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APRIL, 1908

No. 2

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OF THE
UNIVERSITY OF NEBRASKA
COLLEGE OF MEDICINE

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LINCOLN, NEBRASKA

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THE BULLETIN
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No. 2

Some Unusual Cases of Foreign Bodies in the Ear¹

BY H. GIFFORD, OMAHA, NEBRASKA

It is not my purpose to amuse the society with a list of the botanical and zoological specimens which the aurist finds from time to time in the ear, but to describe four selected cases, two of which exhibit features which I have not seen elsewhere described, while the others are instructive to the general practitioner on account of the general principles which they illustrate.

CASE I.—A child of some three years was brought to me with the story that it had put two glass beads into the left ear; that the family doctor had removed one of these, but had not been able to get the other. An examination revealed a discharging ear with the meatus so occluded by swollen walls that no view of the drumhead was possible. A probe very carefully inserted touched a smooth, hard surface, feeling exactly as one would expect a glass bead to feel. An extraction through the meatus was, of course, not to be thought of, and as the ear had already been suppurating several days and the child was feverish and in pain, I decided that delay might be dangerous. Accordingly, the usual incision behind the auricle was made, and the membranous and cartilaginous lining of the meatus was turned out. This exposed the middle ear rather freely, as the drumhead was found to be nearly all de-

¹Read before the Omaha Douglas County Medical Society, December 10, 1907.

stroyed. To my surprise, however, no bead nor any other foreign body was found. What I did find was the promontory of the labyrinthine wall so denuded of its natural covering that the probe in touching it gave an impression so strikingly like that which one would expect a bead to give that I was sure that this was what I had felt on my first examination. The ear was replaced, and sup-puration rapidly subsided under the use of a peroxide boracic solution. Whether the child retained any useful hearing in the ear I can not say. The day after the operation another member of the family came to town, and from her I elicited the information that there had really never been any bead in the case; that the child had been playing with an old-fashioned ring and that a single small flat stone had come out of the setting and had been put into the ear. To account for the belief in the second bead in the ear I concluded that in removing the stone the doctor, a very bright, efficient man, had denuded the bone and had then been deceived by feeling this, as I subsequently was deceived.

CASE II.—A boy of about three years was brought in with the story that some two or three months before, while playing with a sharp stick, he had fallen and run the stick into his mouth. Much blood had come from the mouth, and the mother was sure that a ragged wound could be seen in the back of the mouth. A week or so later the right ear began to discharge, and a little later a red-dish growth protruded from the meatus. This was removed several times by the family physician and by a traveling specialist, but it kept returning. I found a mass of granulations surrounded with pus protruding from the child's right meatus. Accepting the mother's story, I explained the condition by assuming that the wound in the pharynx had caused an infection which had spread to the ear, and that the granulation polyps had developed from the neglected suppuration in the tympanum. Under chloroform I removed much of the granulation tissue, but at a depth of about three-fourths of an inch I came upon a foreign body which I removed only by exercising a good deal of force, with the aid of a Dench forceps. This proved to be a piece of stick about an inch long and three-sixteenths inch in diameter, rudely sharpened at the inner end, the outer end showing a rough fracture. The child had no bad symptoms after the operation. It was taken home in

a few days, and I was told that the discharge ceased entirely under the peroxide and boracic treatment in the course of a few weeks. From the length of the stick and the depth at which the outer end was found it seems as tho the outer wall of the labyrinth must have been penetrated in this case, but I have had no opportunity of seeing the child again to determine what the condition of the hearing is. The case is a remarkable illustration of the fallibility of human testimony. The mother was ready to take her oath that the stick had entered the child's mouth and that she had seen the ragged wound which it caused there. What happened, undoubtedly, was that the stick plugged the outer meatus so tightly that blood from the injured middle ear, instead of coming out thru the meatus and calling attention to the ear, ran thru into the throat and gave rise to the belief in a wound of this region.

CASE III.—A boy of ten got a grain of wheat into the left ear, and the family physician made a number of attempts to remove it, without success. Five days later the boy was brought to me with a purulent discharge from the left meatus and the walls so swollen that a view of the drumhead was not possible. Nevertheless, it was not difficult to remove the grain of wheat by moderate syringing. There was so much discharge that I hesitated about allowing the boy to go home at once, but he did so, continuing the use of the peroxide and boracic solution. Instead of getting less, however, the discharge increased with decided increase of the pain. I did not see the boy again, but he was seen about two weeks later by my colleague, Dr. Bicknell, who found an inflammation of the mastoid with great pain, tenderness, and swelling, and a temperature of 103. Dr. Bicknell did the ordinary mastoid operation, finding the cells highly congested and containing granulation tissue, but no distinct foci of pus. The boy made a speedy and perfect recovery. There is nothing especially novel about this case; it is reported simply as a typical example of mastoiditis following attempts at removing an unoffending foreign body from the meatus. Such cases are reported nearly every year, and a fair proportion of them end fatally.

CASE IV is reported as a joke on myself. The patient was a woman of about thirty-five years who, six weeks or two months before coming to me, had got the glass head of a pin into the left

ear. A number of attempts had been made by other physicians, including at least one aurist, to remove the pin-head without success. I found the upper edge of the pin-head plainly visible at the bottom of a large perforation in the drumhead thru which it evidently had been pushed in the efforts to extract it. There was no discharge, and it looked as tho it would be easy to remove it. I told the patient so, but she shook her head as if she had been told that before. She had been hurt so much by previous work that she insisted upon having a general anesthetic if any instruments were to be used. I first tried syringing, without result. Chloroform was then given and attempts were made to remove the pin-head with various instruments, without success. It was apparently about three-sixteenths of an inch in diameter and could not be grasped firmly with any forceps at my disposal. With a blunt hook or a curette it could be raised up and outward so as to be almost out of the tympanic cavity, but just at the critical moment the instrument would slip off and the bead drop back. After a few minutes of this sort of work the ear began to bleed, and I decided that it would be wrong to try to do anything more thru the canal that day. I informed the relatives that I was sure I could remove it if they could let me cut loose the ear from behind, and they said they would think it over. Their thoughts evidently were not favorable to me, as the patient never returned, and I know nothing of her subsequent history. If I were to see another case similar to this I should, before using any instruments, try the procedure recommended in nearly all text-books, but which I have never had occasion to use, which consists in carrying the tip of a camel-hair pencil or a fine cotton swab dipped in glue down to the foreign body, allowing it to become attached and then withdrawing both. A very little force would have sufficed to remove this bead, but it was impossible with instruments to apply it in the right direction.

In conclusion, let me give a few aphorisms regarding foreign bodies in the ear, most of them very, very old, but, as the experience of most aurists indicates, they are none too well known. First, in ninety-nine cases out of a hundred there is no hurry about doing anything. Most of the things that get into the ear will do no harm if left alone, even for years, beyond causing an occasional

reflex cough. If the thing is alive, drown it with oil, vinegar, water, or some other liquid, and extract at leisure. Second, always try syringing before trying instruments. Third, unless you are experienced with the treatment of ear diseases *never* use instruments. Where a foreign body can be plainly seen in the meatus the temptation to reach for it with some sort of instrument is almost irresistible. This effort may be and doubtless has been, in countless cases, successful, but every now and then the first attempt merely pushes the foreign body a little farther in. The second attempt repeats this process; then the surgeon thinks that if he can try just once more he will surely get it, and this once frequently gets it beyond the reach of anything but a serious operation. If the attempts were to cease here still no great harm would be done, since the cutting loose of the auricle from behind is a comparatively innocent operation; but unfortunately the surgeon generally seems to feel that his reputation is staked upon the removal of the foreign body, and a continued repetition of the efforts at extraction are made until the foreign body is driven thru the drumhead and the hearing seriously injured or perhaps the patient's life lost. Fourth, do not be afraid to syringe out a bean, a grain of corn, or other vegetable substance with water. Many text-books advise against this for fear that the water will cause the seed to swell and become firmly impacted. The student is advised to use oil instead. I sometimes wonder how many of these authors have actually tried to syringe out a foreign body with oil. Where syringing is effective at all it generally is so within a few minutes, before the foreign body would have time to swell perceptibly, and if troublesome swelling occurs later it can be reduced with alcohol or with the galvano-cautery. Finally, do not feel sure that a foreign body is in the ear because the patient or his relatives are ready to swear that it is, even if you think you can feel it yourself.

*The Treatment of Ileus*¹

BY BYRON B. DAVIS, OMAHA, NEBRASKA

When a case of ileus, "a symptom complex characterized by obstipation, abdominal pain, meteorism, and vomiting," presents itself, all due effort ought to be made to determine the obstructive lesion. At the very first all the usual sites of the external herniae are carefully examined and the rectum is explored. A history of the onset of the symptoms is obtained and all preceding conditions that might have a bearing on the case are inquired into.

Has progressive constipation been present, as is seen when there is gradual narrowing of the intestinal lumen from carcinoma? Does an acute inflammation exist? Has an operation been done for intra-abdominal abscess, pointing to angulation from contracting adhesions? Did the initial pain point to any particular organ? Is local tenderness greatest in one region of the abdomen? Has the obstruction been absolute from the first? Has there been mucous or bloody discharge, or tenesmus? Can a mass be made out? Is peristalsis still active? These and many other questions must be elucidated as quickly as possible, since the knowledge gained in this manner may materially modify the line of treatment and will often determine the location of the incision. Whether all of these questions can be answered or not, one can usually ascertain with reasonable definiteness whether it is primarily dynamic or mechanical, and if the latter, whether it is a strangulation or an obstruction without strangulation.

Whatever the cause of the ileus, it may be laid down as an axiom that the pathology is increasing every hour relief is delayed. Realizing how rapidly death of tissue may occur when the circulation to a part is stopped by strangulation, and how equally effectually the blood supply to the bowel wall may be impeded and stopped when the intestine is greatly distended, resulting in ulceration—Kocher's dilation ulcer—with migration of toxins and bacteria thru the wall, it is not surprising that the mortality of ileus becomes rapidly higher the longer the operation for its relief is postponed.

¹Read before the Omaha-Douglas County Medical Society, March 10, 1908.

When operation is done early it is for the obstruction alone; later the toxic symptoms predominate and success can hardly be looked for without emptying the greatly distended intestines. The patient is much weakened from toxemia and possibly sepsis and in no condition to withstand a long and severe surgical procedure.

To illustrate the advantages of early over late operations, Rushmore collected the records of 301 cases operated for intussusception. One hundred and twelve were operated in the first twelve hours with only 12.50 per cent mortality; 136 in the second twelve hours had a mortality of 39.70 per cent; while of those operated after twenty-four hours, fifty-three in number, 68.90 per cent died. In the face of such statistics as these, the man who counsels delay should be designated by a more forcible adjective than "conservative."

An early operation for strangulated hernia is almost as simple and safe as an ordinary herniotomy. When postponed till the gut is gangrenous and toxemia is intense it becomes very formidable and is followed by an appalling mortality. The same is true of all obstructive lesions, and these points are emphasized particularly because it is no uncommon thing to see patients practically moribund, after days of complete obstruction, during which they have had administered to them all the approved cathartics in heroic doses. It is fortunate for these poor creatures that emesis is not denied them. This is a real picture, but fortunately is becoming less common as the years go by, and more and more early operations are being done with a very encouraging improvement in results.

In ileus, vomiting usually begins early, and the stomach keeps filling with the characteristic fluid, which pours into it from the small intestines as the result of the suction of the diaphragm and pressure of the overdistended intestine. The risk of an anesthetic when the stomach is full of fluid is increased many times; therefore the first step in the treatment should be to completely empty the stomach by syphonage.

Unless unduly delayed a general anesthetic is advisable. The man who gives the ether at such a time has a position of first importance. He should be an expert and only interested in his work. Everything should be ready to begin so that not a moment is lost,

as I believe every unnecessary minute added to the period of anesthesia increases the risks.

If a definite diagnosis has been made of an obstruction at one side of the abdomen, the incision made directly over that point will make the work easier and more expeditious. Usually the exact location is not certainly known until the abdomen is opened, and under these circumstances it is far better to make the incision in the median line below the umbilicus, since through this opening good access is obtainable to most regions of the abdominal cavity. Make the incision long enough to work through. I am satisfied that much greater traumatism is inflicted thru an unduly small opening than thru a large, and a few inches added to the length of the incision is of no consequence. If by any chance the obstruction to be dealt with is so remote that it is not accessible thru the median incision, it can now be located with exactness and a second incision made over it with little loss of time.

The first aim when the incision has been made is to find the obstruction, if it has been diagnosed beforehand. Even without accurate diagnosis in advance the seat of the lesion is sometimes apparent the moment the abdomen is opened. But in most cases a mass of distended intestinal coils crowds up into the wound, greatly embarrassing the search. When this happens one of two courses is open: first, and a method which seems to be gaining in popularity, is to bring up the coil that first presents, protect all other coils with large compresses wrung out of hot normal salt solution, and open the exposed coil by a longitudinal incision half an inch long, pass into the lumen a good-sized glass or rubber tube, and protect from leaking by grasping the place of entrance of the tube with a strip of gauze. Coil after coil of the intestines is now slipped over the tube, the gas and fluid pouring out through the tube, after the procedure of Monks. It is possible in this way to pull six to eight feet of intestine over a six-inch tube. As soon as all possible has been emptied thru this incision the tube is withdrawn and the bowel sutured. If there still remains enough distended intestine to be troublesome, this procedure can be repeated once or twice until the intestines are collapsed sufficiently to allow an unimpeded search for the obstruction.

Three fingers or, if necessary, the entire gloved hand may now be introduced into the cavity for a careful systematic search. The work should be rapid, but not hurried. The ileo-cecal valve may first be sought. If the cecum is distended the obstruction is in some part of the large bowel, and the sigmoid should be examined. If found distended, the obstruction is in the rectum; if collapsed, look for the obstruction in the colon between the cecum and sigmoid. If, on the other hand, the cecum is collapsed, it shows that the obstruction is in the small intestine. Collapsed small intestine can almost always be found in Douglas cul-de-sac, and the hand may be passed down and grasp an empty coil. The collapsed small bowel is now gently but rapidly passed thru the fingers till the obstruction is reached.

The second method of search for the obstruction is to pursue the method just described before emptying the dilated coils. It is much more difficult and uncertain, since the distended coils seriously impede the search. It is also very easy to abrade the dilated bowel of its peritoneum and perhaps cause a leak at some point where the mucosa and muscularis have been devitalized. In carrying out the search it is highly important that the greatest gentleness be used; the penalty for rough handling is too great. Pinching and bruising of the intestines are bad enough at any time; with the conditions present in ileus they are intolerable. It is also highly important that there should be the least possible amount of exposure of the intestines during the procedure, only a short loop being visible at one time, the remainder being protected by towels or large pads wrung out of hot normal salt solution, and kept hot all the time. When the point of obstruction is found it is important to lose no time in deciding what is to be done, and acting on the decision promptly. Should a fibrous band be found, under which a loop of bowel has caught, it is not enough to cut the band; it should be ligated at both ends and the intervening portion excised. If adhesions have caused a kink or sharp angulation, free the adhesion and endeavor to leave it so that adhesions will not form again. This may be done by covering in the raw surface with peritoneum, or the raw surfaces may be so placed that they will not come in contact. If the obstructing cause is a hernia into one of the intra-abdominal fossae, it should be reduced gently, and the bowel inspected to ascertain if

any damage has been done. Then by means of a few stitches of catgut the fossa may be so closed as to prevent a recurrence of the trouble. If a volvulus is present, the wall of the bowel should be inspected carefully, as sometimes the interference with the circulation has been sufficient to have caused gangrene and resection may be necessary. If the bowel wall is intact it is not sufficient to replace the coil; it is usually necessary to hold it there by means of a few stitches. Emil Reis has shown that in volvulus of the sigmoid, where it is usually found, the condition is often brought about by an old meso-sigmoiditis, with thickening and stiffening and shortening of the meso-sigmoid from old inflammation, with resulting contracting scar tissue. In these cases the whole length of the meso-sigmoid is sutured to the lateral and anterior abdominal wall in such a manner as to render the occurrence of volvulus impossible.

Should the ileus be found to be due to carcinoma of the bowel too advanced for successful removal, the formation of an artificial anus at the nearest possible point above the disease is the only choice. If the conditions are such that a resection offers fair promise of cure it should be done at once if the patient's condition will warrant so serious an operative procedure. Unfortunately, my experience has usually been that this class of cases, not usually presenting as grave symptoms at the beginning as the more acute obstructions, do not come to the surgeon until the condition is anything but favorable for an immediate resection. Altho the single complete operation, relief of the obstruction and excision of the carcinomatous gut, comes nearer the ideal to be aimed at, I would rather form an artificial anus for temporary relief and do the resection of the bowel as soon as the condition of the patient warrants than run too much additional risk in an effort to do all the work at once.

There are many reasons for deferring the resection, if the obstruction has been complete for very long and the dilatation of the coils above the obstruction is great: first, the fact that the patient is in too poor a condition to bear so serious and so prolonged an operation; second, union between the collapsed bowel below with the distended bowel above is difficult and uncertain; third, a secondary operation can be done with greater deliberation and more thoroughness because the patient's condition is likely to be more favorable.

In cases of extreme distortion of the intestines, due to healed tuberculosis or to contracting scars from old ulcers, if the obstruction does not involve more than a few feet, it is often possible to make a choice between resection of the involved portion and a lateral anastomosis between the intestine immediately above and below the portion containing the obstructing lesion. The same line of reasoning may be followed here in deciding whether the resection or lateral anastomosis should be made as a primary operation, or that preceded by an enterostomy, as in the case of obstruction from carcinoma. It must be borne in mind that the higher in the small intestine it is necessary to drain, the less is the probability of the patient's nutrition being enough to put him in condition for a secondary operation.

Before entering on the discussion of the surgical treatment of ileus due to intussusception, I want to enter my protest against the too vigorous, too prolonged, too fashionable efforts to cure intussusception by means of hydraulic and air pressure. Altho admitting that one or two careful efforts by these means very early may be permissible and may occasionally give relief, prolonged efforts, especially after the first few hours, ought not to be tolerated. The suffering inflicted by the Spanish inquisitors was only in the first degree as compared to the tortures practiced often by well-meaning physicians upon the little innocent victims of intussusception. In this condition parts of the bowel may die very early from total absence of the blood supply, and the harm of forcible efforts to reduce may render hopeless a condition which could almost certainly have been successfully dealt with surgically. For some years I have made a rule never to use taxis in strangulated hernia until the patient is anesthetized and everything ready for an immediate operation, and then to apply the taxis with the utmost gentleness. I am almost convinced that the first step in the treatment of intussusception should be to get everything ready for an operation, anesthetize the patient, and then carefully inflate the bowel with air or water; unless the mass immediately disappears the abdomen to be opened.

In no form of obstruction does delay work more havoc than in intussusception. Think of it! During the first twelve hours only twelve per cent mortality. Allow twelve more hours to be wasted and the mortality rises to almost seventy per cent, nearly six

times as great. Then think of the futility of the delay! I would like to know how many cases of intussusception not reduced during the first six hours, under the ordinary non-operative methods, yield to treatment during the next twenty-four hours.

Another important reason for promptness in intussusception is the extremely favorable conditions which surround the early operation: first, the child is not exhausted; second, the coils above the seat of obstruction have not had time to become greatly dilated and perhaps their integrity destroyed; third, toxemia, if present at all, is yet in a very mild degree; fourth, adhesions have not had time to form between the intussusception and the intussusciens, and the invagination is easily and quickly reduced; fifth, very early radical measures ought to be almost mortality free.

The steps of the early operation for intussusception are an incision in the median line and reduction of the invagination by pushing from the lowest part of the tumor, gradually working the invaginated portion out by gentle squeezing at the apex of the intussusception, following the apex upward as it recedes in the process of reduction. When complete, a few sutures may often be advantageously placed to prevent recurrence by holding the long ascending meso-colon to the peritoneum of the right side. If the intussusception is not reducible it may be resected, but this is a very formidable procedure, especially in infants, and a simpler method is that devised by Barker. He sutures the intussusceptum to the intussusciens at the base or where the invagination begins above. This is a continuous sero-muscular stitch, and at present I would prefer Pagenstecher's linen as the material. Barker then splits the intussusciens from this line of suture downward for about two inches, draws out the intussusceptum, and cuts it off as near as possible to the line of sero-muscular sutures described. The ends remaining are sutured with a few thru-and-thru stitches, and the slit in the intussusciens is closed. In infants the formation of an artificial anus, even in the extremely bad cases, is scarcely to be recommended.

There is still another class of cases of ileus so septic and so exhausted, with weak heart, subnormal temperature, cyanotic extremities, pinched features, that only the least possible operative manipulation is to be thought of. Here a little cocaine may be

infiltrated along the skin incision, a short incision made, the first loop of distended bowel that presents sutured to the abdominal peritoneum, a purse-string suture introduced in the presenting surface of the bowel, a small incision made, and a rubber or glass tube introduced into the lumen and tied in by means of the purse-string. The gas and toxic fluid may thus be evacuated, and altho this procedure is applicable to a class of very unpromising patients, it occasionally results in relief of the toxemia; they may be nourished and built up for a few days until in condition for the more radical procedure of relief of the obstruction.

True dynamic ileus is usually due to general peritonitis. Altho with the aid of Fowler's position and the contributions of Murphy, who adds the use of normal salt solution injected per rectum very slowly and without force, general peritonitis is no longer the surgical bugaboo it was, advanced peritonitis with absolute paralysis of the intestines is a well-nigh hopeless condition. Even in these cases, when the volume of the heart is not too small and the patient has fair strength there is no harm in making an effort. In such a case two procedures are of the utmost importance. One is emptying the intestines after the method of Monk with a tube, or the formation of an artificial anus, or the permanent use of the tube as so ably advocated by Dr. J. E. Summers of this city. In addition to this the lowest part of the pelvis should be drained with a tube of large caliber kept pumped out by means of a suction syringe or by syphonage. The stomach should be kept empty in these cases by the frequent use of the stomach tube. The operation should be most rapid.

Post-operative ileus is usually the ileus of peritonitis, tho this is not always true, since kinks from adhesions or strangulation by bands, and sometimes, when gauze drainage has been made use of, pressure on a loop of bowel may shut off its lumen. The most important treatment of post-operative ileus consists in prophylaxis by care during the operation. Care in asepsis, proper drainage when necessary, and protection of the intestines during prolonged operations by means of hot normal salt pads, and abstaining from all rough handling. Should a post-operative ileus occur it is to be treated promptly and in accordance with the principles already laid down.

As regards the after treatment of cases that have been operated for ileus a few general principles are important. Because of

peritoneal infection or the extreme liability of peritoneal infection no mistake will be made in treating these cases as if peritonitis already existed, using lavage of the stomach when indicated, ice over the abdomen, the Fowler position, and a constant small stream of normal salt solution kept flowing into the rectum. As a rule under this treatment, if the obstruction has been relieved and the distended intestines fairly well emptied, the bowels will move spontaneously within a few hours. If not, a mild laxative combined with a compound enema, is likely to prove satisfactory. A very effective method of administering a cathartic in these cases, if they are still nauseated, is to wash out the stomach, and before withdrawing the tube pour in a saturated solution of epsom salts or some castor oil. Given in this manner it is usually retained and often is followed by the best of results. Strychnia in these cases, given in moderate doses, serves the double purpose of stimulating the heart's action and adding to the power of the muscular coats of the bowel. Strychnia should always be used in moderation, as the large toxic doses sometimes given not only make the patient restless but often fill the veins at the expense of the arteries and thus do more harm than good. Food of all kinds should be interdicted until the bowels have moved nicely; then mild liquids may be begun carefully, to be followed by semi-solids and later solids.

TO RECAPITULATE :

1. Operations for mechanical ileus should not have a high mortality. The very high mortality of the past has been due to late operations.
2. Before operating for ileus washing out of the stomach should never be omitted.
3. The work should be done rapidly and gently.
4. Not too much should be attempted. Two or more operations with a live patient to show for them will always be better than one too-zealous operation followed by death.
5. When the coils of intestines are greatly distended, they should always be emptied of their toxic contents as completely as possible.
6. Resection of the bowel, when that is required, should not be undertaken at the primary operation unless the condition of the patient warrants it.

*Clinical Manifestations of Ileus*¹

BY A. F. JONAS, OMAHA, NEBRASKA

A group of clinical signs produced by acute intestinal obstruction, manifested by severe pain, great prostration, and often vomiting has been designated as ileus. The term may be a very definite one, since *ilium* has derived its name from the Greek, *eilein*—(to twist) and it would appear that ileus means a twist in some portion of the ileum, but the findings in a given clinical picture, indicating acute intestinal obstruction, vary with each individual case. We discover, for example, that an acute bowel obstruction due to a twisted or knotted condition is called a *volvulus*; an acute bowel obstruction dependent on an adhered loop of ileum causing a kinking, as *angulation*; and acute bowel obstruction due to an actual twisting of a loop of ileum as a *torsion* of the bowel; and so on to the end of the list of acute bowel obstructions. We soon discover that a diagnosis, "ileus," gives us no accurate pathological idea of the cause for the important clinical appearances, namely the acute bowel obstruction. The term undoubtedly first came into use from an observation that the majority of acute bowel obstructions were found in the ileum and had no reference to the exact local conditions. Since the tendency to a more accurate nomenclature that states the actual findings, the term ileus has become an unfortunate one, and in the writer's opinion should be dropped and be supplanted by the more rational but perhaps not altogether accurate one of acute bowel obstruction. The term ileus has been in common use in Europe and of recent date has been more frequently employed in America.

We will use the name ileus as a synonym for acute bowel obstruction and will make use of the classification advocated by Murphy:

1. Adynamic ileus, meaning all those acute conditions wherein there is an absence of the powers of propulsion.
2. Dynamic ileus where excessive contraction of the muscular wall causes obstruction.

¹Read before the Omaha-Douglas County Medical Society, March 10, 1908.

3. Mechanical ileus where the fecal current is obstructed by a closure of the intestinal lumen by some mechanical cause.

Under the head of dynamic ileus we have a condition of a total absence of normal peristalsis due to a paralysis of the intestine, paretic or spasmodically stenosed. (Cannon and F. T. Murphy.) According to Bayliss, Starling, and Magnus, true peristalsis is a coordinated movement due to a local reflex which has its seat in Auerbach's plexus. While the intestinal canal can perform its motor functions for some weeks when wholly disconnected from the central nervous system, yet, according to Magnus, all reflex movements cease when Auerbach's plexus is removed. Therefore any injury to this mesenteric plexus would result in a cessation of peristalsis.

Cannon and Murphy have observed inhibition of gastric peristalsis during emotional excitement when the only connection between stomach and central nervous system was the splanchnic supply. Strong impulses thru the splanchnic nerves, therefore, may be regarded as a cause of gastric and intestinal inactivity.

From these observations one would conclude that a cessation of peristalsis is due to inhibitory impulses thru the splanchnic nerves, as during operative procedures, injuries to the mesenteric plexus, or a traumatism to the intestinal muscular structures. It would appear that dynamic ileus may be due either to a disturbance of the central nervous system or it may be local in a defect in Auerbach's plexus or in the structures which that plexus controls.

General asthenia may sometimes be responsible for a total cessation of the motor activity of the digestive organs. Splanchnic reflexes may be responsible for dynamic ileus. Nothnagel reported a case resulting from inflammation of an undescended testicle, and he adds that inflamed hydrocele, contusions of the testicle, operations for piles and suppurations in the abdominal regions have produced symptoms of occlusion of the intestine. Kocher, on the other hand, is inclined to differ from these views and states that, instead of ileus being a functional disturbance, it is little mechanical obstacles that lie at the bottom of the majority of cases of so-called dynamic ileus. Cannon and Murphy demonstrated experimentally that reflex dynamic ileus does exist.

They etherized male cats for a half hour, then crushed the testicle, and found total absence of peristalsis for more than four

hours; while etherized cats, where the testicles were not crushed, intestinal movements continued uninterrupted. It has been shown that the splanchnic nerves reflexly inhibit peristalsis. This was proven in cases where the splanchnics were cut on both sides of the body. In animals with only crushed testicles there was abolition of peristalsis for four hours; in animals with cut splanchnics and crushed glands, peristalsis continued normally. These experiments seem to show that "ileus paralyticus" can be caused without mechanical changes in or about the intestinal wall, but that the condition is one of inhibition, an inhibition conveyed to the stomach and intestines thru the splanchnic nerves. These same experimenters showed that etherization, exposure to air, and unusual cooling under aseptic precautions produced no appreciable effect. But most striking effects were produced after handling. Even the gentlest handling under irrigation with warm salt solution produced stoppage of peristalsis for fully three hours.

When organs were removed from the abdomen and handled gently, all movements were retarded. In one case the retardation was so great that food did not pass from the ileum to the colon for twenty-four hours. The retardation increased in direct proportion to the handling of the gut. The effect from manipulation after cutting the splanchnic was the same.

We can see that in any case of dynamic ileus a distinction must be made between the inactivity due to inhibitory impulses dependent on local disturbances in the gastro-intestinal wall and to like results dependent on general or central changes.

So much for dynamic ileus, a condition that concerns all practical surgeons and one that must not be lost sight of in post-operative conditions that confront us not infrequently. Our efforts should lie in the direction of prophylaxis, for it is not difficult to see that reflex ileus, both of central and of local origin, is difficult to manage successfully. This condition is usually brought about by peritonitis, traumatism, sepsis, reflex irritations, spinal lesions.

In *mechanical ileus*, we are confronted with mechanical conditions, where the intestinal obstruction is due to some physical interference with the intestinal current. In this class are usually included such conditions as bands, points of adhesion, tumors, stricture, invaginations, intestinal kinking, torsion, and sometimes

strangulated hernia of many varieties, including diverticula, intussusception, fecal impaction, enteroliths, gall stones, slits in the mesentery and omentum, and intestinal looping. It will be seen that to discuss these manifold and varying conditions, will lead us beyond the bounds of this paper. It therefore seems most appropriate at this time to confine ourselves to post-operative acute bowel obstructions or acute post-operative ileus.

Twenty-five and more years ago it was of common occurrence to diagnose an acute appendicitis as ileus, but recent experiences along these lines have shown the fallacies of these early opinions, for they were only opinions. It was very seldom that these diagnoses were verified by *sectio in vivo* or *sectio post mortem*. Consequently they stood, and we of the younger generation groped about trying to find our way out of the darkness into the light, where we might become helpful instead of floundering about helplessly when we felt that something ought to be done. Now we seldom have acute ante-operative ileus; it is nearly always post-operative.

When, after a clean operation, we find that we are unable to bring about a bowel movement, and we can eliminate sepsis, the probabilities are that a traumatism may be the etiological factor. We have all known many cases with preexisting septic foci with an acquired immunity and no bowel disturbance; and in other cases with simple operations, with clean abdomens, before immunity has been established, an intense septic ileus develop.

In a given case, where we have completed an intra-abdominal operation, we may find a moderate distention beginning in twenty-four hours, which is unrelieved by the usual remedies, neither flatus nor feces being expelled; the condition is worse in forty-eight hours and becomes more severe to the end of the third day. Still unrelieved on the fourth, the abdomen becomes tensely distended, the respirations forty to fifty per minute, the pulse rapid, small, wiry, 140 to 150 per minute; the temperature may be 104-105; a cold clammy perspiration covers the entire body, the patient is extremely restless; the facial expression is one of fear, the eyes wide open, pupils dilated, the hands cold and icy, frequent emesis or gulping of a dark material, sometimes of a fetid odor, but no flatus or feces from the bowel. Do you recognize the underlying cause? It is plainly bowel obstruction

sometimes termed ileus; obstructive paresis due to dynamic causes, possibly sepsis; or obstruction due to mechanical causes, owing to the adhesion of a loop of intestine to the line of incision perhaps, or possibly to a broad ligament stump; or to a raw peritoneal surface caused by the separation of an adhered neoplasm or intestinal loop; or the adhesion of one loop of intestine to another, all of these producing an acute angulation or kinking. Or we may have newly developed adhesion bands compressing or twisting an intestinal loop. In brief, there exists a complete obstruction to the intestinal current. Intestinal contents, gas and feces, accumulate above the point of obstruction, the bowel becomes distended and presses against the diaphragm. The distention is of greatest moment, for it has been shown that the profound depression of all the distressing clinical features in the advanced and later stages of this affection are due to an absorption of the toxins which have penetrated the intestinal wall, causing the peritonitis in the region of its passage. If the seat of obstruction was damaged by operative traumatism, this phenomenon takes place early. The seat of obstruction may be only hyperemic or it may contain infarcts, ulceration, and not infrequently gangrene.

The clinical features which may lead to a correct interpretation of the underlying pathologic conditions, are, in the writer's experience, briefly outlined herewith. First, abdominal distension and the inability to obtain a passage of flatus or feces. It has been our experience that this distension begins either in the lower part of the abdomen, which may mean intestinal distension and may be due to intestinal kinking. If we now recall the pathology which necessitated the operation, we may, where adhesion surfaces were large, suspect post-operative adhesions, causing angulation. Should we now, as we sometimes do, have more or less pain in the locality of the preoperative pathology, especially if that pain is paroxysmal and moves toward and stops at the site of operation, we can say with a great deal of assurance that we have a post-operative mechanical ileus. This condition may develop before the pulse, temperature, distension, and other severe features become alarming. The writer has seen several cases in which the severe paroxysmal pain was the predominating feature in the case. The pains appeared at longer and shorter intervals, sometimes associated with marked rumbling, and when listened to with a

stethoscope the gurgling always stopped at the same point. The obstruction was located in three of our cases by auscultation, and the diagnosis was verified and relieved by operation. In one case where a diagnosis was made solely on the above findings and an operation refused, the correctness of the condition was shown post-mortem.

Continued post-operative vomiting is a disquieting symptom and may be a runner of a developing ileus. If we inspect the abdomen we find the greater part of the distension, sometimes nearly all of it, is in the epigastric region. All attempts at catharsis only aggravate the trouble. Vomiting is frequent, sometimes projectile, sometimes a frequent gagging, and occasionally frequent gulping of mouthfuls of dark fluid. Careful palpation and percussion seem to indicate an over-distended stomach. The introduction of an esophageal tube brings up one or two pints of fluid; the abdomen collapses, the distention has vanished, and often flatus is expelled per rectum after a simple injection. What was the cause of all the distress? The stomach had become over-distended perhaps by a reversed peristalsis dependent on a dynamic ileus, or possibly on both. The enormous gastric distension either compressed an intestinal section or brought about a reflex dynamic ileus, all of which were relieved by emptying the stomach.

Sometimes there is increased peristalsis above the point of obstruction, which is evidenced by increased borborygmus. In one or two cases the peristalsis could be seen through the very attenuated abdominal walls.

Sometimes there is flatness or dulness on percussion over the point of ileus, especially if the operation was done for an exclusive localized infection.

While the foregoing are early symptoms the more profound manifestations soon appear.

Vomiting usually begins in one or two days. Sometimes the very first symptoms may be a rejection of the stomach contents and may precede the pain. The vomitus at first consists of stomach contents, then intestinal fluids colored by bile, later it becomes brownish, and finally fecal vomiting may be established. The pulse becomes rapid, the temperature rises. The patient finally presents a condition of shock, and he is free from pain owing to septic intoxication. Blood examination may and usually does

show a leucocytosis, but it is no determining factor. Indicanuria, when present during the first two or three days, is contributory evidence in recognizing an intestinal occlusion, especially when due to peritonitis. Examination of feces, even when obtained, assist us very little.

In the light of a fairly extensive experience in abdominal surgery, the writer has learned that it is often difficult to distinguish between a dynamic and mechanical ileus, but that one can determine with a fair degree of accuracy many cases wherein the fecal current has been stopped by mechanical causes. When presented with a case of post-operative bowel obstruction where paroxysmal pain, especially if localized, is a prominent feature, particularly where there is active local or general borborygmus, a recurring peristalsis that seems to cease at a given point, as can be determined by a stethoscope and sometimes can be seen thru thin abdominal walls, and when the movement of intestinal gases can be heard by the unaided ear, a mechanical ileus is more than probable.

When an operation is followed by obstinate bowel obstruction that can not be relieved by the usual means, when such an obstruction is manifest, by the general abdominal tenderness and pain, an absence of local tenderness; an increasing tympanitis, an absence of all peristalsis, with elevated temperature, an increased pulse rate, a restlessness of the patient, an anxious and distressed facial expression, we are quite certain that we have to deal with dynamic ileus.

*The Diagnosis and Treatment of Dilatation of the Stomach*¹

BY A. O. PETERSON, OMAHA, NEBRASKA

The nomenclature of gastric functional diseases is subject to considerable variation. This is undoubtedly due to the fact that there is no constant anatomical lesion on which a rational classification may be based. Hence it is impossible to invent a term which will cover all the phases or types of motor and mechanical insufficiency. The one constant sign is impaired motility; the stomach does not empty in normal time. Hence motor insufficiency would probably be the best term with which to characterize these numerous symptoms. But motor insufficiency is simply a functional sign; it designates merely a condition, a lack of emptying power. And often the stomach itself is not at all at fault in the causation of the trouble; e. g. in the case of pyloric stenosis, the stomach is simply worn out trying to overcome the resistance offered by the obstruction.

The most striking objective sign of motor insufficiency—a condition frequently met with by the general practitioner—is the dilatation which the stomach has undergone. This dilatation is not a disease of itself, but is the result of other etiological factors either local or general. The various causes entering into the formation of gastric dilatation are: 1, obstruction to the evacuation of the gastric contents into the intestines; 2, deformities and adhesions of the stomach; 3, displacements of the stomach; 4, myasthenia gastrica, which is but another term for muscular insufficiency and is a very potent factor in the production of dilatation.

This varied etiology leads us to believe we should not at present discard the word dilatation from our terminology even tho it contains no precise meaning in itself; hence the title of this paper.

Based upon the idea that motor insufficiency is the constant symptom of gastric dilatation, Riegel and Boas have constructed a classification thus: 1, simple gastric atony, or motor insufficiency or myasthenia without dilatation; 2, atonic dilatation (motor insufficiency due to relaxation of the gastric walls) without

¹Read before the Omaha-Douglas County Medical Society, April, 1908.

pyloric stenosis; 3, secondary dilatation (motor insufficiency due to pyloric stenosis).

Simple gastric atony should be classified as a distinct disease, for here there is no change in the form or shape of the stomach. The viscus does not empty completely between meals, but does empty overnight. The trouble is usually due to some extrinsic cause, as overwork, worry and general nervousness, tuberculosis, anemia, gastritis, etc. The prolonged presence of food in the stomach may lead to a dilatation as well as to the subsequent or coincident production of supersecretion, continuous secretion, catarrhal gastritis, etc.

It shall be our purpose to discuss gastric dilatation not due to mechanical obstruction, giving but brief mention to this latter type of gastrectasia. Gastric dilatation is characterized by three conditions, viz.: 1, the stomach has become larger; 2, it does not completely retract when empty; 3, it does not completely empty itself during the twenty-four hours.

A stomach which has lost its tone and elasticity and its power to retract when empty is a dilated stomach. The normal stomach may be large or small, and its size may have no relation to its motor sufficiency. But a stomach in gastric dilatation is larger than the stomach normal to that individual.

In the morning, if the tube be passed into the stomach of a person suffering with dilatation, a variable amount of chyme in a state of decomposition can be aspirated. Also, on distending the stomach with air or gas, by inspection, or better by auscultatory percussion, the inferior border will be found to extend a variable distance below the umbilicus.

Dilatation of the stomach may be acute, transient, or chronic. Acute dilatation is a comparatively rare condition. In it there is relaxation of the muscular fibers of the stomach together with a probable spasm of the pylorus. It is more frequently the result of inflammatory processes consequent to gross excess in eating. However, it is also found that twists in the duodenum or its sudden incarceration are followed by acute dilatation. The outcome is usually fatal; probably the result of autointoxication, due to the complete retention of food within the stomach. More recently it has been shown that acute dilatation may result from operations on the bile passages, and also to follow shock of chloroform narcosis.

Transient dilatation is found occasionally where the gastric muscles are simply weakened. This occurs consequent to extreme mental depression, acute anemia, etc. It may also occur in a beginning stenosis of the pylorus, where subsequent compensatory hypertrophy of the gastric musculature corrects it for a time. Ordinarily, after a few days or weeks, the stomach recuperates and the condition disappears. However, the majority of cases of dilatation met with are those belonging to the chronic form.

The diagnosis is based on the consideration of the objective and subjective symptoms, the history of the case, the results derived from test-meal analyses, together with the physical exploration of the abdomen.

The symptoms of gastrectasis will vary in proportion to the severity of the condition present. The appetite is usually poor, altho it may be abnormally increased at times. This abnormal increase is due to a general cell-hunger and not to a local condition. There may be dryness of the throat and nearly always abnormal thirst. There is present a sensation of oppression and fulness in the epigastric region, together with fermentation and the formation of gases which, when eructated, are usually foul-smelling. There is usually vomiting of food. In an advanced case this may occur as often as twice a day, but in milder cases it may only occur every other or every third day. Pain and tenderness may occur after eating. The subnutrition of the patient is progressive, and an inability to perform mental or physical work gradually develops.

In dilatation due to malignant obstruction the severity of the disease rapidly progresses. Altho treatment may produce temporary amelioration, sooner or later ulceration with vomiting of blood occurs. Intense anemia, together with general muscular weakness, supervenes, and death is the speedy result. In benign obstruction, on the other hand, the disease continues a long time, and there may occur periods of euphoria when gastric compensation overcomes the insufficiency. The bowels are usually constipated, and the quantity of fecal matter becomes reduced one-half to one-third in amount. Likewise, there is marked diminution in the amount of urine secreted during the twenty-four hours, 1,000 cc. or less in the atonic form, and 500 cc. or less in the stenosing form. This urine is of high specific gravity and usually exhibits a complex indican reaction.

Analysis of the stomach contents should be made from a morning test-meal subsequent to lavage of the stomach performed the evening before. At the end of an hour the food will be found to be in a condition of fermentation, and there may be hyperacidity, hyperchylia, or practical anacidity, depending upon the condition of the mucosa. There is usually much mucous present, and when the stomach contents are allowed to stand in a glass, three layers are observed, the lower one of food, the middle mostly of a turbid water, and the upper one of frothing mucous containing particles of food. The total contents in the stomach, as estimated by the direct method of Mathieu, will amount to 200 to 300 cc. Yeast, sarcinae, and other bacteria will be found very active, and their activity continues for some time in the aspirated stomach contents. In malignant obstruction free hydrochloric acid is usually absent, occasionally be present in benign stenosis.

lactic acid and the Oppler-Boas bacilli almost constantly present, as also blood if ulceration has occurred. Lactic acid may occa-

The enlargement of the stomach may be determined by various methods, the most common one being the administration of soda bicarbonate and tartaric or hydrochloric acids in separate solutions. The carbon dioxide thus liberated distends the stomach, and its borders may be made out with exactness by auscultatory percussion. Coating the stomach with bismuth by means of an intra-gastric powder blower renders this viscus relatively impervious to the passage of the Röntgen ray, so that its outline may be readily determined by skiagraphic or fluoroscopic examination. Coating the stomach with a suspension of reduced iron in mucilage of acacia has given me more distinct skiagrams of this organ. With the patient erect, the introduction of the electro-diaphane into a stomach containing water will so illuminate that organ as to give a good idea of its extent and position. A stenosis of the pylorus or duodenum may be determined by use of the Kuhn-Turck revolving sound.

The cause of gastrectasis is much more difficult to discover than the presence of the dilatation itself. However, a searching analysis of the clinical history, together with the results obtained from physical exploration, as also the analysis of the stomach contents, will lead to a diagnosis which, while not absolute, meets very fully the needs of the clinician.

The course of dilatation will materially differ according to the etiological factors contributing to the condition. Dilatation due to myasthenia may sometimes disappear spontaneously. It is usually amenable to treatment, as is also dilatation consequent to pyloric spasm.

The prognosis of the trouble in stenosis will depend upon the character of the obstruction. In beginning benign stenosis, it is often possible to establish a compensatory hypertrophy of the gastric musculature. However, sooner or later, this compensation is broken and surgical intervention is then the only recourse.

In case of malignancy no operation, unless it be early, particularly benefits the patient. And, at this time, there is usually no dilatation present. After carcinoma is fully developed, operation is of little or no avail.

A favorable response to treatment is based largely upon the observer's appreciation of the conditions present. The patient is in a condition of subnutrition, is nervous, weak, anemic, and constipated; the musculature of the stomach is stretched out of its normal relationship and is atonic. Atrophy of muscular fibers occurs in long-standing cases, and this degenerative process may be so pronounced as to make retraction of the stomach impossible. Coincidentally the intestines are usually also atonic. The gastric innervation is likewise interfered with. There is stasis of the circulation in the stomach and other internal organs, i. e. we have a lack of equilibrium between the internal and superficial distribution of the blood. This stasis further depreciates cellular activity. Subnutrition produces a lack of tone of the abdominal muscles, giving rise to diminished intra-abdominal tension, which further aggravates the pathological condition present. The dilatation may also be complicated with the various forms of gastritis, with hyperchylia, hyperchlorhydria, or anacidity. Autointoxication must also be combatted.

The factors entering into our scheme of treatment may be classified under various headings, viz.: 1, diet; 2, hygiene and hydro-therapy; 3, gastric lavage; 4, electrical and mechanical treatment; 5, posture and rest treatment; 6, drug treatment.

1. *Diet.*—The food must be as concentrated and finely divided as possible. In ordinary cases not more than one glass of fluid should be allowed with each meal. Sometimes two meals a day

give best results; occasionally more frequent feeding seems demanded. The patient's dietary must be adapted to his particular needs. In case of persistent vomiting the patient may be fed exclusively per rectum for several weeks, when feeding by the stomach may be gradually resumed.

2. *Hygiene.*—The patient should give attention to the care of the teeth and mouth. All tooth cavities where germs may proliferate should be filled. Gingivitis should be corrected. On arising a cold sponge followed by a brisk rub is often beneficial. Alternate douching of the abdomen with hot and cold water causes a retraction of the stomach. Change of scene and relief from worry is highly beneficial. Plenty of fresh air and sunshine are needed. Gymnastic exercises tending to strengthen the abdominal muscles are of service in increasing intra-abdominal tension.

3. *Lavage.*—Lavage is indispensable, for it is the only means whereby complete rest may be afforded the overworked gastric musculature. Once a day is usually frequent enough altho in cases where there is severe fermentation it must be used oftener.

In mild cases it may be performed one hour before the heaviest allowable meal. In more severe cases lavage should be performed about ten o'clock at night, thus giving the stomach a rest and opportunity to retract. Alternately douching the stomach with hot and cold water is effective in improving its muscular tone and circulation. Intra-gastric pneumatic exercise does the same. After eating, the patient should be directed to lie down for half an hour or longer, best with the hips considerably elevated to enable the gastric contents to gravitate upwards toward the diaphragm, and thus be more readily emptied into the duodenum.

4. *Electrical and mechanical treatment.*—Electricity is extremely beneficial in dilatation, and is highly curative. It may be used intra-gastrically or percutaneously. In cases accompanied by hyperchlorhydria the intragastric application of the high tension Faradic current is indicated; in atonic dilatation the Faradic current derived from an ordinary coarse wire coil does best. Herschell in his manual on intragastric technic states that the high frequency current applied intragastrically diminishes the secretion of hydrochloric acid. My work has demonstrated to me that the same results may be obtained by the application of this current directly over the stomach. Its action in some cases is so pro-

nounced that even anacidity has followed its continued application. The tonic properties of the high frequency current, as well as that of the positive current taken directly from the coil, are extremely beneficial.

As patients suffering from dilatation are quite thin, it is difficult to fit them with an elastic support that will be of benefit in increasing intra-abdominal tension. Recourse is frequently made to the use of moleskin adhesive plaster which, applied according to Rose's method, is an excellent support. In women the use of the so-called surgical corset requirements does quite well. Various forms of elastic supports are used. Often a large pad attached to a Hood truss spring is excellent.

Massage both general and local is beneficial. If an excessive secretion of hydrochloric acid is present, vigorous local massage aggravates the condition. Vibratory massage gives deeper penetration than is possible by ordinary means.

5. *Posture and rest treatment.*—We find that some of our patients will not recover on any ordinary treatment. The patient becomes progressively more weak and nervous, so that gastroenterostomy seems the only recourse. It is here that the rest and posture treatment often affords complete relief and also is highly curative. A modified Weir-Mitchell rest cure combined with the proper diet is instituted. The patient is directed to lie on a bed the foot of which is elevated eighteen to twenty-four inches, thus raising the hips higher than the shoulders. The head rests on a pillow. At night the bed may be lowered to the horizontal. By this means gravity favors the retraction of the stomach, and food passes more readily into the intestine.

6. *Drug treatment.*—Drugs are useful in preventing excessive fermentation, as also to increase the motor power of the stomach, and to modify gastric secretions or to supply these ferments when deficient. Strychnin is the best drug to increase motor function and to stimulate secretion. Large doses are necessary, and occasionally the hypodermic route is the best. It may be combined with bitters such as condurango, or xanthoxyllum; with acids such as hydrochloric, and also with the various ferments. Fermentation and putrefaction are prevented by keeping the alimentary canal clean thru the use of laxatives, preferably salines such as Carlsbad salts, and also by exhibiting the various direct

antiseptics, such as salol, bismuth salicylate, beta-naphthol, the sulphocarbolates, etc. Continuous secretion is best met by Boas' supersecretion formula. Excessive formation of hydrochloric acid often yields to Stockton's formula. These formulae, however, must often be modified and sometimes do not meet the indications in the particular patient. The constant anemia is combated by iron, arsenic, and manganese. The treatment of gastric dilatation is quite comprehensive and requires close observation. Many cases which formerly were fatal, or which required operative interference, recover nicely under the rest and posture treatment. Patients who suffer from extensive atrophy and degeneration of the mucous membrane, and particularly the muscle wall of the stomach, can be benefited only thru surgical intervention.

To illustrate somewhat the diagnosis and treatment of gastric dilatation I will give brief notes of three cases:

CASE I.—*Dilatation secondary to mal-assimilation.*—Mr. H. E., age thirty-five, married, was first seen by me December 9, 1907. He has suffered more or less from what he terms stomach trouble for the last fifteen years. But it was not till November, 1907, that he began to have marked gastric symptoms, when he noticed a heaviness and pain in the epigastrium which progressively grew worse toward night. In the morning this would nearly disappear, but after eating breakfast it gradually recurred. Food passed through undigested, and the stools were tarry. In the two weeks previous to his treatment he had lost fifteen pounds. He had vomited decomposed food several times. On physical examination I found him quite thin and unable to get about without considerable effort. He was normal physically except for a dilated stomach, the lower border of which extended below the umbilicus one inch. Splashing sounds could be elicited over the stomach five or six hours after eating. The test-meal showed excessive mucous; acids and ferments much diminished, fermentation very active, motor function much reduced. There was considerable thirst, and occasionally he would become ravenously hungry, while at other times he could scarce eat anything. He was put on a partial rest and posture treatment; electrical treatment was instituted; tonics, Carlsbad salts, etc., were administered. Lavage at night was followed out.

In one week he had gained eight pounds and the stomach had retracted to the umbilicus. Two weeks after the stomach had retracted to its normal position, and all symptoms had disappeared, and the patient's weight was greater than at any period during his life.

CASE II.—*Atonic dilatation*.—Mrs. A., age 39, no children. At sixteen had chlorosis which lasted a couple of years. Since then patient has never been strong. About seven years ago began to be troubled with pressure and fulness after eating, together with nausea and a burning sensation in the epigastrium. She was also occasionally troubled with a diarrhea which came on in the morning. Three or four movements would occur. This condition would recur several days in succession, when the trouble would stop for a number of days or weeks, only to again recur. The patient complained of a bad taste in the mouth and was constantly weak and tired. She had voluntarily placed herself upon a restricted diet, as experience taught her that certain foods were sure to bring on distention and nausea. The examination of the patient revealed a very large stomach, the lower border of which extended within a couple of inches of the pubes. A splashing sound could be elicited at any point over the extent of the stomach.

The evening before the functional examination of the stomach was made the patient partook of a heavy meal of meat and rice. At ten o'clock the next day the patient was directed to eat an Ewald-Boas test-breakfast. This was withdrawn an hour afterward. There were 500 cc. of contents of an intense butyric odor and contained remnants of the meat and rice of the previous evening meal. The degree of hydrochloric acid was twenty-five, a little above normal. The total acidity eighty. The anemic condition of the patient, together with the apparent long-continued course of the disease, led me to believe that there was present simply an atonic dilatation of the stomach. The hyperacidity and fermentation were combatted by alkalis and resorcin. Iron and manganese were prescribed for the anemia.

Analyses made from time to time showed a diminution of the acidity and an increase of the motor function, such that four months after beginning treatment a condition of practical euphoria was established. Highly nourishing meals of scraped beef, eggs, toast, etc., with but very little fluid were ordered. Electricity used

intra-gastrically proved to be quite beneficial. Three meals a day were given at above six-hour intervals. One hour before the heaviest meal the stomach was subjected to lavage.

CASE III.—*Beginning stenosis of the pylorus, together with probable adhesions of the pylorus and duodenum.*—Mrs. J, age forty-three, three children. The patient is poorly nourished, emaciated, and somewhat anemic. She has been generally healthy except for a series of attacks extending over the last twelve years. These attacks would come on at any time and were ushered in with pain over the region of the gall-bladder and in the epigastrium. There would occur vomiting of food and green-colored mucous. She would have clay-colored stools and the usual changes in the urine of a person suffering from a violent attack of gall stones.

Between these attacks she would be troubled with vomiting spells in which vomited material could be identified as having been eaten two or three days previously. Formerly these spells were infrequent but of late have occurred quite often. The bowels were constipated and amount of urine diminished.

The examination of the patient revealed an extremely enlarged stomach, the lower border reaching to two fingers' breadths of the pubes. Gurgling sounds could be heard emanating from the abdomen, and splashing could be elicited at almost any point of the area occupied by the stomach.

A functional examination showed 800 cc. of a foul-smelling mass which was held together by an excessive amount of mucous. The free hydrochloric acid was 28, total acidity 120. The digestion of starches was diminished, as an excess of free hydrochloric acid was probably constantly present. On standing, the contents formed into three distinct layers so characteristic of stagnation. A microscopical examination showed a great number of sarcinae. Mucous was present in large amount. The muscular fibers, becoming unequal to the task of forcing food past a narrowed duodenum, relaxed, and a dilatation resulted. It is also probable that the inflammatory process about the gall bladder and pylorus caused adhesions.

Operation was refused by the patient. A tonic treatment and systematic lavage was recommended, with considerable improvement.

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EDITORIAL

The Meeting of the American Medical Associations and Alumni Reunions

The coming meeting of the American Medical Association is to be held June 2 to 5, in Chicago, which, by reason of its central and easily accessible location, will afford the doctors of the West and Northwest an opportunity to attend the session such as they have not had in many years. An especially large attendance is expected, since Chicago and local physicians are endeavoring to make this the most successful meeting held in some time. The city has some pride in being the greatest convention city in the country, and the doctors cherish the desire to entertain the visiting members of the Association. Business men's clubs and similar organizations are responding generously to aid in the undertaking, and the Chicago Medical Society expects to raise twenty thousand dollars to finance the affair.

A special committee is arranging for the hotel accommodations, etc., and some concessions are offered to the members of the As-

sociation; however, I would impress upon those expecting to attend the advisability of communicating to the Committee their intention, as the large number in attendance will certainly tax the accommodations of the city. The meeting will be held at a time of the year when most practicing physicians can get away for a little well-earned rest and avail themselves of the advantages of the meeting by virtue of the two-cent railway mileage in most of the states.

A special feature of the meeting of the A. M. A. in June will be the holding of alumni reunions by the leading medical colleges in the country, of which thirty are represented on the Alumni Committee. Tuesday night, June 2, has been set apart as Alumni night for the various reunions, and they will have precedence over all other business. At the recent meeting of the Alumni Committee reports were received from the various colleges showing the character of the reunions intended and the progress made, of which information will appear in the current state journals as soon as plans are complete. All will be held separately, and much pleasant rivalry is being manifested for each to have its banner reunion.

As the University of Nebraska College of Medicine has signified its intention of taking part, it is desired by all interested in her welfare that the representation by her alumni be creditable and adequate. This may be easily accomplished if each alumnus, upon deciding to attend the reunion, will make an effort to communicate with a nearby alumnus, either by letter or personally, and to secure the assurance that they will attend in company. Some little personal effort in this respect is fully justified by the occasion, and each should feel that he has a personal interest and duty in aiding the movement.

It is anticipated that our reunion will be a smoker with some little entertainment to enliven the occasion. It will provide a central meeting place, and it is hoped will see a large gathering of old and recent graduates, with plenty of good fellowship and a good time generally. The exact nature of the entertainment has not been decided upon in detail other than the time of meeting, but we trust in the near future to inform all fully with regard to the reunion.

The Alumni Committee of the A. M. A. has decided that there will be general alumni headquarters at the Auditorium Hotel.

Here will be found a bureau of information, place of registration for the alumni of each college, facilities for receiving and sending of mail, and other items of utility for the benefit of all who attend.

The Women Alumnae Committee, the Women's Medical Society of Illinois, and the Medical Women's Club of Chicago are combining their efforts to entertain the medical women visiting Chicago during the June session and extend a cordial invitation to a banquet and entertainment to be given on the evening of June 2. Relative to this reunion, I am in communication with the Chairman of the Committee and will in the near future send more definite information.

It will materially aid in completing final arrangements for the reunion of the University of Nebraska College of Medicine if each alumnus will immediately, upon deciding to attend the June meeting, notify Dean Ward or myself of his intention. This will confer no obligation but simply an indication of interest and enthusiasm in behalf of our College and alumni.

One hundred or more it is hoped will be in attendance. This will be possible if each alumnus brings a brother practitioner along with him. We are all concerned that our reunion do credit and be representative of the University of Nebraska School of Medicine. Later definite information relative to the reunion will be sent in a personal letter.

G. C. SHOCKEY, 1902.

Representative of The University of Nebraska College of Medicine, on the Alumni Committee of the A. M. A.

The Review Course

From May 12 to 18, inclusive, the College of Medicine will give its annual review course for practitioners. As to its successful issue there should be no doubt, either from the point of view of the applicants for the course or from the point of view of the University. Medical men who have not entirely fallen into the rut of unthinking routine are feeling the need of some method by which they can grapple with the hurrying progress of medical knowledge,—a method more illuminating, more impressive, and more certain than lectures or reading. It must be a method in the nature of laboratory work and of clinical work dealing with problems or applications of practical significance. It is not sufficient to read and hear about blood-pressures, the opsonic index, and Calmette's reaction, but blood-pressures must be obtained by actual experiments and tests, the technic of obtaining the opsonic index must be followed out in detail, and the ophthalmotubercular reaction demonstrated at the very least, in animals. In recognition of this need some of the faculty of the College of Medicine, enthusiastic with the "Ferien-Kursus" of European schools, urged the establishment of similar courses in the University. The College of Medicine would then rank, as it should, representative of the highest and most advanced methods of medical instruction.

From the point of view of the University it is hoped that the annual review courses will establish closer bonds of relationship and greater mutual interest between the College of Medicine and its Alumni. The greatest single asset in the reputation of the College of Medicine is likely to be the active, working cooperation of its Alumni. The successes and the failures of the one reflect upon the other so that in the realization of this fact the faculty stand ready to give what they can in time, labor, and sacrifice whatever may lead to a common weal.

COLLEGE NOTES

Dr. Matilda Berg, '07, died in Omaha on March 7 after a short illness. Drs. H. H. Waite and R. H. Wolcott have been made members of the Athletic Board.

Dr. Leroy Crummer has been recommended by the Board of Trustees to the chair in therapeutics.

Dr. G. H. Bicknell has for some time been on the sick list, owing to some abdominal disturbance.

Dr. and Mrs. A. F. Jonas returned February 10 from a three-months trip to Egypt and the Holy Land.

Dr. Nelsen, of Shoshone, Wyoming, '04, visited the College of Medicine in Lincoln on February 26.

Dr. Merle Warner, interne at Wyoming General Hospital, visited his parents in Council Bluffs, Iowa.

Dr. H. G. Morris, '05, Creston, Nebraska, and Dr. Harry Benson, '03, of Norfolk, were in Omaha recently.

Dr. Guy P. Stokes, '07, of Fullerton, North Dakota, passed third in the North Dakota State Board examination.

A daughter was born to Dr. and Mrs. R. W. Bliss on March 1; and Dr. and Mrs. Henry B. Lemere are rejoicing over the birth of a son.

Dr. B. A. Adams, '05, of Bristol, South Dakota, visited the College recently. The Doctor was on his way to Colorado to buy some land.

Dr. A. B. Lindquist has recently moved from Lincoln to Omaha and is doing eye, ear, nose, and throat work with offices in the Karbach block.

Dr. Merle Warner, '07, has left the Wyoming Hospital at Rock Springs and is now house-surgeon at the Wyoming State Hospital at Sheridan.

Dr. Frank E. Osborn, of Beatrice, was elected president of the Gage County Medical Society at its annual meeting held in that place January 7, 1908.

Dr. John Buis, '07, and Miss Serena Knutsen were married at the bride's home in Lexington, Nebraska, on March 11. They will reside in Pender, Nebraska.

Dr. H. A. Cooper, for the past two years physician for the Union Pacific Coal Company at Superior, Wyoming, has resigned his position at that place and has located at Lander, Wyoming.

Dr. H. S. Finney, of Rawlins, Wyoming, for six years physician to the state penitentiary, has resigned, and his place has been filled by the appointment of Dr. Raymond Barber as his successor.

On April 8 Miss Mary Ames, recently of Grand Island, became the wife of Dr. Herbert H. Waite. The wedding ceremony was witnessed only by near friends. The many friends of Mrs. Waite are delighted to again claim her as a Lincolnite.

At the fifteenth annual meeting of the Custer County Medical Society, held at Broken Bow, Nebraska, February 11, 1908, Dr. C. J. Christenson, of Broken Bow, was elected president for the ensuing year, and Dr. Claude L. Wills, of Anselmo, was elected vice-president.

The program for the annual meeting of the American Society of Tropical Medicine, which was held this year at Johns Hopkins Medical School, contained a paper by Dean Ward on "Some Notes on a Collection of Entozoa Made by Dr. F. Creighton Wellman, in Portuguese East Africa."

The Bulletin is glad to announce to the alumni of the College that Dr. Leroy Crummer is one of the staff of clinical consultants of the Council of Pharmacy and Chemistry of the American Medical Association. Dr. Samuel Avery was tendered an appointment as a member of the Council, but owing to the demands of his already too numerous duties, was regretfully obliged to relinquish the honor.

In addition to the regular meetings the *Pathological Club of the College of Medicine* has held several special sessions. At one of these, on February 6, Dr. Palmer Findley gave an intensely interesting and instructive talk on Human Placentation. Non-members who were guests of the evening were Dr. Bolton of the University; Dr. Hart, of Omaha; Dr. Benedict, of Omaha; and Dr. Ransom, of Washington, D. C.

In the official business of the second day, marked progress was made in reaching a uniformity of standards and in providing for the reasonable advance in entrance requirements for medical schools. Dean Ward was president of the Association this year, having been elected in recognition of the work done by the University of Nebraska College of Medicine. His presidential address was an exceedingly frank discussion of standards and tendencies in medical education. The president of the Association for next year is Dr. E. H. Long, of Buffalo, New York. Dean Ward was elected to the Judicial Council for a three-year term.

Dean Ward went to Cleveland, March 13, as the official delegate of the University for the annual meeting of the Association of American Medical Colleges. The official sessions were held at the Cleveland Medical Library, March 16-17, and were participated in by representatives from forty medical colleges and a dozen state licensing boards. The first day was devoted to a discussion on the raising of standards, the work of academic seniors in the professional school, problems of the state university and the equipment of the standard medical college. After the president's address in the evening, the Cleveland Academy of Medicine tendered the Association a smoker in the club rooms.

Two medical convocations held during the past quarter are worthy of being placed on record. On February 6, Dr. Brayton H. Ransom, Chief of the Division of Zoology, Bureau of Animal Industry, U. S. Department of Agriculture, spoke on certain phases of government work of special interest to medical men. On February 19, Professor Russell H. Chittenden, Dean of the Sheffield Scientific School of Yale University, addressed the medical students on Economy in Nutrition with Reference to Personal Health and Efficiency. Professor Chittenden's remarks provoked unusual interest and discussion. Later, at the suggestion of Dean Ward, a number of enthusiasts had the pleasure of dining with the distinguished visitor at the Lincoln. While in Lincoln Professor Chittenden was established at the home of Dr. R. G. Clapp.

On March 19 the *Pathological Club* had the honor of giving the evening program of the Missouri Valley Medical Society, which was in session in Lincoln at the time. The program was as follows: "Skiagraphs of General and Acquired Deformities of the Feet," by H. Winnett Orr; "Simple Methods of Detecting Formalin in Milk and Boric Acid in Meat," by Benton Dales; "Variations in Blood Pressure Due to Central and Peripheral Influences," by R. A. Lyman; "Determination of Blood Pressure in Man," by H. J. Lehnhoff; "The Histology of the Auriculo-ventricular Bundle of His," by W. A. Willard; "Artificial Heart Block—Its Relation to Stokes-Adams Syndrome," by A. E. Guenther. In selecting the various items of the program the committee in charge of the program were guided by two considerations: (1) to select demonstrations of medical interest; (2) to select demonstrations illustrative of the methods used by the College of Medicine in instructing students. A conservative estimate places the number of people present at one hundred.

The following clipping is taken from the *Daily Nebraskan*:

H. W. WILEY ACCEPTS INVITATION FOR COMMENCEMENT

Dear Dr. Ward—Absence from the city has prevented an earlier reply to the very flattering invitation which you sent me under date of the 3d instant to deliver the Commencement address for the College of Medicine on Thursday, the 21st of May. I take pleasure in accepting the invitation, and this pleasure is the result of many factors. First, I am anxious to meet the medical profession of Nebraska, which has stood as a unit for purity of foods and drugs; and, second, I am glad of the opportunity of seeing again that portion of Nebraska which is preeminently recognized as standing for higher education; and, third, I am glad to accept the invitation because I consider it a recognition, not of me personally, but of the principles for which I have tried to stand.

Sincerely,

H. W. WILEY.

In response to the request of Dr. John S. Fulton, the Secretary General at Washington, for the International Congress on Tuberculosis to be held there September 21-October 21, 1908, the provisional committee for Nebraska, consisting of Dr. Chas. O. Giese, Holdrege, temporary chairman; Dr. A. S. von Mansfelde, Ashland; Dr. S. R. Towne, Omaha; Rev. S. P. Morris, Omaha, met at the Commercial Club rooms, Omaha, December 24. Dr. H. M. McClanahan, vice-president of section on Surgery and Orthopedics, and Dr. H. B. Ward, Dean of the Medical Department of the University of Nebraska, vice-president of section on State and Municipal Control of Tuberculosis, were ex-officio members of the committee. The latter was detained in Chicago. The organization was there completed as follows:

Dr. A. S. von Mansfelde, Ashland, Chairman.

Dr. Chas. O. Giese, Holdrege, Treasurer.

Stephen P. Morris, Omaha, Secretary.

Dr. S. R. Towne, Omaha.

Dr. H. B. Ward, Lincoln.

Dr. E. J. C. Sward, Oakland.

Dr. Chas. O. Giese, Holdrege.

Dr. W. F. Milroy, Omaha.

Stephen P. Morris, Omaha.

Mrs. Draper Smith, Omaha.

The immediate work before the organization is to engage the attention of our state, the medical profession, the live stock interests, and all social forces toward our greatest international congress in September next. To carry on this correspondence and distribute literature, means will be required. Members of our state organization will be solicited first, then the county medical societies, the fee of a dollar being payable to the treasurer, Dr. C. A. Giese, of Holdrege, the membership card being returned by him.

The physicians are requested to engage the interest of any and all in their respective communities, to aid in our state educational effort by becoming members of our state organization at least; and names of such public spirited citizens are earnestly solicited that printed matter may be sent them for distribution in the mail or otherwise. The forty-six nations and forty-six states cooperative will bring out much valuable matter for the scientific understanding of tuberculosis itself, and of the best methods for its control in animals and man, will result from the deliberations of this great congress, and the matter will be printed in English in four volumes, all of which can be secured by any one who becomes an active member of the Congress for the small fee of \$5. The fee of \$2 makes one an associate member, but does not secure the volumes of transactions.

The executive committee would be glad to receive suggestions upon methods of interesting the public of our state in the subject of Tuberculosis and its prevention.

—*Western Medical Review*, 13:44-45.

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