they are self-centred. They have also been told that they are ill physically, in each case by a competent authority, and they do not know what to believe. They naturally have made some compromise, such as that they are weak-willed, an inborn defect for which they should not be held responsible, and which at any rate they cannot overcome. The secret of success lies in getting the patient to see things for himself, and telling him very little. He should be told that he has no lesion capable of producing these symptoms, but that the doctor has every reason to believe them to be there truly. That is nearly all the information he requires. He knows perfectly well that mental states cause bodily symptoms. He knows that disgust may cause vomiting; he knows that fear may cause palpitation, that horror may cause fainting, etc. He need only have his attention drawn to these things. If his history has been taken before any opinion is given, it can easily be shown that he was worse at difficult periods, at periods when he was more than usually anxious. It is a step from that for him to see that when, later on, there was the prospect of a difficulty, which illness could postpone, he sometimes fell ill, and so evaded the difficulty; and when he has grasped that he has done so habitually he will be less sure that he has been unlucky, and begin to think that he has not chosen the better part on important occasions, that he has acted pusillanimously, that he has tried to save his skin for the moment. There will be no need for anyone to use the world self-centred; he will see all that, all that it means without the word. I submit that this is something different from telling him.

If the patient has been led in this way to see that his illnesses have been mental in origin, and that his misfortunes have not been anyone's fault in particular, he may then easily develop a sense of guilt; the symptoms are his fault—somebody's fault they must be. To some extent this is, of course, a trait common to all of us, but in these patients the feeling is apt to be excessive. In a sense they always had this feeling more than other people; I do not think it is a creation of the treatment. It was repressed, and this implies that the patient himself was really unconscious of it. It is a phenomenon which needs some care in handling. It is a real sense of unworthiness, but a patient can easily use it as a something with which to beat the doctor, and make him sorry that he ever started to unravel the patient's mind. There are many times when he is excessively angry with the doctor for depriving him of the symptoms out of which he frequently derived benefit; there are many other times when he sees that this doctor has been his greatest friend—to both attitudes we must preserve a certain aloofness. Do not set much store by the praise that will from time to time be heaped on you by these patients, and you will not be much upset by those other occasions when they are not only blaming you to your face, but gossiping behind your back.

We shall find after a short time of treating a patient in this way that though he may still report symptoms, our conversations are, on the whole, not about symptoms but about mental affairs—about frustrations of desire, about guilt for shortcomings, about difficulties that require to be met, about the best ways of meeting them. The danger that is to be then avoided is that we should become too much the person without whom nothing must be done, whereas our aim is that these people should learn to stand on their own feet. While at first we may have to point out what their course of action should be, later we shall have to let them know that they themselves must settle their own problems. For example, the modern young lady has nothing to do at home, and leads there a life where every hour has to be provided with spurious occupation, which is of no value to anyone, and therefore merely a pandering to her self-centredness. When she makes the discovery that her business is to be helping somehow in the work of the world, she would like to be told what to do. Personally I never try to find out. If I selected a job for her she would soon let me know that it was unsuitable. I tell her to read advertisements, and that downstairs she will find the current number of a magazine devoted to women's occupations. My business is not to settle anything for her, but to let her feel that so long as

she remains somebody to be amused she is not likely to keep well.

Two corollaries and I have done. The first is that there are an enormous number of people going about suffering from minor illnesses which are called indigestion, gastritis, debility, headache, eyestrain, brain fag, and many other names, who are suffering from neurosis and whom a comparatively simple therapy would cure. Some are no longer in need of an illness to help them out of difficulties—that phase has passed. They can be cured by the simplest explanation. They have remained ill because fear was put into them. They have got lost in a fog and are glad to be taken out of it. They are the people who, to our shame, are cured by Christian Science, by Couéism, and other unscientific remedies. There are, of course, others who will need the training in character outlined above.

The second point is that we have envisaged neurosis not as an illness but really as a badly developed personality. The thing began in childhood, though its manifestations may not have called for medical help till much later. If this is true our re-education can never begin too soon; and indeed it should be pre-natal. It is the parents who start these things, not, as I think, by heredity so much as by example. If heredity is a factor, then the neurotic parents should be all the more careful about what they do with their children, above all what example they show them. The mother who goes to bed with a headache because the cook has given notice is not only doing something bad for herself, she is teaching the children in the worst way possible how difficult situations should be met. The parents who are taking undue physical care of their children, who are petting them, who are unkind to them, who are, in general, silly with them, are a good deal under the eye of the family doctor, and I think it is very much in his power to sterilize the seeds of neurosis at the beginning.

In conclusion I feel that I have been saying what most of you know and practise; those who do not are not the ones who attend these meetings. If I have been too elementary I apologize, but in my own practice I seem to see the hand of those who do not practise these things. The neurotic sees many doctors, and he unfortunately clings to the teachings of the bad ones.

CONSTIPATION: ITS NATURE AND DIAGNOSIS.*

BY

GEOFFREY EVANS, M.D., F.R.C.P.,

PHYSICIAN WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL.

It is with a feeling of some diffidence that I offer these remarks on a subject so commonplace as constipation. It would have been an easier task to deal with certain aspects of the disorder, such as its varieties, its causation, or its treatment; but it will be my object to discuss chiefly constipation itself, its nature, and its diagnosis, because these are matters of first importance and some difficulty.

For general purposes, though difficult to apply to a particular case, constipation may be defined as a condition of undue delay in the passage of food residues through the large bowel. It has been more accurately defined by Dr. Hurst as a condition in which none of the residue of a meal, taken eight hours after defaecation, is excreted within forty hours.

Symptoms of Constipation.

These fall into three main groups, and it is by the appearance of one or more of these symptoms that a person recognizes the fact of constipation in himself, or, in other words, diagnoses his own complaint.

The first group of symptoms is directly related to the disorder of function of the large bowel itself, and they are as follows:

1. Regularity of defaecation. The best regulated bowel empties at a certain time one or twice in every twenty-four

* An address to the Devon and Exeter Medico-Chirurgical Society, October, 1929.

hours. Less frequent evacuation, such as once in forty-eight hours, may be normal, and it is possible in a particular case that an evacuation three times in twenty-four hours is physiological. To the extent that it is a matter of convenience it is under the control of the will, and to the extent that it is a matter of habit it is dependent on a series of reflex mechanisms.

2. Completeness of evacuation. This is perhaps even more important than regularity of evacuation. The rectum is usually empty in a healthy person, and the passage of faeces into it gives rise to a sensation of fullness in the perineum and a desire to go to stool; if it does not empty completely with defaecation there is a remaining sensation of fullness, or of incompleteness of the action, which vitiates the sense of satisfaction that accompanies the perfect performance of physiological function.

3. Hard stools, and difficulty or discomfort in passing them. This is generally accepted as evidence of constipation by a healthy person, but if it is occasional and the evacuation is complete it may occur without undue delay.

4. The size of the stool. Most people, without actual inspection of the faeces, have a general idea as to whether or not the evacuation is adequate in bulk; this criterion may be fallacious because it is dependent partly on the size of the stool and the effort with which it is passed.

5. Abdominal discomfort. A sense of distension (or pain) in the abdomen, more particularly felt horizontally just below the level of the umbilicus, a sense of discomfort in the left iliac fossa, or a sensation of fullness or pressure behind the symphysis pubis, are symptoms which may arise from a delay in the passage of material through the bowel; they may equally be due to the accumulation of flatus.

The second group of symptoms is due to a disturbance of function of the digestive tract apart from the large bowel. These symptoms are chiefly gastric, and perhaps in part hepatic; they are a loss of appetite, nausea, a feeling of biliousness, acidity, heartburn, and a bad taste in the mouth, particularly on waking in the morning.

The third group of symptoms affects the body as a whole, or systems other than the digestive tract; they are headache, physical and mental inertia, a sense of fatigue and mental depression, and other more remote symptoms, such as precordial discomfort, palpitations, and rheumatic pains in the thighs, which symptoms the patient, from past experience, has learned to associate with constipation.

In this selection of symptoms of constipation no reference has been made to a large and varied group of symptoms generally attributed to intestinal toxæmia, both because constipation should be considered, in itself and in its symptomatology, as a disorder simply of neuro-muscular activity, and because it is uncertain that constipation alone is responsible for any state of toxæmia. It might be argued that some of the symptoms previously named are toxic in origin and not reflex, and that the headache, for instance, is surely a toxic phenomenon. This explanation is unlikely, however, because the headache passes very quickly, or at once, with a complete evacuation; and Alvarez has shown that a headache may result from distension of the rectum.

The Necessity for Accurate Diagnosis.

In regard to most symptoms of disease a man generally goes to his doctor for a diagnosis; but he is inclined to regard his bowels as peculiarly his own concern and to deal with their disorders by himself, sometimes helped by the advice of a friend or a friendly chemist. If he consults his doctor at all, the diagnosis is already made, and he tells his doctor that he is suffering from constipation and wants treatment for it. Now if a man goes to his doctor and says his kidneys are bad, the doctor is sceptical of the diagnosis, and says to his patient, or thinks to himself, "What do you know about your kidneys? Tell me your symptoms; let me examine you; leave the diagnosis to me." But if a man goes to his doctor complaining of constipation, the diagnosis is taken on trust, and often even without inquiry as to the history or symptoms of the complaint, and treatment for constipation is prescribed forthwith. I can best make my point by quoting an extreme case of supposed constipation.

The patient was a girl, aged 14, whom I was asked to see a few years ago. Having heard that the girl had been obstinately constipated all her life I advised her admission to a nursing home for observation. The following day her mother asked me how I intended to treat her daughter, and in reply I asked for a little time to consider the case, because I was not yet sure of the diagnosis. Her mother was taken aback, and said there was no doubt of her being constipated, because her bowels had never acted without an aperient since birth. I prescribed a low-residue diet to prevent distension, a teaspoonful of paraffin oil at bedtime to prevent the accumulation of hard faeces, kept the child in bed, and awaited events. At the end of two days of inaction the bowels acted, and continued to do so regularly and completely; meanwhile the diet was increased, the paraffin discontinued, and the patient given her liberty. When the mother was told that her daughter was not constipated, and probably never had been, that in fact the diagnosis of constipation had been wrong, she explained that her husband was a martyr to constipation. She was determined, she said, that her daughter should never suffer like her husband, and so had given laxatives regularly from birth; on any day that the bowels had not acted she had given the child a laxative. She was content with the explanation that the bowels had never had time to act naturally, because she had kept them too empty, and all was well.

Physiology of Peristalsis.

Just as a knowledge of anatomy is essential to the recognition of variations in structure, so is a knowledge of physiology essential to an understanding of disorders of function. Alvarez has put the matter simply when he asks the question, "Why does food go down the bowel?" and the same question first occurred to me when I saw a patient suffering from anorexia nervosa, whose food regurgitated up her oesophagus and poured out of her mouth as easily as it had previously been swallowed. Death ultimately resulted from slow starvation, and at the necropsy no change in structure was discovered to account for the remarkable reverse peristalsis which was exhibited during life. To say that food passes downwards as a result of peristalsis simply begs the question, for it does not explain why the food passes downwards instead of upwards, nor does it explain reverse peristalsis in normal digestive activity.

The first explanation offered by physiologists depended on certain experiments on animals in which stimulation of the bowel at a point caused contraction above and dilatation below. The difficulty of repeating this observation in different animals, and even in the same species of animal, under the best experimental conditions, threw doubt on the validity of what had become known as the myenteric reflex. Another explanation of peristalsis is in terms of nervous control; it has been suggested that the control of peristalsis rests in collections of nodal tissue situated at intervals in the wall of the digestive tube, and that each node sets the pace for and controls the rhythmical activity of a certain section of the tube.

It is tempting to compare peristalsis in the intestine with the mechanism of contraction as we know it in the heart; but the anatomical and physiological facts are not yet available, and it is not yet agreed, for instance, that nodal tissue exists in the walls of the digestive tube. Meanwhile a more convincing theory, the gradient theory, is being worked out by Dr. Walter Alvarez.¹ Alvarez has shown that proximal segments of the small intestine are more irritable than distal segments, and he explains the passage of food residues downwards in terms of this graded irritability, since material would tend to pass from more irritable to less irritable segments. He has also shown that there is a gradient of rhythmic contraction; in the case of the rabbit the rate of rhythmic contraction is twenty times per minute in the duodenum as compared with ten times per minute in the lower ileum, and he says that by observing the rates of contraction of short excised segments he can recognize which are proximal and which are distal. Further, there is evidence of an underlying metabolic gradient—in other words, the rate of anabolic and oxidative processes in the bowel is more rapid in proximal than in distal segments. To what extent the gradient theory can be applied to the human colon is still uncertain, but there is reason to believe that the tone of the rectum and sigmoid is higher than that of the colon immediately above, and Alvarez has suggested that this

prevents faeces packing up against the sphincter and previously to their expulsion.

We owe much of our knowledge of the movements of the normal colon to Dr. Arthur Hurst,² who has published many original observations on the subject during the past twenty-two years. The passage of food residues through the colon is chiefly effected by a sudden contraction of the colon as a whole, as the result of which the contents of the bowel are moved forward in a single mass for a distance of twelve inches or more in a few seconds. This movement is termed mass peristalsis, and the chief stimulus to its production is eating a meal. The co-ordinating mechanism is presumably the gastro-colic reflex first described by Hurst. Defaecation is normally initiated by a voluntary act, by which the intra-abdominal pressure is increased by contraction of the muscles of the abdominal wall and depression of the diaphragm, and at the same time the anal sphincters are relaxed. The call to defaecation is a sensation of fullness in the rectum due to its rapid distension by faeces which pass into it from the pelvic colon. By the voluntary effort to empty the bowels the intrarectal pressure is increased and an involuntary movement of mass peristalsis in the large bowel is set in motion by a reflex mechanism whose centre is situated in the lumbosacral region of the spinal cord. The whole colon appears to be involved in this movement of mass peristalsis which accompanies the evacuation of faeces. The contents of the caecum and ascending colon are moved into the transverse colon or beyond; the contents of the distal portion of the transverse colon are moved into the descending and iliac colon, and after the emptying of the rectum and pelvic colon they are passed out in turn through the anal canal.

This in barest outline is a brief account of the mechanism of the passage of food residues through the intestinal tract. I have purposely omitted reference to other neuro-muscular activities, such as local contractions of the bowel wall, variations in the tone of the circular and longitudinal coats, and other forms of peristaltic activity of the colon, including reverse peristalsis. I visualize the digestive tract with its own independent activity in terms of the gradient theory put forward by Alvarez, and the co-ordination of its activities by the reflex mechanisms studied by Hurst, the centres of which are situated in the spinal cord.

The activity of the higher centres which are involved in eating and swallowing food, and in defaecation, cannot, however, be left out of account even in such a skeleton description of bowel movements as this. The reflex mechanisms so far referred to are congenital or inherited reflexes. The researches of Professor Pavlov³ have shown the importance of acquired or conditioned reflexes to be no less than that of unconditioned reflexes. Conditioned reflexes are the basis of what are commonly called habits, and are largely concerned in much of the activity which was previously regarded as instinctive. Now that we know that even a puppy's choice of food is partly an acquired or conditioned reflex (though its potentiality to acquire a conditioned reflex may be inherited), we shall hesitate to speak of the natural or normal food of man, and we shall hesitate before making an attempt to alter the habits of a healthy man. Not only does a study of Pavlov's work make it easier to understand why some people eat one kind of food and another people another kind, but even the man whose bowels act daily at 9.45 a.m. with such regularity that he can set his watch by their movement is no longer a remarkable phenomenon, but rather a simple example of a conditioned reflex whose effective stimulus is the passage of an interval of time.

The Rate of Passage of Food Residues.

Constipation has been somewhat academically defined as a delay in the passage of food residues through the digestive tract, and therefore to make the diagnosis of constipation we must have some measure of the normal rate of passage of intestinal contents. In many normal people carmine taken before breakfast one morning is evacuated with the stool passed after breakfast the following morning, and it occupies the last part of the stool. Seeing that, with a stomach which has emptied four hours after a meal, the ileum is empty five to six hours later, it follows that much of the food taken after the carmine is still in the large bowel. When defaecation is efficient and complete the

contents of the colon from the splenic flexure to the rectum are evacuated more or less completely. Hence under normal circumstances the caecum, ascending colon, and probably the proximal two-thirds of the transverse colon, always contain food residues.

According to Hurst's observations, the length of time taken by a meal to pass through the digestive tract varies from nine to thirty-three hours, depending on the relation of the hour of the meal to defaecation. Thus, part of a meal taken nine hours before defaecation may reach the distal end of the transverse colon by the time of defaecation, and be carried out through the rectum by the mass peristalsis which accompanies the act. If the bowels act once in twenty-four hours the rest of the meal will remain in the bowel for a further twenty-four hours. During this time it will be carried presumably in successive movements of mass peristalsis past the splenic flexure through the descending colon and iliac colon (which lengths of the large bowel tend to remain empty of food residues) into the pelvic colon, where it collects. If any passes from the pelvic colon into the rectum, it should normally give rise to a desire to empty the bowels. Food residues, however, from successive meals are mixed together in their passage through the digestive tract, and some days may elapse before the whole food residue of one meal is evacuated. Carmine can generally be recognized in the faeces of two days, and the barium of a barium meal remains, as traces at least, for two or three days.

Alvarez has tested the rate of passage of small glass beads 2 mm. in diameter through the bowel in normal subjects with good digestion. In a series of experiments on eight healthy young men there were two who passed 85 per cent. of the beads in twenty-four hours, but most of them took four days in which to get rid of 75 per cent., and there were some who passed only 50 or 60 per cent. in nine days. He notes that those with slower rates usually had well-formed and well-digested stools, but some of the subjects had a tendency to constipation. Seeing that these observations show a greater delay in the passage of material through the bowel than the accepted normal from x-ray observations, 60 grams of barium were given in milk to a number of students; their stools were collected, and the drug was recovered quantitatively. It was found that 75 per cent. of the drug was passed by the third day, and after that there was a slow excretion lasting several days.

Whatever difference there may be between the actual figures in different series of experiments, there is no doubt that, normally, food residues take considerably more than twenty-four hours to pass intact through the digestive tube, and as we know that the stomach and small intestine normally empty themselves completely, it follows that in ordinary circumstances food residues remain for a length of time in the colon.

In view of the functional activities of the colon, this delay in the passage of material through it is to be expected. Thus, apart from the mass peristalsis already described, a characteristic feature of the colon musculature is its sluggishness; Alvarez says that excised bits of colon muscle generally have a slow rate of contraction, and the parts proximal to the middle of the transverse colon are very tolerant of distension. In addition to being a passage for food residues, its important function is the absorption of water; it also absorbs some of the final products of digestion; it is an excretory organ for the salts of heavy metals, and one other function, which is important from our present point of view, is its capacity to act as a reservoir for the digestion of cellulose by bacterial fermentation. It is curious that those people who particularly advise the ingestion of large quantities of cellulose by their fellow men should be insistent on frequent evacuations of the bowel, and the hurried transit of food residues through the digestive tract.

It is a common opinion at the present time that the bowels should be empty, but with this knowledge of digestive function the medical profession is in a position to assure the public that the bowels should normally contain food residues, and should not be empty. In order to make this point perfectly clear to those who have an obsession about keeping their bowels empty, and who, to achieve this end, take laxatives regularly. I am in the habit of saying that it is better for the bowels to be full than

empty. I believe it is impossible to empty the colon completely, and that because of the inability of its walls to collapse (as can those of the small intestine and rectum), the emptying of the colon of solid material necessarily leads to the accumulation of flatus. It is simple to understand how this misconception about keeping the bowels empty has arisen. There are two parts of the digestive tract which are usually empty—namely, the gullet and the rectum. If anything sticks in the gullet it is a cause of acute discomfort. When solid material or gas reaches the rectum, and thereby distends it, it should lead to a desire to evacuate it. When evacuation is ineffective or incomplete, distension of the rectum with faeces gives rise to local discomfort, as well as more distant effects, such as headaches, a sense of fatigue, and other symptoms. These pass away, as it were by magic, with the emptying of the rectum, perhaps after taking a purge. And so the average man, ignorant of physiology, confuses his rectum with his colon, and comes to the conclusion that a state of health is best achieved by as complete an emptying as possible of the whole bowel.

*The Clinical Diagnosis of Constipation.**

It follows, therefore, that—in the case of other diseases, whether functional or organic—we cannot rely on our patient's diagnosis of his own disease. A careful history and review of the symptoms may lead to a provisional diagnosis, but the diagnosis can only be established by clinical examination. The first essential is to establish the fact of constipation as the primary disorder, and assuming that this is done by the exclusion of disease elsewhere in the body, and by the exclusion of demonstrable organic disease in the digestive tract itself, the accurate diagnosis of constipation on an anatomical and physiological basis is approached.

On an anatomical basis constipation is recognized as occurring in two forms. In the first, known as colon constipation, there is an undue delay in the passage of food residues through the colon. In the second, which is known as dyschezia, there is a failure in the mechanism of defaecation. Dyschezia may be further distinguished as due, on the one hand, to a failure in the function of the rectum to empty, and, on the other hand, to a failure in the function of the pelvic colon to empty in defaecation.

On a physiological basis colon constipation is divided into three forms: (a) a general undue delay in the passage of food residues through the colon, which may be termed sluggish colon; (b) an over-irritable or spastic state of the colon, which is termed spastic constipation; (c) an atonic condition of the colon, which is rare, and which is termed atonic constipation.

These several varieties of constipation can sometimes be diagnosed on the clinical history. Thus, a patient suffering from rectal dyschezia will complain of a sense of fullness in the rectum, of a sensation of being unable to empty the rectum completely, of piles, pruritus ani, or other symptoms of rectal congestion. Sigmoid dyschezia may be suggested by discomfort in the left iliac fossa, due to stasis and congestion in the iliac colon, discomfort and a sense of distension immediately above the pubes, or in some cases to an alteration in the action of the bowels, the patient noticing that in defaecation there is a single action which is due to the evacuation of the rectum, but that there is no closely following action which results from a complete emptying of the pelvic and iliac colon. In both these cases the stools tend to be hard and passed with difficulty.

In colon constipation there is a sense of general abdominal distension, and complaint of many of the symptoms referred to in sections 5 and 6 of the paragraphs describing symptoms of constipation, at the beginning of this paper.

Spastic constipation is one of the most obstinate forms of the complaint. It is associated with nervous exhaustion; it is accompanied by abdominal discomfort, which is chiefly felt on the right side of the abdomen, and which frequently amounts to actual pain, making the differential diagnosis from chronic appendicitis and cholecystitis a matter of considerable difficulty. Those who suffer from this complaint frequently experience a feeling that food residues do not pass further than the left hypochondrium, or at any rate never reach the rectum. They have generally acquired

the habit of taking laxatives regularly every night at bedtime, and, having tried paraffin oil, agar preparations, and senna pods without success, they have come to rely on phenolphthalein, cascara, or vegetable laxative. On account of increased tone in the rectum and sphincter ani their stools, when formed, are small and round, like a lead pencil, or flat and narrow, sometimes described by the patient as like a tape; generally, as a result of taking laxatives, their stools are loose.

Physical Examination.

Both with a view to establishing the fact of constipation, and with a view to the accurate diagnosis of its variety on an anatomical and physiological basis, the patient who complains of obstinate constipation is advised to take a low-residue diet, one or two drachms of paraffin oil every night at bedtime, to stop all laxatives, and to report again at the end of seventy-two or ninety-six hours. At the same time he is instructed to make an effort to empty his bowels three-quarters of an hour after beginning breakfast, at some time between 6 and 9 o'clock at night, and at any time in the day that he feels the call to go to stool. The low-residue diet is prescribed with the object of preventing abdominal distension, in case the patient should be suffering from spastic constipation. The paraffin oil is to prevent the accumulation of very hard faeces in the rectum and pelvic colon, in case the condition should be one of dyschezia. Laxatives are stopped to allow of the diagnosis of the fact of constipation, and of its variety when present. The bowels having been emptied by laxatives, it naturally takes twenty-four hours for a normal food residue to collect, and another twenty-four hours before this food residue is an efficient stimulus for evacuation; indeed, owing to the excessive stimulus to which the bowel has become accustomed by the habit of taking laxatives regularly, it may be a further twenty-four hours before a normal stimulus is effective in provoking peristalsis. The instruction to make an effort to empty the bowels three-quarters of an hour after beginning breakfast is given with the object of allowing the gastro-colic reflex time to act, and in case, as a result of some conditioned reflex, it should have become a habit of the bowels to respond to a gastro-colic reflex at a later time in the day, the patient is advised to make the additional effort between 6 and 9 o'clock at night as a regular habit, and at any hour of the day if he feels the least inclination. At the same time the patient is advised to get up early enough in the morning to have plenty of time to wash and dress before breakfast, time to enjoy his breakfast, and time for defaecation before starting the day's work; he is also advised not to strain at stool, the gastro-colic reflex and defaecation reflex being relied on for normal evacuation.

Having been given these instructions the patient reports again at the end of seventy-two or ninety-six hours, and it may then be possible to determine the fact of constipation, and, if constipation is present, its variety, by clinical examination. Rectal dyschezia will be diagnosed by finding the rectum full of faeces; sigmoid dyschezia may be diagnosed by the same means, though in some cases where the pelvic colon is out of reach of the examining finger, the accumulation of faeces in it may be a matter of inference rather than one of demonstrable fact. In both kinds of dyschezia there is frequently a fullness, a hardness, or tenderness of the iliac colon. When the condition is one of sluggish or atonic colon the whole abdomen has a doughy feel, or the colon may be distinctly palpated as a large, sometimes rather tender, firm, or doughy mass, occupying the position of the ascending, transverse, and descending colon. In a typical case of spastic constipation the rectum and sigmoid are empty, there may be spasm of the sphincter ani, and so much contraction of the rectum that it fits the finger like a glove; the iliac colon may be felt like a cord tightly contracted, in contrast to the caecum and ascending colon, which are full, firm, and tender, suggesting chronic appendicitis, the tenderness, however, being more diffuse. When there is tenderness of the hepatic flexure the differential diagnosis is from disease of the gall-bladder and right kidney, and in some cases the reflex spasm of the pylorus and hyperchlorhydria suggests the diagnosis of peptic ulcer.

Other points in the clinical examination of the case, such as the general condition of the patient, his physical form, and the state of his nervous system, assist in the diagnosis, but the differential diagnosis of the varieties of constipation is one of considerable difficulty, and can only be made in some cases by x-ray examination.

Radiographic Diagnosis.

In order to avoid the description of the radiographic appearances in the different forms of constipation a series of films illustrating the several varieties of constipation was shown. Not only is radiographic evidence useful in confirming, or otherwise, a clinical diagnosis, but it is of particular value in excluding certain forms of organic disease, such as diverticulosis, early carcinoma, and other forms of organic disease which may be difficult to exclude with certainty by clinical examination; it is also invaluable in the accurate diagnosis of those cases in which more than one variety of constipation is present at the same time—as, for instance, the coincidence of spastic constipation and rectal dyschezia.

*Treatment of Constipation.*⁵

The first object of treatment is to obtain a regular action of the bowels with the passage of a formed stool. Just as mental depression and emotional distress are responsible for constipation, and just as fear and fright may cause diarrhoea, so constipation is itself responsible for a sense of depression and fatigue, and the constant passage of loose stools over a period of years is the cause of nervous exhaustion, and its cardinal symptom, fear. The second object of treatment is to secure a regular and complete evacuation of the bowels by the regulation of habits of life and food. The importance of habits in allowing an opportunity for the various reflex mechanisms concerned in bowel activity to have an opportunity for their action has already been alluded to. The need for caution in advising anyone to change his dietetic habit has already been indicated; at the same time it is obvious that rectal dyschezia requires a full-residue diet and a soft stool to assist complete evacuation of the rectum, while an irritated condition of the colon, such as is present in spastic constipation, must be given rest by the prescription of a low-residue diet, which will save the tired and irritated bowel from unnecessary stimulus. The third object of treatment is to find a drug, where drug treatment is necessary, which will promote the passage of a formed stool without pain or discomfort, and one which can be used without variation, if necessary for years on end, in minimal but adequate dosage. If the laxative employed requires changing from time to time it is evidence that it is unsuitable for its purpose. Remembering always that the movements of the colon are considerably more sluggish during the night than during the day, it is important that it should not be unduly stimulated by an evening laxative. Excessive colon activity, due to taking laxatives at night, is a common cause of insomnia, and there can be little doubt that almost as much disease and distress of a low-grade and chronic type is caused by the habitual use of laxatives as results from the abuse of alcohol and other stimulants.

In dealing with disorders of the bowel, whether of functional or organic nature, the result of bowel activity must at least be seen, if not examined in a more detailed manner. No man would venture an opinion on the condition of the kidneys without examining the urine, and no man can give a final opinion on the condition of the bowels without seeing the stools. Apart from the completeness of digestion of food residues, which can be largely judged by the inspection of the stools, and apart from the presence of mucus, pus, and blood, which may be an indication of organic disease, the size and shape of the stool provide an indication of the state of tone of the rectum and anal sphincters; the bulk of the stool gives some idea of the patient's diet and rate of passage of food residues through the bowel, and the fact of the last part of the stool being soft or semi-solid is a good criterion that evacuation has been complete.

REFERENCES.

- ¹ Alvarez, W. C.: *The Mechanics of the Digestive Tract*, 1928.
- ² Hurst, A. F.: *Constipation and Allied Intestinal Disorders*, 1919.
- ³ Pavlov, I. P.: *Conditioned Reflexes*, translated by G. V. Anrep, 1927.
- ⁴ Evans, Geoffrey: Essential Constipation, *Clin. Journ.*, February 20th, 1929.
- ⁵ Idem: Dietetic Treatment of Spastic Constipation, *St. Bartholomew's Hospital Reports*, 1929, lxii, 70.

POSITION OF SURGERY IN THE TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

BY

H. H. RAYNER, M.B.VICT., F.R.C.S.,
SENIOR ASSISTANT SURGEON, MANCHESTER ROYAL INFIRMARY.

A SUMMARY of the statistical records of gastric and duodenal ulcer cases dealt with in the Manchester Royal Infirmary during the past four years may usefully introduce this subject. It should be explained that these records are carefully compiled, and it may be taken that the diagnosis of ulcer has been verified so far as the circumstances have permitted.

1. The average number of admissions per year (1925-28 inclusive) of non-perforated gastric and duodenal ulcers exceeds 400, and of these some 70 per cent. are admitted (directly or by transfer from the medical wards) to the surgical wards. Some 60 per cent. of the ulcers are duodenal or pyloric, and the remainder gastric or prepyloric.

2. The average number per year of perforated ulcers is 135, of which 75 per cent. are duodenal. The mortality rate for perforated duodenal ulcer cases is 12 per cent., while that of the perforated gastric ulcer is 33 per cent.

3. The frequency of haemorrhage as a complication of ulcer cannot be gauged from the hospital statistics, because in the group of cases labelled haematemesis or melaena (or both) there must be a few in which the haemorrhage is due to conditions other than ulcer; furthermore, it must be remembered that only a proportion of the cases of haematemesis are sent to hospital for admission as urgency patients; whilst as regards perforations in the population served by the hospital, almost all nowadays will be sent in for the necessary operation. However, it is worth noting that some 40 cases of haematemesis are admitted each year to the medical wards, and the mortality of these under medical treatment is about 10 per cent.

The figures I have given show that in this hospital—on the staff of which medicine and surgery are pretty equally represented—surgery is still employed in the treatment of the majority of cases of gastro-duodenal ulceration without including the perforated ulcers. I do not suggest that this proves the value of surgery. I merely draw attention to the fact.

So far as the perforated ulcers are concerned, there can be no doubt about the nature of the treatment, and it is gratifying to see the great improvement in the results during the past twenty-five years, though the mortality in the gastric ulcer group still leaves much for the surgeon to improve upon. The improvement in the main is due to the earlier recognition of the catastrophe—it is now quite common for these cases to reach the surgeon within an hour or two of the occurrence of perforation; better surgical technique, too, accounts for some of the improvement. In regard to the latter it is interesting to note the difference of opinion among surgeons as to the scope of the operation for closure of a duodenal ulcer perforation. Some strongly advocate the performance of gastro-enterostomy at the time of the operation for closure of the perforation, unless, of course, the patient's condition is so poor that nothing beyond the essential minimum of closure of the perforation is permissible. It is claimed by these surgeons that the immediate and remote results are better if gastro-enterostomy is done at the time; other surgeons content themselves with closure of the perforation and cleansing of the peritoneal cavity, and only practise gastro-enterostomy in the exceptional case in which there is already pyloric stenosis, or in which stenosis is considered extremely likely to follow on the closure of the perforation owing to the distortion and narrowing of the duodenal lumen which this step sometimes entails.

I do not myself perform a gastro-enterostomy unless pyloric stenosis is present, or apprehended as very likely to follow, and in a series of my own cases, 30 in number, I performed a gastro-enterostomy six times; there were two deaths in the 30 cases, which represents a mortality of 7 per cent. But I must state that in two of the patients on whom I had not performed a gastro-enterostomy I had to do so within three weeks of the operation for closure of the perforation, owing to the appearance of well-marked

* A paper delivered to the Rochdale Division of the British Medical Association on October 16th, 1929.