Surgical or Perforating Ulcer of the Stomach.

Life, health, & comfort are essentially connected with the due performance of the functions of digestion; when this deviates but a slight degree from the normal standard, some sense of discomfort generally ensues. While in cases of greater gravity, bodily suffering gives rise to mental prostration, the enjoyment of life is diminished or destroyed. Contrast the vigour of mind & body during health, with the enfeebled energy of the dyspeptic & hypochondriac. The former knew no impediment to the exercise of useful thoughts & labours; in any sphere that the mind may dictate; the whole attention of the latter is absorbed by those functions which are at least only subservient to the merely subservient of mind & will.

These remarks are especially applicable to persons suffering from gastric ulcer. Except in those few exceptional cases in which the disease runs an acute course, without giving rise to any symptoms referable to the stomach, until, perhaps, perforation, or, it may be, a purpura haemorrhagic occurs, toward the patient of this
premier danger, what diseaseunless it be cancer, causes such an amount of pain, discomfort, and distress, as the disease now under consideration.

It is not only on this account that I have thought it a fitting subject to take up for my graduation thesis, but also from the fact that, in a potential limited practice, two cases, illustrating very different types of the disease, have come under my notice within the last year, and led me to look up the subject with especial care. I can only express my regret, that, from living in a provincial town which possesses but a limited or an incomplete medical library, I have been, therefore, largely mainly on such books as are in my own possession. I have not been able to follow up the subject as fully as I would wish, or as its importance demands.

---

Though Galen described an elixir for the stomach, Celsius seems to have been the first to draw attention to the treatment of an ulcerated stomach, and to recommend a rule which is applicable to the treatment of:

---

"Asthma" - Dolor et flatulencia citiora satiatura; omnium acridum, algae acidae, vomitoria; vino solutum, sed seque praen..."
"Propio negre minus calido."

When post-mortem examinations became more common, more cases in which death was caused by perforation of an ulcer of the stomach were observed and noted. Thus, Græmni in 1695 described a case of perforated ulcer, which had penetrated the spleen, allowing a bullet to escape from the stomach into the peritoneal cavity. Fatal hemorrhage was also recognized as resulting from ulceration of the stomach. Later in 1704, Jones found the source of a profuse hemorrhage from the stomach to be an "Ulexus peritonei," which was five lines in breadth and a line deep. It was not, however, until 1825 that Abercrombie first drew attention to its symptomatology, but even he failed to grasp the differential diagnosis between it and cancer; it was not until 1830 that St. Winifred explained the "Ulexus ventriculi simplex," as he named it, as a disease sui generici, quite distinct from cancer. His especially referred to the curability of gastric ulcer, and laid the foundation of a rational therapeutics. In 1839 Coq, the anatomy of Vienna published his work in which he deals in Chapter 12 the pathology of gastronetum. To him belongs the credit of advancing the view that it arises from a hemorrhagic division, an
Hypothesis which Virchow developed in 1853, what has since been written on the subject, especially to the more minute details of symptomatology, etiology, and treatment; though it must be compared with reference to the last named, that, as regards the most important points, but little progress since the appearance of Cassirius's work has been made.

Before discussing the question of etiology it may be well to consider the sexage of those individuals who suffer from the disease.

With regard to sex, statistics, collected by various careful observers, proves beyond doubt that it occurs about twice as commonly in women as in men. Thus out of 651 cases collected by Brinton, he found that 440 females, and 211 males, were affected. Brinton also found that in 79 cases, 46 occurred in women, and 33 in men. Of 53 deaths, 38 were of females, and 15 of the male sex.

With regard to the influence of age there is not the same consensus of opinion. The general impression is that the disease is most prone to occur in adolescence and middle age, or, on the other hand, that the very old and the very young are least...
Evident to it, is apparently disproved by Brinton's statistics, according to which the frequency of the affection constantly in:
creases from the years up to the middle.

Clinical Life. Advanced old age. Brinton remarks, however, on the fatal cases only, as few patients suffering from ulcers of the stomach succumb at the first attack of the disease, & that the majority attain to middle, or even advanced age, & then die either from relapses, or from the effects of the disease, or from other diseases. These statistics are erroneous. What we wish to determine is the period of life at which the disease first becomes developed; & this clinical experience proves beyond doubt, it is during adolescence and middle life.

The etiology of gastric ulcer has been a stumbling block to pathologists since an earlier first drew attention to the disease, & though considerable progress has been made by such zealous workers as Virchow, Pathé, Payr, Brinton, & many others, there is still much obscurity on the subject.

There can be no doubt that this disease may arise from a variety of morbid states, none of which for the would be sufficient to cause the destruction of tissue. The fact that this variety of ulceration (which presents itself in the form of simple foci...
molecular necrosis without suppuration) appears only in the stomach or upper part of the duodenum, naturally led to the view that its efficient cause must be sought for in the corroding influence of the gastric juice.

This deleterious influence of the gastric juice on the mucus membrane of the stomach can only occur, then, for some reason or other, the normal alkalinity of the blood circulating in the mucus membrane is diminished. Since, as physiology teaches us, digestion can only take place in the presence of an acid, that "neutralization of the gastric juice wholly arrests digestion!"

This diminution in the alkaline reaction of the pepsin can only occur under two conditions:

1. Either the gastric juice is abnormally acid, so that the continued removal of the alkalinity of the gastric wall by the circulation, can no longer affect the neutralization of the acid, or its extension to the deeper parts; or

2. The alkalinity of the stomach wall is diminished, so that now a normal degree of acidity of the gastric juice is sufficient to transform the alkaline reaction of the gastric walls into an acid one, so allowing digestion to occur.

The proof as to the truth of this a priori
maxim is afforded by some experiments made by Panj. He found that if acid be placed in the stomach, the circulation of blood in the gastric walls allowed to go on, the stomach remains sound; but that if the circulation be interrupted, as by placing ligatures on some branches of the gastric vessels, the same quantity of acid will digest the stomach wall. If the quantity of acid be increased, if the circulation remain interrupted, the stomach is also digested. In this way he produced gastric ulcers in animals at will.

With regard to the diminution in the alkalinity of the gastric walls, which, as we have already seen, is due to the circulation through them of the alkaline fluid, any cause which impedes that circulation will necessarily lead to alteration within the limits of that action.

Vicciow, for the last twenty years, has drawn attention to the important role which disturbances of the circulation play in the production of gastric ulcers. He considers that they originate mainly in occlusion of the vessels, especially by

Embolism, Thrombosis, Atheromatosis.
Amyloid degeneration in the arteries, attended with arrest of circulation within a circumscribed area of the coats of the stomach, & necrosis. This necrosed portion is then exposed to the corroding action of the gastric juice, & to actual digestion by the juice itself.

This observation hypothesis of Richet's has been borne out by further post-mortem examination, & by experiment. Stein's found some such affection of the blood vessels in one of his cases of gastric ulcer. Markel refers to the case of a post-mortem in which atheroma of the aorta was present. From this some small ulcers were found in numerous arteries of the body, among others, in a small artery in the wall of the stomach, which was exposed at the bottom of a small round ulcer. Friedrichs also saw peculiar changes in cases of haemorrhagic infarctions, which seemed corroded by the gastric juice, until they had the appearance of simple ulcers.

But it is not only the information derived from the post-mortem table which makes it probable that interruption of the circulation in the gastric walls...
can lead to ulcer: 11 there was also the
direct experimental proof afforded by
Panum, L. Müller, and others. Thus Panum
succeeded in producing ulcers of the gastric mucous mem-
brane by means of arterial emboli; while
L. Müller, by ligation of the main portal
caused by transsection of ulceration in the
stomach of rabbits.

More recently Bastani succeeded, as
Schiff had partly done before, in artifi-
cially producing ulcers, and he noted
ulcers in rabbits and dogs, by injur-
ing certain parts of the brain, spinal cord,
by stimulation of certain sensory nerves,
and by poisoning with strychnine, in each of
which cases increase of blood pressure
played the principal part.

While then, there can be no doubt that
the disturbances of the circulation may
give rise to formation of gastric ulcer,
different authors cannot agree as to the
special manner in which these distur-
bances act: whilst most, following Virchow's
teaching, believe that it is due to the
obstruction of a branch of the gastric artery.
Whether this is due owing to thrombosis,
thrombosis, atheroma, or other changes in
the wall of the artery - it accounts for
The circular or funnel-shaped zone of the primary defect on the edge of the area ap-
ploid by the obstructed arterial branch; others, again, including St. Louis, dispute
this mode of origin on the ground that the
proof of this occurrence in the gastritic area
is very often wanting, and also because in
cases of numerous anulbi, the gastritic area
normally remain free from them.

The circumstance that near small haem-
orrhagic infiltration of erosions typical gastric
ulcers were found in course of development
led Bartlánstky, Thiedfleisch, Putters to
identify the origin of gastritic ulcers with the
origin of the so-called hemorrhagic infarction.

Thiedfleisch considers that violent vomiting,
spitting, by arresting the return of blood, t
leading to minute extravasations, may
be a common cause of both. The in-
 extravasated blood corpuscles infilrate a
circumscribed patch of the mucous mem-
brane to such an extent as to compress
the capillaries, thus putting a stop to cir-
culation & nutrition. This in gastrici be-
comes a locus neurario resistentiae, its organic
union with the healthy mucous membrane
is at an end, & its detachment & digestion
soon occurs. In support of this view he
gone the results of a post-mortem examination in a man, who had been admitted into the hospital for strangulated hernia. While causing great and constant vomiting, the matter ejected being at last streaked with blood. At the post-mortem performed one hour after death, the stomach presented, besides several haemorrhagic infarctions of smaller dimensions, two circular foci of equal size, symmetrically disposed on either side of the middle line of the lesser curvature; of these, one was a perfect example of a simple ulcer, while the other presented the appearance of a haemorrhagic infarction of the gastric mucous membrane of corresponding size. Dr. Hamblyfield Jones records a similar case of commencing ulceration found in the stomach of a man who had been a heavy drinker. They probably resulted from obstruction to the current of the blood induced by aetic acid.

An interesting theory as to the genesis of gastric ulcer in particular is that pronounced by Lelio, and supported by Professor Greenfield, viz. that it may be due to a continued spasmodic contraction of the arterial branch supplying the part. In this way a localized anaemia would result, which might be attacked by the gastric...
juice. Such a spasmodic contraction of the arterioles no doubt occurs whenever the mucous membrane is injured in any way, e.g., by the injection of irritating articles of food, since the arterioles, exposed by the injury to the mucous membrane, would be excited by the acid gastric juice. This may explain the reason why cooks & professors in pursuit of their calling often contract this disease.

Agden advances a step further & regards any powerful contraction of the muscular layer of the gastric wall as the commencement of gastric ulcer. By this contraction he considers that not only the arterioles but also the veins would be compressed, whereby thrombosis of the capillaries, hemorrage, erosion, ulceration, ensue. It seems, however, difficult to imagine such a long-continued, violent spasm could occur, that, during it, digestion of the gastric wall would result, besides which it fails to explain either the localization or the isolated presence of the ulcer.

On reviewing the numerous supposed causes assigned by different authors for the production of gastric ulcer, it seems some that, instead of accepting one recognized mode of origin, it would be well to join a more general acceptance to Richmond's proposition,
& to say that, any cause which interrupts the circulation in circumscribed parts of the gastric wall, may lay the foundation for gastritis ulceration of the stomach.

He should, therefore, have regard these causes, which are accepted as effective in the formation of haemorrhagic erosions, as direct anatomical causes, or as predisposing causes for the precipitation of ulceration; viz., thrombosis in arteriotomia, fatty, or waxy arterio, atheroma embolism, haemorrhagic in. Jilisation of the gastric wall due by any obstruction of the portal vein of arteries of thine, or, coupled with it, chronic hyperaemia of the mucous membrane, excessiv vomiting, powerful contraction of the gastric wall etc.

It is more seen that unless effusion, which is known as ulcer of stomach, may be the results of totally many pathological processes in the wall of the stomach, or that, therefore, there is nothing specific about it.

Our knowledge of the intrinsic causes of gastric ulcer is not much more exact than that of the direct causes. From the facts that it is of so much more frequent occurrence in the female sex, or that it is especially liable to occur at or about the period of adolescence, or may, I think, fairly assume, that there must be some causal
connection between the ulceration of the stomach in the composition of the blood, and the derangement of nutrition, which are so liable to occur at that period of life.

The frequency of the coincidence of these disordered conditions of the blood with ulcers of the stomach admits, a priori, of the conclusion that there is such a connection between them, as a matter of fact, Virchow and Retzius found a peculiar thinness of the walls, a narrowing of the caliber of the vessels, as well as the frequent occurrence of premature fatty degeneration in the coats of the blood-vessels, in a girl suffering from chlorosis. Such a condition of the blood-vessels allows us to assume an increased friability of the walls of the smaller arteries & capillaries, & renders it probable that in such patients a relatively trivial amount of mischief may so act as to lead to a circumscribed hemorrhagic infiltration, which, as we have already seen, is probably the starting point of ulceration.

This connection between anemia & gastric ulcer has recently been established on a firm footing by some experiments performed in the Pathological Laboratory at Leipzig.

These investigations proved that in dogs, which had beenrendered anemic by hemorrhage, relatively slight injuries to the
The mucous membrane of the stomach, caused by the passage of a body, lead to the formation of typical gastric ulcers, whereas, in healthy dogs, such injuries healed in the course of a day or two without giving rise to any further trouble.

In addition to anaemia or chlorosis, other circumstances tending to produce general debility such as excessive drinking, scanty food, insufficient exercise, mental depression, tuberculo, aphthosis, must be looked upon as predisposing causes. Thus Dr. Sivin found that after cats had been confined for three weeks in the dark, their stomachs presented several irregular linear abrasions of the mucous membrane, resembling the linear hemangiotic process of the human stomach. These ulceration were evidently the result of aching in.

Influence acting on the general system, or though it, on the stomach, or not of any inflammatory process set up in the stomach itself.

Among other causes which have been suggested, I may mention those upon the stomach, compression of the stomach such as occurs in persons leading sedentary lives, or in women from tight lacing, the pressure to which this stomach is exposed from the action of the abdominal muscles in vomiting, or
in painful depletion, — all these mechanical influences, especially when conjoined with the hyperemia consequent on obstruction, may produce rupture of the small vessels & con-sequent hemorrhagic infiltration.

Pathological Anatomy. In most cases, the stomach presents no marks of disease, except a single deep ulcer on its minor surface. This is seldom larger than a shilling, but sometimes, especially when situated in the posterior wall of the stomach, proves to the size of a four shilling piece, or even still larger. Though usually solitary, a plurality of ulcers is not infrequent, two or more occurring, according to Prof. Greenfield in 21%. In 12.3%, there are two; in 3.4%, three; in four, five, six six have more rarely been found together. Retzius's statistics do not show such a high percentage of cases in which more than one ulcer exists. Thus of 74 cases collected by him, the ulcer was solitary in 62. Of the remaining 17 cases, there were 12 in which two ulcers existed; in which there were three; in which there were four.

They may occur at any part of the stomach, but are much more frequent in the pyloric than in the cardiac half; in connection with the posterior than with the anterior wall of the organ; & in the neigh...
- Excess of the smaller than in that of the larger aneurysms. - Banti's statistics show that out of 120 cases, in 69, the ulcer was situated in the lesser curvature; in 55, at the anterior surface; in 11, the posterior surface; in 9, near the pylorus; in 10, at the cardiac extremity; in 4, in the middle of the organ was affected. It is very rarely the case that one occurs at the posterior, and another at the anterior surface of the stomach; so that two ulcers are found opposite one another in the fundus. The ulcer transverses partially, which is also sometimes the case with aneurysm.

In considering the morbid anatomy of gastric ulcer it matters not whether we take it to be due to thrombosis of a vessel, or aulceration with consequent hemorrhagic infarction. In both cases, the softening and separation of the necrosed portion appears from the case of post-mortem examination quoted by Bainbridge, by so very rapidly under the influence of the gastric juice. The simple ulcer is complete in all essential particulars the moment the necrosed portion is detached. Its shape, usually circular or oval, is sometimes elongated or oval, so as to encircle the organ. At first it forms a shallow cone whose base is
Directed towards the surface of the mucous membrane, while its apex penetrate into one of the deeper layers of the gastric wall. The cause of this critical or funicular shape is the attributed to the distribution of the vessels supplying the wall of the stomach. According to Cornil & Ramier, the arteries which supply the mucous membrane all enter the peritoneal space and ramify in the successive layers of the gastric wall, so that the zone of distribution of each arteriole in the mucous layer forms a cone, the apex of which reaches the submucous tissue, and the base the surface of the mucous membrane.

Another characteristic feature of gastric ulcers in its earlier stages, is the exceeding sharpness of its edges, and the absence of any purplish border. The mucous membrane is spoken of as though it had been penetrated by a punch; the ulcers are quite vertical, and the floor is pale, smooth, shiny. In more advanced stages, when the muscular coat has also been penetrated, the filler assumes a peculiar terraced appearance, as though a smaller punch had been used for the deeper layer. The process may run an acute course from
The beginning, ending in perforation within a few days, but much more frequently it follows an essentially chronic course; occasionally it comes to a standstill, to then again appear in an acute or chronic form. At first, or often for a long time after the formation of the ulcer, the coats of the stomach at its margin present no change of structure; but in cases of long standing, the margins of the ulcer, like that of an old ulcer of the skin, show a moderate amount of inflammatory reaction. The edges become indurated & thickened from the contraction of lymph that has been diffused into the submucous arterial tissue. This kind of thickness, however, seldom extends more than a line or two from the edge of the ulcer:

Whether the ulcer rapidly or slowly spreads, whether it perforates, or becomes spontaneously circumscribed, or goes on to granulation & cicatrization, depends for the most part upon the condition of the bloodvessels in the base of the ulcer, or upon the nature of the contents of the stomach.

As regards the further progress of the ulcer four things may happen:—

1. It may cicatrize. The ulcerated
Surface contracts, radiating puckerings from the central part area grow smaller and smaller, at length heal, leaving a pellaeus, white, depressed cicatriz, surrounded by more or less obvious radiating folds of mucous membrane.

Sometimes, however, the healing process is only partial, cicatrization taking place on one side of it, while in the opposite direction it goes on spreading. Such a case may occur at any of the stages so proved by the numerous cicatrices found in the post-mortem room.

Serious consequences, however, may result from this cicatrization, especially when in the neighborhood of the pyloric orifice, or on the lesser curvature. In consequence of the progressive contraction of the cicatricie, we have stricture of the orifice, or, when the ulcer is large, situated across the lesser curvature, hour-glass constriction of the entire organ may result. These contractions naturally interfere to a very marked degree with the function of the stomach.

(2) Should cicatrization not take place, but the ulcer continue to increase in depth, it may at last open into a large vessel, so cause fatal bleeding into the stomach. Such an issue is most frequent in the
Case of three ulcers which are situated on the posterior aspect of the stomach, just over the course of the splenic artery. The coronary, pyloric, gastric, hepatic, and gastro-duodenal arteries and their branches may also be opened.

In other cases, in which haemorrhage is slight, giving rise to black vomit and stools no visible vascular lesion can be detected on post-mortem.

(3) It may open into the peritoneal cavity by allowing the contents of the stomach to escape, giving rise to peritonitis.

According to Brinton, such a termination occurs in about 13 ½ per cent, or 1 in 7½ cases, a proportion which is about equal in the male and female sex. The average age at which it occurs, however, is very different in the two sexes, being in women 27, and in men 42 years.

The perforation usually occurs by an opening of small size in the centre of the ulcer, or, more rarely, at the edge of a large ulcer which has been closed by adhesions.

This accident, according to Fick, is most common in the case of duodenal ulcers; next in order of frequency come ulcers on the anterior...
wall of the stomach, immanently as during the various movements & changes of place which the organ undergoes, its anterior surface moves up & down over a considerable area of the posterior peritoneal surface, a circumstance antagonistic to any proteolytic adhesions. Fortunately during the advance of ulceration towards the peritoneum, the latter is irritated & inflamed, resulting in partial peritonitis which plagues that part of the gastric wall close to the neighbouring organs. Such transmural peritonitis is clearly shown by ulcers situated on the posterior wall of the stomach, in the pyloric region, that are almost invariably found therein.

True adhesions (according to Brinton: adhesions occur in 40% of all ulcers) between the stomach & its neighbouring viscera, such as the liver (left lobe), pancreas, spleen etc, before the occurrence of perforation. In such cases these organs may form an adventitious wall to the stomach & so prevent the escape of the contents of the organ into the general peritoneal cavity.

Lastly, the ulcerative process containing it attacks the angulated organ, destroying it layer by layer. The pyloric & left lobe of the liver are most liable to this...
involved; it, as the destructive process at
vance with greater ease in their soft paranchyme
than in the walls of the stomach, or the en
metrii tissues of the adhesion. They speedily
became hollowed out into large cavities
which communicates with the stomach by
a narrow opening.
Most rarely the ulcer burrows into the
head of the pancreas, or through the dia
phragm giving pain to the pyram.
Rarest of all is adhesion between the stomach
d colon, whereby these are made to commu
icate, giving rise to the symptoms of bilious,
chronic indigestion, diarrhea. An "Heilich" quotes a case in
which adhesion of subsequent perforation
united the pylorus with the gall bladder,
foul stones being subsequently forced to
discharge by vomiting.
Symptoms. The symptoms which attend
gastric ulcer present much variety. In
not a few cases the disease proved fatal
by perforation or hemorrhage without
having ever been attended with symptoms
to attract attention to the stomach as the
seat of the disease.
"In the majority of cases the coincidence of
the more important symptoms, especially
the cardialgia, the disarrangement of the
gastric digestion, vomiting, bleeding from the
Stomach. - The fact of the difficulty continuing for years, the continuance of the body being relatively good, & this disease appearing to pass from time to time, then, added to the fact that the patient is of young or middle age, render it possible for our diagnosis to nearly if not quite a certain one. Granting these assertions of Dr. H. Zimmerman, it cannot deny the fact that it is seldom we come across such a typical case; in several one or several of these more important symptoms may be absent. His assertion, too, that the nutrition of the body remains relatively good is not, I think, in accordance with the experience of the majority of practitioners. From the pain & discomfort which the presence of food in the stomach almost at once occasion, the patient voluntarily abstains from taking food, until the nutrition of the body is materially affected by the enforced abstinence.

Nevertheless, the disease causes very little constitutional disturbances. Unless the ulcer is large there is complete absence of fever, & of thirst, & the appetite is commonly but little impaired (though, so has been stated above, it is often not
If we consider the prominent symptoms of gastric ulcer, viz. pain, vomiting, and haemorrhage, a little more in detail, we shall find, that, even their association, is not absolutely diagnostic of the disease in question. Their consideration will also involve the differential diagnosis of simple gastric ulcer from cancer, gastropalgia, and chronic colitis.

1. Pain. There is no symptom in the course of gastric ulcer so constant as pain. It only fails in exceptional cases, such as those which run a very rapid course ending in death by perforation or haemorrhage. Though varying somewhat in intensity or character it has nothing special in its nature. It generally increases from a sense of weight to a dull continuous pain, which ultimately becomes burning and burning, and then attended by a feeling of fullness like that produced by a raw wound. It is increased by pressure of the hand, or by the injection of food.

More important than the question as to the character of the pain, is the determination of the time at which it occurs. In most cases it occurs very
soon after taking food - from a few minutes up to half an hour - only cases when the act of digestion is accomplished after some hours, or when the stomach is emptied by vomiting.

Active movement, mental excitement, mental depression, or general fatigue, as well as the injection of hard, un-digestible, hot, sweet, or fermenting substances, remarkably increase the pain. (O'Brien.)

Beyond the determination of the time, the description of the place where the pain is of some importance. It is generally confined to the region of the esophageal cartilage, but may occur especially when the ulcer is situated on the posterior wall of the organ. (O'Brien) in the dorsal region, over the last two dorsal or first lumbar vertebra.

When very severe it may radiate from the point of greatest intensity, upwards towards the ear-lobes, backwards to the loins, or downwards laterally over the greater part of the abdominal cavity. With regard to the question as to the causation of the pain, Ramboieri's hypothesis is probably the correct one.
It maintains that it is due to the further expansion of the ulceration, with efferent of more and more fibrous tissue, the extension of the gastric contents; or to the inclusion of, or pressure upon, the branches of the prepyloric in the thickened edge of the ulcer.

J. H. Habershon quotes a case which seems to conform with this latter summary. It was that of a woman who died with symptoms of gastric ulcer. On post-mortem an ulcer, 2½ inches in diameter, with a hard, scabbed base, of mucous membrane and some fibrous tissue, was found, with which branches of the veins were incorporated.

In considering this symptom of pain we must inquire if it possesses the importance which some of his attributed clinical instances to it. Thompson says, "whatever may be its importance, its significance as a diagnostic sign of simple ulcer, is far from being absolute; in the first place, it is met with in affections which have nothing in common with the disease in question; it again it may, in rare cases, be entirely absent in this affection."

In support of this he quotes the case of a labourer, aged 37, who suffered from...
violent headache, impaired digestion, but at no period of his illness from pain in the stomach. After death, which was due to the great loss of blood. The autopsy showed the stomach to be free of blood, from the pyloric orifice there was a dis-pressed velvety surface bordered by an elevated ridge. In the centre of this ulcer was seen two open months of arteries, sufficiently large to admit a small probe. There was no trace of cancer benign. The diagnosis of which had been arrived. The diagnosis of the pain due to gastric ulcer form that of pure gastrecty presents considerable difficulty. The onset of the pain after meals, its continuous character, its increase on pressure, the absence of other symptoms, of affection of the retina, hypotension, or hypothermia, the simultaneous occurrence of dyspepsia, the frequency of vomiting; all these speak in favour of ulcer organic. A distressing gastroplegia; yet a certain diagnosis between the two diseases is absolutely impossible in some cases. In such cases, Dr. Shill's guide their use of electricity has of service in confirming the diagnosis. If the pain disappears in a few minutes on this application.
A constant stream of from 20 to 40 beads of sweat is said to be a feature of diabetic gangrene. It has never succeeded in their reducing the pain attendant upon gastric ulcer. To stop the bleeding, however, is not so difficult. Since many cases of gastric ulcer defy the use of electricity as certainly as other neuralgias do; it he replied, there is only this point for that when the pain disappears, the case is one of pure gangrene. Dr. C. H. Bost * maintains that what appears the pain of gastric ulcer resembles that of neuralgia, while cold rigors have just the contrary effect. In cases where there is considerable doubt which of the two affections under consideration is present, it is better to base the supposition that we have to deal with the more serious one, viz., gastric ulcer, and treat it by abstinence etc. If, as the result of this treatment, the pain is substantially relieved we may conclude that ulceration is present. But if the pain be not relieved we can exclude the idea of ulcer and treat the case with hydrochloric acid, wine, electriety etc.
2. Vomiting. This may be absent from first blast, though it usually comes on during the progress of the case. From a collection of 120 cases, Z. Müller found that this symptom was entirely absent in only 14 of the cases. In these exceptions it was interesting to find that the site which the ulcer occupied in the stomach was unusual. Thus in 9 cases, the duodenum was affected, in 6, the greater curvature, in 7, the anterior wall of the organ was implicated, whereas only one occurred in the posterior wall, one at the pylorus, and one at the cardiac end. From this he concluded that vomiting was scarcely ever absent in cases of normally situated ulcers. The attacks of vomiting are determined by the taking of food; usually come on a little later than the pain; or, by the act of emptying the stomach, causes the pain to disappear.

The relationship of these two symptoms indicates a common origin. Since both usually persist until the stomach is entirely emptied - either by the act of digestion or by the vomiting itself - it is fair to assume that the nerve stimulations excited in the base of the ulcer are strongly
irritated by the presence of food, or by the acid secretion which is set up by the food. In cases where vomiting occurs on an empty stomach, it is probable that the alkaline saliva, which is being constantly swallowed, may lead to a secretion of acid in the neighbourhood of the ulcer; and this, by flowing over its surface, may set up an erosive reaction on the part of the exposed terminations. The irritative matter does not necessarily present any characteristic appearance. But whenever the presence of gastric ulcer is suspected, they should always be very carefully examined, on several different occasions, for proper search may reveal in them the presence of blood.

And this brings us to the third prominent symptom of gastric ulcer, viz., hemorrhage. Of all the symptoms of gastric ulcer hemorrhage has always been looked upon as the most ominous sign of a breach of continuity in the mucous membrane; and when associated with the other symptoms of this disease, e.g., faecal passage, vomiting after food, occurring in a young person, it has been held to point conclusively to the presence of a gastric ulcer. — Dr. Stephen MacKeanis.
However, records the case of a woman who suffered for thirteen years from symptoms of gastric ulcer, in whose haematemesis occurred on several occasions. On post-mortem examination no obvious sign of ulcers or ulceration could be detected, and the case was put down as one of 
Apnea nervosa or hysteria - a name given first by Dr. Lou Jull.

In the whole haematemesis is less frequent
by met bile in gastric ulcer than in simple vomiting, which, as we have seen, is present in 3/4 of the cases, while the former (haematemesis) from a collection
made by L. Müller occurred 35 times out of 120 cases - or a little over 1/3 of the total number.

Apart from the general diseases which give rise to haematemesis, such as scrofulous, purpura haemorrhagia, yellow fever, acute yellow atrophy of the liver, cirrhosis of the liver; or that from the anomalous disease of the heart - especially mitral disease, the two principal organic diseases of the stomach which occasion haematemesis are simple ulcers or cancer.

The ulcerated process, according to Brinton, may give rise to three kinds of haemorrhage, which are attended by very different symptoms.
1st. The extension of the ulceration into the minute vessels of the mucous membrane of submucous tissue, leading to gradual discharge of blood. In such cases it may pass off by the bowel without causing vomiting. The patient grows rapidly weak & lists less, has a slight diarrhoea, without tenesmus of the belly, or pain, & the discharges from the bowel are copious & black.

2nd. Greater haemorrhage from sudden injection of the ulcerous surface. Here, again, the quantity diffused may not be sufficient at once to excite vomiting, if this be delayed, the blood from having its haemoglobin converted into haematin by the gastric juice, gives the vomited matter a dark-brown colour. The so-called coffee grounds vomit.

3rd. Very profuse haemorrhage from the break of a large artery. This only happens when the ulcer, which throughout was not especially large, has already perforated the gastric wall in toto, & exposed the arteries situated at its base, & belonging to adjoining viscera. In these cases the blood is poured out in large quantities & acts as an emetic. The patient has a sense of weight at
The epigastrrium, i.e., a feeling of faintness and nausea, soon succeeded by the vomiting of a large quantity of black clotted blood. Notwithstanding that the haemorrhage is abundant it seldom proves immediately fatal: usually it is followed by a state of faintness, and the haemorrhage ceases. Sometimes by the vomiting recurs on the same or the following day, or a large quantity of blood is again brought up. At the end of a day or two, the haemorrhage may cease entirely, leaving the patient blanched and weak. In addition to the sufferings which belong properly to the case of the stomach, he has now those which result from the loss of blood slowly and by degrees, under appropriate treatment. The loss of blood is repaired, but the symptoms directly referable to the strained bile remain. In the majority of instances, after the lapse of some months, or, it may be, of two or three years, haemorrhage comes on again. The patient, after a day or two's increase of pain, but sometimes without this, or quite suddenly, is taken, as before, with faintness and nausea, which is soon followed by the vomiting of clotted blood. The circumstances of the former attack are repeated, or at the end of a day or two, the haemorrhage again ceases.
These periodic attacks of hematemesis occur either because the obstructing clot is loosen by the gastric juice, or disturbed by the movements of the organ, or, because the condition of the walls of the vessels being unhealthy (atheromatous) they are only set to fresh rupture. This is especially strengthened by any thing which causes congestion of the stomach, especially by heartburn which may assist by the mechanical variation of the food, the pressure secretion of the gastric juice, in causing a breach of continuity in the walls of the exposed vessels. At any rate it is a well established fact that the commencement of hematemesis usually occurs soon after eating.

Though hematemesis also occurs in cancer of the stomach, it rarely happens that any considerable quantity of blood is vomited until the disease has reached such an advanced stage that a tumour can be felt in the epigastrium. On the other hand, a simple ulcer, as we have already seen, is sometimes latent up to the time when a large haemorrhage takes place; the patient having had either no symptom previously, or only such slight indications of gastric disorder as appeared the gastro-intestinal symptoms.

As further aids in the differential diagnosis
between gastric ulcer & cancer, we must consider the age of the patient. In very young persons, malignant disease of the stomach may be dismissed from consideration, except in those rare cases when sarcomatous growth occurs in the stomach secondarily to similar growth elsewhere. In older persons the pain & sickness due to these latter a much closer relation to the time at which food is taken than they do in their of cancer. Vomiting of blood in considerable quantity is much more apt to occur at an early stage of the disease, life is prolonged to much later period: with regard to this point, a very good way to enquire in any case in which well marked symptoms have existed eighteen months or longer may generally be pronounced the one of simple ulcer not of malignant disease. Dr. Cruickshairt considers that the important element in the diagnosis must be deduced from the progress of the disease. In simple ulceration the alternation of better & worse is more marked, in prominence attacks preclude diet, & there is always an aggravation of the symptoms when this regimen is departed from. In cancer on the other hand, the disease advances steadily towards a fatal termination, irrespective of regimen or treatment. Treatment.
points out, however, that this disease may still be at fault. For in some cases of
undoubted cancer of the stomach—of which he quotes where it lasted for seven
years—long intermissions may occur during
which the disease shows no symptoms.
The dyspepsia, the difficult digestion which
shows itself in deficient or prolonged appetite,
great thirst, unpleasant taste in the mouth,
green in the epigastrium, the passing of
several times fluid in the mouth, are very
usual, though not invariable, accompaniments
of gastric ulcer. These symptoms always
occur when the normal digestion of food is
prevented from any cause, as by the presence
of a gastric ulcer. Though such a cancer
does not exist in all cases of cancer of the
stomach, especially in those passing an
acute course, yet in the majority of cases
a chronic gastritis is set up, leading to dis-
turbances of digestion.
In spite of all this, the condition of the
patient does not always suffer. Sometimes even
her appearance is quite normal; at so we
have already seen, cases are known where
persons who, beyond slight dyspeptic symptoms
which have lasted a long time, appear quite
healthy and capable of work, are suddenly, as
the result of a haematomecia or perforation,
Suffered with fatal symptoms.

If, however, the symptoms of dyspepsia continue for years, it is complicated with gastralgia, vomiting, bleeding, thin, emaciated, an increasing cachexia at last results—Edematous swelling of the ankles, anæmication, increasing debility, weightlessness & marked irritability of temper.

Obstinate constipation almost invariably accompanies gastric ulcer. This may be explained by the fact, that, in this disease, the normal movements of the stomach are diminished, so, since a certain reflex relationship exists between the movements of the stomach & the tourism, the latter soon participates in the sluggish peristalsis. In addition to this, a further aid in the causation of the peristalsis must be ascribed to the almost continuous vomiting, whereby a very small quantity of the food taken is passed on into the intestine.

The course of the disease is usually chronic, for, except in rare cases in which the ulcer terminates in perforation without any premonitory symptoms, it which, therefore, has probably run a rapid course, it takes several weeks following acute perforation of the gastric walls. Cases have been recorded in which definite symptoms have been present an-
interruptedly for twenty or thirty years, or even longer. There is also a great tendency for healed ulcers to break out again, or remain symptomatic for patients who seem cured to have relapses.

That there are cases which from beginning and end pursue a latent course is proved by numerous post-mortem examinations, which disclose gastric ulcers in people who, during their lives, have never suffered from the disorders of digestion.

In whom perfect healing from an anatomical point of view, has taken place, yet clinically the disturbances of a very important nature may sometimes remain behind. From the pressure exerted on the stomach mucous by the contracting oesophageal peri cardialgia may continue; it, again, if the stomach has contracted adhesions to other organs, its movements will be limited, leading below digestion.

Symptoms of Perforation.

In the majority of cases this disease ends in death. Hemorrhage, perforation are the two conditions which lead to a sudden termination; while in other cases, owing to the long continued pain, vomiting, it is turbulence of digestion, the patients gradually succumb to rheumia, or are brought to low that at last a complicating disease - a paroxysm - diarrhea to
leads to a fatal termination.

Diagnosis. Having already considered the differential diagnosis of gastric ulcer from cancer of the pylorus, it only remains for me to consider the general diagnosis of ulcer of the stomach.

This is not so simple a matter as it would

must only be read at first sight appear, for, as Boailet says, 'it is no exaggeration to say that, as every one of the preceding symptoms may vary, their combination of necessity gives rise to so many modifications, that each individual case of ulcer of the stomach is unlike every other.'

It will be seen that the disease becomes more easy of detection the longer it has lasted. In its early stages, the symptoms are few and equivocal. Pain or soreness after meals, occasional, acid expectorations, occasional vomiting, which are often the only symptoms then present, may result from various other causes, even from mere functional disorder. After these symptoms have lasted some weeks or months, their very continuance becomes significant, or, if, added to them, hematemesis occurs in large or small amount; or the patient be between 17 and 30 years of age, we may infer the existence of ulcer of the stomach with almost so much certainty as
That of any inward disease. It is then upon the presence of all or the majority of the prominent symptoms in a given case, rather than upon the prominence or severity of any one of them, that I should be disposed to diagnose the existence of a gastric ulcer. The prognosis should always be guarded; for, in spite of Avicenna's statement "that simple ulcer of the stomach tends essentially to a cure," we can never know how deeply the ulcerative process has extended, how near it may be to perforation, or to the erosion of a large artery which might set up fatal hemorrhage. He should also warn our patients of the danger of a recurrence of the disease after an apparent cure has been effected.

**Treatment.** I now come to the most important portion of my task, viz, the treatment of ulcer of the stomach. And as this treatment is a somewhat intricate one, it is beneficial to tell the patient what we think of the nature of the disease, the name of which will probably alarm him, and at the same time assuage some of his fears.

Before, however, considering the treatment of a well-marked case of gastric ulcer, can we in any way adopt any prophylactic measures likely to prevent the onset of this formidable disease?
Few cases unfortunately present themselves, or call our aid, until the symptoms of ulceration are highly developed, or have existed for some time. Nevertheless, careful and early treatment of any cases of chronic, indurated ulcers for the avoidance of those pernicious agencies which may cause hemorrhagic ulceration of the serous mucous membranes; also all causes of ulceration of the chronic condition, or the improvement of the general condition of the patient, if practiced in time, will often prevent the development of ulceration.

Since, therefore, we have few opportunities of adopting these prophylactic measures, the question occurs, what are the purposes at which we must direct our efforts in the treatment of this disease? To this, I should prefer expressely to the following:

1. To remove all local obstacles to the cicatrization of the ulcer.
2. To support the constitution in the process.
3. To remedy the conditions the brain may already have brought about.
4. To arrest some of the prominent symptoms which may exist.

1. To remove all local obstacles to the cicatrization of the ulcer. I have, in what I have before said, emphasized the importance of the diminution of the size of the ulcer and the original...
Hemorrhagic or thrombotic necrosis, may be
principally, if not entirely, attributed to the
tumor (objectum) influence of the gastric
juice; & that this, coupled with the want
of rest to the base of the ulcer, brought about
by the periodic movements of the organ in
the course of digestion, is the most potent
obstacle to the formation of granulations in
the floor of the ulcer, & consequently, to the
healing process. Both these deleterious in-
fluences, i.e., the presence of gastric juice,
& the active movements of the stomach, are
brought about by the same cause, viz., the
presence of food in the stomach, & to us are,
therefore, necessarily led to the conclusion
that keeping the organ rest to the organ by
enforced abstinence is the most important
element in our treatment. Since the
production of Hilte's classical work on
"Rest & Pain," the importance of rest as a
medial factor in all cases of wounds,
whether these inflicted purposely by the
surgeon, or those arising from a depraved
condition of the body, has been recognized &
drafted where possible.

Fortunately, in these days of premeditated food
we can keep a patient not only alive, but
in a very fair state of nutrition, for at least
two or three weeks, by means of nutrient
Enema; a period which is probably long enough to make the ulcer blanch on a healing action, even if it is not sufficient for its complete cicatrization.

In carrying out this treatment a good deal of our success will depend upon the mode of introducing the enema. If it be injected in the ordinary way into the patient with a moderate amount of force, it is very apt to burst, unless the quantity be very small, not exceeding three or four ounces at the outside. But if, after first emptying the bladder, a soft catheter be passed well up into the sigmoid flexure, a large quantity can be introduced, especially if the lips of the patient be padded, it will be rinsed somewhat round on his right side, so that the fluid does not sink down into the bladder, but rather flow into the transverse colon. A large quantity, as much as half a pint of peptonized milk or any other agent that may be selected may thus be introduced into the bowel without being. In doing this it is best also not to inject the enema by means of a syringe, but through the other end of the catheter with a funnel, by means of an elastic tube, which will evidently gradually flow into the bowel from the funnel.
Which should not be raised much above the cost of the patient's lodging.

In every case then, in which the diagnosis is clear, in which the patient can be induced to submit to it, this method should be carried out for a certain period before any other treatment is thought of. But it is especially useful in those cases in which all that is swallowed is promptly afterwards rejected. Vomiting, indeed, as the Bristol Sormsg, is much less amenable to treatment than any other symptom of jaundiced ulcer, of the poisoning the action of any repeated remedy. It is also by far the most dangerous in importance of these symptoms an account of the risk that it entails of the suprination of perforation from the puncture of the protostom adhesion.

In addition to the peptonised milk, other emulsions containing beef-tea or eggs may with advantage be resorted to. Amongst these I have had good results from the following:

- Strong beef-tea 5 oz., Orpiment 0.05 gr, Salicylic acid 2g 20. These are digested for four hours at a temperature of 100° F.
- Orpiment, mixed with Carminate of Soda.
- Beef-tea made from four ounces of lean beef digested by means of 30 grains of
Zyminine (Extractum Pancreatis) which dissolves the proteins to form an assimilable body to
pass in peptones.
Agglutinated Fatsaturated Bullocks Blood has
recently been employed at the London Hospital
as an enema in such cases; but if this agent
I have had no experience.
In later stages when there is some chance of a
healing process having set in, mildly
alone, or milk mixed with lime water
may be introduced into the stomach in
small quantities frequently repeated.
As convalescence advances ground rice,
avoirdupois, albumin powder may be
added to the milk, but entire care
should be exercised as the patient gradu-
ally expands his range of diet; for
it is important to remember that a
food taken carelessly must be treated
with care. Disturbances may be neutralized and
away by one single act of indiscretion.
It all has to be begun over again.
Especially is this apt to occur when
cases are doing well; the patient is
taking too confident.
All hot food and drink must be avoided
at total abstinence from alcoholic stimulants
insisted upon.
Should the patient not be able from
Injections to take milk, it must have recourse to the 'panacea acquisita'...
difficulty pass out of the stomach, too frequently to a good deal of irritation at the surface of the ulcer.

In all these cases we may with advantage use the changes in nearly pure, deep tea thickened slightly with arrowroot, Camia tea, green tea, and pepper and dr. Jenkins of... three times a day. Dr. Jenkins speaks very highly of a meat solution prepared by boiling tea, &c. the addition of salt, which, he main... brings it into such a condition, that little or no gastric digestion of it is needed, that it undergoes simple absorption, a process into the blood more readily. He treats all pronounced cases of gastric ulcer with this meat solution & obtains good results, the pain remaining clearing after a few days, healing rapidly ensuing.

In cases of ulcer accompanied by a chronic gastric catarrh, the difficulties of the patient are considerably increased. In addition to the cardialgia & feelings of pressure in the epigastric region proper to the ulcerative process, he has now also, decrease of appetite, belching, vomiting, loss of fluid, pyrosis, constipation, &c., together with a general anaemia. The gastric symptoms produced in abnormal
quantity acts as a ferment, it causes acid fermentation among the intestines; the greater the quantity of the carbohydrates taken the greater is the disposition to this change. Various methods have been adopted to overcome this difficulty, some endeavoring to check the formation of the acid aliment; while others are content to neutralize that already formed, or to cause its speedy removal from the stomach.

The first consideration, viz. to prevent the secretion of the acid, can only be attained by a careful regulation of the diet, the avoidance of anything that can cause a mechanical irritation of the mucous membrane, of the carbohydrates, which, as we have seen, are especially prone to undergo acid fermentation. Among these the fats, whose fermentation engenders butyric and other fatty acids, the saccharine matter, pastry, beverages containing much sugar - beer especially, which rapidly develops lactic and acetic acid in the stomach, are to especially avoided.

The second indication - the neutralization of the acid already formed - may be accomplished by the direct administration of an alkali, such as Bicarbonate of Soda, Magnesia etc. Since, however, we have no means of judging the quantity required, it, knowing that
any surplus alkali, remaining over after neutralization has been effected, would stimulate the further secretion of acid ptyalin, so cannot attain our end without running some risk of perpetuating it, even increasing the evil sought to be removed.

be are, therefore, driven to the third consideration, viz., the removal of the acid mucus from the stomach. This can be carried out in different ways. The most direct method of emptying the stomach is naturally by means of the stomach pump. By this means Schliëtz has obtained very good results, healing occurring after using it two or three times. Nevertheless this mode of treatment should not be lightly undertaken, not only because it is very trying to the patient, but also from the fact that, however carefully one may pass the tube into the stomach, it is not always possible to avoid bringing it into contact with the ulcer, thereby running the risk of causing haemorrhage or perforation. In order to avert this risk, so at the same time to effect the double purpose of rendering the gastric contents alkaline, obviating about their expulsion into the duodenum, Prof. J. Zinsser makes use of the Kahlbaum's Salts, which contain Glabreri's Salt (Sulphate of Soda), Carbonate of Soda, and Common Salt. "Glarberi's Salt," he says, "is the alkali which
must be regarded as the most important in the therapeutical treatment of ulcers of the stomach, not only because it acts promptly in evacuating the contents of the stomach into the intestines, but because it at the same time positively checks a process of the acid fermentation of those contents. This method of treatment the effects must be carried out systematically, i.e., in order to ensure this, he insists on a daily dose of from one to two drachms of the salt dissolved in a pint of hot water, to be taken before breakfast. This, combined with a careful regulation of the diet, rest in the horizontal position, the avoidance of all bodily or mental fatigue, & the protection of the abdomen from sudden chills, is his method of treatment, from which he obtains good results. This treatment seems to, however, have the great objection of perpetuating—by setting up a state of periodicity of the stomach—a state of murder in the base of this ulcer, a condition which is usually considered to be directly opposed to the true canons of wound healing. The same end, viz., the prevention of acid fermentation, may, in the majority of cases, be obtained by a careful regulation of the diet, or, if this be not sufficient, by the adoption...
of rectal feeding carried out until the
caulking has had time to settle.
While rectal, then, principally on the
abdominal treatment of ulcer of the stomach,
we cannot altogether afford to discard
the use of drugs; but these, I maintain,
should be quite secondary to careful
regulation of the diet. I should be devoted
principally to combating the complications
as they arise.

Of these complications, haematemesis
is perhaps the most alarming, at
any rate to the patient. When it
amounts to a considerable quantity-
showing that a large vessel has been used
the stomach must be kept in a state
of perfect rest, lest the clot, which
alone maintains between life and death
this balance, the stomach position rapidly
altered. In addition to these more
important medications, ice bags may
be applied to the epigastric region,
small pieces of ice be sucked, not only
allaying the great thirst which usually
exists, but also to act as a local
anesthetic. Eyelet may be given hypodermically.
A more moderate or frequent organ
justifies a more specific plan of treatment,
especially when there is no great tendency
To vomiting present: Tartrazine and Perchloride of Iron which have been recommended with this view, are both open to the same objection if they exciting nausea or vomiting, even in moderate

The next was "Achatin". Perhaps the best formula for this variety of haemorrhage consists of 1.0 grain of Salicylic acid dissolved in an ounce of ice cold water, by the aid of 10 mls of Muriatic Sulphuric acid. When there is massive haemorrhage of dark viscous blood, Hamamelis Virginica (tinct. 5 bottle) is very valuable.

When perforation presents the symptoms of perforation are suddenly produced, there is but slight chance of life being prolonged for more than two, or at the most, three days. The treatment usually adopted in such cases is to keep the patient absolutely at rest, to introduce nothing in the way of food into the stomach. Opium must be given freely, so that the patient may be entirely under its influence, a grain of solid Opium every three or four hours is not too much, or better still, any of Injechi or Morphine hypodermic. by this means peristaltic action is checked, at least may take place, to life be preserved. The probability of this occurring however, is so slight, to the termination of such an accident as above to discontinue, that the question naturally
arises, are so justly in pointing to this operation of laparotomy in order to discover, or remedy, if possible, the perforation, or to cleanse the peritoneal cavity of its inflammatory products? There is no doubt that time is rapidly approaching, if, indeed, it has not already arrived, when such a procedure will not only be warrantable in these cases, but when also, in concert with the adoption of strict antisepsic precautions, it will offer the patient a much better chance of recovery than if left to the old method of treatment by sheer fortune.

Numerous cases of successful laparotomy in suppurated peritonitis due to perforating wounds of the stomach or intestine, ulceration of the appendix vermiformis, rupture of pelvic abscesses, etc., have been recorded by Trenck, Howard Marsh, Prof. Annandale, Dr. Lydia Burchard, Dr. Barker, and others. The opinion of these and other surgeons of repute is gaining ground, that this operation should be performed in all cases of suppurated peritonitis in order to find the cause of the mischief, or to rectify it, through out the peritoneal cavity by mild antisepsics or even plain water heated to the temperature of the body, or by drainage. Even if the site of the ulcer precludes the possibility of doing anything
Further, the mere fact of giving rest to the con- 
tracinated contents of the stomach from the pruritic 
cavity, with the products of inflammation already 
resulting. Therefore, it afterwards keeping the 
stomach at absolute rest, will give the patient 
a better chance than if left to the mercy of 
medicine & expedience.

For most operative measures he left until 
after the failure of medicine, & the patient, 
in consequence of that delay, is in the last 
stage of collapse, or the prospects of succes- 
sful surgical interference are greatly minimized. 
While then in hospital practice when the 
surgical appliances are at hand, & the 
patient has the benefit of experienced nursing 
during the after treatment of the case, lap- 
orotomy should undoubtedly be carried out as giving the patient the only reasonable 
hope of recovery. But in general practice when 
the facilities for carrying out an antiseptic 
operation are sometimes, owing to the ignorance 
of prejudices of the patient's friends, almost 
irreparable, the question is not so easily 
decided in the affirmative. The consequence 
of an unsuccessful operation to a general 
practitioner is also of much importance, 
though this certainly should be no bar to its 
performance, if it promise relieve suffering 
& prolong life. All we can do in such cases
is to lay all the facts before the patient, briefly explain the relative risks of interference or non-interference, seek a consultation, & abide by their decision.

Of the minor complications cardiacia takes the foremost place. As a rule of the attention to the treatment, already mentioned, be efficiently carried out, this symptom soon vanishes into insignificance. In some cases, however, it is so severe as to necessitate the

Symptomopathic Uses of Opium. Sir James attesteth that...
He took it in doses of 30 to 50 g. in medicated
water an hour before meals. Its action is
that of a local sedative, so it is therefore also
useful in cases of vomiting. It may advantageously
be combined with bromide when the
cardialgia is severe, or with the Sulph. nitr.
if there is much pyrosis.

Of nitrate of silver I have had no experience.
It is impossible that it can act upon the
surfaces of the ulcer so linear caustic does
upon a sore for which it is directly applied,
but, according to Helle Fogg, it sometimes gives
principle of some relief to the pain. In very chronic cases some
good may be derived from washing out the
stomach by means of the stomach pump, or
then injecting a solution of nitrate of silver
containing 4 grains to 3 oz. of water. This may
be allowed to remain in the stomach for a few
minutes, minute or two to be washed out.

The cachexia, which in cases of chronic ulceration
usually accompanies as a result of the long continued
pain, the haemorrhage, vomiting, want of food,
constitute one of the most indications of
remitting. It constitutes, also, one of the most
frequent causes of death in the general
history of the malady, and opposes considerable
difficulty to the general treatment of the disease.
It may be chiefly viewed as indicating the
exhibition of tonics in all cases in which
The state of the ulcer does not absolutely forbid the introduction of these remedies into the stomach. Amongst the various remedies included in this class, the preparations of iron claim the foremost rank. Certain precautions, how-

ever, must be observed in its use. It should not be given when there is frequent vomiting, a coated tongue, or excessive or continuous pain, or even when these symptoms have partially yielded to the remedies, it is better to begin with the very mildest preparations of the metal, such as the ammonio-bate or citrate. They should, also, always be given either with, or immediately after, food, or well diluted. Hence, in order to obviate the risk of irritation which even the above named preparations of iron sometimes occasion, make use of the liquor of the alluminium of iron first prepared by Drew of Benthinin. This is of absolutely neutral reaction, free from any metallic or astringent taste, does not coagulate albumen, is absolutely unirritating to the mucous membrane. It administers it in doses of from 2 to 4 grammes (30 to 37) alone, or diluted with milk, three times a day, before meals. The present occurrence of haematemesis is no contra indication to its use. Its administration never produces pain, or increases it if already existing. But the use of the alluminium he combines a careful
chick of milk or beef peptone. The employment of small doses of Carlsbad salt, of morphia, then absolutely necessary. Arsenic, when administered in small doses, melts very frequently with the local consti-
tutional condition. It stimulates the appetite, lessens the call of pain, checks vomiting, besides acting as a general tonic to the system at large.

In the latter stage of convalescence, a combination of gymnastic work is very desirable.

Lastly, let us carefully avoid all mental cares, business worry, anxiety of all kinds; for this purpose a total change of scene, a visit to one of the chalybeate springs as at Fragnesbad, Schwabach, St. Moritz etc., or a prolonged sea voyage, is to be highly recommended.

Having completed the general history of disease under both its pathology, symptomatology, thera-
peutic, it only remains for me to give a most

critical account of the only two cases of this
disease that have come under my personal notice.

The first occurred in November 1855 when I was acting as assistant in the North of England, at the seaside of one of the many towns. The patient was a considerable improvement

Mr. O.B., aged 21, a general servant in a farm house,
was on Dec. 3rd at 7 p.m. suddenly seized with a sharp pain in the epigastic region when reaching up to place something on a high mantle shelf. The pain was so severe that she at once fainted away, in which condition she was put to bed.

On my arrival two hours later, I found her in a state of syphonic collapse, with pale face, sunken and depressed, cold, clammy skin, and thin, thready pulse, hardly perceptible. She lay on her back with knees drawn up, moaning, complaining of intense pain extending over the upper part of the abdomen, the tenderness being so severe that she could not bear any examination. Vomiting had occurred once almost half an hour after the onset of the attack, but unfortunately the vomited matter had been thrown away before my arrival; it was said to consist of a thick, brownish, pulpy mass, looking like semidigested food.

Though in a state of stupor, she was sufficiently conscious to answer my questions, and informed me that until that morning she had never had any pain referable to the thorax, had never had heart aches, had always relished her food, and felt no discomfort after it. Moreover she had invariably enjoyed good health, had done her work (which was not very severe) with ease, had menstruated regularly until three months...
ago, since which time she had seen nothing, and in every way looked upon herself, was regarded by many as a perfectly healthy girl.

After breakfast on the day of the attack she experienced a sharp, shooting pain in the epigastriic region between the shoulders, which lasted for about an hour, and gradually passed away until dinner, when it came on still more severe, made her feel sick, though she did not actually vomit. It again passed off, so she got about her work as usual until 6 o'clock when, in spite of the previous warning, she ate a hearty meal of bread, butter, etc. An hour later, after suffering a peculiar gnawing sensation in the pit of the stomach, she was seized with the violent pain already described. In spite of the most careful cross questioning of both her and her husband, I could get no history of any previous pain prior to the morning of the attack.

Suspecting the nature of the case I gave an unimpeachable pregnant, and renewed her emetics, sprinkled over with Lindanum. In addition I gave her a hypodermic injection of a ½ of a grain of Acetate of Morphine, with strict injunctions that she was to have nothing by the mouth until I saw her again, unless water be very great, to relieve which she might have a tablespoon of cold Spring water (i.e. not being insipid).

Next morning (Fvrr 4½) she was worse in every
propped, had passed a wretched night. The
pain now affected the whole of the abdominal cavity.
The belly was becoming distended and tympanitic:
Temperature 102.5°F; pulse 98, small and weak; respi-
ration 32, shallow and sibilant, thoracic; tongue dry and
red; no further vomiting. In spite of large doses of
alcohol and tincture of strychnine, she continued to get worse, and died at 11 p.m. 28 hours
after the onset of the symptoms.
On post-mortem examination, performed thirteen
hours after death, acute peritonitis was found to
exist throughout the entire abdominal cavity.
The peritoneum contained about fifty ounces of
stained serum, seemingly mixed with water and
other fluids from the stomach. The intestines
were, throughout the greater part of their extent, but sep-
scially adherent, were rendered adherent by minute
sheets of soft, flaky, leguminous, of very recent
formation. The perforation could be seen in any
part of the stomach or in intestinal canal while
in situ; but on removing them hanging from
the stomach, which contained four or five ounces
dark yellowish green fluid - a deep sharply 90-
fold plane, the size of a shilling, was seen in
the posterior wall, about an inch to the right of
the cardiac orifice, at the same distance from
the lesser curvature. There was no surrounding
thickening, or any other lesion of the mucous
membrane; the stomach was not adherent to
any other organ. The floor of the ulcer consists of peritoneum, in the centre of which a small circular aperture, 1/8 of an inch in diameter, was to be seen. All the other organs of the body, though slightly paler than natural, were quite healthy.

The interesting features of this case were:

1st. The absence of any gastric symptoms until the day when perforation occurred.

2nd. The rapidity with which the ulcer must have developed and its course; for, in the absence of any previous pain, or of any inflammatory reaction round the edge of the ulcer, it is fair to presume it could not have been in existence longer than, at the most, forty-eight hours.

3rd. The apparently good health which the girl enjoyed.

4th. The absence of any exciting or precipitating cause. There was none, or at the most, very slight anaemia; no lithiuria or other disease which might give rise to embolism or thrombosis; no vomiting before the onset of the symptoms, or this long, so far as I could learn, of any indiscretion in diet or drink.

5th. The somewhat unusual position of the ulcer at the cardiac rather than at the pyloric end of the stomach.

6th. The fact that the perforation, as is usually the case, occurred soon after a meal, it then
The patient, Elizabeth W., aged 35, housewife, 
first came under my care on Sept. 5th, 1856, complaining of a severe pain in the epigastric region between the shoulders, of palpitation, and mental debility.

The patient, though in many respects a fortunate one, had led a quiet, happy life when well, but had never been a strong woman. When a child she suffered severely from pure atopic, which left her weak and delicate until 12 years old. She lost her father at 14, and in consequence was sent to town in a mill. At 16 she began to menstruate, at first
regularly, but afterwards at odd intervals, especially for the last four years. The periods have been very irregular. She was married at 22, had no children. At 27 she suffered from violent neuralgia, for which all the teeth in the upper jaw were removed and replaced by a false set.

For the last three or four years she has never felt quite well, being languid, I really tried.

Her family history was good, mother alive, father killed in a railway accident, one brother other sister all living.

The present illness began in July (two months before I was called in) at which time she went through considerable anxiety, as well as hard work in nursing a sick friend. At first she only complained of indefinite symptoms in the region of the stomach, pain at first only after eating but gradually becoming more pronounced lasting until now she is never entirely free from it. This is of a sharp, burning description, always fixed in one particular spot in the epigastrium, just below the top of the uniform tone, but sometimes also it occurred between the shoulders and back. It was markedly aggravated by eating, by any work which necessitated the use of the left arm, especially in an upward direction; when at its height was attended by the most violent palpitation.

After lasting for a variable time from two to four hours, it gradually abated.
until she became comparatively comfortable, but
agains eating it quickly returned.
In addition to this the constipation she complained
of always feeling tired, and the worst
a little at night, so she was very constipated.
On more carefully investigating the jaundice symp-
toms, I found that the tongue was slightly furred
at the back of the gumma, but not invariable at
the tip; appetite poor; a feeling of nausea
during the day, but seldom proceeding to actual vom-
ut; had last in morning; occasionally pyrreal
sharthy, with vomiting did occur twice (accordmg to
his statement) of thick, fatty mornmg,
which was ejected only after considerable retching.
There had never been any haeematocrih or, so far
as the liver, melena. The stools were obstin-
ately constipated, acting about once a week, or
only after taking effluent medicine.
On inspection nothing abnormal was to
be observed over the abdomen.
On palpation in the jaundice region exquisite
tenderness was experienced, the greatest pressure
being accompanied by great pain. In him one
could be felt in this region. The descending
colon felt doughy on deep pressure. (Ipecac.)
Liver & spleen fulness normal.
Oedema of legs came on when the
pain was at its worst, & when the tenderness
were any excretion. Faeces had not occurred.
for the last year, though she sometimes felt giddy. The heart sounds were normal but rapid. Pulse during an acme of pain 135, weak, at the stops, touching bone into one another; in the interval of pain it was 88. Respiratory & other systems normal. Her abdomen in urine.

The diagnosis arrived at in this case was subacute gastric catarrh, with, perhaps, ulceration, though there was no absolute certainty of this condition being present.

For treatment I trusted principally to careful regulation of the diet, which consists in the main part of milk, either alone or slightly thickened, beef-tea, chicken broth, but no solid food. To relieve the pain I ordered op. Bromth. Subiti. g. 3 x. Liti. morph. home. in Inf. Gent. 3 x. S 1hora. In two days, however, the morphine had to be replaced by acid hypos. cyan., dil ut iv in account of the urticaria which it set up. The bowels were regulated by castor oil enemata. To bring this account within reasonable limits I have considerably condensed my note taken at the time.

Under the treatment thus referred to, the patient somewhat improved. At the end of a fortnight the violence of the pain had materially decreased, so that it & palpitation & dyspepsia, the appetite was as much better
that she asked for solid food; the feeling of nausea had quite disappeared. The tenderness and deep pressure in the epigastrium still remained, however, and while that was present, I advised her to continue to exercise great care in her diet. In order to combat the anaemia which was still very pronounced, I substituted for the Bromelit a hydrocyanic acid mixture containing 4 grains of Atal of hypotonic Acetate of Soda, 10 drops of bicarbonate of soda in 2 fl oz. of Ign. Eumorm., to be taken dotted in a thin, pleasant gruel. Three daily 1/2 an hour after meals. This, seeming because a little stomach discomfort, I returned to the former mixture.

She continued in very much the same state, but on the whole gradually improving, for another few days, when on Sept. 30th, I was hurriedly summoned to see her, and arrived found her lying on a sofa deathly pale, on the floor a large quantity (roughly three pints) of bright red blood partially coagulated.

It appeared that without any warning of impending danger, she suddenly felt faint, with an uneasy sensation in the epigastrium, and almost immediately after, before she could sit up in the room, she became violently sick, "bringing up the blood in great-fuss."

On examination, I found the patient cold, blanched
To a degree, it almost proved itself.
I ordered her to be kept as absolute rest, and
the room from the sofa on which she had been
placed, or even undressed. To assuage the thirst
I gave her small pieces of ice broken, of jelly
bored in ice water to the upper part
of the abdomen. I also injected subcutaneously
5 minims of Bongian's solution of ergotin.
Next day (Oct. 15) there had been no repetition
of the hemorrhage, but the patient was very weak
and low. Bowels acted twice during the day, the
motions being very loose, black & copious.
Pulse very weak, hardly the felt. Temp. normal 97.6°.
To continue sucking the ice & thus have a tablespoon
of ice milk every 1/2 hour.

Oct. 16. No further hemorrhage or action of
the bowels. Patient called a little, pulse a little
stronger, 72 to the minute; temp. normal.
The milk given in such small doses seemed to
cause pain, so I commenced rectal feeding
with 4 of a pint of reconstituted milk, administered
by syphon action as already described, the grain
milk a day.

Oct. 18. Improvement maintained, no more
hemorrhage, felt a little stronger. Had retained
both ammala. No further action of the bowels,
has and been as gentle as possible of put to bed
in the same room. Contra oil injected brought
away a few hard, black masses of feces.
The same nutrient semolina given three times a day instead of twice.

Oct 10. For the last week she had continued Improve; the pain in the epigastic region, which had exacerbated on the day of the hematemia, had gradually passed away, & she had gained strength slowly but surely.

She had had nothing introduced into the stomach (except ice) since the 2nd, & was quite willing to go on for another week with the semolina, which gave rise to no irritation or discomfort in any way. For the last two days an egg had been whipped up with the semolina milk.

Ostomied beef & semolina were now alternated with the milk injection.

Oct 17. Better in every respect,胃口很好 & asked for food. Semolina beginning to stir up some irritation in spite of the addition of 10 grains of Landmann's & back injection. Pain in the epigastic region disappeared even on deep pressure. No further hematemia or feeling of nausea.

Ordered milk & beef to slightly thickened with arrowroot in small doses, frequently repeated; to remain in bed another week.

Oct 24. Improvement still maintained. Has been taking a pint each of milk & beef in the 24 hours & had felt little or no discomfort from them. Bowels still constipated.
pain now on deep pressure in the epigastrium, tongue clean, pulse thready regular, no palpitation or dyspnea.

Ordered to get up today, to have in addition to the milk & beef tea, some chicken broth & a little fruit. To take a mixture containing 5 gr. of Chloride of Iron & Ammonia to combat the anemia, which was still very marked.

Oct. 31st. Retained both medicine & food, had no discomfort after dinner. Her rapidly gaining strength & beginning blue her blanched appearance, looked more food than was allowed her.

From this time everything progressed quite satisfactorily. By gradual additions she was enabled to take both enjoyment & advantage of an ordinary diet; the bowels under the influence of Calomel, Glycyrrhiza Lec. (Russian Pharmacopoea) became regular; iron in various preparations restored the condition of the blood; by Christmas she was better in every respect than she had been for years.

Remarks. Before the onset of the hematemesis I was in some doubt whether we had to deal with an ordinary attack of gastric colic & complicated with gastralgia, or whether the symptoms were referable to the presence of an ulcer. In favor of the latter hypothesis were the facts that she was an anemic woman, that the pain was very
localized, it considerably increased by the presence of food in the organ, or by pressure in the epigastric region, so that it was oft' burning, gnawing character. On the other hand, there was no vomiting or haematemesis to confirm my opinion, & moreover, there were the facts that she was a markedly nervous woman, had suffered from violent, neuralgia of the 5'th nerve eight years previously, had severe palpitation without organic lesion of the heart, with the onset of the haematemesis my suspicions of the presence of gastric ulcer were amply confirmed, so I can only regret that I did not treat the case in the lines afterwards adopted, viz, physiological heat to the organ, which finally brought about such a satisfactory result.

Frank R. Hare
Breslin

April 1857