cate of the cause of death of each patient they have attended. But there is no obligation to certify to the fact of death, and no definition of what amount of medical attendance is required to enable a certificate to be given. Registrars of death have thus to act upon their own responsibility in deciding which medical certificates to accept and which to refer to the coroners for consideration.

There is no legal registration of stillbirths, and we fear that many children who die from neglect soon after birth get buried as stillborn.

The burial laws also need amendment, for a cemetery official may permit the burial of any body in the absence of a certificate of death under the presumption that he may receive it afterwards.

Coroners are seldom encouraged to greater assiduity in their work by His Majesty's Ministers. Quite recently a coroner—finding a very large number of the deaths in his district were those of persons who had been attended in their last illness by quacks, herbalists, and bonesetters, declared that he would in future hold inquests upon all such deaths in order further to protect human life, and make the death certification more accurate. Some persons who seem to hold quackery in admiration appealed to the Home Secretary to restrain the Coroner from carrying out his proposals. Mr. Ritchie, in his answer, gives the coroner no encouragement; he cites the words of the statute, and adds that a coroner would be exceeding his duty if he held inquests only because the deceased persons had been attended in their last illness by an unqualified person.

The London County Council, a very progressive body, has long since drawn up a scheme for the perfection of coroners law, burial laws, death certification and registration. This scheme has been presented to successive Lord Chancellors and Home Secretaries, but there seems little prospect of legislation in the near future. The Council recommended:

That no death should be registered without a certificate of the cause of death signed by a registered medical practitioner, or by a coroner. That no such certificate should be given until after inspection of the dead body, and that the certificate must include a declaration of the absence of the signs of violence, poison, accident, and criminal neglect.

That medical men should send such certificates direct to the registrars, and not hand them to relatives.

That it should be made a penal offence to bury any body without a burial order from a registrar, and that this after burial shall be signed by the burial authority and returned to the registrar.

That when a medical man is unable to certify he must report direct to the coroner, and that there should be a general legal obligation upon all persons to report to the coroner all deaths in regard to which there is any suspicion of foul play, neglect, or injury.

The cremation of dead bodies, which is a practice now growing in popular favour, has been objected to, not only on religious and sentimental grounds, but also for the alleged reason that cremation effectively destroys all traces of crime; it does not really deserve such objection, because the Cremation Society has made a definite rule that no body shall be cremated until after a thorough *post-mortem* examination, and the receipt of a certificate that the death has been a natural one, or that an inquest has been held.

Death certification is intimately connected with the question of medical nomenclature, and it is of the greatest importance that any reforms which may be made should include a proviso that a definite system of nomenclature should be adopted and be of compulsory use alike by medical men in framing their certificates for death registration, by coroners in drawing up the verdicts which jurors must decide upon and sign, and by medical officers of health in compiling their local statistics.

There are many other points of great interest and importance in this connexion, but from the limited time at my disposal they cannot be noticed on this occasion.

CONCLUSION.

In conclusion, I wish to say that, within the limits imposed by the need of justice to all, the coroners of England endeavour to act in harmony with medical men. They recognize to the full that much of the work of a doctor is done under most disadvantageous circumstances; if a doctor be a man of careful life, of temperate habits, good reputation, and of fair ability, he will not be called to account for every slip, accident, or mischance; nor for every fault of diagnosis, failure of treatment, or error in prognosis. If it were otherwise, medical men could not hope to pass a life, however worthy, without some contumely, reproach, or unjust aspersion.

The medical profession is a most honourable one, but a doctor's life is very arduous, and is none too well rewarded by this world's goods; nor by any effusive gratitude, except in rare instances, which do much to console and reward the virtuous practitioner.

ON COLON CATARRH.*

By T. STACEY WILSON, M.D., M.R.C.P.,
Physician to the Birmingham General Hospital.

UNDER the heading of colon catarrh I propose to include certain morbid conditions of the colon which in their extreme developments present somewhat differing clinical pictures, but which nevertheless have as their common factor a catarrhal irritability of the colon, and which are connected together by so many intermediate types of disease that their inclusion under one common heading seems justifiable. The conditions I refer to are:

1. Simple acute catarrhal colitis.
2. Subacute and chronic simple catarrh of the colon intermediate between No. 1 and No. 3.
3. The so-called "muco-membranous colitis," also called "membranous colitis."
4. Mucous colic.
5. True catarrhal typhlitis.

I do not include under the heading colon catarrh, the various types of ulcerative inflammation of the colon of more or less specific origin.

Varieties of Colon Catarrh.

1. By simple acute catarrhal colitis I mean what is recognized as the ordinary acute inflammatory condition of the colon due to errors of diet, chill, etc., and is characterized by colicky pain, colon tenderness, diarrhoea, and the passage of much mucus, and sometimes blood in the stools—a morbid condition ably described under the above heading in Allbutt's *System of Medicine*.

2. The heading "subacute and chronic catarrh" really includes all the three remaining types to be spoken of, but the term is used here to include those cases which cannot be classified as true membranous colitis, mucous colic, or typhlitis. These less characteristic cases constitute, in the writer's experience, a considerable proportion of the cases of colon catarrh met with, and to them the description of the disease here given very largely applies.

3. By "muco-membranous" or "membranous" colitis I mean the condition usually described under these names, characterized by pain, constipation, passage of so-called membranes in the stools, and with neurasthenic or other nervous manifestations.

4. Mucous colic as described by Nothnagel and others differs from the foregoing in that only two main symptoms are present, namely colic and the passage of mucus, and the condition is described as a pure secretory neurosis of the colon.

5. Under the heading "true catarrhal typhlitis" I include cases of catarrhal inflammation of the caecum associated with the passage of mucus in the stools in which there is no evidence of the appendix playing a primary part in the causation of the disease. I shall deal with this condition later on, and will only add here that the most characteristic feature in these cases is a tumour in the right iliac fossa like that associated with appendicitis; which is not due to inflammatory deposit, but to a little-known form of muscular activity, which may be described as spasmodic dilatation of the gut. This is shown by the fact that during examination the tumour may be felt to subside entirely, owing to subsidence of the spasm, only to reappear again in a few minutes on the recurrence of the spasmodic dilatation. This is simply a catarrhal over-action of the caecum, and the name typhlitis may properly be applied to it.

Unity Underlying these Differences.

When the attempt is made to classify a series of cases under one or other of these headings, it will be found that the number of intermediate and atypical cases met with forms so large a proportion of the whole as to cast doubt upon the desirability of considering the above-named conditions

* Read before the Birmingham and Midland Counties Branch of the British Medical Association.

distinct diseases. Moreover, the various types are found to pass into one another. For example, when the acuteness of an acute attack of colitis subsides, the symptoms which remain are not infrequently those of muco-membranous colitis. In other cases the remaining subacute catarrh is limited to the caecum, a condition of true catarrhal typhlitis. Also as the severity of a well-marked case of "membranous colitis" subsides, the symptoms became those of an ordinary slight catarrh of the bowel. Then, again, we may meet with patients who are passing typical "membranes" in the stools who have few or none of the symptoms of muco-membranous colitis. Again, it does not seem possible to draw any true distinction between the typical mucous colic of Nothnagel and the more frequent membranous colitis as described by the same writer.

The attacks of colic in the latter condition closely resemble those of the former, and the symptoms of mucous colic seem to be easily explicable, on the assumption that in certain patients the catarrh of the colon does not manifest itself continuously by the secretion of mucus but intermittently; the colon being unduly sensitive to special kinds of irritation, and therefore the elimination of mucus and its attendant colic is an occasional and not a constant phenomenon. I have as yet seen no case which fully coincides with the descriptions given of mucous colic, but I am inclined to accept the view of those writers who consider it simply a variety of "membranous colitis," and not a separate disease of nervous origin.

In all these four diseases an irritative condition of the colon, which is rightly called catarrhal, exists as a common factor, and the presence of this catarrhal irritability ought, in my opinion, to form the foundation of our clinical nomenclature—a name which embraces all the intermediate and atypical cases, as well as the others to which names have in the past been given.

Abnormal Secretory and Motor Activity.

This catarrhal condition of the colon manifests itself by altered function of two kinds: (1) Abnormal secretory activity; (2) by abnormal motor activity. The secretory abnormality is of an ordinary catarrhal character, namely, an excessive production of mucus, and also probably a deficiency in the amount of the normal secretions leading to increased dryness of the faeces and constipation in all except the very acute cases.

The mucus which characterizes these cases of colon catarrh is of a peculiarly firm and membranous character, and appears in the stools as cohesive membranes or masses, sometimes forming complete casts of portions of the bowel.

The abnormal motor activity shows itself either as irregular contractions leading to abdominal pain (sometimes of an extremely severe and colicky character), and also very commonly as a peculiar form of tonic rigidity of the muscular coat, which leads to what I have spoken of as spasmodic dilatation of the bowel, and of which I have as yet been able to find no good description either in physiological textbooks or in ordinary medical literature. Of this symptom I shall speak more fully when discussing the symptomatology.

Pathology.

With regard to the pathology of colon catarrh. As the disease in any of its forms is not usually a fatal malady there have been very few opportunities of making necropsies. As I have not had such an opportunity myself I have nothing to add to the published accounts of *post-mortem* appearances in acute simple colitis or in what is called muco-membranous colitis.

The correctness of the name "catarrh" is suggested by the absence of the more pronounced types of inflammation, such as ulceration or suppuration in such necropsies as have been recorded, and only in very chronic cases does it lead to chronic inflammatory thickening or distinct damage to the wall of the bowel.

As typhlitis, apart from appendicitis, is not usually fatal, I know of no report of a necropsy on such a case, and I doubt if it would give any more tangible results than those made in cases of muco-membranous colitis.

Character of the Mucus.—With regard to the mucus passed by the bowel this shows very great variety. In cases of acute catarrh it has its usual characters and appears as clear or

slightly opalescent viscous masses and occasionally is in abundant jelly-like masses sometimes of a slightly yellowish tinge, or yellow "like the yolk of an egg." In the less acute stages of the disease and in the numerous cases where the disease commences subacutely, the mucus assumes a more solid and opaque form and is passed in coherent more or less membranous and semisolid masses which retain their form and not infrequently consist of more or less complete casts of portions of the interior of the bowel. This solid form of mucus, as has been pointed out by Dr. Boas of Berlin,² can be imitated artificially by the treatment of ordinary intestinal mucus with certain astringents such as tannin, and he gives this as the explanation of the well-known fact that mucus of this same membranous type is apt to follow the use of certain astringent enemata in patients in whom such a symptom otherwise did not occur. This observation seems to show that the appearance of membranes with the faeces in cases of colon catarrh may be due to the presence of some abnormal substance in the secretion which leads to the coagulation and accretion of the intestinal mucus, and so forms the membrane-like masses characteristic of this disease. With regard to the form the masses take, the mucus may appear as small membranous shreds less than an inch across. This occurs in the slighter cases or where the symptoms are passing away. When more copious it appears in the form of rolls or twists of membrane from a few inches to several feet in length, and in thickness varying from that of a piece of thick string up to that of a lead pencil or more. These twisted pieces come presumably from some distance up the bowel, and show the effect of the peristaltic action on the intestinal contents. It is possible that some of them may come from the small intestine, showing that it too is involved in the same catarrhal process. Less commonly the mucus is not twisted and rolled, but is in irregular sheets and bits, sometimes as much as a couple of inches square or even more. At other times the mucus may come away in the form of a complete cast of the interior of the intestine. The largest one I have seen was some 5 in. long by some 1½ in. wide, and the patient who passed it informed me that she had passed even larger ones. Larger ones than this have been described by writers on this subject.

As to the colour of the mucus, it is either white or yellowish, or else of a brown colour partaking of the tint of the faeces. The larger tubular pieces are stated to have this darker colour as a rule, and this was so in my case, but I have also seen tubular pieces of white mucus. Some writers have classified cases of muco-membranous colitis according to the type of the mucus which appeared in the faeces, but my own experience does not admit of my making such a classification, for I have seen all types of mucus, both white and brown, tubular, rolled, or flat, large or small pieces, passed by the same patient, and without any recognizable change in her symptoms.

Etiology.

I must preface my remarks upon the etiology of colon catarrh by reaffirming my opinion that the more chronic form of colitis, commonly called muco-membranous or simply membranous colitis, is simply a pronounced form of colon catarrh, and that I do not accept the view, not infrequently held, that this condition is a secretory neurosis and not a catarrh. The reasons for this opinion may be gathered from the context without being restated here.³

Catarrh of the colon, in common with catarrh of other mucous surfaces, is due to irritation. The irritant may be mechanical, chemical, or of a more complex and less determinable character. Under the heading of mechanical and chemical irritants must be included those cases due to the abuse of drugs, especially of purgatives, and also those cases due to the use of irritating enemata. I have already referred to the effect of tannin enemata in producing membranous masses of mucus from patients who were previously and subsequently free from this symptom.⁴

The most obstinate case of colitis I have seen was due to the persistent use of an irritating abortifacient by the woman some years previously. Here the colon catarrh was a part of a general catarrh of the intestinal tract. Errors of diet are another cause. They can certainly cause acute colitis, and, since a subacute or chronic catarrh may be kept up or increased by an injudicious dietary, we have reason to

believe that irritation by food may play some considerable part in the causation also of the less acute forms of the complaint. Amongst the more subtle forms of irritation must be mentioned the effects of chill, as is the case with catarrhs in general, and also certain specific febrile conditions, such as influenza. This latter may certainly be the cause of acute colitis, and I have seen cases which seemed to be undoubtedly due to this cause.

With regard to the etiology of the subacute and chronic forms (including the condition usually known as muco-membranous or membranous colitis) I believe that a most important part is played by gout and the arthritic diathesis. With regard to catarrh of the caecum, this fact cannot, I think, be called in question, in view of Dr. Haig's personal experience, and also in view of the value of salicylates in many cases of acute and subacute typhilitis (as distinct from appendicitis). From my own experience I feel sure that we must recognize gout and the uric acid diathesis as prime factors in the causation of colon catarrh. I am convinced that there is good reason for accepting Dr. Haig's theory that, under the influence of certain states of the system or certain drugs, such as calomel, there is an accumulation of "uric acid" in (or excretion of "uric acid" by) the caecum to such an extent as to lead to the catarrhal inflammation of its mucus membrane.

The observations of several Continental writers show the close relation which what they call "arthritis" bears to the occurrence of membranous colitis. They find it present in the majority of cases, and M. Langenhagen, of Plombières, states that out of 560 cases of this complaint which he carefully examined he found distinct arthritic signs in 535 instances.⁵

Much stress is laid by most writers upon the neurotic element in the causation of the chronic form known as muco-membranous colitis. This nervous element is so marked a feature in these cases, that not a few writers consider it a prime factor, and that the disease is simply a secretory neurosis, and that the catarrhal symptoms which exist are secondary.

But, as we shall see when we discuss the symptoms, irritation of the colon exercises such a depressing effect upon the nervous system that I believe it probable that the neurotic element is only an early symptom of the complaint and not its cause. This is rendered the more likely, because the catarrh is very apt to escape recognition in its earlier stages.

Certainly the statistics given by M. Langenhagen upon this point are in accordance with my own observations. He states that although a distinct neurotic element existed in all but 11 out of his 560 cases, in only 8 cases was there true neurasthenia prior to the onset of the intestinal trouble. He adds his opinion that while neurasthenia cannot be regarded as a cause, in the great majority of the cases membranous colitis occurs in persons with a "nervous and arthritic predisposition."

Further, it is noticeable that the nervous symptoms seem to follow rather than precede exacerbations of the disease, and similarly that as recovery takes place they seem to disappear because the bowel symptoms improve and not vice versa. Also in the slighter cases decided catarrhal signs can exist unaccompanied by any nervous manifestations.

The association in these cases of an excessive amount of intestinal mucus with gastric hypersecretion is interesting as suggesting the possibility of the nervous system taking a prominent part in the causation of the disease, but in the two cases where I have seen this condition well-marked, the hypersecretion yielded at once to "antiarthritic" treatment and to diet. In none of my cases have I found it necessary to adopt treatment mainly directed to the nervous system, as would have been the case were the condition a pure neurosis.

Another possibility as to the causation of this disease is that micro-organisms play an important part in the intestinal irritation. The fact that the remedies which are most effective for the cure of this disease are intestinal antiseptics, in addition to being antirheumatic ones, is not out of harmony with this theory, but more work needs to be done in this direction before this theory can be accepted or disproved.

Constipation is another etiological factor upon which stress is sometimes laid, but here, again, we have a symptom and

not a cause. A strong argument against constipation as a prime factor is the frequency of this condition and the comparative infrequency of colon catarrh. We occasionally see a little mucus coating scybalous masses in constipation, and the mucus is not improbably due to irritation of the colon by the retained faecal masses, but this does not seem to form the starting point of catarrh. Another point is that the dietetic treatment adapted to the curing of ordinary constipation aggravates colon catarrh and tends to increase the constipation.

Other etiological factors may be found in exposure to cold or chill; but this is not so easy of demonstration for the subacute and chronic forms as it is for acute catarrh of the colon. It is also stated that muco-membranous catarrh may result from certain organic diseases of the colon, such as cancer, obstruction, etc., but such cases have not come within my own cognizance.

Symptoms.

The primary symptoms of colon catarrh I consider to be:

1. Excessive secretion of mucus.
2. Excessive irritability of the muscular coat of the colon, causing it to harden and become palpable.
3. Constipation, due probably to both altered secretion and altered motility of the colon.
4. Pain—often colicky—and tenderness of colon.
5. Nervous phenomena, especially well-marked mental depression, often hypochondriasis, sometimes true neurasthenia.

In acute cases cardiac depression is often well marked. In addition to these, vomiting of food, often without pain or discomfort, not infrequently occurs; also dyspeptic symptoms. Coldness and blueness of extremities and poor circulation, leading to chilliness, etc., is not infrequently seen.

For the discussion of the symptoms in detail colon catarrh must be subdivided into (1) acute general catarrh and (2) subacute and chronic catarrh; and for clinical purposes a further subdivision of this latter must be made, according as the catarrh is, first, practically limited to the caecum and ascending colon, or, secondly, is fairly general in the colon or mainly involves the transverse or descending colon. The first of these two latter subdivisions is of importance clinically, because primary caecal catarrh (that is, typhilitis) is very apt to be mistaken for the secondary caecal catarrh which almost invariably accompanies appendicitis.

Symptoms of Acute Colitis.

First, then, acute general catarrh, also called acute simple colitis or acute catarrhal colitis: This condition is so well described by Dr. Hale White in Dr. Clifford Allbutt's *System of Medicine* that I need not detail the symptoms here. I would, however, add that from the cases I have seen I should say that a marked symptom of these cases is the extreme cardiac depression which accompanies the attack when acute. In 3 well-marked cases this has been most striking. In 1, which was apparently due to influenza, a strong young man was rendered prostrate in a few hours, and his pulse-rate fell to under 40 per minute. The doctor who saw him before I did states that it was only 30 per minute. He was so faint and low for days that the least attempt at movement induced faintness and a sense of impending death. In 2 out of these 3 cases the acute attack was followed by a subacute stage, in which mucus characteristic of muco-membranous colitis was passed for a time, and the over-action of the muscular coat of the bowel was noticeable, as well as the tenderness and pains.

Subacute and Chronic Catarrh of the Colon.

It is to the symptoms of simple subacute and chronic catarrh of the colon to which I desire especially to draw attention in this paper.

1. With regard to the first of the four primary symptoms already mentioned (namely, the presence of mucus in the stools), I have already spoken at some length. I am inclined to lay rather more stress on slight amounts of mucus occurring in constipation than some writers do. For the occasional presence of hardened masses of mucus in cases of constipation ought to suggest the presence of colon catarrh, and lead to its early recognition while it is yet in an easily curable stage. Also, as we shall see when we speak of treatment, the presence of mucus in constipation ought to make us very

careful as regards the use of the foods with indigestible residue, which are usually the most effective means of curing habitual constipation.

Muscular Irritability of Colon.

2. As regards the evidences of muscular irritability which are seen in colon catarrh; in cases of acute and subacute catarrh where the bowel is not too tender to admit of gentle palpation a peculiar condition is noticeable which I am at a loss to explain except of some hitherto almost undescribed form of muscular activity. I believe that under certain kinds of inflammatory irritation the fibres of the muscular coat of the large intestine become hard in the extended position, instead of in the contracted position as usual. A sort of active extension of the muscular fibres takes place, thus holding the bowel open and keeping its walls rigid—a sort of spasmodic dilatation of the gut. I believe the same kind of tonic extension of the muscular fibres takes place in the case of the muscles of the abdominal wall in peritonitis, for I do not see how any true contraction of the muscles could produce the hardness with convexity which we see in that condition.

The first case which brought this condition strikingly under my notice was one which I saw some eleven years ago. It was supposed to be a case of relapsing appendicitis in a man of about 50. I saw him early in a relapse. He had the symptoms usually associated with appendicitis, but on palpating the right iliac fossa I found that instead of feeling the usual oval tumour in the right iliac fossa, there was a hard, tender, cylindrical tumour from $1\frac{1}{2}$ in. to 2 in. in diameter running up from the right iliac fossa to under the right costal arch. This could be nothing else than the ascending colon turned into a tube with rigid walls. It was resonant on percussion. It was so hard that it was impossible to believe that the hardness was simply due to distension by gas forced into it by contracted bowel on either side of it. This explanation was further negated by the way in which the "tumour" subsided. On a subsequent examination the cylindrical tumour was found to reach only halfway up to the costal arch—that is, only the lower half of the ascending colon was spasmodically dilated. Above the hard dilated part of the colon the gut was found to be relaxed, not contracted, which could not have been the case if the distension were due to air forced in under pressure. I made this observation repeatedly on this case, as the tumour due to the dilated gut got less and less; and after convalescence was established, and the patient was walking about I was able on one or two occasions to feel the lowest part of the caecum suddenly become hard and distended under my hand, while the rest of the caecum remained soft and undistended. This observation I have very frequently made since in cases where there is catarrh of the caecum, and I have no doubt at all that catarrh of the colon leads to a tonic extension of its muscular fibres, and in consequence an active dilatation of its cavity.

In the International Medical Congress held at Paris in August, 1900, this same spasmodic dilatation of the colon was referred to by more than one of those who contributed to the discussion on muco-membranous colitis. Thus Dr. Mannaberg, of Vienna, referred to a patient of his who had a "fearfully tender tumour running right across the epigastrium" which consisted of the "unusually strongly tetanically stretched (*gespannte*) transverse colon." It is not quite easy to understand the meaning of this sentence, but it seems to imply that the colon was dilated and not simply stretched by the contraction of its longitudinal fibres, for in this case it would not have bulged forwards and formed a prominent tumour in the epigastrium noticeable by the patient herself.

There is no doubt, however, as to the meaning of Dr. Jules Geoffroy. He describes this unusual irritability of the intestinal muscles with great detail, and regards it as the most trustworthy sign of the presence of muco-membranous colitis.

In his paper read before the Congress, after describing how the bowel can be felt to harden under the hand so that it can be grasped between the fingers, and "just as a floating kidney can," he goes on to say that "When the calibre of the bowel is increased, it may be to a considerable extent, we have before us an 'active distension' which simulates a solid tumour by its hardness and its resistance." If this

hardening of the colon be carefully and patiently felt for it will be found to be a most reliable sign of the presence of colon catarrh. Sometimes it is most marked in the caecum or ascending colon, and sometimes in the transverse colon, sometimes in the sigmoid flexure or descending colon.

Out of the 30 or more cases which I have seen in the last four years, I have found this muscular hardening more frequently in the caecum than elsewhere in the colon, but it is also common in the region of the sigmoid flexure. It is this type of hardening of the portion of the caecum nearest to the appendix which gives rise to the tumour which is so characteristic of appendicitis, and it is often not easy to distinguish the primary hardening of the caecum due to colon catarrh from the secondary hardening which results from appendicitis (see diagnosis).

Another way in which the abnormal irritability of the muscular coat shows itself is by spasmodic contractions, which may occur in any part of the colon. While undergoing such contraction, the bowel can be felt as a hard and often tender cord some $\frac{1}{2}$ to $\frac{3}{4}$ in. in diameter. This is simply an exaggeration of the normal state of tonic contraction which renders the healthy colon palpable in the right or left iliac fossae.

Thirdly, there may be irregular spasmodic contractions, giving rise to the colicky pains which are so frequent a feature of this complaint. These painful contractions are in all probability often due to the efforts of the bowel to get rid of the masses of hardened and altered mucus clinging to its interior. At all events, they often precede the expulsion of the so-called membranes.

Constipation.

3. The third primary symptom is constipation. This is a most characteristic symptom, and one which gives much trouble to both patient and doctor. But, although extremely common, it is not invariable, and occasionally diarrhoea is said to be present instead, thus proving that constipation is a symptom, and not, as some writers assert, the cause of the disease.

Pain.

4. Pain is the last of what I call the four primary symptoms, and it is almost invariably associated with tenderness of the whole or portions of the colon. The pain may be general over the colon, but far more commonly it is confined to one part of it, and not infrequently it remains localized in the same part of the colon throughout the whole of the attack, and sometimes will have the same localization in succeeding attacks in the same patient. The most common localizations which I have seen amongst my cases are the transverse colon, the caecum, and the sigmoid flexure. It may also be localized to the hepatic flexure or the splenic flexure. This pain, which may be the only symptom of which the patient complains, except the constipation, is apt to be extremely misleading.

When in the transverse colon it is certain to be mistaken for gastric pain unless careful inquiry and examination be made, especially as the tenderness of the transverse colon may very easily be mistaken for gastric tenderness. The pain is often of a dull aching character, and very closely resembles the pain of gastric flatulence, and, like it, is liable to sudden increase in intensity.

There are certain characteristic points about this pain which ought to lead to a correct diagnosis in its origin. I am speaking now of a slight case of colon catarrh before the occurrence of mucus in the stools has become a prominent symptom. First, the pain often comes on some hour or more after a meal; it does not do so regularly. It is very apt to be brought on by exertion, and patients suffering from this mild form of catarrh will complain that after walking for a mile or so they have to sit down and rest, or after playing a single game of lawn tennis they have to stop because of the pain. This relationship to exertion is much more evident if the exercise be taken shortly after a meal. The pain may occur any time in the day, and when the stomach is empty the pain is often relieved by taking food.

Another characteristic of the pain is its occurrence at night. The patient will get up at night thinking that the pain is due to gastric flatulence, but will find that sodium bicarbonate, carminatives, charcoal, etc., all produce no effect. Pressure with the hand and gentle massage does give them some relief. The pain is not sufficiently severe to be incapacitating, and, when it comes on during exercise, does

not necessarily get worse, but may pass off as the exercise is continued. In such a case as this the patient will notice that there is an unusual amount of intestinal flatulence, and if he examines the stools he will find that they are apt to be made up of an agglomeration of small rounded masses—once described to me as being “in shape more like sheep’s droppings than an ordinary motion.” On careful examination a few shreds of mucus may be seen connecting the masses or lying on the outside of the stool. If in such a case the abdomen be carefully and patiently examined, some over-tonicity of the colon will be felt, and during one of the attacks of pain the caecum or sigmoid may be felt to rise up under the hand as a soft but distinct tumour, or the transverse colon may be distinguishable as a hard and tender cord some $\frac{3}{4}$ in. or so in diameter running across the abdomen just above the umbilicus.

I have little doubt that many cases of gastralgia, so-called, are really cases of pain from catarrh of the transverse colon, and I have read of cases described as obstinate gastralgia where the character of the pain seemed to point unmistakably to its colon origin. When the pain is localized to the caecum, the natural diagnosis nowadays would be of appendicitis, and I have seen several cases where this mistake might very easily be made, and some where it has been made.

When the pain is localized in the hepatic flexure, the diagnosis from biliary or renal colic may be difficult, and I have notes of a case of renal pain from displaced kidney where the symptoms very closely resembled colon pain.

Fortunately the recognition of the cause of the pain is usually rendered easier by its occurrence in more than one part of the colon. Another deceptive feature about the pain is that it not infrequently has some relation to food, as previously stated; occurring from half an hour to an hour and a half after meals. Also not infrequently in these cases there is true gastric pain, as well owing to the dyspepsia which is apt to accompany catarrh of the colon. A very characteristic feature of the pain in the severer cases is that it is apt to accompany or precede the act of defaecation, a fact which distinctly suggests its colon origin.

The occurrence of the pain at night has been already referred to. When the pain is so severe as to amount to a true colic there is not much difficulty in recognizing its true nature. These severe pains are, moreover, often followed by the expulsion of mucus as above described.

Nervous Symptoms.

We now come to an important group of symptoms, namely, those referable to the nervous system. In well-marked cases these play a prominent part in making up the characteristic picture of the disease. In the slighter cases, however, they are of less importance than the four already described. By far the most prominent nervous symptom is the depression which accompanies well-marked subacute or chronic cases of colon catarrh, and which is a well-known and often-described symptom of “membranous colitis.” This depression sometimes amounts to attacks of causeless and unreasoning misery. For instance, a strong and healthy-looking man, with no reason for depression of spirits, will tell you that for a whole afternoon “he felt more like crying than anything else;” or a lady who is the picture of health, and on whom all outward affairs are acknowledged to be smiling, will confess to a large amount of weeping on the quiet. This mental depression may in part be due to the effects of the constipation, but is doubtless largely a reflex nervous effect due to irritation of the colon, and allied to the extreme cardiac depression which we sometimes see in cases of acute colitis.

Allied to this depression is the hypochondriasis which is apt to accompany this disease, and also the neurasthenia to which advanced cases are apt to become subject. On this I need not dwell; it is too well known. An important and very frequent reflex nervous symptom in these cases is vomiting. This is apt to take the form of a simple intolerance of the stomach for food. For instance, a man whom I have now under treatment described himself to me as being “like a cow,” because the food he had swallowed kept on coming back into his mouth, and he had to keep on swallowing it again till it finally stayed down. In another case vomiting of all food without pain or discomfort immediately after taking it was almost the only symptom of a well-marked colon catarrh in a

young woman. In this case there was very little pain or muscular overaction, and the passage of mucus by the bowel was for long not suspected. In this patient the vomiting ceased for the first time for some years as soon as the colon catarrh was treated and checked, and after an intermission of the treatment the return of the catarrh was followed by a return of the vomiting. This case also showed another not infrequent reflex symptom, namely, gastric hypersecretion.

To complete the picture of a well-marked case of this so-called muco-membranous colitis we must mention what is more a result than a symptom, namely, the malnutrition which results from it. This is, in my experience, seen more in the severer cases, where pain is a prominent symptom and is due mainly to depression and want of sleep and fear of eating, probably combined with a certain amount of auto-intoxication from constipation. Vomiting apart from pain does not seem necessarily to induce emaciation, and the few cases I have seen where this was a prominent symptom were fairly well nourished, as is the case in hysterical vomiting.

Diagnosis.

As to the diagnosis: I have covered the ground fairly well in speaking of the symptoms, except in so far as the diagnosis of typhlitis from appendicitis is concerned. This opens a very large question, and one which I cannot enter fully into here. A primary acute or subacute catarrh localized in the caecum cannot always, so far as I know, be distinguished from catarrh secondary to appendicitis during its acute stage.

As the acuteness of the symptoms pass off, it will, however, be noticed in appendicitis that tenderness and resistance remain localized in the neighbourhood of the appendix after the inflammatory distension of the caecum has subsided. In typhlitis, on the other hand, a prolonged examination, perhaps assisted by steady gentle pressure, may reveal the fact that when the inflammatory distension of the caecum has subsided for a few seconds the iliac fossa is left quite free from tenderness, showing the absence of any inflammation around the appendix.

With regard to the condition of hardness of the caecum, of which I have spoken, there are several conditions with which it may be mistaken. When the irritation is not very great the distension of the caecum will be soft and elastic, such as might be caused by chronic obstruction in the ascending or transverse colon. In practice, however, no real difficulty is likely to arise, because in colon catarrh in such a case the distended area of the caecum is a localized one, occupying some 2 in. or 3 in., more or less, and often varies in extent during examination, whereas in obstruction the ascending colon will be evenly and equally distended, and careful palpation will show that the gut remains full during the intervals between the intestinal contractions. When the irritation is greater, and the gut hardens more during its periods of tonicity, the diagnosis is also easy, because of the limited area which hardens in caecal catarrh, and also because it is much harder than is the case in chronic obstruction. In catarrh the hardening of the gut coincides with its dilatation. In obstruction the periods of hardening are associated with a diminution in the diameter of the gut.

The distinction between the evenly-hardened gut of colon irritation and the irregular distension due to hardened faeces is not one which will cause any difficulty. In a severe case of caecal irritation from colon catarrh, however, very great difficulty may be experienced in deciding whether the “perityphlitic tumour,” so called, is simply the hardened and distended caecum, or whether it is due to localized peritonitis surrounding an inflamed appendix. If the abdominal wall partakes in the hardening, and the iliac border of the caecum cannot, therefore, be defined, the presence of true inflammation must be suspected. If, however, the perityphlitic tumour can be distinguished as a cylinder, and both its inner and outer outlines can be detected by palpation in the iliac fossa, the probability is in favour of there being no appendicitis. But this is a question which must be decided upon other grounds than those of physical examination alone, and the accepted evidences of appendicular suppuration must be looked for, and the progress of the case watched, as already stated.

Prognosis.

As to prognosis: If the case be recognized early enough, and

appropriate treatment by diet and medicine adopted, the prognosis as to complete recovery is very satisfactory. In the more chronic cases, where the patient has been for years passing membranes, much can be done to relieve and keep the symptoms in check, but the patient is very liable to relapses. In cases with well-marked neurasthenic symptoms the treatment is much more troublesome. In some very chronic cases the disease seems most inveterate and difficult to deal with. In view of the difficulty of dealing with chronic cases, the recognition of the disease in its early and eminently curable stage is of the greatest importance.

Treatment.

Of acute colitis: This must proceed along the lines usually adopted for this complaint, but the rheumatic element in many of these cases must not be neglected. With regard to the treatment of the less acute forms of catarrh as here described, the amount that has been written upon the treatment of membranous colitis, and the number of remedies suggested in the textbooks is a sure proof that it is apt to be extremely intractable, and this is certainly so as far as the severe chronic cases are concerned. In the majority of cases, however, the disease is eminently curable if suitable means be adopted before the disease has advanced too far. The key to the treatment of this disease is, in my opinion, the recognition of its relation to gout and the "uric acid" diathesis, and also the recognition of the fact that it is a catarrh of the colon.

The first indication is met by the exhibition of the salicylates, in the form of sodium salicylate or salicine in the acuter cases. These sometimes have a remarkable effect upon those cases of caecal catarrh or typhilitis which so closely resemble appendicitis, and the rapid disappearance of symptoms under this treatment often confirms the diagnosis of caecal catarrh in a doubtful case.

In more chronic cases one of the combinations of salicylates with carbolio acid of the salol type seems to be the most effective, and this last-named drug has in my hands proved of extreme value in the treatment of colon catarrh, even when it has reached the stage described as chronic membranous colitis. Another very effective treatment is by means of the combination of the perchlorides of mercury and iron which is so useful in enteric fever.

The second point of prime importance to be remembered in the treatment of these cases is the fact of the undue irritability of the colon, both secretory and motor. Therefore the second main indication for treatment is the elimination from the dietary of all articles of food liable to leave an indigestible solid residue which might irritate the colon. The treatment must therefore take a line the exact opposite of that usually adopted for simple constipation.

Brown bread, porridge, figs, etc., which relieve ordinary constipation, are most potent in producing pains and excess of mucus in cases of colon catarrh, and in aggravating the irregular muscular action, which is one of the causes of constipation in this disease. In fact, any vegetable food containing much woody fibre must not be admitted to the dietary; even bananas often disagree; also the skins and seeds of fruits, and all fruits such as pears, with a gritty pulp. In taking meat care must be taken to remove the skin, gristle, and more fibrous parts. All indigestible solids should be removed from the dietary. These dietetic precautions, combined with the use of salol (20 gr. to 30 gr. per diem) will be found to produce great amelioration in the majority of the milder cases and in some of the severer ones. Where nervous symptoms have become prominent the treatment of these also constitutes an important part of the work of the physician, and the cure will be hastened by attention to hygienic, climatic, and social treatment, as well as to the medicinal and dietetic.

In cases of long standing, where considerable damage has been occasioned to the mucous membrane, treatment by enemata of simple saline solution, or with boracic acid, sometimes proves of value. In extreme cases it may be necessary to give the colon complete rest for some months by performing the operation of right inguinal colotomy, allowing no faeces to pass along it. Several successful cases of this have been put on record in recent years.

The intractable nature of these chronic cases and the ease

with which an early case can be cured emphasizes the importance of early recognition of catarrh of the colon. Not only is early diagnosis necessary on these grounds, but also because, when not recognized and properly treated, catarrh of the colon, even in the less severe cases, is apt to cause very considerable suffering, both physical and mental, to those afflicted by it; and no small part of their suffering may sometimes be due to the fact that they have constant and annoying pain, while retaining every appearance of health, and consequently are considered to be hysterical and making much of a little. The deceptive character of the early symptoms renders the early recognition of this condition far from easy, because they suggest to both patient and doctor the presence of a gastric rather than of intestinal ailment.

REFERENCES.

- ¹ See a summary of *Post-mortem Reports on Membranous Colitis*, by Dr. Mannaberg of Vienna, *Trans. Internat. Med. Congress*, pp. 87-89, Paris, 1900. ² *Symptomatology and Diagnosis of Membranaceous Colitis*, *Trans. Internat. Med. Congress*, Paris, 1900. ³ Dr. Mathieu, loc. cit., p. 101. ⁴ Boas, loc. cit., p. 95. ⁵ Loc. cit., p. 112.

NOTE ON A CASE OF "TRUE" INTESTINAL SAND.

By C. H. BEDFORD, D.Sc., M.D. EDIN., MAJOR I.M.S.,
Professor of Chemistry, Medical College, Calcutta; Chemical Examiner to the Government, Bengal.

So little is known of this condition—if we may judge from the paucity of references to the subject in contemporary medical literature—that it becomes of interest, as well as importance to record any case of the kind, more especially when the report is supplemented by a chemical analysis.

Through the kindness of Lieutenant-Colonel Peck, I.M.S., of Calcutta, I have lately had the opportunity of analysing a specimen of "true" intestinal sand which was passed by a patient seen several times by him in consultation, and I am further indebted to him for furnishing me with the clinical facts of the case.

The patient was a European lady, aged about 44, with a very marked history of gout. She has had a large number of "gouty deposits" in the smaller joints, with nodules in the ears, but the larger joints do not appear to have been affected. Several tendons have also been disabled from the same cause. Constipation was present, requiring treatment with saline purgatives. The motions were ordinarily normal in appearance, except for the presence of mucus. There was apparently no diarrhoea alternating with constipation, as is sometimes the case in such patients. There was, however, a distinct, though not severe, attack of muco-colitis coincident with the passage of the sand. There was no history of colicky pains, vomiting, or distension. "There was never any intestinal pain to speak of. The tongue was always particularly clean." She had not reached the menopause, was sterile, and had all her life suffered from ovarian pain. A sample of her urine was analysed by me in March last, and had a brown, somewhat smoky appearance, with much suspended matter; specific gravity 1020; acid reaction; much albumen present, with a few fibrinous casts and uric acid crystals. Dr. Peck mentions the fact that the albuminuria entirely disappeared some months later. "At the time the sand was passed she had for months been on milk and farinaceous diet."

No traces of urates or uric acid were detected. Treatment was by preparations of lithium, occasional saline purgatives, and colchicum and potassium iodide in mixture. The amount passed at any one time seems to have been not more than half a teaspoonful (usual size). The patient left India for England in February last.

Examination of the Sand.

The deposit was very finely granular and yellowish-brown, and very like fine sand. Under the microscope the particles were of very various shapes and sizes—oblong, irregularly oval, and of other shapes. The colour varied from black through reddish brown to a light yellow. Many of the particles were only translucent at the edges. There was no appearance of vegetable or crystalline structure. The organic portion, washed and stained with methylene blue, showed a quantity of cocci and bacilli.

The result of analysis is here given:

Moisture	...	5.20 per cent.
Calcium phosphate	...	28.68 "
Calcium carbonate	...	5.20 "
Magnesium phosphate	...	0.49 "
Organic matter	...	60.43 "
		100.00

The amount of sand remaining over was too small to allow of a sufficiently accurate examination to be made as to the nature of the pigment present. True intestinal sand appears to yield a much higher percentage (from 28 to 70) of inorganic constituents than the false variety, which gives only about 2 to 3 per cent. generally.

The above analysis, then, clearly shows that we are dealing