stomach cannot be distinguished from those of the tumour, free hydrochloric acid is usually present in the vomit, and it is found impossible to insert a tube more than 2 in. into the viscus.

When a concretion gives rise to a palpable tumour, but is not accompanied by gastric symptoms, it is most likely to be confused with an enlarged spleen, a floating kidney, or with a faecal accumulation in the colon.

If the stomach happens to be dislocated, as in Russell's case, the differential diagnosis from enlarged spleen may be very difficult. It is usually to be observed, however, that the tumour is exceptionally movable, and that its length is out of proportion to its width. The inner margin is also less distinct than in the case of the spleen, the characteristic notch is absent, and the passage of a soft tube or an attempt to inflate the stomach will at once show if that organ is empty and in its proper situation. A loose kidney upon the left side is generally associated with a similar dislocation of the opposite one. It is more movable than a gastric concretion, and can be displaced low enough to permit the organ to be grasped between the hands. Owing to its situation behind the bowel, the percussion note is resonant instead of dull, and manipulation is often accompanied by pain. In case of doubt, inflation of the stomach should be practised, when the relation of that viscus to the tumour may be readily ascertained.

A faecal accumulation in the colon has a less defined shape, is less movable, and is much softer than a gastric concretion. The passage of a tube will show that the stomach is empty and situated above the tumour, while the administration of several large enemata will either diminish the size of the mass or remove it altogether.

Treatment.—If the tumour is small in size it may be possible to secure its removal by an emetic, but this method is always fraught with a certain amount of danger on account of the frequent coexistence of secondary ulceration of the stomach or duodenum. In the case of large tumours medicinal measures are useless, and recourse must be had to gastrotomy. In the cases recorded by Thornton and Schönborn the concretions were successfully removed after the nature of the tumour had been ascertained by an exploratory incision, while in that related by Schreiber a correct diagnosis of bezoar was made from the history and general features of the case.

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DYSPEPSIA AND ITS TREATMENT BY
ANTISEPTICS.*

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IF I may trust my own experience, I should say that there is probably no disease which is more constantly brought under the notice of the general practitioner or the out-patient physician of a hospital than dyspepsia. It affects all classes of the community, is dependent upon a wide variety of causes, and presents itself in several different forms. So common is it that it ceases to possess much interest for the large proportion of practitioners, and is too frequently dealt with empirically by the administration of alkalies or acids combined with a course of mercurial or other antibilious pills. Too little attention is paid to laying down the law clearly as regards

dietary, exercise, and general habits of life, and the unfortunate dyspeptic is dismissed as being too unimportant to deserve much attention being given to his case. It cannot be wondered at that, under such circumstances, satisfactory results are seldom attained, nor that the sick man, having exhausted his patience by unavailing seeking relief from one doctor or hospital after another, ultimately either falls into the hands of the omnipresent quack, or resigns himself to what he comes to believe is a hopeless condition of ill-health from which he is condemned to suffer for the rest of his life. He knows, as all the world does, that no danger to life is involved, and the certainty that his ailment, though probably permanent, is not serious only serves to add to the discontent he feels at the martyrdom he is doomed to endure. It is probably not fully recognized by the profession generally that as great a depth of distress may be engendered by long-continued dyspepsia as by the most deadly diseases, and that there is no derangement of function to which the human system is liable which can more effectually wreck the happiness of both the individual and those with whom he is brought into daily contact, or more certainly interfere with the quality and quantity of the world's work which he is called upon to perform.

It is true that those cases which depend upon excess of food and irregular habits get rapidly well under the influence of a limited dietary and a simple life, but "to earn sixpence a day and live on it" is not a rule, however commendable theoretically, that many patients can be induced to follow, nor is it one likely to prove, under any circumstances, more than temporarily useful.

The importance of dyspepsia as a factor in the sum total of human misery has for many years been strongly borne in upon me as a result of a fairly extensive experience of the disorder, both in private and hospital practice, and I am induced to record my belief in the method of treatment I am about to relate by the satisfactory results which it seems to me to have produced. It goes without saying that every case is not cured, nor, it may be, is the relief afforded always permanent; but taken as a whole, it has answered better than any mere haphazard system, and has at least provided a working plan by which cases may be roughly classified and treated medicinally on well-defined lines according as the combination of symptoms justifies their relegation to one variety of the disorder or another. I make no attempt to produce statistics in support of this assertion, as I might easily do from the out-patient records of the Waterloo Road Hospital. Figures may be made to prove almost anything, and treatment statistics, especially in such a variable disease as dyspepsia, can possess but little practical value.

In perfect health the various processes of digestion go on unconsciously. We only become aware that we possess a digestive apparatus when its functional activity becomes perverted by abnormalities either of food, or of the mechanism or chemistry of digestion, or of micro-organic activity within the alimentary canal. Age, sex, heredity, occupation, and environment are secondary factors in the etiology of the disorder, but they have to be borne in mind as conditions often requiring consideration in the scheme of treatment adopted. Many cases arise secondarily to disease in other organs, but their treatment becomes merged in that of the primary affection.

FORMS OF DYSPEPSIA.

One, or more frequently a combination of several, of these causes is responsible for the condition which we call dyspepsia. The disorder may be acute or chronic, and the chronic type is capable of differentiation into subdivisions. These are, of course, arbitrary, and no hard-and-fast line can be drawn between them; they are interdependent and overlap at every corner; but there is, as a rule, such predominance of certain signs and symptoms as to stamp every case with sufficient individuality to allow of its being classified under one of three headings—*atonic*, *acid*, or *nervous*. The same general symptoms are found more or less in all cases, and their various combinations are almost as numerous as the cases themselves. Many of them are undoubtedly dependent upon the production and absorption of poisons. Sir Lauder B. Burton says:

Not only do undigested articles of food act as mechanical irritant to

* Read before the South-West London Medical Society.

the stomach, but they undergo fermentation, and the products of this are real poisons. Butyric acid, for example, is frequently produced by the fermentation of food in the stomach, and as, Otto Weber has shown, it is a powerful poison, acting chiefly on the nerve centres.

A short description is necessary to bring out the salient points of difference, because without a clear conception of the landmarks of each type, diagnosis and a rational line of treatment are alike impossible. I must therefore ask you to allow me to indicate to you in outline the leading features of each.

Acute Dyspepsia.—The acute type of the disease does not concern us specially on the present occasion, and may be dismissed in a few words. It may arise as an exacerbation of previously existing chronic dyspepsia, but more frequently it is caused by some error in diet, such as an unwholesome or excessive meal, or by interference with gastric secretion, such as may be produced by over-exertion, emotion, or any cause giving rise to exhaustion of the nerve centres. It is of common occurrence in patients of a gouty diathesis, and is generally associated with gastric or gastro-intestinal catarrh. The symptoms usually come on some time after food, and not infrequently in the early morning, after an unusually heavy dinner the night before. Epigastric uneasiness is first experienced, and soon becomes merged into pain, often of a very acute character. Nausea rapidly follows, and if it is succeeded by active sickness speedy relief is afforded; otherwise abdominal distension, restlessness, headache, vertigo, thirst, and heartburn rapidly become prominent systems. The pulse is quick and often intermittent, the tongue coated and dry, the breath offensive, and there may be a mild degree of pyrexia. The bowels are generally confined, but may become loose; and cramp-like spasms in the abdomen are common. The urine is scanty, and deposits an abundance of lithates. The liver is often increased in size and markedly tender over its lower edge. After some hours there may be copious perspirations, not infrequently followed by a crop of urticaria. The attack may pass off in a few hours, or it may persist for two or three days. It always leaves the patient prostrate and despondent until his appetite and his normal sleep are restored.

Atonic Dyspepsia.—This is the most common variety of chronic indigestion. It occurs in persons who are badly nourished and anaemic and results from a want of power in the stomach as regards both secretion and contractility. It is more frequently met with in women than in men. The leading symptoms are a sense of fullness and discomfort—not amounting to actual pain—in the stomach, coming on soon after each meal, gradually subsiding as digestion proceeds, and more marked after the later than after the earlier meals of the day. Active appetite is in abeyance, but may be improved by an enforced effort to take food. There is no excessive thirst. Flatulence is a prominent feature of all cases, and this is greatly aggravated by indigestible articles of diet, such as tea, pastry, or green vegetables. Acid eructations are sometimes complained of, and there may be constant nausea, though active vomiting is exceptional. The tongue is broad, flabby, and indented by the teeth, the breath is often disagreeable, and the bowels are invariably constipated.

The pulse is soft and feeble, the skin inelastic and clammy, the complexion muddy, and there is shortness of breath and palpitation on exertion, with persistent languor, mental depression, and disinclination for effort. The urine is usually thick and persistently acid; it fails to become alkaline after meals. Frontal headaches and recurring attacks of passing vertigo are rarely absent. On percussion over the stomach, splashing sounds may be elicited. Under normal circumstances such sounds are either not present at all or are only met with shortly after taking a meal, but when there is motor insufficiency they may persist during the whole of the digestive period from failure of the stomach to empty itself properly. In some cases the patient is afraid to eat anything, and is apt to become thin through insufficient nutrition.

Acid Dyspepsia.—This variety of the disorder occurs most frequently in strong, active men, and is associated with an undue secretion, or an undue accumulation, of hydrochloric acid. The appetite is vigorous, and the early stages of digestion are comfortable, but after some hours there comes on a feeling of weight and pain in the epigastrium, with eructations of sour liquid, and a desire to rid the stomach of its offending contents. At first the digestive process is apparently normally performed, but it stops short of completion,

and a sour residuum remains lodged in the stomach and is responsible for the symptoms which the patient experiences. Should this sour material be discharged, either through the pylorus or by vomiting through the gullet, the pain and discomfort disappear till some hours after the next meal, when there is a repetition of the misery. Similarly, if fresh food is taken before the stomach has become empty the discomfort is temporarily relieved, because the new meal gives the surplus acid work to do and so prevents a continuance of its irritating effects. The nature of the acid in the sour residuum is not always the same, it is a varying mixture of hydrochloric and organic acids, the kind and proportion of the latter being mainly dependent upon the composition of the preceding meal. Fermentation processes do not take place readily in the healthy stomach of an active robust man, and there is, for this and other reasons, strong evidence in favour of the view that the acid is mainly derived from an excessive secretion of gastric juice. This hypothesis receives confirmation from the condition of the urine, which after meals always manifests a well-marked "alkaline tide," and is also deficient in chlorides. Flatulence, mental depression, irritability, and languor are common in this as in other forms of dyspepsia. Paroxysmal attacks of pyrosis constitute striking phenomena in these cases. They are induced reflexly by the acidity of the stomach contents, which every now and again provokes a gush of saliva, part of which is swallowed and affords some relief to the symptoms by counteracting the stomach hyperacidity, and the remainder fills the mouth and is expelled as a clear, almost tasteless, fluid. The tongue is small, pointed, and abnormally red, and the throat is often congested and granular. There is a craving for repeated cool drinks. Speedy relief is afforded by a full dose of sodium bicarbonate or other alkali.

Nervous Dyspepsia.—The nervous type of dyspepsia is dependent upon nerve exhaustion and occurs in neurotic individuals who from overwork or mental worry are run down. It is usually associated with nervous phenomena referable to other organs of the body. The patient complains of a feeling of sinking at the epigastrium—particularly when the stomach is empty—which is at once relieved by eating, but is liable to recur so soon that there is an almost constant desire for food. The tongue is frothy, flabby, tremulous, and often dry, but may be perfectly clean. Vertical or occipital headaches are of constant occurrence, and vasomotor disturbances of one kind or another are rarely altogether absent. Emotional instability is always well marked. The urine is copious, limpid, and of low specific gravity. The bowels are irregular, and not infrequently colicky pains, borborygmi, and one or more loose evacuations, chiefly of undigested food, occur after the morning meal, or even in severe cases after every meal of the day. The symptoms are characteristically capricious, being sometimes better and at others worse without ascertainable cause, but they often alternate with neurotic manifestations in other parts of the body, and are frequently ameliorated by tonics which are not supposed to have any direct influence on the stomach or its functions. Sleeplessness is a source of great trouble, and the frequency of gastralgic pains and nightmare makes the patient dread the night. Mental depression is always experienced and often goes the length of hypochondriasis.

TREATMENT.

I do not propose to trouble you with any remarks on the treatment of the acute type of the disease. There can be but little diversity in our methods of managing it. Rest and removal, by one means or other, of the offending stomach contents ensures a cure.

It will, however, be admitted that as regards chronic dyspepsia, with which we are now more immediately concerned, treatment must be devised on lines to suit the requirements of each variety of the disease.

The first thing to determine, if possible, is obviously the cause. Frequently none can be found, but improper food, insufficient exercise, mental worry, irregularity of bowels, or some other violation of the fundamental laws of health, are sufficiently common and demand setting right before any good can be expected to follow the administration of drugs. Errors of diet can be discovered in a large proportion of the dyspeptics who come before us, if we only take the trouble to search them out.

The chronic disorder, taken as a whole, is always associated, no matter what its type may be, with impaired powers of digestion and, so far as food is concerned, one dietetic scheme is applicable to the earlier stages of all of them. No two cases can be dieted exactly alike, because there is no disease in which idiosyncrasy in regard to articles of food is such a pronounced feature.

Certain general rules, however, are necessary for guidance, and with the reservation that any stereotyped plan is commendable only in the early stages of treatment, and that modifications will be required according to the necessities of each case, the following scheme may be accepted as a rough guide to what will be found suitable with the majority of dyspeptic patients:

For Breakfast.—Dry toast or stale bread with a moderate amount of butter, and accompanied by parboiled milk or cocoa. Whenever the stomach can bear it, a boiled or poached egg or a piece of white fish may be added.

For Luncheon.—Fish, fowl, or freshly cooked meat, a little smoothly mashed potato or purée of vegetable, stale bread or toast, and some form of farinaceous pudding made with milk or fresh fruit stewed and sweetened with saccharine.

In the Afternoon.—Stale bread or toast, with a little butter, and milk or cocoa. Tea infused in boiling milk is relished and well borne by some patients.

For Dinner.—A similar meal should be taken to that provided for luncheon, but it is safer in the earlier stages of treatment to forbid red meat at this meal, and to substitute for it sweetbread, tripe, calf's head, or game.

Before Going to Bed.—Sleep is often promoted by a cupful of Benger's food or bread and milk.

As digestion improves greater variety may be added to the meals, and, with a reasonable exclusion of absolutely indigestible articles, an early return to the ordinary routine of the household dietary should be encouraged.

If stimulants are taken at all, a small quantity of whisky or brandy well diluted in one of the ordinary table waters may be allowed at the end of luncheon and dinner. Later on, a moderate amount of light wine will do no harm.

In certain cases, particularly those belonging to the nervous variety of the disease, better results are achieved by giving the food in small quantities at a time more frequently repeated. Hurried meals, and mental or physical exertion immediately after, must be avoided. The food should be eaten slowly, thoroughly masticated, and well mixed with saliva before being swallowed. Fluids are best taken at the end of each meal; much fluid taken during the meal dilutes the saliva and gastric juice, and so retards digestion. Such indigestible substances as pastry, cheese, new bread, pork, salted or cured beef, shellfish, pickles, twice cooked meat, seedy fruits, and stringy or raw vegetables are to be avoided. Sugar must always be taken in the greatest moderation and tea is best forbidden.

Attention to general hygiene (regulated exercise, a daily bath, massage, galvanism, warm underclothing, cheerful society, change of scene and air, etc.) is an important aid to recovery.

In every case the mouth should be carefully inspected, and if the teeth are defective or carious the dentist's assistance should be sought at the very outset. It is easy to understand how the want of teeth must add to the difficulties of the subsequent steps in the completion of the digestive process, and also how putrefactive products which develop in carious teeth must be conveyed from the cavity of the mouth to the stomach, and there interfere with the normal work of that organ. And yet it is amazing how seldom this first and obvious detail of treatment is attended to.

When the disorder has been of long-standing, ultimate success will be more rapidly attained if the stomach is washed out every morning for a few days by the aid of the siphon tube. Tepid water may be used alone as a lavement, or to each pint there may be added a teaspoonful of boric acid or sodium bicarbonate. In less chronic cases it may suffice to sip a tumblerful of piping hot water, flavoured if so desired, with a slice of fresh lemon, the first thing in the morning when the stomach is empty. One or other of these plans of lavage should be adopted in every case.

Constipation is the rule in dyspepsia; it is best combated by one or more initial doses of calomel and colocynth which may be conveniently prescribed in a pill containing 1 gr. of the former with 4 gr. of the pill-mass of the latter drug. This should be followed by some such simple aperient as cascara sagrada, sulphur, senna, or rhubarb, given according to re-

quirements; 2 gr. of iridin, with 3 gr. of extract of rhubarb, made into a pill and taken about 5 or 6 o'clock, forms an excellent combination, which not only acts as an aperient, but also as a gentle hepatic stimulant. If such a pill proves ineffective, its action can be assisted by a small morning dose of one of the natural waters, or by one or two teaspoonfuls of Carlsbad salts added to the early tumblerful of hot water.

As regards medicinal treatment, limits of space will not permit of any full discussion of the vast multitude of drugs that have been recommended and employed for the alleviation of dyspeptic troubles. I desire only to direct attention to those which, by a long process of elimination, I have personally found most useful, and particularly to point out the special value which I believe attaches to their combination with antiseptics.

Of all the antiseptics I have used, carbolic acid has proved the best. It is a weak acid, and may be used in either acid or alkaline mixtures. I have never found its taste objected to.

Atonic Dyspepsia.—In the large majority of cases of this form of indigestion, early and marked relief is afforded by the administration of a combination of dilute hydrochloric acid, pure carbolic acid, strychnine, and ginger. The hydrochloric acid supplies what is deficient in the scanty and feeble gastric secretion; the carbolic acid counteracts the tendency to excessive fermentation; the strychnine stimulates the muscular activity of the stomach walls; and the ginger acts as a carminative, and also as a stimulant to salivary secretion. The addition of a small quantity of glycerine to the mixture renders it more palatable. The following formula is well tolerated, and the mixture is best given diluted with water about an hour after the principal meals. Dilute hydrochloric acid 15 minims; pure carbolic acid 2 gr.; solution of strychnine 5 minims, tincture of ginger 20 minims; glycerine $\frac{1}{2}$ drachm. The subjects of this form of dyspepsia are always debilitated persons, many of whom are anaemic. After the prominent symptoms have been relieved the above mixture may therefore be advantageously followed by such tonic drugs as quinine and iron, to which it is well again to add strychnine and carbolic acid. These are best administered in the form of a pill or capsule, taken after meals, and in something like the following doses: Quinine sulphate 1 gr.; iron sulphate 2 gr.; carbolic acid $\frac{1}{2}$ gr.; strychnine $\frac{1}{16}$ gr.; extract of cannabis indica $\frac{1}{4}$ gr. When the quinine, or iron, or both disagree, or are not indicated, their place may be taken by papain in 3 or 4 gr. doses. Pepsine is not a satisfactory remedy because it is only active in the presence of large quantities of hydrochloric acid, and this, as has been shown, is markedly deficient in atonic cases. Papain, on the other hand, acts efficiently in either acid, alkaline, or neutral solution and, according to Finkler, is capable of digesting from 1,000 to 2,000 times its own weight of albuminoid material. It, moreover, acts as a tonic and sedative to the stomach, dissolves any excessive mucus adhering to its walls, and is possessed of antiseptic properties of considerable potency. The plan of stimulating gastric juice secretion by the administration of alkalies before food—in accordance with the well-known law that an alkali promotes acid secretions and an acid those that are alkaline—is only attended with good results in mild and recent cases, and seldom succeeds so well as the acid method which has been described. As adjuncts to medicinal treatment in atonic dyspepsia, massage and the continuous electric current are of undoubted value.

Acid Dyspepsia.—It is in this form of indigestion that alkalies are specially indicated. They should be administered two or three hours after food and are, in my experience, increased in efficacy if combined with an antiseptic. Of all alkalies none is more useful than bismuth. The carbonate is probably the most suitable preparation of the drug. It should be given in 30 or 40 gr. doses, and may be associated either with salol in 10 gr. doses, with sodium sulphocarbonate in 15 gr. doses, or with carbolic acid in 2 gr. doses. To these may be added strychnine and ginger or ammonia as before, together with a suitable quantity of one of the pharmacopoeial solutions of morphine if there be much pain. In most cases the following formula may be depended on: Bismuth carbonate 30 gr., aromatic spirit of ammonia half a drachm, carbolic acid

2 gr., solution of strychnine 5 minims, with, in addition if there be pain, solution of morphine 10 minims. Bismuth salicylate is another valuable preparation which contains within itself antiseptic and alkaline properties and may be given in doses from 10 to 15 gr. When the acidity, despite this bismuth mixture, gains the upper hand, temporary relief will always be obtained by sipping a wine-glassful of very hot water in which 20 or 40 gr. of sodium bicarbonate have been dissolved. If the diet consists largely of farinaceous substances, 2 or 3 oz. of malt infusion, prepared according to Sir William Roberts's formula, should be taken with each meal. Whenever there is an excess of hydrochloric acid in the stomach the diastatic action of the saliva is prematurely arrested, and by means of malt given in this way we endeavour to assist Nature to dispose of the starchy portion of the food, which is apt otherwise to pass through the system undigested.

As in the case of atonic dyspepsia, when the urgent symptoms are relieved suitable tonics, still in combination with an antiseptic, should be ordered. It is often of advantage, after the hyperacidity is overcome and before resorting to blood or nerve tonics, to administer one or other of the mineral acids combined as for atonic cases but given *before* food.

Nervous Dyspepsia.—It is desirable in all cases belonging to this variety of dyspepsia to increase the quantity and variety of food as rapidly as possible, and it is especially necessary to get the patient to take as much fat in a digestible form as he is able to assimilate. The stomach discomfort depends upon nerve exhaustion, and is only a local manifestation of a constitutional state, which will not benefit from the routine plan of treatment by acids or alkalies. In this, however, as in other forms of indigestion, fermentative processes play a considerable part in the causation of the patient's discomfort, and again therefore antiseptics ought to be administered as part of the medication. The drugs which I have found to be most reliable for affording relief are zinc valerianate and arsenic. The powerful taste of the valerian is best concealed by administration in capsule form, and may be ordered according to this formula: Zinc valerianate, 3 gr.; pure carbolic acid, 2 gr.; arsenious acid $\frac{1}{10}$ gr.; extract of cannabis indica $\frac{1}{2}$ gr. One capsule should be taken after food three times a day. When sleep is much broken at night, and especially if gastric attacks are the disturbing cause, relief will be afforded by 30 gr. of sodium bromide, with 15 gr. of antipyrin taken on going to bed. Rest from mental and physical work is imperative, and there is no form of dyspepsia which benefits so much from change of surroundings, a stimulating and sunny climate, cheerful society, massage, and hydrotherapy.

ON FOUR CASES OF PERFORATING GASTRIC ULCER, OF WHICH THREE RECOVERED.*

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THE following are the details of the cases:

CASE I.—My first case was a shop girl of 19, who had been accustomed to long hours and hurried meals. She was well developed and not anaemic. She was of a strong tuberculous diathesis, having been treated when a child for a tuberculous elbow and for tuberculous dactylitis. For the last seven years, however, with an occasional exception, she had been in the best of health. Until a fortnight previously to her present illness, apart from a very occasional dyspepsia generally traced to some dietetic indiscretion, she had exhibited no signs of ulcer. She admitted to having been treated for palpitation two years before and that she had been ordered to take iron pills.

A fortnight before I saw her she had returned from her summer holiday, and after an attack of sea sickness had complained of pain after every meal. From its severity, the ease with which it could be localized, and the tenderness on pressure, the doctor diagnosed a gastric ulcer, and gave full instructions as to diet. A few days later the urgent symptoms arose, and Dr. Bennett hurriedly attended. He found the girl in very great pain, extremely tender over the abdomen, with rapid pulse and drawn face. I was sent for, and in less than three hours after the onset of acute symptoms the operation was begun. A median incision was employed, and the stomach explored, when a small opening was found about large enough to admit a crow-quill. Through this some food had travelled, consisting of partially digested milk. There were no adhesions

and barely any signs of even local peritonitis: a little lymph surrounded the orifice, which could be removed with the finger. The edges of the ulcer were not indurated. There had been some escape of gas into the abdomen. The ulcer was situated on the anterior surface of the stomach, a little below the lesser curvature, and quite at the pyloric end. There was nothing, therefore, to prevent its rapid inversion; and having roughened the parts around, a row of Lembert sutures completed the occlusion. The abdomen was irrigated and the wound was closed without drainage. The patient vomited twice during the night, and complained of great pain over the abdomen, and the temperature the following day was 101° and the pulse 115. Two days after the operation there was no pain, the tongue was moist, the pulse 96, the temperature normal, and the patient evinced but little desire for food or water.

On the third day she was fed on small quantities of peptonized milk, which gave her no inconvenience. In three weeks after the operation she was sitting up, and in seven weeks, having taken fourteen days' holiday, she resumed her work. Nearly three years have passed since the operation, and I have every reason to believe she is still well. The operation lasted less than twenty minutes, and every circumstance favoured her recovery. The small size of the perforation, the absence of induration, the condition of the surrounding peritoneum, the site of the ulcer, the small quantity and character of the escaped contents, and the fact that only three hours had elapsed since the rupture, all rendered the prognosis good and the operation easy. From a study of the girl's history and the appearance of the ulcer the possibility of a tuberculous origin is worthy of note.

CASE II.—The second case was sent to me at the Royal Southern Hospital on November 12th, 1898, by Dr. Humphreys, who had diagnosed a perforation. The patient was a woman, aged 21. Thirteen hours previously to admission she had been seized with violent abdominal pain and vomiting. I was in the hospital when she was admitted at 3 o'clock. She looked very distressed and complained of great thirst, and suffered intense abdominal pain. The pulse was 120, very weak, but not running in character. Her extremities were cold and the abdominal muscles very rigid. A rub could be heard accompanying respiratory movements over left lower ribs in front.

We decided to operate at once, and I wish to acknowledge the help of my colleague, Dr. Alexander. On opening the abdominal cavity, the surface of the colon and stomach was seen to be coated with lymph and to have become adherent to the lower surface of the liver. Adhesions had also formed between the stomach and the abdominal wall. These adhesions were carefully separated, revealing behind a cavity from which oozed brown fluid containing partially digested food. The opening from which this came was found high up beneath the liver, on the anterior surface, nearer the cardiac than the pyloric end. There was considerable difficulty experienced in bringing the ulcer sufficiently to the surface to enable us to stitch. The perforation would about admit a small finger. It was indurated and surrounded by lymph which was firm and adherent, and was carefully removed by a Volkmann spoon. We then proceeded to introduce sutures, but found they immediately tore through. A silk suture was therefore passed as near the anterior surface of the stomach as we felt to be safe, and made to surround the gastric opening. This was tightened in purse-string fashion and leakage prevented. The wall of the stomach was further brought over it and fixed by a row of Lembert sutures, while this was further fortified by sewing omentum over the region of the ulcer. The operation area was carefully irrigated with saline solution, and a gauze drain inserted. She patient seemed to bear the operation without material increase of shock, and saline injections per rectum were given for the dual purpose of restoring vitality and allaying thirst. On the next and succeeding days she was starved, with the exception of a drachm of water every hour and enemata of brandy, peptonized meat and milk.

On admission her temperature was 100°, and for the first four days it did not rise. Towards the end of the fifth day it fluctuated, its highest point being 101°. From this time to the fourteenth day it often reached 102°, but the patient in all respects, save a rapid pulse, seemed fairly well. On the eighth day the drain, which had become adherent, was removed. My house-surgeon, Dr. Owen, to whom I am indebted, noted on the fourteenth day: "Patient after the operation progressed favourably up to last night, although throughout the fourteen days the breathing was a little rapid. She was, however, able to take bread and a fair amount of beef-tea, milk, etc., and had not vomited since the operation, and the temperature for the last week had reached 101° in the evening. She had no rigors."

At 3 a.m., fourteen days after operation, she suddenly developed a ticklish cough, and soon expectorated a quantity of foul-smelling pus. Her breathing became rapid, and at 6 a.m. she looked cyanosed. I was away from home, but Dr. Alexander was fortunately at hand, and at 10 o'clock the patient was anaesthetised and the old sinus explored. There was no collection of pus found. An exploring needle was put into the thorax, but only clear fluid withdrawn. The needle was next passed into the left hypochondrium and pus withdrawn; this was followed by a free incision, giving exit to a quantity of fetid pus. The cavity was well washed out. The patient was throughout the proceedings very collapsed, and various restoratives were prescribed, including strychnine, digitalin, saline solution into axilla, brandy enemata, and (sinapism to precordium. At noon she had sufficiently rallied to inspire hope. In the evening she died.

A necropsy was made by Dr. Owen and Dr. Humphreys. They report that the sinus which was left at the top of the original laparotomy wound did not lead to any collection of pus. The upper surface of the liver was adherent to the lower surface of the diaphragm by very firm adhesions. The repair of the stomach performed fourteen days before was seen to be complete and the occlusion healed. The abscess cavity, which was opened the day of the patient's death, was seen to lead towards the posterior part of the under surface of the diaphragm. On separating the left lung from the diaphragm, to which it was firmly fixed, a small hole was found entering lung tissue and perforating diaphragm, and discharging foul-smelling pus. A probe passed through this perforation entered the abscess cavity, explored the previous day by my colleague. On slitting up the walls of this cavity it was seen to be bounded by the under surface of the diaphragm above and externally;

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