of the jaw, to an insignificant and bloodless operation, which can consequently be frequently performed without danger immediately after the neck operation. It enables the primary growth to be removed with greater precision. It does away with all necessity for preliminary laryngotomy or tracheotomy. It cuts off the blood supply to the tumour in the interval, if the operation has to be divided into two stages. It will possibly starve cancer cells which may be left behind after attempted extirpation of the disease. In my experience it is the key to the operation.

The second principle is that a communication between the mouth and a large wound in the neck should always be avoided where possible. Unless the disease be situated in the tonsil or its neighbourhood, and except the patient insist on a single operation, this can always be accomplished by dividing the operation into two stages in those cases in which for the satisfactory removal of the disease the lower jaw requires division. The neck, as before, is attacked first, and the lingual and facial arteries are tied. When, in a fortnight, the large wound in the neck is healed, the jaw is divided and the primary growth is excised, as before, bloodlessly. In conclusion, as regards final results, early diagnosis is the only hope. With this view, the therapeutic test of cancer, iodide of potassium, should be relegated to the limbo of dangerous playthings. Immediate microscopic examination of a piece of the growth should be the only test, and the therapeutic test should never be employed unless the microscopic report is doubtful. It should then be pushed rapidly, and its effects not watched too long.

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THE SURGERY OF COLITIS.

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BEFORE discussing the present position of the surgery of colitis, it is necessary to have a clear idea as to what the word "colitis" is meant to convey. For the purposes of these remarks, it is intended to include acute and chronic affections of the colon, sigmoid, and rectum produced by catarrh, inflammation, infection, or intestinal irritation.

It is not too much to say that now practically every morbid condition of the large bowel and rectum has been relieved by surgery at one time or another, and although there is not yet, and cannot well be, any decided line drawn as to which cases should receive one or the other treatment, it becomes a daily increasing necessity for the surgeon to be familiar with the causation and pathology of these conditions as well as to have an intimate knowledge of their treatment.

Colitis must be divided first into two large groups, Acute and Chronic, the subacute being merged into the chronic, far the larger group of the two.

ACUTE COLITIS.

For practical purposes it may be said that all cases of acute colitis are infective in origin, which does not mean that all infective cases of colitis are acute.

Mention must be made of those cases which are brought about by exposure to cold, etc. Such hardly come within the scope of this paper, as when uncomplicated they usually get well with ordinary medical measures. But when there is in addition a well-marked condition of oral sepsis which has probably been present for years, a very different state of affairs may supervene.

The large bowel swarms with micro-organisms which in the ordinary way do no harm, but when the membrane is inflamed the resisting power is much diminished, and the streptococci make active use of it, with the result that serious and wholesale destruction of the mucous membrane occurs, and at the same time considerable toxic absorption takes place, producing grave constitutional disturbances.

Symptoms.

These are acute abdominal pain associated with tympanites, diarrhoea, haemorrhage, and the passage of much blood-stained mucus and foul discharge, and in advanced cases sloughs may come away. A marked condition of toxæmia is always present in acute cases.

Treatment.

The surgical treatment in these acute cases does not differ from that which is done in the subacute cases, and the details will be given with the description of the subacute cases. The only point to emphasize here is that the condition is one of great emergency, and as such must be considered in undertaking any operation for its relief.

CHRONIC COLITIS.

The far larger group of chronic cases may be classified as follows:

1. Mucous colitis.
2. Membranous colitis.
3. Ulcerative colitis.
4. Haemorrhagic colitis.

Mucous and membranous colitis are practically the same, as both are due to excessive secretion of mucus.

The excessive secretion is caused by inflammatory irritation of the secreting glands, and when the inflammation is recent and subacute the discharge is entirely mucous, but in the acute cases the mucus is bloodstained.

When the inflammatory area is situated in the rectum or sigmoid the discharge consists of mucus only, but if the affected area is higher up in the colon it will be mixed with the intestinal contents. When the inflammation is of a chronic character, the mucus is secreted more slowly and becomes laminated, forming in some cases a complete cast of the bowel. This is the condition which is known as membranous colitis.

Ulcerative Colitis.

Ulcerative colitis (chronic) is a further stage of the inflammatory process, in which a destruction of tissue has taken place. Four varieties may be considered here, namely:

1. Follicular ulceration.
2. Ulceration due to sepsis.
3. Ulceration due to traumatism.
4. Dysenteric.

Follicular ulceration occurs mainly in the sigmoid and upper part of the rectum, as it is in this part of the intestinal canal that the majority of the solitary follicles exist. They are situated in the mucous membrane itself and the base of the follicle extends to the submucous tissue. The sigmoidoscopic examination shows a number of sharply-cut-out ulcers extending down to the submucous coat, and the mucous membrane around the ulcer is inflamed.

The symptoms mainly consist of a discharge of blood or blood-stained mucus; there is little or no pain associated with it, and the patients are otherwise quite healthy.

This form of ulcerative colitis is not of any serious importance as to the suffering it entails, but it is probably quite as difficult to cure as any of the different forms of colitis.

Ulceration due to sepsis when originally in the colon is due to a microbic infection of an already inflamed mucous membrane, and in ulcerative colitis associated with haemorrhage the organism present is usually a streptococcus. The contents of the large bowel, as has already been said, swarm with micro-organisms which in the ordinary way do not affect the mucous membrane; but when this is inflamed the micro-organisms not only have a destructive action on the inflamed membrane, but, in addition, the absorption of toxins causes constitutional symptoms of more or less gravity.

Traumatic ulcerations apart from ulceration due to post-operative sepsis are almost restricted to women in whom the pressure of the fetal head in a protracted labour has caused absolute destruction of a part of the mucous membrane, which sloughs away, leaving an ulcerated area behind it.

Dysenteric ulceration, as far as symptoms and surgical treatment go, does not differ from the other forms mentioned, except for the fact that the patients have usually resided in tropical countries where dysentery is endemic, and that whilst in these parts they have suffered from symptoms associated with dysentery.

It is rather necessary to put it in this way, because it is only too commonly the custom in tropical countries to class all forms of subacute and chronic diarrhoea as dysenteric, and in military hospitals when the ulceration is discovered as well, it is nearly always diagnosed and treated as syphilitic. With regard to this latter form of ulceration as a cause of colitis, I purposely have not

considered it, as after nearly twenty years of general hospital work and twelve at a special hospital, in addition to general surgery, I am quite ignorant of the existence of this form of ulceration, as I have never seen any single case of it.

Haemorrhagic Colitis.

Haemorrhagic colitis is no doubt another form of the ulcerative type, and the organism responsible is nearly always a streptococcus, but the main symptom—namely, haemorrhage—is so prominent and so urgent that the condition must be treated as an acute one with regard to the immediate treatment required.

In addition to the haemorrhage there is usually a raised temperature, the pulse is running and weak, the patient is markedly anaemic, the abdomen is tender and tympanitic, and the frequent action of the bowels, consisting mostly of blood, are accompanied with much pain and distress to the patient.

When the bowel is examined with the sigmoidoscope the mucous membrane of the rectum and of part of the sigmoid is seen to be intensely injected, and when this condition occurs in a young adult it may be easily mistaken for a malignant growth until examined with the sigmoidoscope.

There is one other condition which may give rise to similar symptoms—namely, when an inflamed appendix situated in the pelvis involves the rectum in its inflammatory process. Here, again, short of opening the abdomen it is almost impossible to make a diagnosis without the sigmoidoscope.

Treatment.

The whole aim of the surgical treatment is to clear out the large bowel as thoroughly, and render the contents as aseptic, as possible. When this has been done for some days, and at the same time oral sepsis has been thoroughly carried out, the inflammatory condition of the colon gradually subsides, and in recent cases the mucous membrane becomes normal, the symptoms disappear, and the patient is cured, but it is most necessary that for some time after every care should be taken in the way of diet, and also over-exertion should be carefully avoided; otherwise the symptoms are sure, in some measure, to return.

The point of paramount importance is to settle as exactly as can be, first, when surgery should come in, and, secondly, what particular thing should be done for each particular case. At present only those cases come to the surgeon which, so to speak, are driven to a surgical port by stress of circumstances. These, as a matter of fact and speaking from experience, do very well in the end, although the period of convalescence may be a matter of months, which, however, is passed without pain and, indeed, in comparative comfort.

The question as to the amount of time which should be spent in medical and expectant treatment in chronic cases is not easy to answer, but it will depend upon the amount of pain which is being endured, the individuality of the patient, and the conservative bias of the medical man.

The disadvantage of this is that no one medical man has, except in quite rare instances, a sufficient number of cases the treatment of which would constitute an experience of any real value. The decision, therefore, of the vast majority of men will be one arrived at through the medium of some one more or less expert. It is a comfort to reflect that the majority of such in this metropolis, at all events, are absolutely broad-minded as to the matter of what is called "surgical interference."

As to when this shall take place in this or that case it must be a matter of evolution, and in accordance to the results which can be shown by those of us who have the surgical treatment of these cases, and so gradually with the spread of knowledge and increase of experience one foresees a vast improvement in the future treatment of these cases of colitis, when the years which are now spent in hopeless treatment will be a thing of the past.

Dealing with *acute* cases, it must be apparent that such a grave condition requires urgent treatment in some thorough and practical form. Half-measures are useless; and, although those about to be advocated may in bad cases be hazardous, it is the only chance and must be

taken. The aim of the treatment must be, first, to thoroughly irrigate the large bowel, that the infective material it contains may be reduced to a minimum. It is quite impossible to do this by the ordinary methods of rectal irrigation. It is much too painful, and the patient is much too ill to stand it.

An appendicostomy, when possible, should be undertaken; or if for any reason, such as adhesions, etc., this is not feasible, then caecostomy must be performed, preferably according to the method of Gibson if circumstances permit.

OPERATIVE TREATMENT.

The various kinds of surgical treatment at present carried out are as follows:

1. Appendicostomy.
2. Caecostomy.
3. Colostomy.
4. Proctotomy (median posterior).

To these must be added, either separately or in conjunction with the above, the more recent treatment by means of

5. Cataphoresis.

Appendicostomy.

Appendicostomy is probably, taking it all round, the best operation for those chronic cases of membranous or ulcerative colitis which are at present submitted to the surgeon for operation.

The operation itself presents no difficulties unless there has been much inflammation in the caecal region, when the adhesions may be troublesome. The operation has been frequently described of late, but one or two descriptions which have been published have been so obviously written on insufficient experience that it may be as well to briefly describe the essential details.

The appendix is reached through as small an incision as is compatible with the amount of abdominal fat present, and the appendix is freed of all adhesions and brought outside the abdominal cavity, as much of the meso-appendix being divided as is necessary for the absolute free handling of the appendix; in fact, it is best to free the appendix down to the caecum.

When this has been done and all haemorrhage stopped, the incision of the peritoneum is closed, and in this process the *base* of the appendix is included.

These patients are mostly thin and there is not much depth of abdominal wall to close. The split muscles are united either side of the pulled out appendix, but the skin is for the moment left. The appendix is packed round with gauze, and a point chosen to amputate which would leave *not* more than a quarter of an inch of the appendix outside the skin; the appendix is crushed at this point in the ordinary way to avoid any haemorrhage, and after removal the cut edge is either treated with pure carbolic or with the actual cautery.

The great point of practical importance is to leave as *little of the appendix as possible*.

The cut edge of the appendix is seized with fine forceps and held apart whilst a catheter—rubber—of sufficient size to be tightly gripped by the stump of the appendix is passed into the caecum, a thread ligature is tied round this, and the skin is closed with interrupted stitches, which again include the appendix.

The catheter is now connected with an irrigation apparatus and a solution of warm bicarbonate of soda (100° F.) is allowed to slowly run into the colon. There is no possibility of any leakage occurring if the simple points mentioned already are carried out. To get the solution to pass out freely, and to avoid any over-distension of an attenuated colon, a small Kelly's tube is passed into the rectum; this is a most useful point in the washing out. After from 1 to 3 pints have been passed into the colon the fluid will commence to flow readily through the rectal tube, and the irrigation is carried on on the operation table until the fluid passes out quite clear and odourless. The catheter is then tied up to prevent any back leakage, the wound is dressed, and the patient put to bed.

After-treatment.

If the patient is not too ill from the anaesthetic, the irrigation should be carried on next day, and in any case

no time should be wasted in continuing the irrigation, which should be carried out daily. This can be done without any disturbance of dressings. The wound is looked at on the third or fourth day, when it may be found that the exposed part of the appendix can be removed. The skin suture on either side is divided, and the appendix stump is cleaned with a solution of peroxide.

The irrigation is continued for from three to six weeks, and after the first few days it has been my custom to finish up with some permanganate of potash solution—very weak—which I have found most beneficial. Due care must be paid to the diet, and some intestinal antiseptic should be given.

If the patient is constipated—and they mostly are—some aperient in addition to the irrigation must be given. By this simple method cases of colitis which have been going on for years and have been during that period treated with all varieties of expectant treatment, show in a very short time marked improvement; haemorrhage and pain soon cease, the patients put on flesh, and the pyrexia disappears. At the end of three to six weeks the irrigation is discontinued, but a careful diet is maintained and rest in the horizontal position is insisted on as much as possible. But very gradually the patient is allowed to resume ordinary diet and increased exercise is allowed. A careful watch must be kept over the patients, especially with regard to what is passed from the bowel. During this time and until the colon is normal when viewed with the sigmoidoscope the appendix must be kept open by keeping a plug in during the night. It can be left out during the day, and some simple dressing applied. There is practically no leakage. It may be that it is desirable to prevent the opening from closing for even a year, and if there are any indications of a "set-back" the irrigation must be resumed until these have disappeared. The best results of this treatment are seen in those bad cases of haemorrhagic colitis where the patients are in a most desperate condition from a combination of haemorrhage and toxæmia together. In a few days the haemorrhage ceases, the temperature falls, and the patients lose their blanched colour and gain in weight, and in a short time the action of the bowels is normal.

But in this as in other forms of colitis it is necessary for some time to keep a careful watch over the patient both as to diet, exercise, and exposure to cold.

When it is thought safe to let the opening close, it usually is only necessary to leave out the tube, and if this is not sufficient the edges may be touched with the actual cautery, but it is rarely necessary to do this and most rarely necessary to do any form of plastic operation.

Cæcostomy.

This may be termed a bad substitute for appendicostomy, and should never be resorted to if in any way the appendix can be made use of. The details of this operation as performed by Gibson will be found in Tuttle's book; the aim of the operation being to avoid any leakage from the cæcum, a result which is highly disastrous to the neighbouring skin as well as most painful to the patient.

Colostomy.

There are many ways described in which this operation may be performed, and the one advocated in my book, *Surgery of the Rectum*, is, I think, on the whole the best. The points about it are that the operation can be done through a small incision, and the great gain is that the bowel can be opened *at once*, and, as in the appendicostomy, irrigation can be proceeded with *at once*.

This operation is of the greatest benefit in cases of dysenteric ulceration, where usually the ulceration is limited to the sigmoid and rectum. The affected bowel can be kept quite clean and free from all contact with the intestinal contents, and the ulcerated areas can be treated by the direct application of any lotion which it may be thought will do good. Personally I have not much faith in the curative powers of any of these applications beyond their effect in keeping the colon clean, and as far as possible preventing reinfection. This is probably all that is necessary in those cases in which the ulceration is limited to the surface, and there is no submucous infiltration. When once the ulcerated surface has healed it is well to close the colostomy forthwith that the rectum may resume its natural functions. This will

materially help in the prevention of any contraction, any tendency to which must be overcome by the careful passage of bougies.

Posterior Median Proctotomy.

This is of great use in those cases in which the ulceration is low down in the rectum, and the pain is so great that there is much spasm of the sphincters. A posterior incision through both sphincters and extending back to the coccyx relieves the spasm and ensures free drainage, and after a day or two the rectum and sigmoid can be thoroughly irrigated with very little discomfort to the patient. This, associated with warm boric acid sitz baths, soon relieves the patient of the painful and acute symptoms, and the ulcerated surface can after a week or ten days be submitted to the treatment of zinc cataphoresis.

This combination of treatment is of the greatest value in those cases in which the ulceration is limited to the lower part of the sigmoid and the rectum.

Cataphoresis.

This form of treatment was advocated by Dr. Ironside Bruce and myself in a paper read at the Royal Medical Society in June, 1908. For the details of this treatment I would refer my readers to that paper. I have nothing but good to report of the further experience of it, and certainly in recent cases the effect is most satisfactory. The effect of a continuance of the treatment in those intractable forms of ulcerative proctitis of some years' standing with submucous infiltration is that the spreading of the ulceration is checked, and in those cases where after years of ulceration the membrane has been damaged beyond repair, a non-infective granular surface is left which can be dealt with by means of excision or some other surgical measure, which when embarked on in the ordinary way is in many cases futile, or even worse, on account of the infective character of the ulceration, and the consequent difficulty of preventing reinfection.

CONCLUSIONS.

To sum up the present position of surgery in the treatment of colitis, it may be said that the sooner all forms of ulcerative and haemorrhagic colitis are submitted to surgical treatment the better. There can be no doubt but that irrigation of the bowel through a surgical hole made in it is the best—one would almost say the only—chance there is of recovery from this condition. Mention has already been made as to the serious condition which exists in acute cases, and the one chance they have, however great the risk, is the free irrigation of the large bowel by one of the surgical measures already suggested.

In either acute or chronic cases the whole aim and object of both medical and surgical treatment is to get the colon free of the infective contents, and thus, by keeping the bowel clean, give it the best chance of recovery.

Any application of a chemical nature, whether stimulant or astringent, must be used with caution, as most such applications are irritant, whatever other properties they possess.

The best treatment for these ulcerated areas is *cataphoresis*, but so far we are only able satisfactorily to treat those cases limited to the lower 7 or 8 in. of the bowel.

As to the efficacy of *vaccines* in either acute or chronic cases, my experience is quite small and limited to chronic cases, in which it seems to have some beneficial effect, although so far it in no way seems curative. From inquiries made, I gather that the present state of our knowledge in this matter is insufficient to make any definite statement either one way or the other.

The form of colitis about which any definite conclusion as to surgical procedure cannot yet be arrived at is membranous colitis. This form is usually met with in women between the ages of 25 and 50; they are nearly always of the neurotic type, imaginative and constipated from habit, and generally before they come for treatment for colitis they have either been treated or have treated themselves for years for constipation, usually by wrong methods, which have had the effect of exaggerating the inflammatory condition of the mucous membrane and increasing the mucous discharge.

Muco-membranous colitis of this type has often been said to be caused by the neurasthenic condition. As to

how far this statement is one of fact is a question which it is not proposed to examine further than to suggest that it may be possible that, owing to the constant absorption of toxic products, the various neurasthenic features may be due to the direct effect of these absorbed toxins on the central cerebro-spinal system, and if this is so it would seem obvious that any measure which quickly and thoroughly cleans the colon of its harmful products must be the most desirable.

Without discussing the various treatments by means of lavage, diet, waters, exercises, and intestinal antiseptics which are carried out in this country, at Plombières, and elsewhere, with marked success in many cases, there remain a large number of cases which, either from neglect or in spite of treatment, are in a miserable condition of chronic ill-health, which no amount of treatment can do much to alleviate. It is for such cases that I would suggest a much earlier resort to surgery. It does not appear to be possible to clear the colon of its contents by the ordinary methods of lavage; besides which the process, if carried out effectively, is distinctly an exhausting affair, especially having regard to the enfeebled state of the individual concerned. When once the operation of appendicostomy has been performed the process of washing out the colon is one which is easily carried out with the smallest amount of discomfort to the patient, and with a rapid disappearance of the amount of membrane and great amelioration of the symptoms, such as pain, flatulence, etc. The constipation is not so easily overcome, but there is distinct improvement in this respect, and the appetite is greatly improved, the weight increases, and with the improved physique the recuperative powers are increased, and with a continuance of the treatment, with due regard to diet, and with as perfect hygienic surroundings as possible, there is no reason why these people should not get well; but the treatment may take many months—even a year—before the patient is able to discontinue it and allow the opening to close.

In some—nay, in most—cases the patients bear the treatment with equanimity because of the greatly increased comfort they derive from it.

There is not any necessity for these people to stay in hospitals or nursing homes longer than two or three weeks, as for the purpose of carrying out the treatment the patient can soon learn to do this with any slight help from some member of the family or a servant.

Perhaps the most important thing in diagnosis in reference to treatment is the early examination by the sigmoidoscope.

There is no doubt that much may be learned from such an examination and a great deal of time saved, and I would strongly urge that this should be done quite early. The state of the bowel wall can be made out and specimens of pus or secretion can be obtained for microscopical examination or for bacterial investigation; the extent and depth of any ulceration can be made out and the question of any growth can be settled. With the sigmoidoscope for diagnosis and the various surgical methods which have been described much can now be done to relieve the various forms of colitis. The important question is whether these surgical measures should not be resorted to much earlier and more frequently than is now the custom.

THE University of Leipzig will celebrate the 500th anniversary of its foundation in August, 1909.

THE will of the late Dame Frances Russell Reynolds directs that a sum of £1,000 shall be paid to the National Hospital for the Paralyzed and Epileptic for the maintenance of a bed in memory of her husband, the late Sir Russell Reynolds.

It is apparent from a paper read by Mr. Berry at the Scottish Institute of Brewing on "The Condition and Head on Beer," that the public demand for a beer with an attractive "head" is more exacting than it was some years ago. In consequence, many brewers now resorted to carbonating beers. In the days of the East India pale ale, when much higher alcoholic beers were in vogue, the production of an attractive and lasting "head" did not present the same difficulties as the present day. Science has now come to the aid of the brewer, and by careful and judicious malting, methods could be employed that would produce, even on low alcoholic beers, a head and conditions of surpassing attractiveness.

THE TREATMENT OF CHRONIC RHEUMATIC AND RHEUMATOID ARTHRITIS BY RADIANT HEAT AND CATAPHORESIS.

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It appears reasonable in the present state of knowledge of the pathology of the conditions included under the terms "chronic rheumatic arthritis" and "rheumatoid arthritis" to accept, for purposes of treatment, the view that they are inflammatory affections of a progressive character, probably caused by toxins elaborated by micro organisms; also, that the micro-organisms or micro-organism in question may have their habitat in the joints affected, or may dwell elsewhere (perhaps in the naso-pharynx, perhaps in some portion of the alimentary tract); also, that circumstances which depress the general or local circulation, allowing the blood to more or less stagnate in the structures which form the joints (and the circulation is normally comparatively slow in these structures), act as strong predisposing causes; that, of these depressing circumstances, one of the most important is continued exposure to cold and wet, or both combined, others are insufficient nutrition and mental shock; and that another predisposing cause may be repeated slight traumatism, for it always appears from the history that the joints which have been exposed to the greatest wear and tear are usually the first to succumb.

Unless we start with some such definite, although perhaps hypothetical, view of the pathology of the affections, treatment tends to be empirical. Assuming, therefore, that the above microbic theory is correct, the value of improving nutrition by generous diet, cod-liver oil, and fats is manifest, as also the prescription of drugs empirically found to produce a good effect—and all being more or less antibacterial, such as iodides, arsenic, quinine, and guaiacol—and more especially the removal of our patient from the influence of the predisposing causes.

The comparative want of success in one portion of our treatment lies in the fact that, although we may give drugs as remedies in large doses and for long periods, yet the actual amount at any time of any drug circulating slowly in the joint tissues is in reality quite small, and, therefore, the beneficial effect is proportionate. To increase the latter the treatment by radiant heat and cataphoresis may assist us materially.

The action of heat in relieving pain and exerting some control in checking these diseases has always been recognized in chronic rheumatic and rheumatoid arthritis; local treatment has comprised hot poultices, compresses, volcanic-mud and moor-mud baths, vapour and hot sand baths, and so on, but the most efficacious of all heat applications is dry radiant heat. Until recently the radiant heat appliances supplied have usually been box-like, the distance of the radiant surface from the joint could not be regulated, and they were often covered in with asbestos sheeting, and thus imperfectly ventilated. In consequence we may have, combined with radiant heat, a condition to be avoided, namely, "moist air heat." They have a more important defect in that, as the radiant surfaces are made of ordinary low candle-power electric carbon filament lamps, they give out rays consisting almost solely of the yellow and yellow-orange. Now the ideal type of radiant heat should be as nearly as possible like sunlight and should give a spectrum ranging from the ultra-red to the ultra-violet. This type of spectrum can apparently be only obtained from lamps of very high candle-power. I am quite convinced that an absence of the violet and ultra-violet rays in the ordinary apparatus is largely responsible for the weakness of sedative effect and slow relief of pain, whereas absence of yellow-green rays may be responsible for only slight stimulation of metabolism.

I find a type of radiant heat apparatus, manufactured and largely used in America,* very satisfactory. It consists of a single large lamp in a funnel-shaped projector lined with a reflecting surface. The projector may be raised or lowered by a system of counter-weights, or

* Obtained for me by Mr. A. E. Dean.