Dr. Roberts has detailed to us the various symptoms, and they are multiple, that grow out of disturbances of the hypophysis. Whether they apply to the genital organs which they frequently do, to the ordinary secondary sexual characters, or to the bony frame, the mental states, the condition of the skin and its appendages—all of these things we can from time to time study and record in the observations of our individual cases. We can get autopsies when possible, and in time each one of us can contribute something towards the elucidation of the difficulties of the study of the hypophysis.

Dr. Roberts (closing).—Attention has been called to the fact that in some of these pre-adolescent cases there may be enuresis (bed wetting). It is not a constant symptom, and it increases the difficulty of these cases. Nothing seems to be absolutely constant about them; they are variable.

Lastly, I want to pay a passing compliment to the work of Dr. Harvey Cushing for his monumental monograph on the pituitary. It is possibly the acme of American research and a real contribution to the medicine of our time. It is a training in medical science to read the book, whether one gets anything out of his patient investigation or not.

THE TREATMENT OF VISCEROPTOSIS*

By F. W. WILKERSON, M.D.,
Montgomery, Ala.

My excuse for writing a paper on this subject, already so well and so much discussed, is the frequency with which one meets cases of visceroptosis, either neglected or improperly treated. I have nothing new or original to add to the treatment of this condition, but it has occurred to me that a discussion of it here might arouse our interest and stimulate us to greater efforts towards relieving these unfortunate patients.

These people comprise a large part of our "chronics" who go from doctor to doctor without experiencing any relief. The symptoms of which they complain often seem merely nervous, or they may be referred by the patient to some particular organ in the abdominal cavity. If the physician's examination is not careful and complete the patient, in the first instance, is put down as a neurasthenic and given a nerve sedative; or, in the second place,

treatment may be directed to the organ giving the most prominent symptoms and its relation to the whole abdominal cavity entirely overlooked.

One sees many of these cases that have been operated upon for chronic appendicitis, retroversion of the uterus and movable kidney, the result of the operation being a temporary improvement in the symptoms, followed after a very few months by a marked increase in their severity. If the surgeon had the after-care of these patients as does the physician, I think operation would be much less frequent. It would not take him long to see the futility of an operation on one organ when most of the abdominal content is involved. It is up to us as medical men to convince the surgeon of the uselessness and, in many instances, the harm of operations for this ailment.

Visceroptosis, enteroptosis, or Glenard's disease, may be defined as a

"prolapse or downward displacement of the stomach, right kidney, or both kidneys, and other organs of the abdominal cavity which may be associated with disturbances of the gastro-intestinal tract and pelvic organs, together with various nervous symptoms."

Normally, the viscera are kept in their proper positions by the abdominal muscles and the maintenance of the normal intra-abdominal pressure, in which the abdominal muscles also aid. Anything causing a loss of tone of the abdominal muscles, such as chronic wasting diseases, or anything causing a change in the intra-abdominal pressure as the emptying of the uterus in childbirth or the removal of a large abdominal tumor may result in visceroptosis. There are three varieties of cases—the congenital, the acquired, and a class, probably the largest of all, in which a congenital predisposition and acquired factors coexist. In the congenital cases there is a constitutional defect present. These cases have a long, narrow thorax, acute costochondral angle and many of them have a floating tenth rib, the so-called "habitus enteroptoticus." The diaphragm and liver are pushed down. Bassler has said that this form of splanchnoptosis is a "status of debility" and "represents to a more or less degree poor tissue soil in early life."

The chief factors in the production of

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the acquired type as given by Kemp are: (1) various skeletal deformities, such as spinal curvature, rickets, kyphosis and kypho-scoliosis; (2) intrathoracic pressure on the diaphragm from effusions, tumor, etc.; (3) intra-abdominal tumors or leukemic enlargement of the spleen; (4) chronic dilatation of the stomach; (5) adhesions attached to movable viscera; (6) compression of the thorax by tight lacing, poor corsets, etc.; (7) relaxation of the abdominal muscles and consequent diminution of intra-abdominal pressure. This latter may result from loss of weight and muscular tone from any cause, as chronic infections, the wasting diseases or the relaxation and decreased intra-abdominal pressure following the emptying of the uterus at time of confinement. This is a most important factor in many of the acquired cases, the ptosis resulting being known as Landau's disease. I am sure you all have seen many cases of visceroptosis in women whose symptoms dated from the time of their first confinement. The stomach, duodenum, colon, especially the transverse colon, and right kidney are usually all involved, though each may be involved alone. The stomach can not be said to be ptotic unless the lesser curvature is below the umbilicus with the patient in the upright position, for in chronic dilatation and other conditions the greater curvature may be well down, while the lesser curvature is in the normal position.

Fairly marked grades of visceroptosis may exist without the production of symptoms, and on the other hand severe symptoms may result from slight ptosis. This is probably a result of the underlying condition and depends, too, on whether or not there is interference with the motor functions of the gastro-intestinal tract. These patients are usually nervous, anemic and complain of being very weak. They often are dizzy, have palpitation and dyspnea on exertion and suffer much from headache and backache. Constipation is the rule. Depression and irritability are commonly present. They usually have a poor appetite and suffer from flatulence and fullness after eating. Many females have dysmenorrhea and many have frequency of urination, especially on standing, with often a sensation of dragging in the lower

abdomen, which they describe by saying they felt as if everything would drop out of the abdomen. Gastric analysis may show a normal content, hyper- or hypochlorhydria, or even achlorhydria.

One patient seen by me recently with a movable kidney had a typical Dietls' crisis. The trouble is very often referred by the patient to the kidneys because of the persistent backache. Symptoms may be referable to other organs in the abdomen and there may be neurasthenic pains in various parts of the body. Many patients consult their physician thinking they have heart disease, because of the palpitation and dyspnea with which they suffer.

On physical examination certain well-marked characteristics are present. The ptotic patient is usually anemic and poorly nourished, with, in the congenital type, a long, narrow chest, with a very acute costochondral angle. In a certain small percentage of cases the patients are fairly stout. The abdomen in the upright position is likely to be concave from the umbilicus to the ensiform and protuberant from the umbilicus to the symphysis, due to the fact that the stomach and much of the large intestines are in this area.

The pulsation of the abdominal aorta above the umbilicus can often be seen and usually felt. This is almost pathognomonic of the condition. In many cases, especially those occurring after labor and after the removal of large tumors, there is marked diastasis of the recti. The right kidney can usually be felt and in extreme degrees the whole kidney comes between the palpating hands.

The x-ray, of course, is the most valuable means of recognizing the exact amount of ptosis. This may show the stomach to be any one of the variously described types, as the fish hook, water trap, etc., and many show it to be only slightly ptosed, or may show such an extreme degree of ptosis that it is far down in the pelvis. The transverse colon also may be down in the pelvis and, in marked cases, the right kidney. The x-ray also gives us valuable evidence as to the amount of intestinal stasis that is present.

Very little can be done toward prevention of the congenital type of visceroptosis, and these cases are the hardest to re-

lieve. Much can be done, however, to prevent the acquired type, especially that following confinement. The wearing of proper corsets and attention to the maintenance of nutrition and physical strength following chronic illnesses will prevent a certain number of cases. All patients having the "habitus enteroptoticus" should be carefully watched to prevent the development of symptoms. Their nutrition should at all times be maintained and every effort made to see that their bodily vigor is kept at its maximum.

Not many obstetricians realize how much the post-partum treatment can do to prevent Landau's disease. The parturient woman should have a well-fitting abdominal binder applied as soon after the labor as possible, reaching from the middle-third of the thigh to the ensiform. This should be kept up all the time she is in bed and when she gets up a good corset or well-fitting binder applied and should be worn for several months. This gives much support to the weakened, relaxed abdominal muscles during the time they are regaining their tone, and, if generally adopted, would do much toward preventing many cases of visceroptosis. Several weeks after labor light exercise and gentle massage, both of which strengthen the abdominal muscles and improve the general tone of the body, may be begun.

Once the condition has developed, the indications for treatment are to give strength and proper mechanical support to the adominal wall, to increase the amount of fat in the abdominal cavity, and to build up the general condition. The intra-abdominal pressure is raised by strengthening the abdominal muscles and by the accumulation of fat within the abdomen, this latter giving support to the stomach and other ptosed organs. As a general rule, treatment directed along these lines will largely correct the various nervous, gastrointestinal and cardiac symptoms of which these patients complain.

For purposes of treatment the cases may be classified as (1) those which can be given ambulatory treatment and (2) those which require a preliminary period of rest in bed. The general principles of treatment enumerated are followed in both

cases, the mild cases coming within the first class, the severe ones in the second.

Many forms of mechanical support have been devised, but all have the same basic idea that they give most of their support below the umbilicus so that the ptosed organs will be displaced upwards. These supports may be of adhesive plaster or may be especially made corsets or binders. The adhesive plaster support suggested by Dr. A. Rose is one of the best.

"In the selection of this belt the plaster is cut in lengths long enough to overlap across the back. It is then folded end to end and cut from the lowest edge in front to the upper part of the ends of the strip.

(Taken from Bassler.)

This makes three pieces of plaster. Piece A is then applied first by sticking the pointed end as low on the front of the abdomen as possible and then swinging the small ends as tight and as high as possible to lie flat around the body in the rear, one overlapping the other across the back. The lower edges of the pieces should not include the crests of the ilia. The lower strips are next applied low from the hypo-gastric region, across the inguinal, over the iliac and across the back over the under piece."

The original strip should be seven inches wide and a yard long. Or a support made of narrower straps, applied obliquely, overlapping in the midline in front and over the spine behind, may be used very satisfactorily. These should extend from the symphysis to the umbilicus and the lower abdomen should be held up while they are being applied.

The advantages of these adhesive plaster supports are that they can be used on very thin people whose scaphoid abdomens could not be supported by a corset or abdominal binder because of the protuberant spines of the ilia. Their disadvantages are that they cause such irritation of the skin that they can not be left on longer than a few weeks. Many men use these for several weeks and follow them with a binder or corset.

"A corset of the proper kind should be long enough to come down over the pubic bone and crests of the ilia, should not come up high on the thorax, and should be loose enough above the um-

bilical line to allow for full play of the lungs and the organs immediately below them, all of which rise and fall with respiration."

All corsets should be made to measure and accurately fitted to the body. In the majority of my cases I have found that a well-fitting abdominal binder answered satisfactorily. I use a linen mesh Storm binder, all binders being made to order. Whether the binder or the corset be used, it should be worn for months, or perhaps several years, until the abdominal muscles have regained sufficient tone to do their part toward maintaining the correct intra-abdominal pressure and giving proper support to the contained viscera. Both binder and corset should always be applied with the patient in the recumbent posture and with the knees flexed, which allows the viscera to reach as nearly as possible their normal position and be held there after the support is applied.

The tone and strength of the abdominal muscles should be developed by massage and proper exercises, descriptions of which can be found in almost all the standard text books. It is not wise to employ these exercises in the early stages of the treatment, for they might have a tendency to reduce weight instead of adding to it, although massage may be employed from the beginning.

The second indication of treatment, namely, the increase of fat in the intra-abdominal cavity, can be met by so-called superalimentation, or forced feeding. The foods employed should have the maximum nutritive value for their bulk and the quantity taken should depend to some extent on the amount of atony present as revealed by the x-ray and other tests. In a case with much atony of the stomach it is better to employ small amounts of food at rather frequent intervals, while with a normally active organ larger quantities can be given at longer intervals. In my personal experience it has not seemed necessary to give much consideration to the gastric analysis in arranging the diet, though some authorities claim that this is essential. In an ambulatory case it is better for the patient to lie flat of his back for 30 to 45 minutes after each meal, especially after the largest meal of the day. Milk and eggs should form quite a large part of the

dietary, and in a case with fairly normal motor activity of the gastro-intestinal tract, I usually outline a diet somewhat as follows:

Breakfast — Cereal with cream and sugar; two eggs; bacon; bread or toast and butter; milk, or weak coffee with large amount of cream.

10:00 or 10:30 a. m.—Glass of milk with an egg.

Dinner—Large helping of meat or fish; rice or baked or mashed potato and at least one other vegetable; bread or toast and butter; vegetable salad with olive oil dressing; glass of milk; dessert made of milk and eggs, as custard, pudding, ice cream.

4:00 or 4:30 p. m.—Glass of milk with an egg.

Supper—Cereal with cream and sugar; two eggs; jam, jelly or stewed fruit; bread or toast and butter; vegetable salad with olive oil dressing; dessert, as for dinner, if desired; glass of milk.

Bedtime—Glass of milk.

No soups are permitted and the intake of fluids should be limited, especially at meal time, when not over 8 ounces should be allowed. It is important that the food be chewed well and slowly.

Many of these patients who have suffered for years with flatulence and other dyspeptic symptoms are really undernourished, due to the fact that they have discarded so many articles of food that they have thought disagreed with them. It is often astonishing to find how little they have eaten over a considerable space of time. Frequently it is difficult to convince them that they can take so much food without being made sick, but it is very important to stress this fact in advising them. In the early days of the treatment they often complain of fullness after eating and say they can not possibly take the diet ordered, but it is astonishing to see how rapidly this passes off. It is frequently only a few days before they actually become hungry and impatient for each feeding time.

In cases with a severe degree of gastric atony, these large amounts of food can not be given at first; it is wise to begin with milk and eggs, given at three-hour intervals, other articles of diet being added

gradually as the gastric atony and general condition of the patient improve. The bed cases should remain in bed from three to six weeks, depending on the rapidity of improvement, and in both the ambulatory and bed cases the diet should be adhered to for several months, else the initial benefit may be lost. The lowest weight gained in any of the cases I have treated has been five pounds, the maximum thirty.

After the bed case gets up the treatment should be continued as in the ambulatory case, and it is needless to add that his life should be carefully regulated for a time so that he gets plenty of sleep, fresh air, etc. The abdominal supporter should be used whenever the patient is not in the recumbent position.

In practically all of my cases I employ some form of arsenic, strychnine and iron. There is not much need of medicine, however, except for the relief of special symptoms. Hyper-acidity should be treated with alkalis, hypo-acidity, or achlorhydria demands hydrochloric acid, and sleeplessness, severe nervousness, etc., their appropriate medication. Constipation may be treated by any of the approved methods, including mineral oil, agar, bran, etc., etc.

Surgery has no place in the treatment of visceroptosis, unless it be for the correction of severe symptoms not amenable to medical treatment, as Dietl's crisis, arising from torsion of the pedicle when the kidneys are freely movable or persistent constipation resulting from angulation of the intestines due to kinks, adhesions, etc.

Suggestion plays an important part in the successful treatment of this condition. Most of these patients are nervous, more or less inclined to be hysterical and pessimistic. Many of them, after having gone from doctor to doctor without relief, have almost lost faith in our profession and have become chronic invalids. It is important to encourage them, to convince them that they can be cured, and to change their pessimism to a healthy optimism. Tactful handling, constant encouragement and suggestion from the physician will do much toward this end.

All cases of visceroptosis can not be cured, but about two-thirds can be given permanent relief, the other one-third tem-

porary relief. This means much to a large class of sufferers. The condition is so easily recognized and can be so readily treated that it is a great pity more attention is not paid to it by the majority of the profession. The difference between a case before and after treatment is striking. Most of the nervous symptoms are gone, the patient feels stronger and more energetic, has a better appetite and a more cheerful outlook on life. He can do his work with comparative comfort and is more grateful for his improvement than people with almost any other condition of which I know.

DISCUSSION

Dr. W. A. Dearman, Long Beach, Miss.—In the last few months I have seen some cases of gastroenteritis, visceroptosis and splanchnoptosis, and I know in past years I have failed to recognize a good many of these cases. They were recorded in my history sheet and diagnostic studies as neurasthenics. I make it a rule in cases of emaciated individuals, especially in women, to allow them to stand up and inspect the abdomen, and as a rule I find a sulcus underneath the umbilicus and the abdomen is tense and the intestines are down in the pelvis.

We think of shortening the round ligaments for prolapse of the uterus. We have gastropotosis, enteroptosis and hepatosis. When we have suspended the kidney or the uterus, we think each operation is a specific according to the men who initiated these operations. We find that patients go from one surgeon to another until practically everything in the abdominal cavity is suspended that can be suspended and we have been losing time. I want to say to you that in past years of the cases of prolapse of the uterus that I have referred to the surgeons, 95 per cent came back to me in the course of three or four years with the same condition. Why is it? When we think of the inconvenience and the dangers of an abdominal operation, it seems to me we should try to conserve the interests of those people who come under our observation and care.

I have had half a dozen cases, I presume, in the last six months in which special roentgenological studies were made, and in some, marked visceroptosis was found, while in others the visceroptosis was hardly discernible. I have sent these people over to the instrument house to have a belt made to support their abdomens. I remember a Swede with visceroptosis who wants to put his arm around my neck every time he meets me on the street. In his case I suggested constitutional measures, regulated his diet; I put him on large doses of nuxvomica to increase his muscular tone. The relief in his case was very marked. Such treatment will save many cases from operation and give them almost immediate relief.

Dr. Stewart R. Roberts, Atlanta, Ga.—Since Elennard wrote his wonderful monograph on enteroptosis, it has been to us more of a name than a condition that we should face. Particularly in the South is this subject important. Women in the rural districts, who bring forth children with great rapidity, who have perineal lacerations that are not repaired, slowly but surely develop general visceroptosis. Later there is interference with the appetite and the subsequent development of pellagra. I have seen many of these cases among multipara, with perineal lacerations of the second or third degree, particularly of the second degree, with long-standing visceroptosis, loss of appetite and subsequent pellagra.

The first thing the medical man should remember, it seems to me, about visceroptosis is that as a rule it is not an operative condition. The second proposition is that it is a nutritional problem. If it be a woman and there be perineal laceration, the laceration should be repaired, but there should be no abdominal operation. Sometimes in these cases, even, that should be postponed until the patient gains flesh and is built up. I know of no more expressive phrase than the one "built up." It means something. Sometimes after these abdominal operations, when the pellagrous tendency is not realized, the operation will precipitate or hasten a latent pellagra.

I am glad the previous speaker referred to the belt. I have been getting better results by sending these patients to a corset tailoring establishment, particularly the women, and having them fitted with a straight front corset. It comes far down to the junction of the upper and middle-thirds of the thigh and is not too high.

Another thing that is helpful to these patients is large quantities of fruit, and I want particularly to call attention to nux vomica that the doctor very wisely referred to. Not many drugs are of much service, but since Musser began to give tincture of nux vomica in large doses and Cabot followed him, it has come to be realized as one of the really great drugs.

I give the present strong tincture of the new pharmacopeia, as much as thirty drops, three times a day, after meals. I have seen some of my medical friends give as much as ninety drops of the tincture of nux vomica three times a day without disturbance. I should not recommend such doses, but beginning with ten and fifteen drops and going up to twenty-five or thirty is of value. It does increase the general muscular tone, although I am not prepared to admit it is a cardiac stimulant. Some of these cases never improve until they are put to bed and given forced feeding, particularly with cream, milk and eggs. A third practical point arises here. A slender, emaciated person, particularly one after child-bearing, can be made to gain from ten to fifty pounds by putting her to bed and giving her three meals a day. First, they have nothing to do with what is brought them. We usually look after them. Second, it is their part to swallow, and if they swallow it will go down, whether they want it or not, and surely we both can rejoice in the results. We can give these patients six to eight glasses of sweet milk a day or in twenty-four hours and as many fresh eggs per day, or more of both.

Dr. Allan Eustis, New Orleans, La.—I did not expect to discuss this paper, but it covers a question which is of such importance to the general practitioner that I can not allow certain statements to pass unchallenged. I think that we often make a mistake in discussing a subject like visceroptosis when we make a broad statement that it is never a surgical condition. I have been especially interested in visceroptosis, as many of you know, and I can state positively that certain cases of visceroptosis are essentially surgical. There are a large number of these individuals in whom the colon is so low that no form of abdominal supporter is able to have any influence on the ptosis. Any form of belt will simply push the colon back into the pelvis, as I have seen quite often when skiagraphs are taken after an opaque meal with the belt in position.

It is all very well to advise putting them to bed and feeding them up, but again a great number are laboring people and first of all are unable to spare the time for a rest cure and are often unable to secure good milk, much less cream. These particular types of visceroptosis have done better after operation, but the results will depend upon the surgeon and the type of operation performed. I can say this frankly, as I do no operating myself, and am in a position to judge the results of the several surgeons operating upon my cases. The best results have been in those cases in which the entire cecum and ascending colon have been removed and the terminal ileum anastomosed with the hepatic flexure, but this is a formidable operation and not to be undertaken by one inexperienced nor lightly to be recommended. It is only after all other methods fail that surgery should be resorted to.

As regards the diet, we often make a mistake when we simply say "feed these patients," and I differ with Dr. Roberts in advising that they be forced to eat whether they want the particular article of diet or not. We get better digestion and absorption of nutritive material if the patient is eating something he likes than one for which he has a disgust, and especially is this true of milk. Milk in certain cases is well borne, but in my experience buttermilk is better digested, and its caloric content can be raised by adding cream and sugar of milk. Dr. Wilkerson advocates giving meat. In these cases most of the subjective symptoms are due to absorption of intestinal toxins and the tendency to develop them must be constantly guarded against. Meat, therefore, in my opinion, is contraindicated. It is a mistake that is very prevalent to consider eggs and meat as fattening food. Carbohydrates and fats are the fattening foods and should form the greater part of all cases of visceroptosis.

Dr. John W. Scott, Lexington, Ky.—In advocating concentrated foods in this condition one loses sight of the great importance of foods leaving a considerable undigested residue, the so-called "fodder" foods, the "roughage" of stockmen.

Attention has been called to the important part played here by stasis of the intestinal contents; it seems to me that a diet consisting largely of cream and eggs and meat with its low residue, high protein and acid ash will not only

promote such stasis, but add to it a very troublesome acid intoxication.

Vegetable foods such as cauliflower, spinach, asparagus, potatoes, green peas and also the stewed fruits are, I believe, a very necessary addition in order to balance the high protein foods advocated by the essayist.

As Dr. Eustis has said, the pig is fattened on corn, but we do not make the mistake in feeding the pig that we make in feeding ourselves, of separating from the grain all of the husk. We do not feed him patent flour. Highly concentrated food must be balanced by food of large bulk and low nutritive value.

Dr. Wilkerson (closing).—My reason for reading this paper was to bring to the attention of the men in general practice this subject and get them to pay more attention to it, and to recognize the condition or conditions more frequently than they do now. These people can be treated by any physician; the vast majority of them can be relieved as successfully in the country as in a good hospital, and there are thousands of women who would be better off if the medical man would be a little more careful and a little more particular in recognizing and treating this particular condition.

COMPARATIVE STUDY OF GASTRIC MOTILITY AS DETERMINED BY THE ORDINARY TEST MEAL AND SIX-HOUR BARIUM RETENTION*

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Secretion, motility and absorption are the chief functions of the stomach. From a clinical point of view the motor function is the most important; the secretory stands second, while that of absorption plays a comparatively unimportant role. Since the introduction of roentgenological methods of diagnosis, disturbances of the motor function of the stomach have assumed much more clinical significance. No gastrointestinal examination is complete without determining this function.

Numerous methods have been devised for the determination of the motor function. These may be grouped under three general heads:

1. Those which depend upon the application of the stomach tube with the use of a test dinner, test supper or test breakfast.

2. Indirect tests which consist of introducing into the stomach substances insoluble in acid gastric juice, but soluble in the alkaline intestinal media, where they are split up into simpler substances which can be recognized by tests in the excretion.*

3. Roentgenological methods: fluoroscopic and radiographic.

Although the x-ray has practically supplanted all of the indirect methods, the test meal is still considered the best by some of the greatest authorities. The oldest method is that of V. Leube,¹ which consists in washing out the stomach six or seven hours after a large meal (dinner).

Various test suppers have been advocated which include, among other foods, such articles of diet as rice, cranberries, raisins, currants, etc. The stomach is washed out in the morning to ascertain if any of these articles remain as residue. The Ewald test breakfast has been used for the same purpose by washing the stomach within two hours when it should be emptied, if the motility is not impaired.

The regular technic of an ordinary test breakfast has also been employed. This method is the most desirable and practical, in as much as both secretory and motor functions can be determined at the same time, and with one introduction of the stomach tube. However, two difficulties encountered in all the former methods, as suggested by W. Wolff, had to be overcome, namely:

1. The difficulty of removing the contents absolutely without residue.

2. The inability of determining in what proportion the food residue and the gastric secretions exist in gastric contents obtained.

It is therefore clearly evident that any method devised to completely empty the stomach of its contents will remove both objections, and make it possible to determine accurately both the secretory and motor functions by the usual test meal.

This can readily be accomplished by a method introduced several years ago by one of the writers,² which consists of aspirating the stomach contents by means of a partial vacuum apparatus.

*Read in Section on Medicine, Southern Medical Association, Thirteenth Annual Meeting, Asheville, N. C., Nov. 10-13, 1919.

(a) Ewald and Siever's salol test.

(b) Fleisher's iodine test.

(c) Winkler and Stein's iodipin test.