owing to the oculo-motor paralysis which accompanied the headache. The recovery from the paralysis which was to be expected in the earlier attacks had been responsible for an error in diagnosis on his part in a case in which a patient died of intracranial tumour who was supposed to be suffering from this variety of migraine, owing to the remarkable improvement without antisyphilitic treatment which took place in the ocular paralysis accompanying the headache. There was no optic neuritis or any other organic sign except the ocular paralysis on which the diagnosis of tumour could be based.

To those familiar with the ordinary classical picture of disseminated sclerosis it must seem a little far-fetched that this affection, so largely spinal, should be capable of being mistaken for tumour of the brain. Nevertheless, such confusion did occur, and he could recall many instances in which errors had been made, and even some in which patients had been sent into hospital in the hope of operation for cerebellar tumour when, in reality, disseminated sclerosis existed. Two typical cases of this kind were quoted, in one of which the extraordinary unilaterality of the signs and the absence of sensory defect and sphincter disturbance fully justified the suspicions of tumour at first entertained and subsequently abandoned by the medical man under whose care the patient had been. A third case was quoted in illustration of the opposite state of things, in which disseminated sclerosis was suspected where tumour obtained. Emphasis was laid on the presence of optic neuritis and the absence of indications of involvement of the pyramidal tracts as in favour of cerebellar tumour, in addition to what had already been said in regard to sensory defect and affection of the sphincters.

Time only allowed of brief reference to a few points in regard to difficulties that might arise in localization; but he referred his audience to an important paper by Dr. James Collier on this subject. A wrong conclusion might be arrived at owing to the case coming under observation late, when possibly sufficient weight was not given to the significance of the earlier manifestations. How readily mistakes could occur was illustrated by a case in which all the indications save one pointed to the cerebellum as the probable seat of the tumour, but the presence of hemianopia resulted in trephining over the correct position, namely, the occipital lobe. Concomitant vascular lesions might, however, complicate matters, and lead to errors in localization. It was impossible to overrate the value of every physical sign that could be determined in these cases, so that he was glad to have the opportunity of calling attention to a point brought forward by Dr. Farquhar Buzzard at a discussion in the Ophthalmological Section of the recent meeting of the British Medical Association in London. He had found that loss of the pupil reflex to light justified the conclusion that the tumour was deep-seated, and was notably met with in those which involved the third ventricle. Attention to such details was most important, in view of the possibility of relief by operation, for while decompression might give considerable relief in deep-seated tumours, the attempt to remove such growths could lead to no good result. How important it was to give strict attention to what might possibly be regarded as insignificant details was illustrated by a case in which defect of upward movement of the eyes and a few other manifestations so well set out by Dr. Gordon Holmes as part of the symptom-complex that was produced by mesencephalic tumours, enabled him to arrive at a correct diagnosis, but in which, in opposition to his view, the patient was operated on for supposed tumour of the cerebellum, with fatal result.

THE value of the estate left by the late Dr. Sydney Ringer, Emeritus Professor of Medicine at University College, has been sworn at £54,287.

THE autumn dinner of the Southern Branch of the Durham University Medical Graduates' Association was held on December 2nd, at the Criterion Restaurant, when many members and guests were present. The Vice-President of the Association, Dr. J. Inglis Parsons, occupied the chair. The toast of the University and Association, proposed by Sir W. H. Allchin, was acknowledged by Dr. Wm. Rawes, and that of the visitors by Mr. Charters Symonds. Dr. W. Davis made a delightful speech in proposing the vice-president's health. Excellent music was provided by Mr. John W. Trimley.

A Lecture

ON

THE TREATMENT OF GASTRIC AND DUODENAL ULCER.

DELIVERED AT THE MEDICAL GRADUATES' COLLEGE, OCTOBER 10TH, 1910.

BY

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TREATMENT of ulceration of the stomach and duodenum is, except in a prophylactic sense, of course in no way concerned with treatment of such results of ulceration as perforation, stenosis, visceral deformity, abscess, etc. The treatment of these is strictly surgical, a standing witness to unconfessed failure to cure the ulcerative lesion which gives rise to them. Happily, not all of such tokens of failure are often seen, though ulceration itself of duodenum or stomach, whether acute or chronic, is a much commoner event than is frequently supposed. Ulcer of the stomach demands practically the same treatment as does that of the duodenum. We have therefore only to consider the treatment of acute and chronic ulceration itself, and of its two most frequent accompaniments, haemorrhage and pain, when not due to adhesions or other results of ulceration.

Until comparatively recent years the treatment of gastric and duodenal ulcer, both acute and chronic, has been entirely medical. Medical treatment, until towards the end of last century, may be summed up in the word "rest and starvation," both for acute ulcers and for chronic. All gradations in rest and starvation were observed, according to the needs of the individual case, from absolute rest for many weeks or months with the merest pittance of food administered by the bowel, to less restricted movement and the administration by the mouth of nutriment mainly of a liquid nature. As improvement set in, as it often did, a gradual return to active life and more satisfying diet was allowed, and the seal of professional approval was set on an almost universal practice. To a large extent the same method of treatment, and the same satisfaction with the results obtained, prevail to-day. Gradually, however, especially on the Continent, it began to be seen that confidence in the time-honoured method of treatment by rest and starvation for all cases alike was seriously misplaced. Not only did many cases fail to respond to the treatment, but others considered as cured were found, either during life or on autopsy, not to have been cured; or, again, cases in which temporary cure was apparently an actual fact repeatedly relapsed. In consequence it came to be realized, though by no means generally, that starvation was not essential to the production of cure, and that the small nutrient enemata, measured in ounces, previously given could be safely replaced by nutrient rectal injections measured in pints. The food-absorptive power of the large bowel was, however, much over-estimated, and the results were not materially improved. Tentatively then experiment was made of increasing the amount of food by the mouth, and it was found, chiefly by Lenhartz, that food could safely be given in larger quantities, and of higher nutritive value, than had previously been held wise or safe. The Lenhartz treatment was widely tried, and, though the results *quâ* cure are not strikingly superior to those of the older method, the treatment had a great educational value in demonstrating how dangerous and unnecessary the starvation inseparable from rectal feeding is. He also unquestionably proved that feeding by the mouth in all but the most urgent cases is not necessarily fraught with risk. In spite, however, of his teaching, and to some extent because of it, even those who grasped the importance of avoiding starvation in the treatment of these cases continued and still continue, when administering food by the mouth, to adhere to the custom of giving it mainly in liquid form. This they do quite regardless of the unscientific nature of such a proceeding, a statement which I shall presently justify. About the time that the

medical world was beginning to appreciate the fact that rest, starvation or semi-starvation, and slops was not the ideal treatment for all cases of ulcer, their surgical *confrères* began to claim the stomach and duodenum as their own. They soon were able to show, pre-eminently the Mayo brothers in America, and Moynihan in England, that by excision, or for choice by short-circuiting, with or without simultaneous obliteration of the pyloric orifice, brilliant results could in many cases be obtained, expressed in total relief of symptoms and relative permanence of cure. This not unnaturally gave place to increased confidence, followed by the somewhat rash assertion that, for chronic duodenal cases at least, operation was the only rational treatment once diagnosis was sure. The position, therefore, to-day is that whilst in some quarters medical treatment by rest and starvation is giving place to rest and semi-starvation, in others both are giving way to the somewhat insistent claims of modern surgery.

Whilst, however, conceding fully the undoubted fact that rest and starvation, or semi-starvation and slops, cure many cases, even permanently, of gastric and duodenal ulcer, and whilst conceding fully the wonderful results achieved by surgeons, both as regards immediate relief and apparent permanence in numerous instances, the attitude of the profession, both medical and surgical, is based, in my belief, on three grave fallacies:

The first fallacy is concerned with the question of rest. It is generally believed and taught that complete rest in bed, when coupled with deprivation of food by the mouth, necessarily involves complete rest of the stomach and duodenum, expressed in absence of visceral movement and secretion. This belief has little solid foundation of fact. The injection of food into the bowel is always apt to start gastric movement and gastric secretion, as has been amply proved. So also will the sight or even the thought of food. Not only so, but it appears from recent experiment by Dr. P. O. Shirokiah that the stomach is never motionless for long, even when completely empty. There is again some evidence to show that secretion of the digestive juices is not necessarily restricted to the times of intake of food even in absence of psychic stimulus. If this be true, it is clearly impossible to secure absolute visceral rest, though restriction of general movement and of food supply must certainly assist. Passing of hyperacid secretion over the pylorus is also, as we know, productive of contraction of the gastric wall. It is, of course, not suggested that some beneficial restriction of movement and secretion cannot be induced by appropriate means. But it has become the custom for many writers to assert that they are able by rest in bed and deprivation of food to immobilize the stomach as one would speak of immobilizing a limb. It is therefore necessary to call attention to the fact that such immobility is largely imaginary.

The second fallacy is concerned with the administration of liquid food. It is believed that if food is to be given by the mouth in these cases of ulcer it should be given in liquid or in semi-liquid form. This is not good practice, partly because an ulcer that will not heal, such as the chronic form of lesion, will not the more readily do so if its floor and edges are constantly being soaked and steeped by an infected decomposing medium charged with fatty organic acids and the products of fermentation. That such is a common state of the gastric contents in cases of chronic ulcer numberless analyses show. One of the reasons for infection and decomposition is the gastric stasis that is almost the rule in long-standing cases of ulcer, and very frequently in cases with a shorter history. The gastrostasis is the result of gastrectasis, itself the expression either of stenosis or, more generally, of toxicæmic atony. To add meals in a fluid or semi-fluid state to a stomach already heavily laden, as is often the case, with many ounces, or even pints, of unescaped relics of previous meals, is the best possible method of retarding healing. For not only is the ulcer itself liable to infection and the formation of healthy granulations to serious inhibition, but from the constant hyperevolution of gas incessant movement of gastric and duodenal walls is excited and repair made doubly difficult. Add to this the profound interference with general nutrition by the contamination of each succeeding meal by the undischarged remains of many last meals, and we are led to wonder how, under these conditions, healing can ever take place. For if general nutrition be impaired the power of local healing

must be seriously hampered, quite apart from the obstruction to healing due to the rigid barrier that so frequently exists between the floor and sides of a long-standing lesion and the vivifying influence of a well-fed lymph stream.

The third fallacy is one that seriously affects the position of both physicians and surgeons alike so long as they regard treatment of the ulcer equivalent to treatment of the cause of ulcer. The whole question, indeed, of the permanent value of any method of treatment of gastric and duodenal ulcer turns on this: Is the ulcer that you wish to cure a disease in itself, or is it merely the local sign of a general dyscrasia whose very existence you have never suspected? If "simple" ulcer, with its attendant miseries of pain and hæmorrhage, be a disease *vis generis*, as has been taught for so long, we can never attain to unanimity of opinion as to what, taking the cases as a class, is the ideal method of treatment to adopt, and the present state of chaos and uncertainty must always continue. For, so far, whatever be the method followed, even in the early stages, success is only spasmodic, and relapses and failures form a high percentage which is daily being added to even from the clinics of the most successful exponents of modern surgery. If, on the other hand, gastric and duodenal ulcer, with attendant pain and hæmorrhage, are merely local symptoms of a general dyscrasia characterized by the recurrent appearance in the blood of toxins with a specific cytolytic affinity for gastric and duodenal tissues, how different the problem of treatment becomes! If the gastrolytic theory of the production of hæmorrhage and of ulcer which I have elsewhere fully elaborated, and in support of which there is much indirect evidence, be sound, it becomes essential to reconsider our position. For, on the one hand, it becomes increasingly clear that to be content with such purely local measures as the administration of antacids, alterations of the secretions by administration of oils, and futile attempts to secure complete local rest by restriction of movement and homoeopathic administration of food, when the general diathetic condition is clamouring for aid, is to court eventual failure. On the other hand, to expect to secure universal immunity from present and recurring ulcer by any devices of the knife becomes clearly equivalent to expecting to cure syphilis by excision of a gummatous tumour, and equally liable to disaster. This third fallacy, then, of mistaking a mere symptom for the disease is fundamental, and its importance cannot be over-estimated if we desire real advance.

As a result of holding these views on the pathogenesis and treatment of gastric and duodenal ulcer, I devised the serum and dry protein treatment some three years ago. The results have been so good as regards temporary relief of all symptoms in the large majority of cases treated that one is encouraged to believe that the rationale of the treatment is based on sound lines. No kind of finality is claimed at present, as a considerable number of years should be allowed to elapse before making any definite statement as to permanency of results. I have treated personally or by correspondence in this time a large number of cases, gastric and duodenal, mainly in the chronic stage, and can confidently assert that the results abundantly justify one in encouraging other workers in this field to extend observations on the same lines. My intention here is briefly to outline the main points of the treatment, postponing tabulation and full consideration of all the cases treated till one can speak more definitely on the question of permanency of results than is at present possible. I should like to point out that every one of the chronic cases on which this lecture is based were derelicts of other methods of treatment—that is to say, were failures of other methods. Hence the test was in each case a most severe one. Not only so, but the majority of the cases were private ones—that is, had never received hospital treatment. Now in all hospital cases it is a familiar experience that the transition from bad food, or improper food, or too scanty food, is often followed by excellent immediate results whatever be the method of treatment adopted. This simple fact at once destroys the value of all statistics relating to the advantages or the reverse of any one method of medical treatment adopted in hospitals as regards this particular affection. To my cases, however, this objection does not apply, as, since most were private cases, and the larger number of them chronic cases that had repeatedly undergone treatment of

various kinds, there was no such transition from grossly improper food to the dietary I prescribed.

For convenience of description the treatment of ulceration can be dealt with under four headings:

Group I.

(a) Chronic cases who have never had hæmorrhage or only slight hæmorrhage.

(b) Chronic cases who have had hæmorrhage, sometimes perhaps severe, but who, when coming for treatment, are suffering from varying degrees of hæmorrhage, but which is never severe.

Group II.

(c) Chronic cases exhibiting at the time of treatment acute exacerbations, hæmorrhagic or other.

(d) Acute cases with alarming hæmorrhage or other grave symptoms.

In my hands the first two classes of case receive the same kind of treatment. They can therefore be considered in one group. The last two classes of case also receive one form of treatment; they can also be considered in one group.

GROUP I.

Chronic cases not suffering from hæmorrhage, or suffering from hæmorrhage that is not severe. In cases of this group particular attention is paid to the following details:

A.—Condition of the Mouth and Teeth.

Until the mouth has been passed as free from any focus of infection by a reliable dentist all treatment is, if possible, postponed. It is amazing to find in what a large percentage of cases, in which gastric pain and hæmorrhage occur, marked pyorrhoea or dental caries exists.

B.—Condition of the Bowels.

Whether constipation is present or not a purgative pill is administered, in most cases every night for at least a fortnight. The reason for this is that one frequently finds in these cases that the slightest degree of constipation appears to increase congestion of the whole tract, showing itself in increased pain. Also a considerable amount of constipation is sometimes present without being in the least suspected, even in patients who make positive statements to the contrary. The point can be proved by comparing the bulk and weight of the dejecta for a few days after mild but continuous purgation with that before the beginning of treatment. The results are sometimes astonishing, even in patients who deny constipation.

C.—Fluid Intake.

Tea, coffee, wine, spirits, liqueurs, are rigidly forbidden. Soups, broths, beef-teas, and, in most cases, milk in any form, are also excluded. The number of patients who have found from long experience that milk aggravates the pain due to ulcer has been to me in these cases a revelation. Sometimes the converse is found, but comparatively seldom. It must be remembered that nearly all statements, based on hospital experience, with regard to the value of milk and other liquid food for all chronic cases of ulcer alike are worthless. This is so because a patient with a chronic ulcer who has been on an improper diet previous to admission into hospital will almost certainly experience relief of pain when put on a milk diet after admission. In many private cases put on milk the same treatment has been previously given. In such cases milk very rarely relieves the pain, because there has been no such transition from grossly improper diet as obtains in hospital cases after admission.

D.—Rest.

In the group of cases under consideration absolute rest in bed for more than a few days is seldom necessary or desirable, if the other points in the treatment are adhered to. One's object in these cases is to improve general nutrition as rapidly as possible, in order to give local repair its maximum chance. This ideal is apt to be seriously compromised by prolonged rest, which impairs appetite and usually involves relative curtailment of air supply. In the majority of cases treated ten days or a fortnight's rest in bed is all that is necessary, which is then followed by the use of a chaise-longue, for preference in the open air, for another fortnight; the idea being that if the disease has a toxæmic basis abundant supply of fresh air is of great importance. The degree and extent of rest must, of course, in all cases be adapted to individual needs, and is best gauged by the time of disappearance of pain. In many instances pain has materially

lessened in a week or even less, and has completely disappeared in a month. After this time, if all be well, a gradual return to active life is allowed, the transition period occupying another two or three weeks. In many cases the time consumed in inaction can be very materially shortened, so that no hard-and-fast rules can be laid down. You will notice that I offer no suggestions as to the length of time required for the healing of acute or chronic ulcer in man. The fact is we do not know. Observations on acute experimental ulcer in animals do not help us.

E.—Diet.

In these chronic cases in which hæmorrhage is either absent or in which, if present, it is not of an alarming nature, the following articles of food I have found necessary to veto: Bread, potatoes, vegetables, milk, or farinaceous puddings of sago, rice, tapioca, etc., cheese, as well as other articles more obviously inappropriate. The avoidance of milk itself as a food, and of soups, broths, etc., and of the custom of drinking with meals has been already insisted on. Such veto is based on the impropriety of introducing into a stomach that is often dilated, with a corresponding degree of stasis of gastric contents undergoing fermentation, material that aids stasis and fermentation, such as, in particular, starchy and milky food. The avoidance of stasis of the gastric contents in cases of ulcer is of the utmost importance. It has been asserted that liquid food leaves the stomach in cases of ulcer in man sooner than does meat food in purée form. The only evidence so far offered in support of this statement is based on experiments on animals. Unless, however, the animals selected for experiment be habitually carnivorous and have atonic or dilated stomachs this evidence is of no value, quite apart from the fact that experimental ulcers can so far only be produced in animals under absolutely artificial conditions. Clinical experience in this matter far outweighs observations from the laboratory. Most cases of chronic ulcer exhibit some degree of stasis of gastric contents which repeated observation shows to be decreased by dry diet, and increased by food in liquid form. No doubt the improved nutrition induced by meat involves improvement in the tone of gastric muscle that is unattainable by milky or starchy foods. The object of the following list of foodstuffs that I have found to give the best results is twofold—first, to give mainly protein food in solid form which will saturate the digestive secretions which are often, in cases of ulcer, not only hyperacid but hyperpeptic; secondly, to give the food in as small a bulk as possible, consistent with high nutritive value. The object of the diet is, in short, to avoid stasis, fermentation, flatulence, to promote rapid and easy digestion, and to relieve pain. Finally, to treat not the ulcer by administration of carbonates, bismuth, etc., but to treat the condition which gives rise to ulcer. In practice the important practical point emerges that as the general condition improves, so does the local in the majority of cases. Cases that do not improve, owing to the lesion being cut off from the lymph stream by thickening of floor and sides of the ulcer sufficiently to make cure impossible by these means, are best turned over to the surgeon. All the objects of the diet mentioned can be attained by giving dry meals, mainly of meat, and by never allowing the stomach to go many hours without food. I am now frequently asked by medical men to draw up elaborate diet tables suitable for all cases. This is not necessary or desirable, because once the principles of the treatment are grasped it is far better that each diet sheet should be drawn up to suit the needs of each individual treated. Moreover, there can be little real value in a treatment that is not sufficiently elastic to be moulded to individual peculiarities by the personal attention of the individual practitioner. A fair sample of a suitable diet table will, however, perhaps be of service as a model. At 1 p.m. and 7 p.m., beef, mutton, or lamb, either as joint, steak, chop, cutlet, etc., lightly cooked but not raw, fresh, tender, and served in fresh gravy, without vegetables. This should be the entire meal, except for toast or one or two rusks, if preferred, with butter. In hospital practice it is not easy to obtain the personal attention to these details that is essential to success. In order, therefore, to satisfy oneself as to the value of a meat dietary cases of private patients offer better material for study. The amount allowed should be regulated only by the appetite

of the patient. If eaten slowly, and if all the points mentioned are adhered to, the more a patient can eat of this food the sooner will his pain disappear, as well as all other symptoms. In a recent paper by Dr. C. Bolton—who is responsible for some most important work on the pathology of acute gastric ulcer in animals—it is stated that "when the process of gastric ulceration (in the cat) is going on, one point in the treatment of such a case is obviously to stop the flow of gastric juice, not to encourage it by giving a diet such as recommended by Lenhartz." This observation well illustrates the difficulty of attempting to express laboratory results in clinical terms. For not only does deprivation of food not necessarily inhibit entirely gastric secretion and movement, but the absence of albuminous substrate eager for saturation by digestive juices effectively excludes gastric mucosa from the protection which it would otherwise receive. It also entirely ignores the supreme importance of improving general and local nutrition by adequate food supply. As a matter of fact, if we were able to inhibit entirely movement and the secretion of gastric juice in these cases, we should be doing our patients great disservice by making it impossible to ensure efficient nutrition. For breakfast—toast, butter, and eggs lightly cooked; for tea the same, with, if necessary, a little hot water to drink. At 11 a.m. 2 oz. to 3 oz. of raw beef-juice freshly made, and again at 9 p.m. During the night, if disturbed by pain, small sandwiches made of stale bread containing freshly pounded chicken or game may be given, also fresh. During the first week of treatment this dietary is gradually worked up to. Once established it should be continued for at least a month after the ordinary occupation has been resumed. In this group of cases there are, of course, some on the borderland of the second group which may at any moment—from increase in haemorrhage, etc.—merge into the second group. The dietary appropriate to these cases will be considered under that heading.

F.—Serum.

The chief value of the oral administration of a normal serum, whether of man, horse, sheep, or ox, is, in these cases, a local one. Its action in enabling an ulcer to heal is both direct and indirect. Indirectly it is of value on account of the power possessed by mammalian serums to disinfect an ulcer and to check its advance by virtue of the antiferment activities that all such serums possess. In this way obstruction to healing is to a large extent removed. The action of a normal serum in these respects can be readily studied after applying to a superficial ulcer, sinus, or fistula, sterile gauze soaked in, for example, normal horse serum, as I have frequently shown. If, for instance, such dressing be applied to the floor and walls of an old-standing ulcer or fistula soaked in purulent discharge, the eroding activity of cytolytic enzymes from bacteria, broken-down leucocytes and other cells can often be very rapidly arrested—so much so that lesions which are easily open to inspection, such as large superficial ulcers of the arm or leg, may be seen to clear up in a most striking manner, with total arrest of suppuration. This is due to the restraining power that normal serum has on the lytic activity of enzymes acting on proteins, fats, etc., in virtue of its antitryptic, antipeptic, and antilipolytic functions. There can be little doubt that gastric and duodenal ulcers which, whilst open, are constantly being bathed in secretions laden with trypsin and other ferments set free from disintegrated leucocytes, tissue cells, and from bacteria, owe in large measure their continued patency to the action of these ferments as well as to the pepsin and trypsin of the secreted digestive juices. The administration by the mouth, then, of a serum strong to inhibit such action has certainly a rational basis, which also explains to a great extent the excellent results that can be obtained in superficial lesions that refuse to heal by adopting any of Bier's methods of artificial hyperaemia. Auto-serum therapy, properly so-called, owes, in fact, much of its value, as I pointed out in 1908, to the calling up from the lymph stream of antiferment reinforcement locally so much in demand. In addition to the indirect power of normal serums in aiding healing is the marked direct stimulating effect that a serum that is atoxic and sterile has on ulcers. This again can be demonstrated on superficial lesions that the eye can control. If serum be applied to an ulcer of the arm, leg, or trunk bathed in pus-laden secretion, and

totally innocent of any attempt at granulation, a transformation frequently takes place in a very few hours. Not only may suppuration be arrested, but in many cases healthy pink granulations spring up in a surprisingly rapid manner, even in ulcers that have remained open without showing any attempt at repair for twenty and thirty years. I have observed this fact again and again, and have been at a loss to know to what constituent of the serum to attribute this direct stimulating effect. In view, however, of the recent work of Drs. Macalister and Ross on induced cell proliferation, it may possibly be that globin derivatives in the applied serum are to a large extent responsible for this stimulating action. It is therefore difficult to believe that the stimulation to healing given by the local application of normal serums to superficial lesions does not also apply to gastric and duodenal ulcer, within, of course, obvious limitations.

Quite apart, however, from direct stimulation of healing, and from indirectly aiding in cure of an ulcer by inhibition of septic processes, is the action of the serum after absorption in restraining haemorrhage. Previous to 1907 it had been shown by Emile Weil of Paris that intravenous injections of normal serums were often of great value in haemophilic and purpuric conditions. Early in that year, encouraged by Weil's results, I found that equally good results could be obtained by subcutaneous injection, and even by oral administration, in cases of purpura, though sometimes the serum failed to arrest haemorrhage in this condition. In the same year I extended the antihaemorrhagic properties of normal serums to the treatment of gastric and duodenal haemorrhage, as well as to many other forms of bleeding for which a toxic basis could reasonably be surmised. Since then a very large number of cases of haemorrhage of all kinds has been treated in this way, and, though failure does occur, the results as a whole have been most satisfactory. It was very difficult to control the results by methods of observation other than the purely clinical, particularly so when the serum was given by the mouth. But I found by careful blood counts and haemoglobin estimations before and after oral administration in cases of anaemia, mainly of the chlorotic type, that great improvement in the blood picture followed. It was therefore clear that oral administration of normal serum had a certain value *quâ* absorption, which then cannot be excluded in determining its value in ulceration of the stomach or duodenum, whether haemorrhagic or not. How it acts after absorption it is as yet impossible to say, though it is quite conceivable that it inhibits the action of gastrolytic toxins (and, as regards haemorrhage in particular, of the endotheliolytic toxins) that I postulated as possible causes of ulceration and haemorrhage. Personally I regard this as of much greater importance than any effect which serum may have in accelerating the coagulation time of the blood. However this may be, the fact remains that in these chronic cases of ulcer with or without haemorrhage of moderate severity the serum has a most pronounced action in relieving pain, in arresting haemorrhage, and in directly and indirectly aiding in cure of the ulcer. It has been suggested, not unreasonably, that the good results obtained have been due entirely to the generous diet and other details of the treatment, and not to the serum. This, I think, can hardly be the case, as, apart from the palpable effect of the serum on superficial lesions, I find that when the serum is not made part of the treatment the results are not nearly so good.

With regard to the method of administration, normal serums should in cases of open ulcer never be given to starving patients or on an empty stomach, as troublesome and even serious symptoms may ensue. I generally prescribe serum in chronic cases of gastric or duodenal ulcer in doses of 10 c.c. three or four times a day, immediately after food, in $\frac{1}{2}$ oz. of cold water. It must be atoxic, as proved by injection into guinea-pigs, and sterile, as shown by the same method or by attempts at culture. It should be stored, if possible, on ice, and is better not preserved by addition even in small quantities of antiseptics, as its antiferment activity is thereby seriously impaired. This I have proved by numerous control observations with the viscosimeter. If kept in a sufficiently cool place its activity is not seriously impaired even after a year by mere keeping. If there is the slightest reason from its appearance to suspect deterioration from autolysis

it should not be used, as otherwise severe gastro-intestinal irritation may be set up. It has happened more than once that a horse when being bled for the purpose of supplying serum has been sufficiently refractory to necessitate the administration of ether. Serum from such an animal retains the smell and taste of ether for many months, and has been known to produce violent vomiting. The serum should be administered for at least a month in all ulcer cases, except the mildest, and then gradually discontinued. If given in the way directed, immediate symptoms of serum disease are of very rare occurrence. Personally I have never seen them. It has, however, happened in 5 cases that I have knowledge of that signs of hypersensitization have appeared, in 4 of which they were ephemeral and of little consequence. The symptoms were those of mild purpura and of eczema. Serum of the sheep gives as good results as horse serum. Human serum can also be used with proper precautions, but its chief use is in serious cases of hæmorrhage. Antilytic serum, which was prepared for me by Messrs. Allen and Hanbury two years ago, can be used in the same way, by oral administration, or as normal horse serum; and, in virtue of its increased antitryptic strength, is of great value. It is, of course, normal serum artificially treated. Unfortunately, it has not proved possible to increase materially the antiferment values of the serum of the horse by injection of the appropriate ferment.

GROUP II.

Chronic cases exhibiting acute exacerbations, or acute cases with initial severe hæmorrhage.

The treatment of this group of cases is primarily that of severe hæmorrhage.

Immediate and absolute rest is, of course, essential. If the bleeding still continues, or recurs to an alarming extent, good results are sometimes obtained by promoting cerebral anaemia by raising the head. This failing to arrest the bleeding in really urgent cases, the rapid but careful passing of a well-oiled tube just past the cardiac orifice with a funnel attached to the distal end, followed by the injection of a few ounces of iced water, is said to be sometimes followed by gratifying results. In all cases showing great disquiet a preliminary hypodermic injection of morphine and atropine is useful. Atropine alone in full hypodermic dose I have more than once found successful when everything else had failed. Ergot by mouth or skin, or adrenalin solution is of no value; calcium salts of less. Amyl nitrite inhalations are sometimes of slight service. Ice-bags on the epigastrium give occupation to the patient's friends, but they do not help the patient, may even greatly increase the pain, and certainly aggravate stasis of the gastric contents. Injections of gelatine may be followed by cessation of bleeding, but are subsequently painful and are not free from risk. Food by the mouth is as a rule out of the question so long as hæmorrhage is severe; food by the bowel except for a day or two gives a feeling of false security, and is synonymous with starvation, even if given in large quantities. The injection, repeated if necessary two or three times, at intervals of three hours into a vein, or under the skin of the flank or axilla, of normal horse serum, guaranteed as fit for injection, is of the utmost value. Sometimes it fails. Injections may have to be repeated once or twice for a day or two after the initial day of hæmorrhage. As soon as twenty-four hours have elapsed after the bleeding has ceased to be alarming, food by the mouth should be carefully begun. As quickly as possible the way should be then very cautiously felt till the case has been transferred into Group I, when the full treatment suitable thereto is adopted and maintained. Cases that have begun in Group I and have been successfully transferred to Group II naturally require very careful watching, but it is surprising how quickly the severest hæmorrhagic cases respond to generous feeding on the lines laid down. The diet suitable for cases whilst still in Group I, when the worst hæmorrhage is over, may roughly be outlined as follows, special care being taken to avoid milk and soups:

First Twenty-four Hours.—Every three hours during the day 2 or 3 drachms of freshly made chicken jelly alternating with half the yolk of a lightly boiled egg can be given. Occasionally the jelly increases the pain, in which case half an ounce of fresh raw beef-juice, double the ordinary strength, can be given. Cold water in 1-oz. doses may be given to allay thirst.

Second Twenty-four Hours.—Three or four drachms of pounded chicken may be given after boiling and rubbing through a hair

sieve, alternating with raw beef-juice and the whole yolk of a lightly boiled egg, intervals of two and a half hours separating the meals. During the night the interval may be increased to four hours.

Third Twenty-four Hours.—Pounded chicken, pounded meat, and the yolks of eggs can now be given every three hours in rotation, in rather larger quantities. Hot water is now useful in 5 oz. doses if slowly sipped, and if not given within an hour of a meal.

The subsequent dietary must be graduated according to the presence or absence of indications of recurrence of hæmorrhage. If this has quite ceased, rapid progress can be made. If it still continues, a day or two longer should be spent in very careful dieting, repeating once, or more often if necessary, injections into the stomach of iced water. During the days or hours in which at any time hæmorrhage is a cause of anxiety, free purgation with suitable salts is often necessary and always useful.

Such in sketchiest outline are the views that guide my own practice in the treatment of gastric and duodenal ulcer. If I have taken advantage of the opportunity offered by this lecture of presenting a somewhat unorthodox way of looking at these distressing complaints, I have done so in the hope that you will test for yourselves the truth of the principles involved. In conclusion, let me repeat that this serum and dry protein treatment lays no claim to being more than a stepping-stone to the final attainment of a truly specific treatment of the dyscrasia of which ulceration and hæmorrhage are but the local signals. In the meanwhile it is sufficient to accentuate the urgent necessity of fresh efforts to determine the essential meaning of the dyscrasia itself, about which we at present know absolutely nothing, and to remember that it is only in prevention of recurrence that the real merit of any form of treatment of these conditions lies.

AN UNUSUAL CASE OF TOXIC DERMATITIS; WITH REMARKS ON SYMMETRICAL ERUPTIONS.

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THE following details of an unusual case observed by the late Dr. Radcliffe Crocker and myself are worth placing on record:

The patient, a woman aged 54, was first seen by the late Dr. Radcliffe Crocker in January, 1908. The notes he made at that time were as follows (Q. 232): Duration one month. Commenced with redness and swelling of the back of the neck, which soon became worse and extended to other parts of the body. Large patches over shoulders, elbows, back, buttocks, back of thighs, and to some extent on lower limbs. The appearances were as if the epidermis had been raised up by an effusion of fluid, which had subsequently been absorbed, leaving black or otherwise discoloured epidermis still adherent. There was also swelling of left arm. The patches appeared at successive outbreaks, and not all at once, accompanied by much itching and burning. The temperature had been a little over 99° at times. Bowels kept open by aperients. Tongue was very furred.

There was a history of having partaken of a rabbit, which was so bad that the patient did not eat much of it. This was about two weeks before the skin became affected. Under treatment the condition subsided.

Early in June of the same year the patient was admitted to hospital, when she gave the following account of herself: In November a rash of beetroot-red colour made its appearance on the face and neck, which gave rise to great irritation. After a few weeks the rash got better somewhat, but did not entirely disappear, and the superficial layers of the skin began to peel off. The armpits were next attacked by the rash, but after some weeks they got better. Then the knees were involved. In all the parts affected there had been much irritation, and in the later stages shedding of the superficial layer of the skin as well. The upper part of the chest had also been attacked in a similar manner. As the rash disappeared there was a tendency for the parts affected to become brown. About a fortnight before the rash appeared the patient had some rabbit, which was bad. There were no intestinal symptoms after partaking of the rabbit.

Personal History.—Influenza (?) as a child. Very temperate. Menopause ten years previously. No leucorrhoea. Patient has had three children; healthy.

Family History.—Mother died of phthisis. Father also dead, cause unknown. Brothers, four, died young (?). Sisters, two, quite healthy.

Present Condition.—A well-built woman of 54. Pulse 102, regular. Heart apex beat normal. Heart not enlarged. Heart