almost indistinguishable to the eye from *Spirochaeta pallida*.

Some of the spirochaetes were limp and irregular, and others were mere ghosts of dead spirochaetes. Most, however, were crisp and well stained with Giemsa.

Dr. A. Castellani has reported (*Lancet*, May 19th, 1906) two cases of haemoptysis in which he found spirochaetes of various types, which stained with ordinary aniline dyes. In both these he failed to find tubercle or other cause for the haemorrhage. He speaks of the condition as a haemorrhagic bronchitis.

In my case it is to be noted that I failed to find the spirochaetes in the lung tissue, in the cavity, and in the mucus of a small bronchus. From their position and associations in the sputum, as well as their numbers, it is impossible that they were derived from the mouth. But, at the same time, they were distributed very irregularly in the sputum, none at all being found in some smears.

In ulcers I have found *Spirochaeta refringens* and another almost straight spirochaete to be associated with a peculiar glairy mucoid secretion. The tenacity of the sputum in my case was quite remarkable.

While my observations, therefore, do not tend to prove anything but a saprophytic existence of the spirochaetes in the large bronchi, yet it is possible that their presence is connected causatively with the viscid character of the sputum. And the cases of Castellani make it very probable that some spirochaetes do have an effect on the bronchial mucous membrane.

THE TREATMENT OF CHRONIC CONSTIPATION.*

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At the present stage of evolution, the human subject is in a most unfortunate position. Man has adopted a vertical attitude, while his internal viscera are still arranged for a horizontal one. He is thus at a great disadvantage for the regular performance of some of the animal functions.

Modern civilization has also so altered the character and methods of preparation of his food, that he now finds himself with an internal mechanism which has to perform duties for which it is not yet properly adapted.

Man is burdened with some feet of large intestine, a remnant which is probably not only more or less useless, but to which the origin of many of the ills to which flesh is subject can be traced. In this large bowel the excreta from the foodstuffs are apt to collect or to remain much longer than is desirable; this is designated constipation. In dealing successfully with cases of this condition, it is first necessary to ascertain which part of the digestive apparatus is primarily at fault. Having ascertained the cause, the treatment of chronic constipation should be mainly directed to the regulation of the habits and diet of the individual, aided by suitable internal medication, rather than by the perpetual drugging or artificial stimulation of an already partly worn out or enfeebled mucous membrane.

The large majority of people at the present day eat much more, and far oftener, than the demands of the animal economy require. Not only this, but the diet is frequently of an ill-chosen assortment of soft bodies, which modern civilization endeavours to present in as palatable a form as possible. Moreover, present-day culinary processes remove all the hard bodies which would, by their mechanical irritation, stimulate peristalsis. As the result of a long-continued over-burdening of the digestive organs, first weakness and then atony of the muscular walls ensue. After a varying period of so-called sluggishness of the bowels constipation to a varying degree comes on.

For the treatment of this condition regular habits as to time should be insisted on. The patient should attempt evacuation at the same hour each day; as a rule, directly after the first meal, as, after the recumbent position of the body during the night, the contents of the ascending colon (not having had to contend with the forces of gravity as during the hours of the day with the body in the vertical position) have the more

readily been passed on into the lower bowel. Again, the partaking of the first food, especially if suitably chosen, has a stimulating effect on the peristalsis, which tends to become exhausted as the day goes on.

In order to take full advantage of the recumbent position, so that the force of gravity should have full play, it is desirable to get patients to sleep on their left side, so that the contents of the transverse colon can be gravitated onwards into the descending colon, and also to prevent the ascending colon (often in such cases practically a distended cesspool) from becoming the most dependent part during the hours when the body is in the recumbent position, and so endeavouring to prevent the excretions collecting in this region.

The active treatment of constipation may be divided into two classes—external and internal.

I. The external, or what is now called physical therapeutics, is of great importance if permanent good is to be obtained. This treatment should be directed to muscular exercise, both active and passive. The former should be encouraged by way of all forms of bodily movements, especially as in cycling, rowing, and climbing (mountaineering), but also in walking, and all active outdoor games and sports.

If desirable, certain definite movements of the trunk and limbs may be prescribed, with or without the addition of resistance. The latter, or passive exercise, should be by way of massage, possibly general, but especially local to the walls of the abdomen. Abdominal massage should be firmly performed for manipulation of the superficial abdominal muscles and subcutaneous tissues, but very lightly performed over and in the direction of the natural peristalsis of the large intestine—commencing in the right inguinal region upwards to the hepatic flexure, then across the transverse colon to the splenic flexure, and downwards along the descending colon to the left inguinal region. A most important point to be remembered in connexion with this subject is that in most cases of old-standing constipation the position of the various parts of the colon is entirely changed, and parts, especially of the ascending and transverse colon, may be much out of the normal regions. Massage of the abdomen should always be very carefully performed, and chiefly with the object of improving the condition of the abdominal muscles, rather than for any direct mechanical effect upon the contents of the bowels. In no case should massage or kneading be prescribed with the idea of breaking up faecal accumulation, as in this way grave injury might be done.

In addition to manual massage, great help may be obtained by the use of the vibrator, especially if worked by electricity, as this can be so finely adjusted to meet the individual case. So also "succussion" may in some selected cases be practised.

Combined with the various forms of massage, electricity in its numerous modern applications is most useful, not only in producing peristalsis during its application, but especially in its after tonic effect on the muscular walls of the intestines, in addition to those of the abdominal parietes.

The aim of the electrical treatment should be threefold: To improve the tone of the innervation to the intestinal walls, to restore tone to the involuntary muscle fibre of the gut, and to strengthen the external abdominal muscles.

The ordinary constant current, applied to the different regions of the abdominal wall for a few minutes daily, has long been recognised as of great value. To get the full benefit from this in certain selected cases it is desirable to insert one pole into the rectum. More recently the high frequency currents have become popular, on account of their general tonic effect, in addition to their local action.

II. Internal treatment may be subdivided into three divisions—diet, drugs, and enemata.

A. Diet should be considered the most important, and no case can be satisfactorily treated unless the condition of constipation is considerably improved, if not cured, by the supervision of the foodstuffs. Patients must avoid (1) bodies containing astringents in any form, such as tannin, found in most teas as generally infused, and also in red wines, especially Burgundy; (2) bodies which are deficient in cellulose, such as potatoes, rice, sago, tapioca; (3) milk; and (4) last, but not least, hard water—that is, water containing lime salts;

* Paper read before a meeting of the St. Pancras and Islington Division.

this should be avoided not only for drinking, but also for all cooking purposes.

On the other hand, these patients should consume plenty of bodies containing abundance of (1) *cellulose*, such as cabbage, spinach, asparagus, carrots, onions, leeks, garlic, rye, oats and bran, either in bread or biscuits; (2) those containing *sugars* and aperient salines, such as apples (raw or baked), rhubarb, prunes, figs, treacle (the old-fashioned black or molasses), honey, and orange marmalade; (3) some bodies which stimulate the hepatic secretions, as salads; and (4) bodies rich in fats—butter, fat meats, etc.

The quantity of liquids taken should also be regulated. Many subjects troubled with constipation do not take nearly enough fluids in the course of the twenty-four hours, and an extra pint or two of plain water, with a lump of sugar if agreeable, hot or cold according to season of the year or individual taste, should be given, especially as far as possible on an empty stomach, the last thing at night or the first thing in the morning, or both night and morning.

B. Drugs. At the commencement of systematic treatment some medicines are important to make a good start, especially in getting rid of any old-standing accumulation, but the object should be to diminish and in time do away with these altogether as a routine treatment.

In deciding on the question of drugs, the following different therapeutic actions must be taken into consideration, which for practical convenience may be divided as follows:

1. Laxative: Such as aloin, aloes, cascara, rhubarb, senna, castor oil.

2. (a) Secretion stimulants: Salines, such as natural aperient waters (Apenta, Condal, Hunyadi, Rubinat), chloride of ammonium, sulphate of soda, and sulphate of magnesium. (b) Hepatic stimulants: Aloes, sulphate of soda, colocynth, jalap, rhubarb, podophyllin, ipecacuanha. (c) Chologogue: Calomel, blue pill, grey powder.

3. Peristalsis excitants: Strychnine and nux vomica.

4. Spasm relievers: Belladonna, bromides, valerian, and asafoetida.

5. Nerve tonics: Zinc valerianate, arsenic, silver nitrate, glycerophosphate of soda.

As to a choice in the multitude of drugs, old and new, probably many of the old-fashioned, such as calomel, rhubarb, magnesia, and senna, in various combinations are the most valuable, or rather, perhaps, are the least deleterious; but it is not every patient who will nowadays take a medicine which is not palatable or convenient, and so we have to resort to various tricks of the pharmaceutical trade to obtain the desired result. It is always very important not to allow patients to take the same form of aperient medicine for too long a period, and generally desirable to let them have more than one variety to be taken on alternate days. At the time of prescribing an aperient medicine or pill, it is necessary to add to it some drug which will have a tonic effect on the walls of the digestive apparatus, in addition to the simple aperient action. Valuable drugs of this nature are belladonna or strychnine, which in combination with aloin or ext. aloes, calomel, or cascara, not omitting a little resin as a valuable adjunct, will make a reliable pill. After a time the dose of the aperient drug should be decreased and the quantity of the tonic one increased. A very successful method in many cases of chronic constipation, especially in anaemic subjects, both young and old, is to prescribe a pill containing the dried sulphate of iron, with aloin, and possibly at first a small quantity of extract of aloes, two or three times a day after food. In the course of a few days the quantity of iron should be increased and of the aloes decreased, till a pill containing iron alone is found to be sufficient, and this should be continued for a long period, modified from time to time, according to circumstances. It is often better to commence by giving a milder aperient pill night and morning rather than a stronger one at night only, and from time to time to order a saline, or one of the natural aperient waters, to be taken the first thing in the morning. Saline waters in some cases will be sufficient by themselves, but in very obstinate ones they often only produce discomfort with watery evacuations, leaving large quantities of solid material behind. Of the natural aperient waters, those with a preponderance of salts of the sulphate of soda over magnesia are probably the best

to prescribe in most cases, as being less irritating to the mucous membrane.

C. Enemata. Great assistance, especially in removing recent or even old-standing accumulations in the large intestine, can be obtained by the judicious administration of an enema. In some cases injection of warm water and soapsuds acts well; if necessary, the addition of olive or castor oil or turpentine will greatly assist the result.

It is, especially in old-standing cases of constipation with accumulations, most important that the enemata are given with the patient in the knee-elbow position, or, if on the back, with the buttocks well elevated on pillows, and the foot of the bed raised on blocks. In some cases it may be desirable to shift the position of the patient to one side or the other according to the part of the bowel it is necessary to get the fluid to flow into by gravitation. By carefully regulating the position and elevation of the patient, it is often possible to inject large quantities of water high up as far as the caecum. In some cases a long, soft tube may be found advantageous over a short one, but this requires considerable skill in passing up satisfactorily.

The temperature of the fluid injected should be as nearly as possible the same temperature as the body if we wish it to be retained for any time, and should be injected by a continuous stream from a suspended irrigator, and not in an interrupted one forced in by a bell-pump syringe.

If cases of old-standing, hard, dry, faecal accumulation are being dealt with, much assistance will be obtained by injecting a few ounces of olive oil, and leaving this in for some hours before the bowel is washed out; by this means the hard, dry masses will be softened.

If it is only necessary to excite the rectum, injection of a drachm or two of glycerine or the insertion of a glycerine suppository is very efficacious.

In most cases after giving aperient remedies by the mouth for a few days, and having excited the upper region of the digestive apparatus into more vigorous action, an occasional simple enema greatly assists the treatment in the earlier stages.

In many cases of simple constipation, the injection of a drachm or two of olive oil into the rectum at bedtime will produce a satisfactory evacuation the following morning.

THE USE OF DIGITALIS IN VALVULAR DISEASE OF THE HEART.

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THE efficacy of digitalis in cases of aortic insufficiency and of some other forms of valvular disease has long been a matter of controversy. It has been pointed out, and no doubt with reason, that the discrepancy in the remedial effects of digitalis in cases of valvular disease is based on practical as opposed to theoretical considerations.

I have elsewhere¹ endeavoured to show, and it seems hardly possible to resist the conclusion, that the primary and essential feature in the production of dilatation and failure of the heart is a decrease, either absolute or relative, of the cardiac tonus.

The influence exerted by digitalis and its allies on the cardio-vascular system may be briefly stated to be a persistent and well-marked increase in the tonic contraction of the muscular tissue of the heart and arterioles whereby (that is, on mechanical and dynamical grounds apart from neuro-muscular and other considerations) the action of the central organ is rendered more deliberate and at the same time more powerful and effective. I wish more particularly to draw attention to the fact that digitalis increases the *cardiac tonus* in a very remarkable manner, and, although the tonus of the systemic arterioles and capillaries is simultaneously augmented, the balance of advantage, provided the cardiac parietes remain healthy, must always be with the heart, and this is more especially the case when the organ has undergone hypertrophy.

In aortic incompetence the left ventricle has to withstand during its diastole the distending effects of the regurgitant blood stream under the pressure of the arterial recoil. The total intraventricular pressure during diastole on a unit of surface is the resultant of the respective pres-