erysipelas often cures tuberculous and other chronic ulcers, doubtless by the modification of the sluggish character of the process produced by the reaction of the affected tissues.

Feeding with thyroid extract has a marked "alterative" influence in certain chronic affections of the skin. Its beneficial action in some cases of psoriasis was pointed out by Byrom Bramwell, but it was soon found that the effect was so evanescent as to make the remedy of little practical value; at any rate, that has been my experience, and I would explain its failure by its want of power to excite an adequate reaction. I have, however, found thyroid extract of use in quickening the healing of small indolent tuberculous ulcers, the manifestation of the condition connoted by the now obsolete term "scrofuloderma."

I have found adrenalin useful in lupus erythematosus owing to its tonic effect on the vascular system. This property would seem also to indicate its use in Raynaud's disease and "chilblain circulation," but in such conditions ichthyol may generally be relied on.

Under the head of internal remedies also comes the system of feeding with raw meat and flushing the system with large quantities of hot water. I have seen inveterate cases of psoriasis associated with rheumatoid arthritis which has resisted all the usual methods get well under this treatment. In addition to the eliminating of waste products brought about by it, the hot water doubtless causes a beneficial action on the skin.

COMBINATION OF EXTERNAL AND INTERNAL AGENTS.

Useful reaction can be produced in some skin affections by what may be called a mixed method. As a particularly good example, I would point to the effect on that intractable disease, lupus erythematosus, by Welander's method, of quinine (gr. ij to iij t. d.), combined with the external application of iodine. Under this treatment I have seen an obstinate case get well in a month. Adrenalin may with advantage be combined with the quinine. It is necessary to watch with special care the action of remedies used in combination to set up reaction, as they sometimes reinforce each other to an excessive, and it may be a dangerous, degree. Thus the administration of mercury internally is especially apt to cause symptoms of poisoning when combined with the extensive use of tar externally.

GENERAL CONCLUSION.

In conclusion, I would say that the moral of these discursive remarks is that, as a general rule, in the treatment of chronic and obstinate affections of the skin, the object to be aimed at is the production of reaction. So far from its being an accident to be avoided, I think that it is a most important part of the curative process. Of course, there must not be any excess of zeal, or the overwhelming force called into play may be as destructive as a too powerful ally brought in to suppress a rebellion. The means must in all cases be precisely adapted to the end that is aimed at. It would, for instance, be unjustifiably rash to run the risk of poisoning a patient with chrysarobin to cure a small patch of psoriasis on the elbow. Caution is particularly necessary in the use of the x rays, which, as every one knows, may, if used without strict precautions, cause necrosis of tissues, even extending through the thickness of a limb.

It is better as a general principle to produce reaction by a local application, but where this is found to be impossible an attempt should be made to excite it by means of agents within the body.

I do not wish to be understood as holding that the whole or even the essential part of the curative process consists in reaction alone. There may, as already hinted, be other factors which stimulate the vital processes into healthier activity, produce chemical changes, destroy parasites, or render the soil unsuitable for their growth, or make an environment in which they cannot live, or act in some way at present totally unknown.

The active principle in the cure may be generated or brought into operation by the reaction, and different kinds of reaction may have special functions. Much, too, must depend on the manner in which the reaction is excited; it is probable that a certain kind of reaction is adapted to a particular disease. This field of clinical and pathological research is as yet almost virgin soil. I think it will repay cultivation. I have only touched the fringe of a great subject, and I would ask you to take my remarks as conveying nothing more than a suggestion of a theory on which a rational system of treatment of some of the most inveterate

diseases within the province of the dermatologist may ultimately be based.

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CHRONIC CONSTIPATION AND ITS MEDICAL AND SURGICAL TREATMENT.

By W. ARBUTHNOT LANE, M.S., F.R.C.S.,

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IN opening the debate on this subject at the Chelsea Clinical Society, on March 14th, Mr. Arbuthnot Lane said:

I feel very much the responsible position you have laid upon me in doing me the honour of asking me to open this debate. I agreed to do so with great pleasure for the reason that I am very much interested in the subject, which is one of extreme importance to the duration of life and to the health and happiness of the people, and because the mechanical conditions which are produced by the affection have, as far as I am aware, not been touched on or recognized by the pathologist.

Fortunately, it is always possible for any one to verify the accuracy of conditions which I have shown to exist very commonly in the human body by a sufficiently careful and accurate observation of the parts themselves. With many pathologists and anatomists the education of their special senses leads them to miss coarse changes which are obvious even from a considerable distance, while they devote valuable time to minute details. They do this the more readily since the conditions of the parts and the mutual relationships of the viscera differ very greatly after death from those present in life, especially in the erect position. I do not think I can do better than to place before you the conditions of the viscera which are consequent on an imperfect evacuation of the large bowel or cesspool of the gastro-intestinal tract. In the very large majority of cases such a condition is associated with the symptoms popularly comprehended under the term "constipation," but in a small proportion, while the large bowel up to the hepatic flexure or even to the splenic flexure may be constantly or frequently loaded, yet the patient obtains from the overflow a daily action which is usually solid, but may be fluid, and consequently makes no complaint of constipation—that is, though a patient may have a daily evacuation, he may still have a loaded large bowel. Again, the large intestine whose vitality has been depreciated both by local inflammatory changes and by the general loss of tone is thereby rendered liable to some specific infection, and ulcerative, membranous or other forms of colitis may develop in consequence.

The condition frequently may and often does date from a very early period, when, owing to the unsuitable feeding of the child, the intestines, and particularly the large bowel, are distended with gas, rendering the whole of the abdomen abnormally prominent, popularly known as "pot-belly." In these circumstances the caecum and ascending colon appear to suffer most severely, owing to the fact that this portion of the bowel is hung up at the hepatic flexure, which is rendered more acute by the distension, and consequent elongation, of the transverse colon in a downward direction. This distension of the transverse colon by dragging upon the band which supports the splenic flexure renders it difficult for the contents of the transverse colon to pass into the descending colon. In consequence of this distension the large bowel becomes more or less inflamed, and this inflammation may be sufficient to produce a distinct peritonitis as manifested by effusion.

In a paper¹ read before the meeting of the British Medical Association at Newcastle-on-Tyne in August, 1893, I called attention to the presence of fluid associated with distension of the intestines resulting from malnutrition, and described the manner in which hydrocele and hernia are produced in infancy by the increase in intra-abdominal tension resulting from flatulence and indigestion. It is to a certain extent analogous to the peritoneal effusion which accompanies cases of obstruction of the large intestine by malignant growth, etc. The appendix shares in the inflammatory process, and may do so sufficiently to become attached in the position in which it happens to lie at the time. If the condition occurs early in life the appendix may become attached

to the posterior abdominal wall in relation with the liver, and may become considerably elongated by the forcible downward displacement of the caecum in consequence of the development of this organ, and it is elongated from the distension by its contents. Or, again, the appendix may become fixed at any point in the line taken from that just described to the left side of the true pelvis, which is occupied by the abnormal caecum when it has reached its limit of distension. Such fixation of the appendix may not give rise to any obvious symptom, but it leaves the organ more or less damaged functionally, and capable of becoming obstructed and acutely inflamed at any time. What I mean to imply by this is that, unless in the very exceptional cases in which the appendix becomes inflamed in consequence of the entry into it of a foreign body, a so-called appendicitis is in the first instance directly consequent upon a condition of distension and inflammation of the caecum at some period or other. Or, in other words, appendicitis practically never exists except as a consequence of the overloading of the intestinal cesspool, and must of necessity have been associated at some time or other with other results of such distension.

As I have pointed out, the caecum in its progressive distension is forced downwards and inwards into the true pelvis. This results chiefly from its weight, since in the assumption of any attitude other than the recumbent a considerable difficulty exists in the passage of faecal matter through the hepatic flexure, and frequently, also, through the splenic flexure, since the loaded transverse colon accompanies the caecum in its descent. This forcing down of the caecum and transverse colon is much helped by the sedentary position almost universally assumed during defaecation in civilized communities. Under natural conditions the caecum and transverse colon are forced up and emptied by the pressure exerted by the thighs upon the abdomen in the attitude of squatting in defaecation. On the left side the pressure of the thigh raises the sigmoid loop, and facilitates the passage of faeces from the sigmoid into the rectum.

Again, the support which should be given by the muscles of the abdominal wall to the intra-abdominal contents is enormously reduced by their atrophy consequent upon the use of stays, while the constriction they exert on the abdomen below the costal margin exaggerates the obstruction at the flexures. The squatting position renders it impossible for an inguinal or a femoral hernia to develop during defaecation, as so often results in constipation when the ordinary water-closet seat is used.

The inflammation of the caecum and ascending colon consequent on their excessive distension produces an adhesive process between the outer wall of this bowel and the peritoneum with which it comes in contact. The formation of these adhesions is advantageous, in that they help to support the increasing weight of this portion of the bowel and to some extent to oppose its distension and downward displacement. Besides existing along the outer aspect of the colon these adhesive processes develop about the hepatic flexure, and by their contraction they draw up the hepatic flexure, exaggerating still further the acuteness of its angle and the condition of obstruction at this point. Precisely similar changes take place at the splenic flexure. After a time these adhesions develop into distinct mesenteries and strong bands.

The fixation of the bowel by these adhesions renders it less able to perform its normal functions and the muscle wall wastes in a degree corresponding to the limitation of its free action. In the sigmoid, which is driven down and obstructed, adhesions form between its mesentery and the peritoneum external to the mesentery, the intestine itself finally becoming bound down also to a varying extent. In consequence of this process the sigmoid is so contracted up that it ceases to be a loop and forms a straight conduit. This alteration facilitates the passage of faecal matter through it.

The presence of the inflamed large bowel in the true pelvis readily interferes with the functioning of the ovary and Fallopian tube, and I have seen these structures involved in adhesions about the caecum and sigmoid. In this way constipation would appear to play an important part in the sterility so common among women.

The distension of the caecum renders the entry of contents from the ileum difficult, and, in consequence, the small intestines become progressively dilated from below upwards by their dammed-back contents. This process of dilatation is accompanied by a thinning of the muscle wall of

the small intestine, which naturally diminishes its capacity of performing its drainage efficiently.

The proper functioning of the stomach is interfered with partly by the delayed action of the intestines and partly by the strain exerted upon the stomach, through the great omentum, by the loaded and displaced transverse colon, especially in the sedentary or erect posture. In consequence the stomach becomes progressively dilated.

In very advanced cases not only may the small intestines become sufficiently inflamed to form adhesions to the surrounding parts, but the stomach itself may be still further disabled by the formation of adhesions about the pylorus, such adhesions being developed for the purpose of supporting an organ which is abnormally heavy, and which retains its contents for an excessive period of time.

In a large proportion of these cases of constipation the kidneys are mobile. Indeed in many of the cases I have operated on for chronic constipation not only had the appendix been removed without affording relief to the symptoms complained of by the patient, but one or both kidneys had been fixed by the operation of nephrorrhaphy for this very mobility. The kidneys are rendered mobile by two factors. One is the strain exerted on them by the loaded colon, and as the drag exerted on the right kidney is much greater than that exerted on the left the mobility of the former organ is correspondingly greater. The second factor in determining and facilitating the displacement of the kidneys is the absorption of the fat about the kidneys. This I shall show later to be the direct consequence of the auto-intoxication associated with this form of intestinal obstruction.

The clinical symptoms claim our attention next. Perhaps one of the most conspicuous is a fullness and tenderness in the region of the caecum, which organ in the erect and sitting postures in these cases of any extent reaches well into the true pelvis. In some cases its outline can be readily seen, while in all cases it can be defined by palpation. This is particularly the case if the patient is examined in the erect posture. A finger in the rectum or one in the vagina and another in the rectum may with the assistance of the hand on the abdomen show the position of the caecum in the true pelvis and the area of pain corresponds to the limits of the caecum. It is most painful where the caecum lies upon a firm background such as the iliac fossa or pelvic brim. The tenderness extends upwards to the hepatic flexure, and pressure on the loin below the first rib causes pain and tenderness in many cases. This pain is partly due to the strain exerted upon this area by the loaded bowel when the trunk is in the erect position, and partly to the thrusting in an upward and backward direction of the upper limit of the ascending colon. The pain, tenderness, and fullness of the distended caecum become greater as the day goes on, and are relieved after an interval when the patient assumes the supine posture, when the bowel is placed in such a mechanical relationship that it is able to relieve itself of some of its contents. In the supine position the patient is often unable to lie on the left side owing to the drag exerted by the still loaded cesspool upon its attachments. Again, the transverse colon is often a source of much pain and tenderness, but not in most cases to such an extent as the caecum. It can usually be accurately defined by palpation, while in some few cases its position is apparent to the eye. As it frequently becomes adherent to the ascending colon the area of the tenderness of the one merges into that of the other. If there is much habitual overloading of the transverse colon besides the pain and tenderness along its length there is a dragging pain and tenderness in the situation of the splenic flexure in front and to the left side.

The patient frequently complains of pain along the course of the sigmoid, and by palpation the surgeon can readily detect the presence of this portion of bowel as it lies telescoped in its length and fixed in a straight line running obliquely downwards and inwards along the iliac fossa. Very little pressure upon this inflamed and attached segment of bowel causes the patient the same sort of pain that is experienced when faecal matter is driven along it. The patient is liable to attacks of considerable pain and tenderness in the region occupied by the inflamed and dilated caecum, and such attacks are frequently mistaken for inflammations of the appendix alone. The appendix, which may or may not be inflamed, is frequently removed for the relief of such conditions of acute distension, the patient after such operations obtaining only the temporary relief that is afforded by the prolonged assumption of the resting posture favourable to the emptying of the cesspool and to the care and attention

which his bowels receive during the period of convalescence. When the erect attitude again is assumed the patient soon becomes affected with the troubles from which he suffered before his appendix was removed. This condition of the large bowel is almost the only cause for the pain which the patient experiences after these unsuccessful appendicular operations excepting such conditions as are due to an incorrect diagnosis in the first instance. This is exactly what one would expect from a knowledge of the causation of appendical disease.

That the operation of removal of the appendix not infrequently fails to relieve patients of their painful symptoms is well known to all of us, and no amount of statistics pointing to a contrary conclusion to this can be relied upon. It is possible at the time of the operation to gauge fairly accurately the amount of success that will follow upon the removal of the appendix, and, if necessary, upon the division of such bands as may be constricting the lumen of the caecum and ascending colon, or hitching up and obstructing the hepatic flexure.

I think that the failure to permanently relieve patients of their symptoms in a number of so-called cases of appendicitis is forcing itself daily more and more convincingly upon the profession, and is calling for a more thorough study of the physical conditions which produce appendical inflammation or which are associated with it. It seems to me that the consulting physician and the general practitioner can help the surgeons most materially by recounting their experiences of the subsequent history of these cases after operation.

In certain cases the patient refers all the pain to the epigastrium or to the umbilical region, and the many symptoms comprised under the term indigestion may be present in an aggravated form, and these I do not think it necessary to describe in detail. In such cases of advanced constipation in which the small intestine has become affected to such an extent that it is pinned down at intervals severe pain is complained of, and certain loops become so palpable during attacks and the pain so severe as to suggest obstruction.

The symptoms due to the absorption of toxins all tend to produce an appearance in the patient of premature senility. The patient wakes up with a feeling of weakness and rises unrefreshed from his sleep. There is an utter lack of tone and an inability to perform the ordinary routine duties. Consequent upon this weakness the respiratory function is carried out in an unsatisfactory manner, and attitudes of rest are habitually assumed, any active exercise being quite impossible, and the patient acquires resting deformities which I have described elsewhere. The consequent diminution in respiratory capacity becomes an added factor in the progressive loss of energy, and diminishes the resisting power of the individual. The diminution of the power of resistance, which is brought about by the presence of the toxins and their consequences, frequently cause a condition of oral sepsis, the teeth becoming carious and the gums inflamed from the invasion of organisms. This naturally adds to the depression of the vitality of the patient. The skin of the patient becomes dry, thin, and loose, and in the flexures, such as the axilla and groin, the secretions acquire a nasty offensive smell. This smell is also perceptible in advanced cases, when the abdomen is opened and the viscera are exposed. The colour of the skin is altered; it becomes a dirty brown colour. This pigmentation is exaggerated in certain parts, as, for instance, about the lower eyelids, at the inner angles of the eyelids, in the temporal region, in the neck, in the folds of the axilla, near the nipple, round the umbilicus, round the anus and about the generative organs. In some cases isolated well-defined pigmented areas exist on the body.

In infancy the nidus afforded by the irritated lymphatic glands in the mesentery and by the presence of fluid in the peritoneal cavity serve as excellent media for the development of tubercle. The loss of resisting power brought about by the presence of toxins renders the child liable first to the entry of the organisms in the form of an eczema, and later to the entry of tubercle into areas whose vitality is still further depreciated by traumatism. Later in life tubercle, gout, gastric ulcer, rheumatoid arthritis, and many other similar diseases attack this class of patient with what might almost be called selective action.

Perhaps one of the most conspicuous consequences is the loss of fat that the patients undergo after a certain period of time. How long they are able to hold out against the influence of the ptomaines without losing fat varies greatly in different subjects. Once, however, that it commences, this

loss of fat increases with marked activity, and it affords the best indication one can have that the patient is going repeatedly downhill. I particularly call your attention to the importance of this symptom, as I believe it is one that should lead us to take very active measures.

Associated with this symptom of loss of fat there are the symptoms arising from the dropping of such organs as are largely dependent upon the presence of fat for their retention in their normal position; I refer particularly to the kidney and the uterus. The toxin would appear to exert a special degenerating influence upon the sexual apparatus which is particularly marked in women.

There is often also a considerable amount of mental depression, and this is notably the case among the insane, in whom the presence or absence of a small quantity of toxin makes the difference between a manageable and an unmanageable patient.

In considering the question of treatment I do not propose to deal with any form other than operative, since I assume that everything short of operative interference has been tried. When it becomes apparent that something must be done beyond drug and other such treatment, the question resolves itself into whether an attempt should not be made to liberate the constriction by the division of bands or adhesions, or whether it would not be better to establish direct continuity between the lower end of the ileum and the termination of the large bowel. One's general experience is that while in men very considerable alleviation of symptoms may frequently be obtained by the division of bands and adhesions, nevertheless, in women, as a rule, it is better to proceed at once to the deflection of the faecal contents from the greater part of the large bowel.

In regard to the operative procedure itself I divide the ileum at about 6 in. to 8 in. from the caecum and connect the proximal end with the sigmoid, or should the rectum, which in these cases is dilated, afford a more suitable site for implantation I establish continuity with that part of the intestinal tract. The operation is extremely simple and its results are excellent, providing that the case has not been allowed to drift on till adhesions of the small intestine and considerable dilatation of the stomach have taken place. I cannot urge too strongly the importance of operative interference being carried out at an early period since the benefits to be gained vary inversely with the length of time during which the constipation has existed and with the mechanical changes resulting from such constipation.

Many have objected to the operation on the ground that the patient will be affected by persistent chronic diarrhoea. Such is certainly not the case. In a large proportion of the cases the patient has still for some considerable time to take drugs, or by preference use glycerine enemata, which latter are advisable in that they obviate any possible back-flow of faeces along the large bowel and their accumulation in the caecum. In a small proportion of careless feeders a certain number of fluid motions may follow upon an inordinately large vegetable meal such as not uncommonly occurs in the diet of the poor. The question of age appears to be a matter of no moment, but, on the other hand, the duration of the colonic obstruction is one of the most vital importance.

REFERENCE.

- ¹ *The Causation and Treatment of Hydrocele and Hernia in Young Infants.*

NEW METHODS OF STUDYING AFFECTIONS OF THE HEART.

By JAMES MACKENZIE, M.D.,
Burnley.

III.—THE ACTION OF DIGITALIS ON THE HUMAN HEART—(Continued).

THE EFFECT ON STIMULUS PRODUCTION (CHRONOTROPIC EFFECT) AND EXCITABILITY (BATHMOTROPIC EFFECT).

At the end of systole all the functions of the heart are for the time being abolished. The starting of the contraction is due to the power possessed by the muscle fibres of the heart to create within themselves material capable of stimulating the fibres to contract. Though all the fibres of the heart possess the power, those fibres at the mouth of the great veins possess this power in a greater degree, and hence the stimulus to contraction normally proceeds from this part over the whole heart. In addition, these fibres possess the power of creating