also a case apparently secondary to severe bilious remittent fever. It was complicated throughout its whole course with dysentery. The pain in the side was constant, but not severe; there was some hardening of the abdominal walls. If the dysentery was not coetaneous with the hepatic affection, it rapidly succeeded it.

Examined, 8th November, 1843.

Head: brain quite healthy; a small quantity of fluid in left ventricle.

Chest, lungs, and heart: perfectly healthy.

Abdomen—Liver: considerably enlarged; studded with a number of large abscesses, containing a curdy purulent matter; these abscesses existed both on the superior and inferior surface; they had honeycomb linings of fibrine.

Spleen: in one or two places containing a deposit of a white cheesy matter; otherwise apparently natural.

Kidneys: healthy.

Stomach and small intestines: small vascular patches in great cul-de-sac; upper part of duodenum very vascular; rest of intestine healthy.

Cæcum and colon: cæcum much thickened, containing numerous small round ulcers with thickened everted edges.

Ascending and transverse colon: tolerably healthy; some enlarged glands seen in sigmoid flexure; rectum crowded with large round ulcers, with red nodules and masses of lymph on them.

Case V.—J. H., primary and latent abscess, manifesting itself by dysentery. A man of weakly habit; had been sickly and losing strength for some time before admission in June, 1843. When admitted, complained of frequent desire to go to stool, with impossibility of passing anything, and great tenesmus. There was only slight tenderness over sigmoid flexure. After the first application of leeches, the abdominal pain disappeared, and from that time there was not the slightest pain or uneasiness over any part of the abdomen. Although the abdomen was carefully examined twice a day, neither the liver or colon gave the slightest

marks of tenderness. The stools consisted of nearly pure blood throughout the illness; there was a little slime at the commencement, but this soon disappeared. Six days after admission he passed a piece of lymph, or inspissated mucus, so like mucous membrane, that its real nature was only discovered on post-mortem examination. The purging was never arrested for a moment, but the tenesmus disappeared altogether. The urine was pale, non-albuminous, and transparent, with a sp. gr. ranging from 1008 to 1015. He died in sixteen days. He had never been in hospital for dysentery; nor were his comrades aware of his ever having complained of bowel complaint.

Sectio Cadaveris.

Head: weight of cerebrum, 3 lbs. 1 oz. 2 drs.; cerebellum, 7 oz. Some congestion of posterior veins of pia mater; about 1 oz. of clear serum in occipital cavities; a little reddish serum in lateral ventricles; nothing morbid in either cerebrum or cerebellum.

Chest: right lung weighed 1 lb. 2 oz. 4 drs.; left lung, 1 lb. Congestion; serous effusion; nothing else abnormal.

Heart: weight, 8 oz. 6 drs. Coronary veins a little congested; walls flabby; valves healthy.

Abdomen—Liver: weight 5 lbs. 5 oz. There existed throughout the whole substance of the liver an immense number of circumscribed abscesses: as many as fifty-six, varying in size from a small nut to a large bean, were counted on the upper surface before removing the liver; the liver had a mottled appearance externally, from minute injection of some part of the surface, while at other parts there was a degree of pallidity; most of the abscesses were situated in the injected part, some few were in the pale portions, and

had no appearance of inflammation round them; these, however, were of the smaller kind; on section of liver many abscesses were cut through, similar to those on the surface; two or three of these had united and formed a large cavity; each abscess was round, and with a cyst which was interiorly cellular, and somewhat honeycomb, and had on it a deposit of granular lymph: each cyst was surrounded by injected hepatic substance, and was about a line in thickness. On the surface, the abscesses were covered by the serous coat, and by two other tunics, the external of which was with a little care dissected off, leaving a thin membrane, probably the cyst itself.

Gall-bladder: much contracted; the small quantity of bile in it was dark and thin.

Spleen: weighed 5 oz. 5 drs.; pale.

Right kidney: weighed 5 oz. 4 drs.; natural. Left 5 oz. 4 drs.; natural.

Stomach: apparently healthy.

Small intestines: upper part of duodenum red, and covered with a yellow secretion, similar to those stools commonly called bilious; mucous membrane very red; glands all enlarged, both on the valvulæ conniventes and between these folds.

Jejunum and ilium: enlargement of Peyer's glands; some patches appeared to be becoming ulcerated; the ulcers, which were exceedingly minute, seemed to commence on the patches round the dark spots which are almost always exhibited; the body of the gland was in these cases slightly raised above the surrounding membrane; the mucous membrane was not much reddened; there was some venous congestion, apparently cadaveric and hypostatic, and round some of the glands was a blush of ramiform and capilliform dark injection. One or two of the glands were minutely reddened; glands very evident in cæcal portion of ilium.

Cæcum and colon: see Case IV. page 21, of Section on Dysentery.

Case VI.—J. R., seaman; abscess following remittent fever. This man was seized in July, 1844, with bilious remittent fever. He belonged to H.M. brig "Pilot," which was at that time lying in Moulmein River. The fever was severe, and was attended with a deep yellow tinge of skin and conjunctivæ; there was no vomiting, and no pain in hypochondria, but the stools were frequent and dark, and there was tenderness over sigmoid flexure; after a few days a low muttering delirium came on; three scruple doses of calomel were administered, but he was not salivated. During the delirium, and some days after the discontinuance of the mercury, there occurred a sloughing ulcer of the cheek, which proceeded to lay bare the maxillary bones of the left side to some extent. Having rallied from the collapsed stage he was sent on shore, and now came under my care, August 29th, 1844. At this time his chief complaint was necrosis of the upper maxillary bone, following the sloughing ulcer which had also exposed the lower jaw. I made a careful examination of the liver and spleen, but could not detect any enlargement; the stools and urine were natural, and though he was very weak and emaciated, with several bed sores, and a feeble rapid pulse, I thought the prognosis was favourable, except as regarded the ultimate effect of the necrosis. His diet was carefully regulated, and he took no medicine. In a few days the ulcer began to look healthy, granulations sprang up, and the general health improved.

On the 28th of October, two months after admission, the general health was very good; he had gained flesh and strength, could walk for some distance morning and evening; some bone had come away, and three or four teeth, and the sore was looking healthy, and contracting.

On the 3rd of November, however, the report mentions that he complained of load and weight at duodenum, and that "there is some tenderness there, and over liver generally."

On the 16th November, the report says, "altogether, this man is not so well; the bowels are loose, and the appetite not so good."

24th Nov. "Some more bone is coming away, and the general health is of course suffering. Purging occurs from time to time, and for the last four days there have been some signs of hectic."

11th Dec. "The health is gradually declining; there is no pain, and no apparent enlargement of the liver, but there is emaciation, and every two or three days attacks of bloody diarrhœa. It appears as if abscess were forming in the liver."

13th Dec. "Six brown and bloody stools in last twelve hours; greater hardness over spleen than elsewhere, but spleen cannot be felt; no pain in shoulder."

14th Dec. "Numerous stools last night; a mixture of yellow brick-dust fæculence with slime and blood."

15th Dec. "Six scanty and loose grumous stools mixed with blood last night; no enlargement of liver or spleen can be felt by the hand, but there is a hardness of the abdominal walls in both these situations. Is rapidly losing strength and flesh. The urine is pale and clear. It was not analysed.

16th Dec. "Diarrhœa and debility increasing; motions brownish and loose; some increased dulness on percussion over liver."

17th Dec. "Numerous stools last night, loose, brown, not beaten up, or yeasty; general tenderness all over abdomen; tongue red and glazed: skin dry, with occasional diaphoresis; no pain in shoulder; at times uneasiness in right side.

Diagnosis: Erythematous inflammation of mucous mem-

brane of small intestines; solitary glands of cæcum and colon inflamed, enlarged and ulcerating; enlargement and softening of spleen; enlargement and congestion of liver, probably abscess.

Prognosis: very unfavourable.

21st Dec. Much worse; many copious, bloody, and brownish variegated stools; much hardness below false ribs on each side.

24th Dec. Sinking.

26th Dec. Died.

On the 23rd I was sent away on duty, and therefore did not witness the post-mortem; it will be seen that, with the exception of induration, instead of softening of the spleen, it verified the diagnosis.

Sectio, six hours after death.

Head: not examined.

Thorax—Lungs: healthy.

Heart: natural.

Abdomen—Liver: very much enlarged, hard and strongly adhering to diaphragm; on section, a large abscess, containing almost a pint of yellow pus, was found in the convex portion of right lobe; the walls of the abscess presented a reticulated appearance, and the surrounding tissue was dense and dark-coloured for a short distance; remainder of the liver rather pale.

Gall-bladder: small and contracted.

Pancreas: natural.

Spleen: much enlarged, and slightly indurated.

Kidneys: healthy.

Stomach: much contracted; on section a small quantity of a green fluid was found in it.

Small intestines: much hæmorrhagic congestion of mucous coat of ilium.

Large intestines: patches of ulceration of different sizes through the entire course.

Case VII.—F. S., an European soldier; æt. 24 (Madras artillery.) This was the only case I have ever dissected in which the abscess,—a central one,—appeared to be contracting. I cannot, of course, feel certain that the process of absorption of pus was going on, but it appeared so. The patient died ultimately from inflammation of the bladder.

Admitted first on 12th January, 1845, with dysentery and pain in the right side, which came on very suddenly, and which he attributed to exposure, a few days before, to cold, when his house was burned by a fire which burnt down the Artillery Lines. In consequence of the exposure on this occasion, bowel complaints became rather common among the European artillery. The pain in the side was severe on first admission, and was treated with active depletion; the stools were rather sanious, and attended with much tormina and tenesmus. He was discharged convalescent in a fortnight, and was sent to side-arm duty. During the time that the dysentery was severe there had been painful micturition, but this left him as the purging abated.

Jan. 18th. Readmitted, with constant desire to go to stool of a peculiarly distressing kind; motions fæculent with frothy mucus; some tenderness on pressure over region of liver.

On the 20th, blood appeared in the stools, and there was much straining; he passed urine with difficulty; tenderness over both cæcum and sigmoid flexure. After this period he was very actively leeched.

23rd. The pain in the region of the bladder and cæcum, and sigmoid flexure, continues; stools loose, granular,

sanious, and mixed with meat washings; micturition impossible. Injections of cold water, of opium, ipecacuanha, and acetate of lead, were employed to relieve the tenesmus, without benefit. He states that it is only the effort to pass urine which produces tenesmus. What urine is passed is mixed with the stools.

25th. Complains only of pain over the bladder; no fulness there; passes urine easily, but directly it has flowed out he has an inclination to pass it again; stools frothy, fæculent, with mucus and blood passed distinct from the fæculence; pulse very quick and weak; constant perspirations; vomiting; face pale, and expression remarkably anxious.

On the 27th he was sinking fast, and died on the 28th.

Sectio Cadaveris.

Head and Thorax: not examined.

Abdomen—Liver: structure dense, and paler than usual; not softened; no appearance of disease externally. On making a section through right lobe a small abscess was found. It was of a round shape, about the size of an egg, and contained about an ounce, or an ounce and a half, of creamy pus, mixed with a thinner flocculent substance. The abscess did not appear to be distended to the utmost, as is usually the case, but the walls were flaccid; there was a cyst, with thickened parietes, and its inner surface roughly granular; round it the hepatic substance was dense, and minutely red. This was the only abscess in the liver. From the contracted walls, from the isolation of the abscess, and from the mixture of a serous fluid with the creamy pus, it was conjectured that in time the whole of the contents of the abscess might have been removed, and then, if the

walls of the cyst had come in contact, a cicatrix, unconnected with the surface, would have been found.

Stomach and small intestines: perfectly healthy.

Spleen and pancreas: small, normal.

Cæcum and colon: covered with large irregular ulcers; most of them healed, being covered with adhesive lymph on a level with surrounding membrane. In rectum there were some large recent ulcers.

Kidneys: much congested; blood issuing on section: otherwise healthy.

Bladder: coats immensely thickened; inner surface covered with ulcers and masses of whitish and greyish lymph; much lymph between coats, and the mucous membrane was entirely removed. The disease was evidently of some standing.*

Case VIII.—H. H., European; æt. 36. This was a case of primary declared abscess situated on the superior surface of right lobe. It happened, indeed, to have commenced either on the surface, or immediately below. Very little of the hepatic substance was destroyed, and secretion still went on, as was denoted by the gall-bladder containing a normal quantity of bile. According to the view I have taken of the cause of dysentery attending abscess, dysentery ought to have been absent in this case. And this, indeed, was the fact. This was the only case I have ever dissected in which puncture of the liver might have been successful.

The early history of the case is not known. The man

* In this case the hepatic affection was evidently simultaneously developed with the dysentery, and the formation of abscess was attended with more pain than in most cases of primary abscess. Some cases have led me to suspect some relation between the pain in the side of abscess, and the state of the colon.

had been ill for some time, suffering from pain in the right side and the top of the right shoulder; he had pain also in the epigastrium, and some nausea and vomiting,

I saw him in the early part of August, 1845. He never had dysentery; he had suffered from pain in the right side for some months. He could assign no cause for it. There appeared to be some bulging of the ribs on the right side, and there was pain when the finger was pressed with force on the intercostal spaces at this point; there was pain also along margins of ribs. There was no cough, and respiration was heard low down on the right side. There was certainly not much increased dulness over the liver; there was no tension of the abdominal walls, and the liver could not be felt below the false ribs. There was a very considerable degree of emaciation; the skin was pale, sallow, and moist; at times, and particularly at night, there were cold sweats and shivering; there was no jaundice; he could lie on the right side, but preferred lying on the back; there was a coppery taste in the mouth; the tongue was pale and sodden; pulse 80, of moderate volume; the bowels were usually confined, and the fæces were of a darkish colour; the urine was apparently healthy—it had a yellowish colour, an urinous smell, and was non-sedimentous. It was evident from the stethoscopic signs, and from the absence of pulmonary symptoms, that there was no pleurisy or pneumonia in this case. The pain was more circumscribed and more intense than in duodenal hepatitis, and there was the peculiar pain in the shoulder which I have several times observed to be common when abscess is situated towards the superior surface of the liver, and presses on the diaphragm. The prominence in the side, and many other symptoms, seemed to indicate hepatic abscess, while the absence of all symptoms derived from the colon proved

decisively to me that the abscess, if present, was small, and was situated near the upper surface, not implicating much of the hepatic structure. The diagnosis given was, "probably abscess of liver, situated towards superior surface, small and circumscribed."

Some time after this, he had, from the report I received, very evident symptoms of rupture of the abscess into the pleural cavity, very intense pain over the whole of right side suddenly arising, and attended by orthopnœa and by cough, and at times by thick viscid expectoration.

On the 23d September, 1845, I attended the post-mortem examination. Dulness on percussion over the whole of right side of chest.

Head—Cerebrum: weight 1lb. 6oz. Cerebellum: 6oz. Perfectly healthy.

Chest: the pleural cavity on the right side was completely distended with dark coloured serum and pus; there were about five pints of serum, and two pints of pus towards the depending part of the cavity. The lung was compressed against vertebral column, but was not hepatized, being able to be partially inflated. Heart and left lung normal.

Abdomen: a large abscess existed in the upper surface of right lobe of liver, communicating with pleura by an opening in the diaphragm as large as the finger; pus could be pressed from the abscess into the pleura; the abscess was surrounded by a thick cyst; it dipped for about an inch into the hepatic structure; its inner surface was rough, with adherent lymph; the outer surface was in contact with pale and apparently healthy hepatic structure. The rest of liver was perfectly healthy to the eye, and was not at all enlarged.

Gall-bladder: contained 1½ oz. of dark green bile.

Spleen: healthy.

Kidneys: healthy.

Stomach and small intestines: healthy.

Large intestines: glands somewhat enlarged, and in one or two places there were minute ulcerations.

Case IX.—J. T., æt. 32. This is a case of a different kind, and illustrates merely one very common form of what is called hepatitis. The patient had been invalided for hepatitis, but died in four days from dysentery. I shall give an abstract of his case, and post-mortem.

His name occurs in the Table already given. He had been in the hospital nearly six months; his disease was termed hepatitis; he complained of acute pain in the right side and shoulder; the pain was increased by pressure below false ribs; there was one particularly tender point over the gall-bladder or duodenum, a little to the right of the epigastrium; at this point there was often a very perceptible fulness. The very acute pain on pressure which existed for some months led to a suspicion of abscess; beyond this pain, however, there was no proof of the occurrence of this state. There was no jaundice, and no unusual high colour of the urine. He was subject to low spirits and fits of despondency. There was a constant costive state of the bowels; for some months he took medicine, and sometimes very drastic medicine, almost every day. He had no dysentery till the attack came on of which he died, and considering the state of the colon (evidently in a state of chronic dysentery), I have been led to conceive, that the constant detention of fæcal matter in the large intestines, and the constant use of powerful medicines to expel it, gradually produced chronic inflammation of the solitary glands, and perhaps thickening and ulceration, which led to an attack of acute dysentery, unchecked and fatal in four days.

AUTOPSY, four hours after death.

Head: not examined.

Chest: cadaveric congestion of both lungs; escape of much blood from roots into pleural cavities, when lungs were taken out; otherwise healthy; crepitant.

Heart: healthy; left ventricle much contracted, containing no blood; valves normal.

Abdomen—Liver: enlarged, granular, pale, rough on surface, and when cut.

Gall-bladder much distended; bile thin, staining the hands yellow; mucous surface of gall-bladder minutely injected, and reticular structure in parts destroyed.

Spleen: rather enlarged, otherwise healthy.

Kidneys: healthy; a small serous cyst on surface of left kidney.

Stomach and small intestines: a few hæmorrhagic points in cul-de-sac. From some oversight the duodenum was not sufficiently examined.

Cæcum and colon: immensely thickened throughout by deposition of lymph on mucous coat, and between this and muscular tissue. Large ulcers scattered about, most of them uniformly coated with lymph. In descending colon the lymph on ulcers was granular. In some places there was clear intermediate mucous membrane, and here a few enlarged glands could be seen; some of these had red circles round them; in two or three instances these were seen to be becoming ulcerated; generally, however, the ulceration was more advanced; there were a good many small ulcers, from one and a half to four lines in diameter, round, and coated like the larger ulcers with lymph. When the lymph and mucous coat was peeled off, which it did with great facility, the circular muscular fibres were seen pale and unusually

large; indeed, much hypertrophied. The intestines at the cæcum, and in several parts of the colon, were at least from one to two inches in thickness, perhaps even more than this. There was no sloughing, and the ulcers were not dark on the surfaces. A red gelatinous matter was found effused in the descending colon, similar to stools passed during life.

Case X.—Gunner J. H., Madras Artillery. Duodenal hepatitis and enlargement of liver, with dysentery simulating abscess. This man was sent in the early part of 1843 from Madras to Moulmein for change of air. The account sent with him was very short; it stated that he laboured under hepatitis chronica, and had been in India seven years. The first report at Moulmein states that he had no hepatic symptoms, but was excessively weak and debilitated, suffering occasionally from diarrhœa and rheumatism, and that he was moreover labouring under numerous syphilitic nodes on the shins, arms, and fingers.

In April 1843, he came under my care; I found the liver was much enlarged, and there was occasional purging of loose, brown, fæculent, sometimes almost dysenteric, stools. The diagnosis given was organic disease of the liver, pancreas, and duodenum. On the 1st of May he was transferred from my charge to his own hospital. Up to this time I believe no one entertained any doubt but that the case was one of enlargement of the liver, with some degree of enteritis. The liver could be felt, and there was increased dulness on percussion: there was a sallow unhealthy look about the countenance, but not the emaciation and relaxation (if I may use the term) which is seen in abscess. Shortly after this time a new feature was given to the case by the occasional passage by stool of quantities of pus;

sometimes for days together the stools were fæculent and copious, but light coloured and nearly white, and then would come a passage of half or one ounce of pure pus unmixed with fæculence. The urine was not purulent or albuminous; there were constant perspirations till a month before death; there was constant vomiting and great flatulence for three weeks; for a fortnight before death he had cough and dyspnœa, and neuralgic pains down both thighs: from the enlargement of liver, from the hectic, and from the passage of pus in so extraordinary a way by stool, the diagnosis of every medical man who saw him, and he was seen by numbers, was hepatic abscess. He died emaciated, but without ascites, Dec. 13th, 1844.

Sectio Cadaveris, five hours after death.

Body much emaciated; great fulness in right hypochondrium.

Head: not examined.

Chest—Lungs collapsed, otherwise normal.

Heart: small and flabby; healthy as to mechanism.

Abdomen—Liver much enlarged, extending as far inferiorly as the umbilicus; superiorly closely connected with the diaphragm and abdominal muscles by old adhesions, which were separated with difficulty: on the left side it was firmly attached to the lesser curvature of the stomach, and both these viscera adhered to the diaphragm. There were adhesions also with the colon and part of the duodenum posteriorly. On removal, the liver weighed 6 lb. 6 oz.; internally it was of a light red colour, somewhat of a brick-dust tinge; each lobule seemed to be surrounded by a whitish envelope, which gave the entire organ its density and its light colour.

The gall-bladder was filled with thick dark-green bile. No trace of abscess could be detected in the liver.

The spleen was very large and dense.

The pancreas was much smaller and much softer than usual.

The kidneys were remarkably small; the left kidney contained two cysts filled with fluid.

The small intestines were lessened in calibre. Just above the cæcum the ilium was so contracted as with difficulty to admit a pencil; it was also very vascular.

In the cæcum and colon the mucous membrane was covered with pus; there were traces of former ulceration, and in various spots small round nodules gave evidence of a former great effusion of lymph.

The rectum was much thickened, and in one or two places fresh ulceration was commencing.

The bladder was collapsed and empty.

Remarks.—The case was obscure, chiefly from the deficiency in the early history. But it might have been distinguished from consecutive abscess and primary latent abscess by the following signs:—

1. The duration was too long.

2. The stools, when not purulent, were white, not copious, yellow or brown, beaten up and yeasty.

3. The emaciation was attended by a sallow organic disease look, and the skin, though perspiring, was not washy.

4. The urine was scanty.

5. There was no blood in the stools.

6. Although there was diarrhœa, the stools were not regularly and daily over the average number, but were irregular and changeable.

Regarding the nature of the case (in the absence of any knowledge of its commencement), I consider it to have been one of duodenitis, involving both pancreas and liver, and obstructing also the exit of bile in the latter stages; hence the white stools. With this disease enteritis, and subsequently dysentery, were combined.

Case XI.—The following case illustrates the condition of the liver in those cases of duodenal hepatitis in which the surfaces have been affected as well as the internal structure of the organs. J. M'K., a young European, æt. 26, was in the hospital in 1844, for dyspeptic symptoms complicated with pain in the right side, not depending on disease of the lung or pleura. He presented in a marked degree all the symptoms of duodenal hepatitis formerly detailed, and at this time the liver was enlarged. After two or three months' treatment he was discharged tolerably well, although from time to time he continued to have attacks of transient pain in the liver. Some months after this he had an attack of dysentery, which was easily cured. Fifteen months after the cure of the non-suppurative hepatitis he died from cholera.

Sectio Cadaveris.

Liver: weight 3 lb. 4 oz. Distributed on the liver, both on the upper and on the under surface, were a number of depressions, looking, at first sight, as if small abscesses had healed by the effusion and contraction of a whitish lymph. On cutting into the liver, however, these were, except in one point, seen to be confined to the surface. This one point was on the convex surface, and here a fibrous prolongation extended for some little distance into the hepatic

substance, dividing two or three times, and not connected with any larger fibrous mass, but apparently joining to some portal canals, which in this part of the liver were exceedingly distinct and apparently thickened; the proper coat of the liver was in one or two places thickened for two or three lines without being connected with any superficial depression.

The substance of the liver appeared granular; it tore easily; the lobules were very distinct and of a palish dun-colour.

The gall-bladder contained about half an ounce of dark-green, viscid, and somewhat stringy bile. Lying upon the ductus communis choledochus were two or three glands of the size of small nuts; these did not compress the duct, being bound to it only by very loose and distensible cellular tissue.

Spleen: weight 8 oz. 2 dr.; large, but not distended with blood; dark on section, and rather hard; proper coat thickened on the superior surface, and at one point inferiorly there was a depression with fibrous radii similar to those seen on the surface of the liver.

Pancreas: weight 3½ oz.: some hardness towards the head; lobules distinct.

Stomach and small intestines: the appearance seen in these organs were referable to cholera.

Cæcum and colon: several enlarged glands in cæcum; in ascending colon, enlarged glands, and marks of old healed ulcers, viz. round and irregular spaces defined by a difference in appearance, by slight puckering, and by a zone of small vessels. In one or two places slight thickening of the gut. In transverse colon, solitary glands very large and white; in sigmoid flexture and rectum, solitary glands smaller and very numerous.

Anatomical Appearances.

The anatomical appearances of hepatitis not attended by suppuration are still involved in much obscurity. There are generally enlargement and congestion; the enlargement occurs in the interlobular cellular tissue, that is, apparently round the lobules: the accumulation of blood in the hepatic veins which form the central dark speck; the various forms which result from this enlargement of, and deposition in, the interlobular cellular tissue, and from the congestion, are referable to the duration of the disease. The highest degree of inflammation is sometimes witnessed in the neighbourhood of abscesses; here the colour is not confined to centres of lobules; it is generally dark, sometimes of a blackish red colour; but even here the lobules can be sometimes distinguished by a lighter portion, surrounding a dark red point. There is generally softening with this appearance, sometimes in a great degree. This state is perfectly different from the enlargement and congestion which occur in malignant or bilious remittent fevers, which states are, as I shall hereafter endeavour to show, attended with chemical changes in the minute tissues of the part.

In a more chronic case the intermediate substance becomes gradually lighter in colour, until in the protracted cases it is pale, and from the occurrence of slight contraction has a granular appearance. The very granular appearance is generally pale; if red this is from the recurrence of acute inflammation, and in such cases the liver is much softened. In cases of patients who die without abscess, from dysentery or other cause, the liver is generally in the second state, with dark points surrounded by pale granular substance. It may be inferred that in process of time contraction occurs,

but I have not followed this at present in a satisfactory manner. There is often a mottled appearance, from a mixture of the two states. A dark staining of the hepatic substance is also common; but this is seen in many diseases besides hepatitis.

In many cases there are adhesions between the diaphragm and upper surface of the liver and surrounding parts, or puckered thickening of the peritoneal coat; but I could never determine that these cases had been attended with any unusual or sharp pain in the side. Altogether the marks of very acute or very chronic inflammation are obvious, but the subacute stages are difficult to be described, and I think every one will agree with Mr. Twining, when he says, "Functional disorders of the liver, which are considered numerous and important, do for the most part elude anatomical investigation."*

The anatomical evidences of these disorders, as well as those of hepatitis, will in process of time be given by the bile, as the state of a secretion is by far the most delicate test of the condition of the producing organ.

The state of the gall-bladder must, however, be first noticed. In evident inflammation of the internal membrane, when there are patches of vivid and capillary redness, and perhaps a loss of the reticular structure of the mucous membrane, there is generally much bile of a brownish red colour, transparent, or with crystalline particles, rendering it turbid. In another condition the gall-bladder is distended, or moderately full, the mucous membrane is of a

* There may be biliary congestion of the liver, that is to say, accumulation of fluid in the minute biliary plexus. This is seldom combined with the hepatitis of India, but is simple increased secretion, attended with peculiar symptoms, detailed by some writers erroneously as inflammation of the liver.

dark brown, or orange or red uniform colour; here the bile is thick, green, tenacious, and stringy.

When inflammation has affected the coats of the gall-bladder, or there is a false membrane effused over it, compressing it, and diminishing its cavity, the bile is generally thin, red, and in small quantity.

Corresponding to these appearances in the gall-bladder, and changes in the bile, are the changes in the liver. When in the acute or congestive state, the bile is generally thick; in the pale, granular, or advanced variety, it is thinner, paler, and less viscid.

The states of the duodenum corresponding to the hepatic changes require more extended observation than has hitherto been given them by Indian observers. The most usual changes are enlargement of the solitary glands and orifices of Brunner's glands; swelling and softening of general mucous membrane; minute ulceration, commencing in glands; patches of capillary or striated redness; and in some cases occlusion of the orifices of the ductus communis choledochus and pancreatic duct. This last appearance, however, I have not in recent subjects satisfactorily seen. A probe can generally be passed along the ducts. I have seen, however, several preparations belonging to friends shewing this state.

Abscess in Liver.

In describing the post-mortem examinations of the few cases already detailed, most of the appearances have been described. In this place I shall give merely a recapitulation.

Abscesses vary infinitely in size; in kind of contained pus; in having cysts or not, &c. &c.

The following is the arrangement which appears most natural :—

1. Spongiform abscesses; that is, burrowing abscesses, partly circumscribed by effused lymph.

2. Encysted abscesses, the cyst being thin, without deposition of lymph on its internal surface.

3. Abscesses, with lymphy boundaries of variable thickness and density.

4. Clean excavations in the hepatic substance without cyst or lymph.

One peculiarity has always been observed, viz. that when abscesses advance to the surface, there is often little or no effusion of lymph, or adhesion to surrounding parts. Often there is a considerable bulging, from distension of a very thin and soft lymphy cyst. This is particularly the case with the abscesses of the second and third kinds.

1. The spongiform abscess I have so named because it presents the appearance of little communicating cavities, partly divided by interlobular cellular tissue, thickened apparently by effusion of lymph. In fact, it is very much like a sponge. The pus is generally thin, or consists of a mixture of creamy pus with a greyish thin fluid. This abscess does not appear to attain a large size. I have never seen one bigger than an orange.

This form of abscess seems to form slowly; hitherto I have only seen it in primary abscess, or in consecutive abscess of very long duration.

2. The second form of abscess presents a cyst, often holding a pint of creamy or thin pus, and being perfectly uniform in thickness, or with minute granules of lymph on its internal surface. In one case I found the contained fluid thin, red, and exactly like bile diluted with water. I believe that these cysts are often termed "hydatids of the liver;"

but true hydatids are also often seen, and Mr. Annesley gives a well-marked case and delineation.*

3. The third form of abscess is the most common, and is both primary and consecutive. The abscess varies in size from that of a small nut, to a cavity holding a pint, or two pints, of pus. I have seen more than ninety abscesses in one liver, and have known several cases in which the whole of the right lobe was occupied by one immense abscess. The cyst varies in thickness. If the abscess be slowly formed, it is often thick, dense, almost cartilaginous, and its inner surface is rendered rough and honeycomb, or areolar-like, by bands of firm lymph, interspersed with hard granules or nodules. At other times the cyst is thin, and can be peeled off the surrounding hepatic substance, or it hangs in shreds or dissepiments into the cavity of the abscess. The walls have been found sloughy by Marshall and Twining. I am inclined to think this uncommon, and Mr. Annesley states that he never saw any gangrene of the liver.

In this form of abscess the hepatic substance is often quite pale, close up to the surrounding lymph; sometimes, however, it is reddened and striated.

4. The fourth form is seen also in both primary and consecutive abscess, and may occur in the same liver with the third form; the abscesses are often small, round, and the walls are composed entirely of hepatic substance, often pale and granular, sometimes red and mottled. The abscess is often as clearly defined as if a portion of the hepatic substance had been scooped out. Sloughy walls I should think would be more common in this variety than in the others; but I have not yet seen them.

* In the Museum at Fort Pitt are some beautiful specimens of hydatids; many of these are surrounded by a lymphy cyst, of variable thickness.

It is a singular circumstance, that among the Gentoos, Hindoos, and Mussulmans of the South of India, hepatic abscess is uncommon. Hepatic organic changes, congestion, and altered bile, however, are commonly seen in cases of dysentery. The reason of the comparative infrequency of suppuration is not to my knowledge understood.

Spleen diseases are very common among these men. In the section on Dysentery I have given one dissection of abscess in a Hindoo. I did not see the case myself.*

Causes of Hepatitis.

It is unnecessary again to refer to the effect of dysentery, or remittent fevers, in producing suppurative hepatitis. The causes of the gastro-duodenal hepatitis among soldiers are tolerably evident; they are evident from a consideration of the habits of most soldiers in India, and of the food which is generally used by them. No specific difference of climate, no external temperature, or electrical atmospheric conditions, need be assumed as predisposing causes. This form of hepatitis is not restricted to warm climates, and is only more common there, on account of well-known dietetic causes. This subject has been already entered into by Annesley (Vol. i. page 192.)

The diet of European soldiers in India varying necessarily at different places, is as a general rule far too rich

* I observe that Dr. Copland, in his article on the Liver, adopts the opinion of Annesley, that in abscess with dysentery the small intestines "are first functionally, and then organically affected." This is an error, as is proved by my post-mortem examinations, where the state of the small intestines was always accurately noted. Only in a small number of cases are there ulcers in the ilium.

and stimulating; hot curries, carelessly made by native cooks, are used several times every week for dinner; and vegetables in many places are scarce, or of indifferent quality. Soldiers often refer the origin of their complaint at once to their diet, and to my own knowledge many men have supplied the place of the curries by rations purchased out of their own scanty funds. It often happens that an European regiment, quartered with one or two companies of English artillery, will show a much greater per centage of sickness: the habits of both corps are the same, with one exception: artillerymen, being in small bodies, are easily looked after by their officers, and they are generally more careful about their diet. Again, married men, who are not in a mess, are always more exempt from both dysentery and hepatitis than single men. If this is not attributable to their food being better cooked, the circumstance is inexplicable. It is an extraordinary thing, that out of one hundred and fifty married men in the 84th regiment, only two died during a tropical service of thirty months, while in the same period the mortality among the single men was above nine per cent. The two deaths referred to were from phthisis and from delirium tremens. Some influence may be given to the habits of married men being more regular than those of single men, but in a small station, where little debauchery goes on, the influence cannot be great.

The custom, so general among soldiers, of spending their surplus pay in intoxicating liquors, is another producer of gastric and duodenal disease; but I am convinced that both by military and medical officers too great importance has been given to this habit. I am fully prepared to say, from actual knowledge of the character of patients labouring under duodenal hepatitis, that there is no great preponderance of intemperate men.

A supervision of the whole system of diet among European troops,—not as regards commissariat supplies, which are generally excellent, but as respects the cooking of these, and the time of meals, the encouragement of teetotal societies by every allowable means, and the formation of day and night guards, differently clothed to prevent the effects of the great daily thermometrical range of some Indian stations,—are measures, which would, I am convinced, at once reduce the list of duodenal hepatitis, and would probably even diminish the number of cases of dysenteric, febrile, and primary hepatitis.

Before passing from this subject to primary hepatitis, I must remark that the above observations are in part applicable to the different forms of congestion and over action of the liver, which generally result from the use of too stimulating, rich, or otherwise improper food.

The causes of primary hepatitis, meaning by that term the low insidious suppurative form, generally in an advanced stage, complicated with dysentery, are much more obscure. The first opinion which claims our attention is that which refers the disease to the action of external heat. This has been advocated by Dr. James Johnson, and has received the support of Annesley.

In the first place, any conclusions drawn from the number of hepatic cases in Madras must be left out of account, as to this place converge the cases from all stations in that Presidency; and, in fact, I must deny the authority of Mr. Annesley's tables altogether, as no distinction is made between the different forms of hepatitis: and there is every reason to believe, from the observations of Twining, that central hepatic abscess, that is, the disease I have called primary hepatitis, is as common, or more so, in the humid atmosphere of Bengal, with its comparatively low temperature, as in the

dry hot stations on the Coromandel coast. In the Madras Presidency there is a great range of temperature at the different stations. Hepatitis is as common at Bangalore, situated 4,000 feet above the level of the sea, and with an annual temperature of 74°, as at Trichinopoly, one of the hottest stations in India, 250 feet above the level of the sea, with an annual temperature of 84°, and moreover surrounded with rice and paddy fields, and subject to fever.

Mr. Annesley says: "The influence of the direct rays of the sun, and a high range of temperature, in producing hepatic derangement of the liver, cannot in our opinion be disputed." Nothing is brought forward to prove this assertion beyond a reference to official numerical returns. I have already stated, that tables drawn up from official records are quite useless, as the different kinds of hepatitis are not distinguished, and as many of the severest forms of hepatitis are generally returned as dysentery: but Mr. Annesley's own tables, contained in his Sketches, and in his large work, (Appendix,) do not prove his position.

I will not quote these returns in opposition to the opinion of Dr. James Johnson, that "genuine or idiopathic hepatitis is ten times more numerous on the coast of Coromandel than on the plains of Bengal," because I am unwilling to use them in any way except to show that they cannot be made to support the doctrine of atmospheric heat being the chief cause of hepatitis; and it may be argued, from the corroborative evidence of Mr. Annesley, that hepatitis is actually more common on the Coromandel coast than in other situations, though not nearly to the extent stated. Dr. Mouat, of the 15th Hussars, published a series of tables in the Madras Medical Journal for 1840, much more accurate than those of Mr. Annesley, though they are useless on

the same account as Mr. Annesley's tables. It would appear from them that in Bengal 5.4 per cent. of the whole strength are attacked, and 112 in the Madras Presidency.

In an uncertain disease like hepatitis, which is returned sometimes as dysentery, sometimes diarrhœa, often fever, and occasionally even as debility, the numerical method loses all its value. But as one man's experience cannot supply this deficiency in one of the most precise sources of medical knowledge, it follows that the influence of atmospheric heat alone, in the production of hepatitis, must remain a disputed point. I have been informed by several observant surgeons in the Madras service, that they even consider the hot stations of that presidency to be the least subject to hepatitis, and, to my knowledge, Bellary and Trichinopoly are considered to be exceedingly healthy, with the exception of the prevalence of cholera.

Though insufficient data appear to me to forbid a complete discussion of the influence of atmospheric heat, there can be no doubt that the influence of this cause, when combined with certain others, is very considerable. At Moulmein, in Tenasserim, the hot season in April and May is suddenly succeeded, and as it were arrested, by a deluge of rain, brought up by the south-west monsoon. The skin during the hot months, constantly excited, constantly pouring out immense quanties of secretion under a hot dry climate, is abruptly surrounded by a cold, very moist atmosphere. During these wet and cold months most of the cases of primary hepatitis that I have witnessed occurred. The connection between the skin and liver has been strongly insisted upon by Dr. James Johnson, and appears to be generally acknowledged, although the links of the connection have not yet been satisfactorily explained. Following up this opinion of Dr. Johnson, I should conceive that primary

suppurative hepatitis would be more common in the humid atmosphere of Bengal, than on the hot dry Coromandel coast; this, however, is not the belief of that eminent physician.

Another opinion demands a brief notice here, on account of its ingenuity, and the support it has received from men of the first eminence;—I mean the supposed antagonism between the functions of the lungs and liver, by which in the inactivity of one organ a compensation is supposed to be provided by the increased action of the other. The experiments of Crawford, Allan, and Pepys, in an artificial atmosphere, and of Copland, in an intertropical country, on the diminished respiratory action produced by high temperature, led Annesley and others at once to this doctrine, and, as is well known, it received also the support of Tiedemann and Gmelin.

As I have no experiments to bear on this point, I shall merely glance at the obvious arguments against this view: the arguments in its favour are fully stated by Annesley and others. In the Appendix to Richerand's Physiology, Dr. Copland refers to a Latin thesis in which his experiments and views are detailed. This I have not been able to see, but in the Appendix Dr. Copland appears to consider the diminished elimination of carbonic acid as attributable partly to the increased action of the skin, itself a respiratory organ under certain circumstances, and partly "to the depressing influence upon the nervous system, which the atmosphere, loaded with moisture and malaria, may be reasonably expected to produce." (Appendix to Richerand's Physiology, page 626; 1822.)

1. This antagonism is unknown in physiology; at least in the sense here understood. It is true, that the same secretion being always poured out by two or more organs, may increase or decrease in one of these, according as it varies

in the others, as is constantly seen in the antagonism, as regards water, between the kidneys, skin, and lungs, and in a less degree as regards carbonic acid between the skin and lungs. There appears also to be an antagonism, or relation of some kind, between the liver and colon. But the supposed antagonism between the lungs and liver is merely derived from the fact that carbon is one of the principal elements of the secretion of both organs. The fact of urea, in retention or suppression of urine, being excreted by the skin, liver, and other parts, is a case of another kind, as the kidneys are merely its separating, and not its secreting organ. It is evident that some more decisive experiments than the mere variation in the quantity of expired carbonic acid, are necessary to prove that the excretion of carbon by the liver is increased when its excretion by the lungs is diminished.

2. No arguments, that I am aware of, can be drawn from the lower animals in support of this theory; on the contrary, among fishes, and the higher invertebratæ, there is no general relation in point of size between the lungs and liver.

3. But admitting such an antagonism, ought not liver complaints to be even more common than they are, in the natives of cold climates, removing to intertropical countries? As I have already had occasion to remark, most diseases of the liver—that is, congestion, or overaction of it, and slow chronic inflammation, following gastro-duodenal dyspepsia—are clearly attributable to errors in diet and regimen, and to search for an occult cause for these diseases is unnecessary. But putting these out of account as having a known origin, putting out of view all the cases of hepatitis and hepatic abscess, which are clearly consecutive to, and produced by dysentery or remittent fever, we have remaining to be

accounted for, as common in hot countries, only those cases of primary, insidious, or latent hepatitis, leading to suppuration, which form the minority of cases returned in Reports as liver disease. But these cases are not unknown in temperate climates, and may perhaps be accounted for by the "cutaneo-hepatic sympathy," which is insisted upon by Dr. Johnson, and of which very striking instances occur every now and then. All the cases I have seen were in men who were accustomed to take considerable and exhausting exercise, and whose secretions, especially the cutaneous, were suddenly arrested by their own imprudence, or by the peculiarity of the climate.

4. If such an antagonism be admitted as active in the production of hepatic diseases in India, we ought to have more abundant evidences of its influence in different diseases of the liver and lungs. The history, however, of pulmonary diseases, as at present understood, affords no evidence that such diseases produce in this particular way any effect upon the liver or its secretion.

I have thus glanced at a few of the arguments which present themselves on a superficial view of the subject. To attribute influence to such an antagonism, merely on the experiments before referred to, is certainly premature; and I am not aware of any more conclusive arguments in its favour than those adduced by Mr. Annesley, and other writers on tropical diseases.

To sum up what has been said on this very obscure subject:—

1. Hepatitis in many cases is clearly caused by dysentery and remittent fever; whether in the former case the mode of connection has been explained or not, time will determine.

2. The influence of bad or improper food, spirituous liquors, &c. in causing hepatitis, is probably to be explained

by their effect on the gastro-duodenal mucous membrane.

3. Heat alone has not been proved to be a cause of primary hepatitis. The hot stations in the Madras Presidency are the healthiest; for instance, Bellary and Trichinopoly.

4. But, as a collateral agent, heat has a great effect. It increases secretions, as of the skin, or alters them, as of the kidneys. To these increases and alterations by themselves the system seems to accommodate itself, but not to rapid transitions in them. There appears ground for believing, that secretions increased by great temperature, and then suddenly suppressed, or lessened by the abrupt supervention of another atmospheric condition, really have an influence, unexplained but decided, upon the liver in particular.

This is seen in England, where bilious cholera succeeds hot summer months, and constantly in India, where the change of seasons in some places is far more trying to the frame. And it may be conjectured that a more extended observation of the atmospheric seasons in India, and adoption of soldiers to these, will considerably lessen the number of cases of primary hepatitis, and of one form of dysentery.

5. The doctrine of pulmonary and hepatic antagonism, by which the liver is supposed to be called upon in hot climates to excrete carbon, which in cold countries the lungs give off, has not been proved, as far as my knowledge goes, and at present is merely an ingenious conjecture.

Treatment of Hepatitis.

1st. As to the duodenal hepatitis.

When a patient comes under treatment the disease is of some standing, and is usually complicated and obstinate.

The gastro-duodenal dyspepsia is sometimes itself intractable, and its treatment may be first glanced at.

It will be observed that I have refrained from using the terms inflammatory, irritable, atonic, follicular, &c., as applied to this disease: I have not used them, because I am uncertain whether the conditions to which these terms refer are really to be detected in Indian dyspepsia: I have certainly, in India, as well as in cold climates, seen extreme cases, to which the terms atonic or inflammatory might with propriety be applied, but in most instances there is both inflammation or hyperæmia to a certain extent, loss of tone, and perversion of function; in a word, the dyspepsia is a composite one, and is to be treated in a composite way. Perhaps the various glands of the mucous membrane are always diseased. Leeching alone, or with small doses of mercurials, ipecacuanha, and purgatives, is as useless as tonics by themselves would be; while I have found benefit by using means which seem at first sight contradictory—as leeches, small blisters, and mild purgatives, with tonics, and particularly with iron, in the form of the tincture of the sesquichloride, which seems really to have a more beneficial effect than either the vegetable or the other mineral tonics. I do not mean that these measures will suit every case, but merely that such indications, viz. reduction of hyperæmia, and restoration of tone, must be attempted at the same time.

The most important measures are, however, a proper diet and regimen. The diet must be perfectly simple, without spices, curries, or seasoned dishes of any kind; it should not, however, be too farinaceous. I have tried the practice of keeping patients on bread-and-milk diet—a successful practice in inflammatory dyspepsia; it did not appear to answer well, and I believe that animal food once a day, simply and well

cooked, is very beneficial. Food should be taken often, and in small quantities. Water should be the beverage, or wine and water. Pale ale should especially be discontinued, as the vegetable tonics it contains appear hurtful. These measures, viz. gentle purgatives, particularly senna and colocynth, and rhubarb, with leeches, blisters, and iron, with a strict attention to diet, generally suffice in an early stage. Afterwards the treatment varies in each case very considerably. If the gall-bladder appears to be enlarged, or if there is pain in its vicinity, or if the stools are green, or, on the contrary, pale yellow, inodorous, viscid, or puddingy, with the urine high-coloured, containing bile, the skin being dry, and the eyes suffused or yellow, active purgatives should be combined with leeching for some days, and there should be nearly abstinence from food. The purgative I have found most useful is a combination of extract of colocynth with minute doses of croton oil. Afterwards, the medicine recommended by Mr. Twining as a spleen mixture may be used, and is in this case, as in many others, a useful combination of a tonic and purgative.

These cases are often very troublesome, and when they combine themselves with pancreatic derangement, in which case there is probably follicular duodenitis, they become very long continued, and liable to recur. The nitro-muriatic acid seems to be useful, and sometimes, when the fæces are pale, they become more bilious and natural after its employment; it should be used as strong as possible, and sucked through a quill to avoid injuring the teeth: if the skin be dry it may be used as a bath, and should be as strong as the patient can bear it. Its utility in these cases, as in dysentery, was noticed long ago by Sir James M'Grigor, and the evidence in its favour is as great as that in favour

of most remedies. The skin should always be particularly attended to. The cold bath should be used after the nitro-muriatic acid bath, if the patient be strong enough; if not, the tepid bath may be substituted. The nitro-muriatic acid should be used as strong as possible all over the body, and, after the skin has been well rubbed, the cold or tepid bath taken immediately.

Sometimes the hepatic changes are evidenced by a slowly increasing pain and weight in the side and shoulder, following the dyspepsia, without any marked implication of the gall-bladder. I have traced this sequence in so many cases, that I am satisfied the dyspeptic symptoms are not symptomatic of any hepatic disease latent in its early stage, but are really antecedent, and sometimes even improve when the hepatitis has advanced considerably.

The treatment for the hepatitis varies exceedingly, as there is every degree of rapidity of accession and consequent acuteness of symptoms.

As I did not profess to enter into a detail of symptoms, so I do not now intend to enlarge on the treatment; I shall merely refer to some particular plans which may be considered as still under discussion.

Venesection.—This must be regulated entirely by the symptoms; I have seen a few cases, and have been informed of several, in which it appeared necessary to bleed very largely, as in pneumonia. In many instances local bleeding is of very great use, by itself, or subsequent to general depletion. The inflammatory processes, of whatever kind they may be, seem slow but progressive. After the application of leeches all pain is lost in many cases for an hour or two, and then gradually returns. The leeches consequently require to be repeated two or three times a day.

The superior efficacy of local over general bleeding is often apparent, as observed by Dr. Stokes.

Next in importance to bleeding is a measure on which considerable stress was laid by Mr. Twining, viz. rigid abstinence as regards both solid and liquid food. I can speak with considerable decision on this point, and am certain that if a patient with confirmed duodenal hepatitis be allowed not full, but moderate diet, he will require much more bleeding, and be a much longer time ill, than if he adopted the system of abstinence. And when we consider that this is really one of the most powerful remedial measures we possess—although, unfortunately, like the whole subject of diet, still insufficiently explored—we cannot be surprised at the influence it exerts. Purgatives may be ranked next, and should be actively employed. Colocynth, calomel, and croton oil, are the best; senna and bitartrate of potassa are good, but every practitioner uses his own remedy with most effect. One precaution is necessary; in an advanced case there is often constipation, and the patient's attention is sometimes forcibly directed to this one symptom: I have known instances where soldiers never fancied themselves well unless their bowels were opened four or five times a day. They were constantly begging for purgatives, and took them themselves, when they could not obtain them from the hospital. In these cases, as well as in those in which purgatives are given every day by the medical attendant, the colon, already influenced in all probability by reason of its physiological connection with the liver, passes into a state of chronic inflammation, with some thickening of the coats, hypertrophy of the muscular fibres, and enlargement and chronic inflammation of the glands; this itself augments the feeling of constipation, by producing ineffectual attempts at stool. If, from any cause, dysentery follows in this case,

it is highly dangerous, being very rapid, and not checked by depletion, and other measures, as in the usual form. I have given one dissection of death from this kind of dysentery.

After these three grand methods, viz. depletion, abstinence, and purgatives, mercury may be considered the most important measure. I cannot reflect on the immense power of this remedy, on our very scanty knowledge of its mode of action, on its bad effects in splenic cachexia, and perhaps, also, in hepatic suppuration, and on the varying opinions entertained regarding its utility in hepatitis, and even its influence on the secretion of the healthy liver, without feeling a degree of uncertainty as to its use and dose, which I conceive to be shared by most tropical practitioners. If, however, in this form of hepatitis, the principal part of the inflammatory process goes on in the structures surrounding the lobules, causing these to become enlarged by effusion of lymph, which produces at first enlargement and afterwards contraction of the organ, then I conceive the indications for mercury to be sufficiently obvious. It does appear to produce the absorption of lymph, and the equalization of the capillary circulation, to use a phrase which has not a definite meaning, but expresses a process which is perceptible without being understood. Certainly, in some cases, marked relief follows free ptyalism, in accomplishing which there is never any difficulty when depletion is used. In other cases, however, no benefit can be perceived. I do not think Mr. Annesley's experiments (valuable as they are) give any indications in this case. Calomel, exerting a chemical effect on bile or secretions, to which it is immediately applied in or out of the body, in no degree proves the same chemical effect to be produced in the minute tissues of organs to which it travels with the blood. Mr. Annesley

thinks, that to keep up the mercurial excitement of the system (by exhibiting calomel in small doses) "is to keep up a slow inflammatory action in the secreting substance of the liver, that may itself terminate in abscess."—(Vol. I. page 594.)

But the only chance of removing lymph by mercury is by keeping up its action for some time; and I cannot think, with all respect for Mr. Annesley's opinion, that abscess is much to be dreaded in these cases. About consecutive abscesses, and the insidious primary or central abscess, no doubt can exist that ptyalism does no good, and probably does harm.

From mercury the mind naturally turns to iodine. I have used this remedy in various ways without very marked benefit. The combinations of the iodine of potassium with calomel or blue pill, or still better with bichloride of mercury, so as to form the biniodide of mercury, appear sometimes useful. I should think the biniodide of mercury deserves a fair trial in non-suppurative hepatitis; subservient, of course, to the three primary measures. I have seen this powerful medicine very successfully used for promoting absorption in various cases, by my esteemed relative, Dr. A. T. Thomson, who was one of the first to recognize its great powers.

The alterations in the functions of the skin and kidneys are to be corrected, of course, only by the removal of the primary disease, but they may be improved often by means directed to themselves. The bitartrate of potash, so much used in hepatitis as a purgative, may derive some of its effect from its diuretic action; and bathing the skin in acid and alcohol baths is generally considered useful.

Whether the pulmonary functions are altered in hepatitis is, I believe, unknown.

I know not if the observation be correct, but I have several times observed that the combination of quinine with calomel seemed to accelerate the occurrence of ptyalism. I have once or twice also observed ptyalism nearly gone, to be reinduced while quinine was being taken. As I shall hereafter mention, this combination of calomel and quinine appears decidedly useful in remittent fever, in reducing the bulk of the liver and spleen; and remembering its effects in splenic enlargements after agues, I have employed it in a few instances in hepatic chronic enlargement, though my cases are not sufficiently numerous to allow me to say with what efficacy.

Arsenic might also be employed on the same grounds, combined with the bichloride of mercury; and the usual combinations of mercury may be used as recommended by authors.

A sea-voyage and change of climate are always indicated in duodenal hepatitis.

Having thus briefly sketched an outline of the treatment I have found most successful, modified as it must be by numerous circumstances—climate, habit, constitution, length of residence in hot climates, &c. &c.—I pass to a consideration of the next form of hepatitis.

2. Primary Abscess of the Liver.

Generally an insidious and latent, sometimes a declared disease.

Mr. Annesley expresses a very strong opinion as to the efficacy of copious blood-letting in these cases; and the same opinion is stated by Mr. Martin. I have never diagnosed a successful case of this disease; that is to say, the few cases that I have seen have all been fatal. Supposing that a case appears of acute pain in the right hypochondrium, not mus-

cular, not referable to pleurisy, and particularly if this be attended with any symptoms derived from the colon, it must be apparent to every one that very copious depletion is the only measure likely to be attended with benefit. But this is a comparatively simple case. What is to be done when the pain in the side is transient, and where our diagnosis is probably uncertain—at least, unless it be that of a man of more tact and greater experience than usual—where the bowels are not yet deranged? Are we to bleed largely on the mere supposition of a disease? I can hardly conceive a more difficult case, or one in which more uncertainty is felt—at least, if I may speak from my own feelings on the subject. At an after period, when the dysentery has commenced, or when symptoms of fixed local pain, with hectic and emaciation, point out the nature of the case, depletion must still be employed, as it is not proved that the pus may not be absorbed, and abscess in the liver cicatrize, there being no opening into intestines or lungs. I have said that absorption and cicatrization have not yet been proved never to occur. It is an opinion that they do occur, but the arguments in favour of this are very vague and uncertain. I am certain that the occurrence of a radiated fibrous deposit, proceeding from the surface a certain way into the liver, is no proof that abscess has existed at this point and has cicatrized. My reason for saying this is, that in Asiatics, in whom abscess is very uncommon, I have seen adhesions and effusion of a thin false membrane over the convex surface of the liver, which at different places increased in thickness, and had fibrous radii proceeding into the hepatic substance for a distance of two to five lines, indicating apparently some degree of structural implication at these points. A fibrous mass, with radiated prolongations in the interior of the liver, would certainly be more like a cicatrized abscess. This I have never seen.

As in duodenal hepatitis, rigid abstinence from liquid and solid food is a most important measure, and has in addition the great recommendation of being practised without that injury to health which unnecessary blood-letting produces.

Mercury, when properly administered, produces salivation as rapidly in hepatic abscess as in any other inflammatory disease. The saying that the "mercurial action is incompatible with hepatic suppuration," is one of those fallacies which have somehow or other gained authority by their transmission through different writings. How Mr. Annesley could have asserted such a thing, when his own writings bear evidence to the contrary, is to me incredible. In many of Mr. Annesley's cases of hepatitis and abscess the condition of the gums is mentioned as swollen and tender. "The painful or red gums," or, "mouth severely affected," are terms used in the cases of Mr. Twining. In the Appendix to the fifth volume of the Calcutta Transactions, are three cases of hepatic abscess; two of them good instances of primary and insidious abscess. In two of these cases the mouth is stated to have been severely affected; and the writer in two places makes reflections "on the insufficiency of salivation." In the third case, the reporter writes: "The sore mouth was kept up afterwards for a long time: still the symptoms indicating the progress of hepatic abscess slowly advanced proving how little can be trusted to salivation as a means of arresting the progress of acute liver disease."—(*Calcutta Transactions*, Vol. 5.) Mr. Conwell—certainly no prejudiced author—says: "This case proves three facts respecting ptyalism; first, that it may be effected during the existence of hepatic abscess; secondly, that its occurrence takes place apparently when the disease is in process of cure by the absorption of pus into the circulation; thirdly, that

ptyalism being effected in this stage of disease, it does not afford those advantages experienced from it in cases of primary hepatitis."—(*On the Liver*. Page 422. London: 1835.)

I must not occupy space by referring to similar cases to these; they are to be found in abundance, if sought for. In the cases I have given, I have occasionally marked salivation as occurring at a period when abscess was undoubtedly far advanced; as in the case of J. C., page 96, in whom there was profuse ptyalism three days before death. But, in addition, I have in cases of hepatic abscess progressing in a decided course, given mercury, as well to see whether ptyalism could be produced, as to observe whether such an occurrence seemed beneficial. I have never found any difficulty in producing ptyalism, and I never could see the slightest benefit when it was produced. The reasons of this strange opinion of non-ptyalism are tolerably evident. Some men cannot be affected with mercury. Mercury alone often causes a kind of inflammation, and perhaps ulceration, of the gums, without true ptyalism; and then, if depletion be used, ptyalism will result. This exemption from salivation sometimes depends on constitutional peculiarities, but much more often it depends on mercury being wrongly given. Often, large doses of calomel, or small doses frequently repeated, particularly if uncombined with opium, do not salivate, but produce irritation of the rectum and colon, tenesmus and real dysentery, and a general febrile yet depressed state of the system, approaching to erythismus. I have seen this constantly in dysentery; in which disease no one doubts the possibility of producing salivation.

But, although salivation can be thus established, it appears to me to have a very bad effect on the suppurating

liver. It often increases the purging; or if, as sometimes happens, the blood in the stools disappears after its supervention, the rapidity of increase of the abscess appears augmented. It is generally a difficult thing to discover the real effect, beneficial or otherwise, of a medicine, but I think no difference of opinion can exist on this point, that mercurial action, during hepatic suppuration, does no good, and appears to do harm. Both Annesley and Twining express opinions similar to this.

I shall not occupy space by adverting to nitric acid, or other remedies recommended in hepatic abscess. These are mere secondary measures; and if hepatic abscess be ever cured, it will be by a combination of depletion, total rest, and rigid abstinence.

If abscess of the liver opens into the duodenum or gall-bladder, recovery often follows; if it opens into the lungs or stomach, recovery is less common, but does occur; if a large abscess opens into the peritoneum, the characteristic marks of such an occurrence follow; if the abscess be small it produces chronic peritonitis, collection of serum, and in time ascites. I have found cicatrices on the surface of the liver, from the bursting and discharge of contents of small abscesses.

The recoveries after rupture into the intestines, or externally, naturally led to the operation of puncture. I have not had much experience in this operation, but from what I have seen, and from what I conjectured would take place if it had been performed on the numerous cases of abscess which I have dissected, I have come to the following conclusions. First, abscess not pointing, the operation must always remain a very uncertain one, since there are no means of ascertaining how many abscesses there are, or where they are situated, unless there are some external signs of

pointing. Thus I have seen one case in which an exploratory needle passed between four abscesses, going within two lines of one of them. Supposing it had opened into one, and that a trochar had then been passed, what would have been the benefit of such discharge, when there were four or five other abscesses in the liver? When it is remembered that there may be from twenty to ninety small distinct abscesses, or one enormous abscess embracing the whole right lobe, and that these are common varieties in the dysenteric, consecutive, and primary insidious abscess, the great uncertainty of puncture will be apparent. In suppuration following duodenal hepatitis, as the abscess is more usually single, the operation would be proportionably more successful. At present I believe the question stands thus. Hepatic abscess, not pointing, may generally be diagnosed; an exploratory needle may always be passed with safety into the substance of the liver; consequently the chances of finding a solitary abscess, and of evacuating this, are to be put in opposition to the chances of missing it, of its afterwards opening into the intestines or lungs, or of its slow increase until life is destroyed.*

I have finished a sketch of the symptoms and treatment of a very composite disease. Its extreme intractability, its numerous alliances, and the obscurity in which the early symptoms of some of the most dangerous forms are involved, render it a disease requiring a very attentive study. Many

* In the Madras Medical Journal for 1844 are the results of puncture in fifty-seven presumed cases of hepatic abscess. Of these, forty died; in four cases no abscess was found; in the majority of the remainder abscesses were numerous. Of the seventeen recoveries, in eight only did pus follow the trochar at the time of operation; in three no pus was obtained; in three it is not stated whether it was or not; and in the remaining three cases pus was only obtained on the sixth, seventh, and eleventh days, probably from the wound.

of the most important means of studying it are at present little understood; when chemical organic analysis can be more easily performed, several points which can now only be guessed at will be cleared up. Till this be the case, the treatment will remain, as it is now, vague and empirical, and the direct opposite of the certain and decisive method of treating acute dysentery, to which a correct knowlege of the morbid anatomy of this disease has led us.

Pathology of Hepatitis.

The true pathology of hepatitis, that is, a complete knowledge of its mode of production and alliances, must necessarily be an unknown subject at present. Instead, therefore, of any theoretical conjectures, which would necessarily be premature, and would probably be incorrect, I shall refer cursorily to some points in the symptoms and morbid anatomy of the disease, which can be most conveniently discussed in this place.

And first, as to the occurrence of jaundice. It is indicated by the morbid anatomy, as well as proved by experience, to be an unusual accompaniment in Indian hepatitis. Jaundice is produced by obstruction to the flow of bile, secretion being still going on: and this obstruction is most usually caused by change in the duodenal mucous membrane, or by gall-stones, or by enlarged pancreas, or other tumors pressing on the ductus communis choledochus; or, jaundice is caused by great overaction of the liver, generally produced by, or combined with, gastro-duodenal dyspepsia. Secretion is arrested, however, in hepatic abscess (primary and secondary), and partially in common duodenal hepatitis. And if, as I have fancied, the chief changes in this last disease are in the peripheral structure of the lobules, the non-

secretion may be accounted for by pressure being exerted on the minute vessels.

An interesting question arises, as to the infrequency of hepatic abscess among the dark nations of India, compared to the common occurrence of this condition in Europeans resident in the same parts. In Asiatics, equally important changes take place in the large intestines in dysentery, and in the liver and spleen in malignant and remittent fever, as in Europeans. I have been fortunate enough to have had opportunities of observing this both in Bengalees of different castes and nations, and in Hindoos from the south and west of the Peninsula, and in Burmans. Why, in hepatic diseases, so wide a difference should occur, is a circumstance that may hereafter throw much light on the pathology of liver diseases. There are many peculiarities in the diseases of Asiatics which will some time or other amply repay research. I have noticed that in phthisis the process of softening seems delayed. Phthisis is not uncommon among Hindoos; and I have seen several cases in which it was not accompanied by cough and expectoration, but simply by debility and diarrhœa. In such instances the tubercle in the lung assumes the form of hard grey masses or nodules of various sizes, without yellow matter or appearance of softening.

Any one who has dissected many hepatic cases in India will be aware of the great difficulty of judging of the presence and amount of morbid changes. The different opinions which I have heard medical officers give of the same case, the absence of any proper and defined standard of comparison, the constant use of the vague term congestion, are circumstances which have led me to consider the morbid anatomy of the liver, as well as that of the spleen, to be in a very rude and elementary condition. As there

is so much difficulty attending it, I have not given so full a description of the changes seen as I could have done, and as, indeed, the importance of the subject warrants. Thus I have not discussed the mode of formation of hepatic abscess. Mr. Twining describes appearances which "were considered to be the incipient or preliminary stage of abscess." "There were distinct, concave, ecchymosed spots on the concave surface of the liver, and serous interstitial effusions into the structure of that organ near its convex surface; the latter spots, if diffused and extensive, rendering the part very soft for a considerable space."—(First Edition, page 139.)

No evidence is given that these were commencing abscesses, and I question much if such appearances are not often seen in temperate climates, where abscesses are less common than in India. In my dissections of hepatic abscess, I have often seen abscesses so small as to be mere points of pus. I have never seen any sero-purulent effusion or structural softening round these, and as these minute abscesses differ only in size from the larger ones, I have always fancied that they commence by suppuration of a single lobule, and increase in size by the pressure they exert, such increase being influenced by the predisposed state of the organ, or of the constitution at large. This is very nearly the explanation given by Cruveilhier, although I have not been able to trace the changes so minutely.

The lymphatic glands situated near the ductus communis choledochus and cystic duct, described by Twining, are sometimes but not always to be found. I have carefully dissected these parts, and find the gland near the union of the cystic duct with the gall-bladder to be the most constant in its occurrence. As to enlargement of these diminishing the calibre of the duct, I cannot speak positively,

although I have several times seen them enlarged; but the gland near the cystic duct is not bound closely to it, but is connected merely by a loose tissue, which would, I should think, permit considerable enlargement without pressure on surrounding parts.

Another important but obscure point is the connection between splenic and hepatic diseases. In England, where the great prevalence of pulmonary complaints necessarily engages so large a share of attention, the splenic diseases have not received of late years their due attention. Perhaps they are really less common there, than in the variable miasmatic and humid Indian stations. At any rate the morbid anatomy of the spleen, as connected with various most important constitutional symptoms of vitiation of blood and cachexia, and its results, is not so well known as it ought to be, considering the knowledge we now have of its minute structure. But, conscious of the difficulty of the subject, I have not ventured to introduce splenic diseases into this Treatise, as I could have added little to what has already been said by Twining. In enlargement of the liver the spleen is generally also enlarged. In malignant remittent fever this is seen in a great degree, and it is less conspicuous in hepatitis. It is also generally softer than usual, and on scraping a section gently with the knife, its substance parts more readily than in the healthy state, and has somewhat of a strawberry-jam appearance. In splenic diseases, also, in Bengalees, viz. enlargement, with universal or partial thickening of the proper coat, or adhesion, or increased density and contraction with thickened proper coat and septa, I have generally seen changes in the liver, either enlargement or a dark dun-colour, with some softening. So that there certainly seems to be an effect produced on one of these organs by changes in the other.

The pancreas appears not to be allied so closely to hepatic complaints, although I believe it to be more often diseased than commonly supposed. In hepatitis there is generally an enlargement of the duodenal glands and orifices of Brunner's glands.

Although the sequence of symptoms appears closely to indicate the dependence of one common form of hepatitis on gastric and duodenal dyspepsia, I have not ventured to suggest any explanation of the kind of connection. Opportunities for dissection in an early stage are scarcely ever given: whether there be some peculiar sympathy or spreading of inflammation, at once to the liver, or through the medium of the gall-bladder, a mode which appears probable, are circumstances which remains to be determined.

A symptom the study of which will probably throw light on the pathology of hepatitis, is the state of the urine in abscess. I have formerly referred to this symptom, and have stated that my few and imperfect observations lead me to believe that there is a remarkable diminution in the quantity of urea in extensive suppurative hepatitis.

Assuming this to be correct, the following obvious facts possess much interest:—

In diseases in which the secretion of bile is stopped, as in great primary or consecutive abscesses, where there is no jaundice, no bile in the stools, and none in the gall-bladder after death, we find the secretion of urea to be also arrested, or nearly so.

I draw this conclusion, first, from the lowness of the specific gravity; secondly, from the pale colour; and thirdly, from the impossibility of getting nitrate of urea in the usual way.

In that universal chronic dysentery where there are yellow liquid stools, without bile, and in which there is

no jaundice, the urea is also diminished as in the former case. The liver seems not to secrete bile, sometimes for days together, or even weeks. Abscess often supervenes.

In duodenal hepatitis without jaundice, and where bile is secreted, though perhaps in less quantity than natural, the urine is high coloured, and of usual or high specific gravity, and the urea is apparently in normal proportion, or at any rate not lessened.

In acute gastro-duodenal dyspepsia, with the liver acting more than usual, judging from the copious and dark, or orange-coloured stools, and, judging from percussion, also enlarged, probably from biliary as well as venous congestion, the urine is of great specific gravity, so that the urea is probably secreted in undue proportion.

In duodenitis with jaundice, where abundance of bile is secreted, the urine is loaded with urates, and probably with urea, as well as with the colouring matter of the bile.

So that there really does seem to be a connection between the secretion of the kidneys and liver, by means of which we may hope in time to acquire some knowledge of the condition of the latter organ. Whenever the secretion of bile is stopped there appears to be a diminution in the quantity of urea separated by the kidneys. This fact is interesting, in connection with the opinions of Liebig respecting the relative positions to each other of the secretions of the kidneys and liver.

APPENDIX.

APPENDIX.

In the Museum attached to the General Hospital at Chatham are some beautiful specimens of abscess in the liver, and of ulcerations in the large intestine. Owing to the kindness of Sir James M'Grigor,* I have been enabled to inspect this superb collection; and although I cannot presume to offer any detailed account of thesevera l preparations of diseased liver, I may, perhaps, be allowed to give a short condensed view of some of the cases from which the specimens were taken. Many preparations, however, have been sent home from foreign stations with but a meagre history of the case, and in several instances there is no history at all. This considerably diminishes the value of several of the specimens illustrative of abscess in the liver.

Hepatic Abscess.

The specimens illustrating this form of disease are forty-four in number, and I shall refer to them under the numbers attached to them in the printed catalogue. I have

* I am anxious to express my thanks to Dr. French, Surgeon to the Forces, and to Assistant-Surgeon Williamson, Curator of the Museum, for their kindness and civility while I was occupied in examining these preparations.

used the words of the catalogue, and of the cases, when these could be found.

No. 1371.—Small abscesses, said to have followed acute hepatitis, which proved fatal in forty-one days. No history of the case to be made out.

No. 1372.—Numerous large abscesses from a youth who had served eighteen months in India. He had a slight dysenteric attack; then was suddenly attacked with hepatitis, which was fatal in twenty-five days. (Nothing more is detailed of the case, nor is it mentioned how long prior to the hepatic affection the dysenteric attack had been.)

No. 1373.—No history, except that the man died in ten days from acute hepatitis. (Probably this means primary abscess.)

Nos. 1374, 1375, 1376.—No histories of cases to be made out.

No. 1377.—Taken from a man received in the hospital from India, labouring under an advanced stage of bowel complaint. He died on the fifth day after admission. Small intestines slightly inflamed; mucous membrane of sigmoid flexure ulcerated and sloughy; liver with an abscess containing one pint of yellowish brown pus; gall-bladder full of vitiated bile.

No. 1378.—No history.

No. 1379.—Taken from a man admitted with pain of chest, cough, dull pain in region of liver, and a bowel complaint of six months standing; this last symptom increased before death, the other symptoms improved. The liver weighed 11 lbs., and exhibited the cyst of a large abscess. State of colon not noted.

No. 1380.—Abscess in right lobe opening into lung. No history of the case.

No. 1381.—Large abscess in right lobe; the patient died hectic. No history to be found.

No. 1382.—This case is partly given. Æt. 26. Twice in the hospital in the early part of the year with dyspeptic symptoms, and other derangements of the digestive functions. (What these were is not mentioned.) On the 3rd of May was exposed, during several hours, in an open boat, to heavy rain; and on the 19th was sent to the hospital from detachment, with well-marked symptoms of hepatitis. On the 16th of June, he was considered convalescent. On the 17th, he again complained of dull pain in the region of the liver, which extended up the chest; he could not rest on the left side; he suffered also from dyspnæa, cough, mucous expectoration, emaciation, night sweats, and diarrhœa. He died on the 9th of August.

Sectio.—Left pleural cavity contained two quarts of thick ropy pus; this proceeded from an abscess in the liver, which had perforated the diaphragm. Liver much enlarged; structure externally firm and dense; capsule thickened, and easily separated; large abscess occupying centre of right lobe, the external surface of which adhered firmly to the diaphragm. Gall-bladder filled with attenuated bile of a dark green colour. Small intestines contained a quantity of slimy mucus mixed with bile; villous coat of rectum and colon exhibited superficial ulcerations of various sizes throughout.

No. 1383.—No history: the abscess communicated with right lung and pericardium.

No. 1384.—From a man subject to dysentery for three years in India: during passage home this complaint left him. He then complained of pain in hepatic region, augmented by coughing. On admission he had an attack of hæmoptysis; the bloody stools reappeared, (how long before death is not noted.) The hepatic abscess communicated with right lung.

No. 1385.—No history: the abscess had burst into pleura, and was confined in lower part by adhesions of pleura pulmonalis to diaphragm.

No. 1386.—No history.

No. 1387.—Taken from a case which was returned as chronic dysentery. The man had served in the Mediterranean and in Ceylon. He had taken much mercury for syphilis. On admission complained of pain all over abdomen, and especially in the right hypochondrium; after admission, was almost constantly on the close-stool; evacuations muco-purulent; no affection of liver diagnosed.

Sectio.—Large abscess in right lobe; weight of liver, before evacuation of pus, 5 lbs. 1 oz. 1 dr.: seventeen ounces of thick curdy purulent matter discharged; the abscess had nearly opened into lung. Stomach and small intestines healthy to within fifteen inches of the cæcum, where the membrane was roughened by superficial ulceration. The whole of the large intestine had an ulcerated appearance; the ulcers were small, and in close contact; towards the extremity there were a few of a larger size; the coats of the gut were generally thickened.

No. 1288.—Sac of a large abscess in the right lobe of liver, communicating with the right lung, the base of which forms a large part of the wall of the sac; inner surface of the sac rough, and covered with lymph. Taken from an invalid sent home from the West Indies, where he had suffered much from remittent fever. He was carried off by an attack of dysentery. No further history given.

No. 1389.—A large abscess opening into right lung. Five years' service in India: he embarked from Bombay in good health: there he began, according to the certificate, "to suffer from liver disease in a chronic form." Two months after leaving India he became sensible of a fulness and

weight in the right side, with occasional severe darting pains in the lower part of the chest: there was slight dry cough, and urgent dyspnœa. During a fit of coughing he felt something give way in the right side, and this was followed by a gush of fluid into the mouth. In a few minutes he got rid of a quart of light yellow-coloured matter. Since then, constant pain in liver, and expectoration, aggravated, the report says, by fits of indigestion and irregularity of bowels On admission into Fort Pitt, feet and legs swollen; expectoration tenacious and red; tongue clean; no jaundice; stethoscopic signs indicated a large abscess communicating with lung. The expectoration varied in quantity from one ounce to seven daily.

Sectio.—Large abscess had destroyed the diaphragm, and opened into base of right lung; several large bronchial tubes could be seen opening into it. Rest of liver of a pale yellow colour. In apex of left lung were some moistened tubercles; spleen light colour; stomach and small intestines healthy; several large, round, yellow, and leather-like ulcers in the large intestine, the largest exceeding one inch in diameter.

No. 1390.—A man admitted from India with symptoms of chronic hepatitis, but no indications of abscess. A month after admission, however, considerable tumefaction was observed in the right hypochondrium; there was pain here and in the right shoulder, accompanied by dry cough, tenderness of abdomen, obstinate diarrhœa, and occasional vomiting.

Sectio.—Three pints of pus in right pleural cavity compressing the lung; a vast abscess of liver pressed up the diaphragm, and communicated with the pleura by a foramen as large as a goose-quill. Mucous membrane of stomach softened and thickened; small intestines healthy;

ascending portion of colon intimately connected with the abscess of liver, the pus of which had penetrated its outer coat. (It is to be presumed that the colon formed part of the wall of the abscess.) There was contraction of the descending colon and sigmoid flexure, and the whole of the mucous membrane exhibited ulcerated patches.

No. 1391.—No history.

No. 1392.—This invalid was sent from India on account of dysentery and rheumatism; admitted for chronic catarrh into the general hospital at Chatham; discharged two months after admission; readmitted four months afterwards, with cough and purulent expectoration; died the same day.

Sectio.—Both lungs crowded with tubercles; liver contained in right side a small abscess the size of an orange, situated about an inch from the surface, and surrounded with a thick white cyst.

Nos. 1393, 1394, 1395, 1396.—No histories of cases to be found.

No. 1397.—Preparation taken from same subject as that of No. 1384.

No. 1398, 1399.—No histories of cases to be found.

No. 1400.—An abscess in the liver of a man who had had pain in the side for eight years; no further account given.

No. 1401.—No history to be found.

No. 1402.—Abscess, with thick minutely honeycomb sac, taken from a man who at one time had laboured under dysentery, but latterly had dropsical symptoms. No fuller account to be found.

No. 1403.—Invalid from India, with decayed constitution, and labouring under chronic hepatitis. No further history given.

No. 1404.—No history to be found.

No. 1405.—A sac in left lobe of liver, containing a fluid said to resemble pus, but without its globular character: taken from a man who died of chronic dysentery.

No. 1406.—This patient suffered, it is said, from hepatitis in the Mauritius. During the voyage home, he was attacked by dysentery: on landing in England he was much reduced, and passing matter from the intestines; towards the end of the case he passed coagulated blood.

Sectio.—Liver very large; large abscess with thick cyst on under surface, containing fourteen ounces of thick purulent matter; smaller abscess on convex surface; small intestines ulcerated; the other viscera appeared sound. (The report of this case is very incomplete.)

No. 1407.—From an invalid who is reported to have been admitted with "dropsy and hepatic disease:" no mention whether abscess was diagnosed. No notice of state of large intestines.

No. 1408.—No history.

No. 1409.—From a man admitted with pain in the head, thirst, rigors, short dry cough, pulse 110. He had been ill five days, and appeared to be improving, when an attack of dysentery carried him off. No further history to be obtained.

No. 1410.—Abscess communicated with stomach. No history to be found.

No. 1411.—From a man subject to pain in the chest, and cough, with muco-purulent expectoration for some months; afterwards pain in right hypochondrium, and occasional vomiting; carried off by diarrhœa. Tubercles in lungs; a cavity, the size of a walnut, in right lobe of liver, containing a dark coloured needle two inches and a half

long, with its point upwards; the hepatic cavity communicated with the duodenum immediately below pylorus. The man had often stated that about two years before he had swallowed a needle, and always felt it at the epigastrium.

No. 1412.—Abscess opening into colon; invalided for chronic hepatitis. No history given.

No. 1413.—Admitted with severe pain of a spasmodic character in epigastric region, accompanied by extreme tenderness on pressure; had had this more or less for five days before admission; had been previously quite healthy: Died in fifteen days. On dissection an irregular abscess was found between the two lobes of the liver, bounded below by the lesser curvature and upper surface of the stomach, which adhered to the concave portion of liver; mucous membrane of stomach and intestines vascular. (This case occurred in India.)

No. 1414.—Hepatic abscess, containing seven pints and a half of pus; sent home from St. Helena, labouring under chronic rheumatism; stated that he had never had any hepatic complaint; four days after admission into Fort Pitt he was attacked with symptoms of a conjoined attack of hepatitis and dysentery, and died in nine days.

No. 1415.—An invalid, stated to have suffered from ague for twelve months. In Ceylon he had been affected with hepatitis. After being some time under treatment for ague, symptoms of hepatic abscess appeared externally. The prominence was punctured; peritonitis followed, and proved fatal. No mention made as to state of colon before or after death.

In analyzing these cases it is first necessary to exclude

two, viz. No. 1397, a preparation taken from the same subject as No. 1384; and No. 1411, which is not a case of abscess, but a lodgment of a foreign body in the liver.

Of the remaining cases, ten are reported fully, being cases fatal in Fort Pitt, and nine others are imperfectly reported: twenty-three are not reported at all, and it is impossible in any way to trace back the histories.

Of the ten more fully reported, Nos. 1384, 1387, 1392, and 1405, are in all probability cases of abscess consecutive to dysentery. Nos. 1382, 1389, and 1390, are cases consecutive to duodenal hepatitis. Nos. 1388 and 1415 are cases secondary to remittent fever. No. 1414 is a more doubtful case, and it may have been one of primary insidious abscess.

Of the nine less fully reported, No. 1372 was probably a case of primary abscess, as it is mentioned that the man was *suddenly* attacked, that the disease only lasted twenty-five days, and that there were *numerous* abscesses: the case occurred in India. Nos. 1377 and 1379 look like cases of abscesses consecutive to dysentery. No. 1040 was probably consequent on duodenal hepatitis. No. 1402 was doubtless abscess consecutive to dysentery, and complicated with Bright's disease—being a complication I have formerly referred to. No. 1403 was one of abscess supervening on duodenal hepatitis. No. 1406 is very shortly reported, but it may have been one of abscess secondary to duodenal hepatitis. No. 1409 is doubtful. No. 1413 is an anomalous case. It seems doubtful to me whether these instances of abscesses forming external to organs, which they then implicate, ought not to be excluded from consideration.

1. It appears from these cases that at Fort Pitt the hepatic abscesses are usually those considered to be of the most chronic kind, as consecutive to dysentery or remittent fever, or as supervening on chronic enlargement, or, as I have termed it, duodenal hepatitis. Only one case can be referred to primary abscess, and that is doubtful, on account of the meagre details of the history of the disease.

2. Most of the abscesses appear to belong to the encysted form, as being that in all probability which is most easily put up as a preparation.

3. In five cases the abscess is reported to have opened into the right lung, in three into the pleura of same side, in one into the right lung and pericardium conjointly, in one into the stomach, and in one externally.

4. It is worthy of remark, that in not one case is jaundice reported as a symptom. Emaciation, night sweats, and dysentery, are the symptoms most frequently repeated.

5. Whenever the history of the case can be made out, it confirms the view I have taken in previous pages of the origin and progress of abscess.

Cicatrices in the Liver.

Only three preparations are put up under this head: the so called cicatrices are all on the surface, and are evidently nothing more than irregular puckerings and thickenings of the peritoneal coat.

No. 1416.—Liver enlarged and lobulated; structure condensed, and presenting puckering and marks of old suppurating cavities. No history is given, except that the man died in a few days from fever, and that on dissection the

liver was found in the state mentioned. (No evidence of hepatitis having occurred at any former period is given; the liver is evidently in a state of chronic enlargement, in which state the serous coat is so often thickened and drawn together, and the "marks of old suppurating cavities" are merely these superficial puckerings.)

No. 1417.—Portion of liver, having a depressed, puckered, white cicatrix on its surface. From a man who had been invalided, with the bones of the head carious from syphilis and mercury. The Catalogue remarks, that no history of the hepatic cicatrix appears to have been collected.

No. 1418.—A long, deep, irregular groove, apparently an old cicatrix, extending backwards along the upper surface of the right lobe for about six inches; also several others of a smaller size, on different parts of both lobes. From a man who died of phthisis. No mention made of his having had any disease of the liver.

Deposition of contractile Lymph in Liver.

In previous pages I have referred to the connection which might reasonably be supposed to exist between enlargement of the liver from chronic inflammation and cirrhosis. In the former case there appears to be deposition of lymph round the lobules; in the latter case, according to Carswell, the same circumstance occurs. In cirrhosis the lymph is from some cause or other more contractile, perhaps from being more slowly deposited. I had conjectured that the hepatic enlargement of India following gastro-duodenitis or dysentery, would gradually assume in some cases the form, and be

attended by the symptoms, of cirrhosis: this sequence I have in fact partly followed.

I was anxious to see whether the collection at Fort Pitt would at all elucidate this interesting point, and accordingly I shall shortly detail the preparations illustrative of these two conditions.

Enlargement of the Liver.

Only two preparations illustrate this state.

No. 1422.—Weight of liver, 8 lbs. 14 oz. From a man who died of chronic dysentery.

No. 1423.—Weight of liver, 10½ lbs. Tubercles here and there. From a man who died of ascites following Walcheren fever.

Cirrhosis.

No. 1439.—From a man who died of dysentery. No further history.

No. 1440.—From a man who died of chronic dysentery. No further history.

No. 1441.—No history.

No. 1442.—A man who died of ascites: a severe attack of hæmoptysis occurred a day or two before death. Habits intemperate. In the necrological journal it is remarked that there were numerous black spots on the cœcal and colonic mucous membrane, that the mucous membrane of the stomach was thickened, and that there were small ulcers in duodenum.

No. 1443.—No history, except that the man was a hard drinker.

No. 1444.—From a man sent home from India with hepatic and bowel complaint, and dropsy.

No. 1445.—No history, except that the man was an habitual drunkard.

No. 1446, 1447, and 1448.—No histories attainable.

No. 1449.—From a man sent home from India with ascites and splenic cachexia, the sequelæ of remittent fever and of chronic splenitis.

No. 1450.—From a man who died of dysentery. The donor remarks, that "when the liver is in this condition, there is generally considerable diminution of its size, and ascites is almost always concomitant. It is most frequently observed at this place," (some place in India, but the name not given), "in subjects who have died of chronic dysentery, contracted in tropical climates."

No. 1451.—From a man affected with rheumatism, phthisis, and diarrhœa. (The liver is enlarged.)

No. 1452.—From a man affected with ascites; disease of liver commenced in Jamaica. No further account given.

No. 1453.—From a man who died of excessive drinking, in Jamaica.

The other preparations, six in number, are cases in which interstitial absorption had commenced in the cirrhosed liver, rendering it honeycomb and cribriform. No histories given, except that in one case, in which the absorption had gone on to a great extent, no hepatic disease had been suspected before death.

The majority of these cases are attributed by the donors to one of three causes; excessive drinking, chronic dysentery, and remittent fever, in which case the spleen is also affected.

In the preceding pages I have not discussed the relation

of dysentery to non-suppurative hepatitis, so fully as its relation to abscess; I was deterred by the complexity of the subject: hepatic enlargement, with signs of congestion, sometimes occurs a short time after the cessation of acute or subacute dysentery. More generally it occurs slowly, almost imperceptibly, after repeated attacks of subacute dysentery; at other times dysentery follows it. Gastro-duodenitis appears at uncertain times, generally before, sometimes after it. In fact, these diseases, mutually influencing each other, occupy different positions at different times in the chain of causation.

It may, however, be considered as probable, that chronic dysentery and gastro-duodenitis,—and the former, it may be, by the agency of the latter,—produce in tropical climates the same pathological condition of the liver which is seen to occur constantly in consequence of intemperance. The contraction or non-contraction of the effused lymph, producing diminution or increase in the size of the liver, are conditions important only as regards the semeiology, and not as respects the pathology of the disease.

Dilatation of Biliary Ducts.

Three preparations illustrate this condition.

No. 1419.—Great dilatation of the hepatic ducts in a man who died of phthisis, and who had no hepatic symptoms before death. There was ulceration and thickening of the coats of the intestine.

No. 1420.—Dilatation of hepatic ducts. One duct is larger than a full-sized bougie, and contained a dark-brown biliary fluid, containing some gritty bodies of

black colour, like biliary calculi. From a man who died of phthisis. The ductus communis choledochus was pressed upon by enlarged glands situated in the gastro-hepatic omentum.

No. 1421.—Dilatation of an hepatic duct as large as the little finger, for some distance; it contained a dark-brown biliary fluid. This preparation was taken from the same subject as the above.

THE END.

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