blood sugar means a diabetic condition or a tendency thereto, and third, a low alkali reserve means acidosis. Small increases above normal in the nitrogenous values are not characteristic diagnostically, because we find them in scores of various conditions. As an aid in diagnosis to the entire clinical picture, blood chemistry is, of course, most valuable.

7. By reducing in the food of the patient the precursor of the particular substance found in excessive amounts in the blood, very good results are obtained. Especially interesting is this in cases of carbuncles and allied conditions. Here the blood sugar is abnormally high. By cutting down the carbohydrates in the diet the carbuncles clear up beautifully.

8. The practitioner is often met by cases with indefinite, undiagnosable symptoms, in otherwise healthy persons. A blood analysis reveals to him certain abnormalities which he can partially or wholly correct by corresponding diets, and the patients seem to feel much more comfortable, many of them remaining so indefinitely.

9. The chemistry of the blood is of particular practical importance in the toxemias of pregnancy; especially is this true of threatened eclampsia, in which the blood picture (increased amounts of nonprotein nitrogen bodies) indicates the course of treatment to be followed, so as to clear the organism of those retention products. The blood picture, according to the amount of retention, practically always is a safe guide as to the speed with which the uterus is to be emptied, thereby eliminating the focus of toxic absorption. Very often this can be accomplished even before the onset of convulsions.

10. Finally, it must not be overlooked that abnormally high values for nitrogenous waste products are not always due to kidney deficiency. When the values are only slightly higher than normal, a nonprotein nitrogen of from 50 to 60 mg. in 100 c.c. of blood may be due to an abnormally high destruction of body protein or a deficient circulation. In those cases in which the nonprotein nitrogen is very high, 80 or above, in our estimation, the only cause is kidney involvement.

Our fat and cholesterin experiments are in progress and will be reported at a later date.

Puerperal Sepsis in New York City.—According to the *Monthly Bulletin* in New York City during 1917 there were 141,564 births, of which 94,039, or 66.4 per cent., were reported by physicians, and 47,525, or 33.6 per cent., by midwives. Septicemia as a cause of death following childbirth was reported on 238 certificates, or 0.016 per cent. On investigation it was disclosed that 78 of these deaths occurred from sepsis following full time, normal labor; 33 were from sepsis following full time labor requiring operative procedure of some sort; 127 deaths were due to sepsis following premature labor. A comparison of the work of midwives and physicians shows that the midwives with 33.6 per cent. of the births had 35.89 per cent. of deaths from sepsis, while the physician with 66.4 per cent. of the labors had 59 per cent. of the deaths from sepsis following full time labor, a proportion only slightly higher for the midwives, and low for both when the total number of births is considered. The total number of deaths of full time patients in which some operative procedure was necessary was 33, and of these only 4 occurred in cases in which midwives were in attendance previous to the operation. In labors occurring before full term there were 122 deaths from sepsis, 107 among married women, 17 among unmarried women, 2 in widows and 1 in a divorced person. Of these, 53 were reported by the coroner as "abortion" and 12 as "miscarriage."

SPLANCHNOPTOSIS: ITS CAUSE, PREVENTION AND CURE

WITH SPECIAL REFERENCE TO THE DURET-ROVSING OPERATION

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PROLEGOMENON

In May, 1881,¹ Dr. Glénard of Lyons, France, made the observation that many cases of nervous diseases were accompanied by a prolapsed position of the stomach. He proved this by palpation and percussion, which were advanced by his technic to a degree hitherto unknown. He soon afterward found that the other abdominal structures were prone to prolapse, especially the transverse colon, and the right kidney. From the time of this discovery of Glénard we may very properly date an era in the development of the science of medicine.²

The profession of France very early recognized the importance of these observations, and we take a lively pleasure at this time of revision in bringing to light a statement made by Fereal, at a meeting of the Hôpital Medical Society, Paris, Dec. 24, 1886. After discussing neurasthenia and enteroptosis, he thus proceeded:

The studies of Glénard confirm the exactitude of the anatomic-physiologic ground which served for the basis of his studies. As to the application of these principles to pathology we must render homage to the original quality which the author has shown in their supposition. Glénard's language shows that he has profound faith and absolute conviction in the correctness of his views, and this is probably the secret of his therapeutic success.

However we may think, French medical men, especially, should acclaim the new ideas emanating from Glénard, and not wait to give them welcome when they may be returned to us from the other side of the Rhine with a borrowed name.

SIGNIFICANCE OF PTOSIS NOT APPRECIATED

I am inclined to believe that the medical profession has not yet appreciated the importance of ptosis of the abdominal organs, or the success of the treatment of these conditions; and it is my object in this paper to call renewed attention to this subject.

Medical men seem prone to overlook the simple and obvious, and to delight in theorizing and speculating as to the cause of obscure disease. This is particularly true regarding neurasthenia and gastroptosis. Hundreds—yes, thousands—of women have been condemned to a miserable existence as hysterics or neurasthenics, who could be relieved if their abdominal ptosis were considered and relieved by bandages or operation. Rovsing says when the day for revision arrives nearly all the so-called nervous affections of the stomach will be found to be ptosis of the stomach. He makes a sharp distinction, which may not be justified, between cases occurring in the virgin, and in the married woman who has undergone several confinements.

THE SYMPTOMS OF GASTROPTOSIS

These patients, when they come for examination, usually exhibit the following conditions:

1. Emaciation.
2. Constipation, or diarrhea alternately with constipation.
3. Nervousness.

1. Note that the date of Glénard's first publication is 1881, not 1883, as usually given.

2. Glénard: *Semaine méd.*, 1886.

4. They have pains coming on after being on foot several hours, and relief by lying down or by support of the hands or the bandages. These pains are not relieved by lying on the side.

5. Very often there is pulsation of the abdominal aorta, visible especially when in a standing position.

6. There is usually vomiting.

THE GLÉNARD SYNDROME

The Glénard syndrome has been expanded in the course of the years until it now embraces more or less completely the following:

- A. 1. Splanchnoptosis.
2. Gastropptosis.
3. Enteroptosis.
4. Coloptosis.
5. Floating kidney.
6. Floating liver.
7. Floating spleen.
8. Mobile colon.
9. Hernias of all kinds.
10. Descensus diaphragmi.
11. Descensus cordis.
12. Varicocele.
13. Hemorrhoids.
14. Intestinal adhesions, kinks, etc., causing chronic constipation, intestinal catarrh, ulcers and strictures.
15. Prolapse of the female genital organs.

B. All nervous and mental disturbances resulting from the foregoing, such as neurasthenia, nervous depression and simulated heart disease.

These subdivisions are intimately related, and all deserve consideration; but our present study must be limited almost entirely to prolapse of the stomach and the large bowel. The possible causes of these conditions will be enumerated; the prevention of them will be considered; and some of the measures, physical and surgical, which have been devised for improving pathologic conditions will be detailed.

SHORT STATEMENT OF TOPICS

Much has developed since Glénard first promulgated his fundamental ideas. The one great instructive factor has been the roentgen ray; and from it we have learned that:

1. Only occasionally the stomach is seated in that portion of the abdominal cavity which old theory and anatomic textbooks provided for it. The same is true of the transverse colon.

2. Both sexes and all ages are prone to have displacement of these organs, but females over 30 are afflicted in proportion to males as 4:1.

3. Improper habits of eating and rushing to active labor after meals are probably conducive to prolapse.

4. The corsets and constricting belts of young girls cause weakness of the abdominal muscles, which fail to support the stomach and bowels.

5. High-heeled shoes and insufficient clothing of women are causing muscle strain and congestion of the abdominal contents.

6. The now fashionable constricting leather belts are working similar results in young men.

7. While it may seem to be true that some people have prolapsed organs without symptoms, it is probably much the same condition of affairs that exists when a loop of a bowel is in a hernial sack outside the natural cavity. This is always highly interesting and possibly dangerous.

8. There has been a complete change in our conception of the ordinary forms of colitis, and we now

believe that these diseases, formerly considered of nervous origin, are primarily not nervous.

9. Many cases of abdominal prolapse can be cured by proper bandaging, posture and dieting, and no operative procedures should be attempted until these simple means have been tried. Especial warning should be given at this point, else we shall have operating perverses bring disrepute on this operation, as they have on appendectomy, etc.

10. Lane's plan of resecting large portions of bowel is only exceptionally necessary, and probably, when the proper attention is given to the early stages of intestinal disease, it will never be done.

11. Operations attaching the stomach and intestine to the abdominal wall are capable of giving good results, even if there are theoretical objections to their employment. Duret of Lille first performed a gastropexy with excellent results, but, unfortunately, this was not appreciated, and it remained for others to develop this operation, notably Rovsing of Copenhagen. My experience would seem to indicate that the operation is not difficult, and can be carried out in patients desperately emaciated, and that good results are often obtained.

12. Infections of the sinuses, teeth and tonsils are, in a great many cases, the cause of that "weakened condition" so often mentioned by authors. This "weakened condition" is responsible for the loss of tone of the muscles of the abdominal wall. The detection of these infections is best obtained by the roentgenogram.

RESTATEMENT AND AMPLIFICATION OF TOPICS

1. *Position of Stomach and Transverse Colon.*—The stomach and transverse colon seldom lie in ideal position. The revelations of the roentgen ray certainly came as a distinct surprise to the older surgeons who had been taught anatomy on the old lines. The illustrations of the more recent textbooks are misleading in this matter. The revelations of the fluoroscope and the roentgenogram are so uniform that we feel amply justified in the statement of the infrequency of the normal position of these organs.

2. *Sex and Age.*—Both sexes and all ages are affected, according to Albu. It seems that even newborn infants are prone to ptosis of the abdominal organs, and, strangely enough, girls are more prone to this condition than boys (11 per cent. boys and 44 per cent. girls).

Again, the aged are particularly prone to prolapses, owing to the bad habits of youth and middle life, to be detailed later.

Stiller³ says that the Jewish and Slavic races are more prone to the affection than other races, and that residents of cities suffer more than country people.

3. *Habits of Eating.*—Improper habits of eating and failure to rest after meals conduce to prolapse. Any one who observes the daily life in the business centers of our large cities must be impressed with the rapidity with which food is devoured, washed down, usually, with copious drafts of ice water and topped off with ice cream or indigestible dessert. We cannot wonder that the overloaded stomach refuses to act, and "falls down" on the job. For a number of years, I was consulted by many trolley men and conductors on a large electric line who complained of dyspepsia. I

3. Stiller: Berlin. klin. Wchnschr., 1909, 1905, 1899.

found that these men carried, in their buckets, cold, indigestible foods, which they consumed while attending to their exacting duties. That the stomach rebelled was not remarkable.

A country physician's wife, to save her husband annoyance at mealtimes, answered all his telephone calls. Immediately the meal was finished she hastened to prepare her house for any patient who might appear, causing considerable physical and mental agitation during the mealtime and no rest afterward. The result, as might be expected, was a dilated and ptosed stomach. The complication in this case was an ethmoid sinus disease.

4. *Corseting of Young Girls*.—While there has been a certain amount of improvement in the construction of corsets, yet I believe it remains true that the tendency of these "straight jackets" is to squeeze the waist line and interfere with the proper functioning of the abdominal muscles, and thereby the natural support of the abdominal wall is lost. The weight of clothing, held in place by tight bands and strings at the waist line, often adds to the difficulty.

When a girl who has followed this custom comes to her pregnancy she has little muscular support for the wall; and she often supplies this by additional corsets and bandages. When the pregnancy is terminated, the muscles are permanently stretched and weakened, the abdominal contents drop, the uterus sags, varicose veins develop in the legs, hemorrhoidal veins of the rectum become enlarged, and she may become a neurasthenic invalid. All authors agree in laying an indictment against the corset.

5. *High-Heeled Shoes, High-Cut Skirts, and Insufficient Clothing*.—These are causing strain on the muscles and congestion of the abdominal organs. No argument is necessary to prove this.

6. *Clothing of Young Men*.—Suspenders are no longer fashionable for men. Warm underclothing is no longer fashionable. Thin-soled shoes, and no overshoes to protect the feet from cold and dampness, are the vogue. All these tend to ptosis of the abdominal organs. Should we not sound a note of warning?

7. *Prolapsed Organs Without Symptoms*.—We hear and read a great deal about persons having splanchnoptosis without knowing it. This may be true, but much in the same sense that we occasionally find individuals, even doctors of medicine, running around with loops of bowel in both inguinal canals, or even in the scrotum, doing their ordinary professional work. Our duty in such cases is always to warn of impending trouble, and to endeavor to correct the deformity and relieve the conditions causing it. To keep silence is sure to send the patient to an osteopath or a Christian scientist for relief of obscure pains, supposedly in the spinal column, on the one hand, or in the certainly weakened brain, on the other.

8. *Colitis*.—This is no longer to be considered a disease of nervous origin. In a recent work, Osler speaks of "true mucous colitis as a secretion neurosis of the large intestine, met with, particularly, in nervous and hysterical patients. Sometimes there are attacks of nervous diarrhea."

Niemeyer, in 1911, said:

It is noticeable that the patient is almost always a nervous, hysterical or hypochondriacal individual. The noticeably frequent association of the disease with hysteria and neurasthenia seems to indicate nervous causes for the exaggerated

production of mucus. The course of the disease depends on the character of the food taken, and the other nervous symptoms present. The treatment is local and chiefly for the care of the associated neurasthenia.

We believe that modern developments have shown these statements to be absolutely the reverse of true. We believe that the bowel condition usually caused by ptosis of the organs is the primary condition, and that the nervous and mental symptoms are the result. When the enteroptosis is relieved, the nervous and mental symptoms gradually disappear. In this connection it might be well to introduce the historic case of Sir William Treves, cited by Osler, as a case in which laparotomy was resorted to as a medical measure with alleged perfect results.

In a work published in 1898, Mr., now Sir., Frederick Treves⁴ wrote:

An unmarried lady of 30 consulted me with what she was assured was a stricture of the colon. She had the persistent pain and a very marked tenderness at a spot just above and to the left of the umbilicus, to which I have just referred. The stricture was supposed to be situated at this spot. She had frequent vomiting, which appeared in attacks. The vomited matter was small in amount and usually intensely acid. Her bowels were confined, and she described her motions as containing many strange and wondrous things. An examination of one of these remarkable stools revealed nothing unusual, except much undigested food and much mucus. The patient was thin and pallid. She was too weak to follow any other engrossing pursuit, but she had made a great study of her malady. The abdominal pain had begun ten years previously, and since that time she had had manifold illnesses. She had written out an account of these disorders with much care. They seem all to have been of an acute and exceptional character, and included malignant sore throat, internal abscess, spinal exhaustion, neuralgia, and certain smaller troubles. She had had uterine affections of bewildering complexity. She spoke of her kidneys with precision and of her liver with regret. The former organs were prone to unreasonable congestion, and the latter to an obstinacy which appears to have been little short of intelligent. She had been to many health resorts, and had taken medicine for the ten years concerned. She was certainly feeble, anemic, and intensely neurotic. The abdominal pain was, at times, agonizing; and her friends were driven to desperation by an illness which seemed unending and filled with tortures. The abdomen was flabby and revealed nothing beyond a general ptosis of the abdominal viscera of moderate degree.

The kidneys were both slightly movable. As all medical measures had failed, as the patient was leading the miserable life of a chronic invalid, and as her friends were becoming convinced that "she must have something wrong," I consented to make an abdominal exploration. I found a general prolapse of the viscera of moderate but distinct degree; the stomach was perhaps a little dilated, but beyond this every organ in the abdomen was perfectly normal. The intestine was closely examined from the duodenum to the sigmoid flexure; it was perfectly normal.

The exploration cured the patient of all her abdominal symptoms, even of the vomiting, and of the pain which had troubled her for ten years. I think it possible that the ptosis of the mass of intestines may have hindered the passage of food from the stomach in a trifling degree.

This case, therefore, was one of uncomplicated visceroptosis with nervous phenomena in a very neurotic patient. Although the patient had never worn a belt, she was always worse when she moved about, and was only comfortable when in bed. A belt was worn after the operation.

Treves repeatedly refers to the mental effect of the operation. I look on this case as a well marked splanchnoptosis, and its cure not due to the operation or men-

4. Treves, in Allbutt: System of Medicine, 1898, 3.

tal effect at all, but to the rest in bed and appropriate bandaging afterward.

9. *Rest in Bed, Forced Feeding, Posture, Exercise and Proper Bandaging.*—These will relieve nearly all such cases. Usually, the first treatment required for splachnoptosis is six weeks' rest in bed. The foot of the bed should be raised 12 inches, more or less, depending on the case. A trained nurse should be in attendance to give proper baths and massage. Since these patients are inclined to melancholy, a cheerful, hopeful nurse is essential. Much of the emaciation is due to fear of eating perfectly harmless foods, and they must be urged to eat, even if it causes gastralgia. The stomach has been lazy and must be forced to work. At least five meals a day must be taken. It is usually not desirable to give purgatives. A sun parlor or porch should be used if available, but the patient should be isolated from inquisitive friends or strangers. Complete mental and physical rest is necessary.

After a certain time the supporting bandage should be applied and the patient put on foot. The bandage known as the Comfort U, made for me by E. J. Fayart of Springfield, Ill., is an improved form of the supporter devised by Dr. Gallant of New York. It has certain advantages, which need not be minutely detailed. Suffice it to say that it usually supplies the required support. To this must be added rest in a reclining position for half an hour after each meal, with clothing and bandage loosened, and the foot of the couch or bed elevated. In due time light gymnastics, directed especially to improving the tone of the abdominal muscles and diaphragm, may be taken. We advise shoulders on the floor and hips on a couch, hanging by the knees on a horizontal bar, golf playing, croquet, tennis, etc. Automobile riding is usually painful and should not be permitted until the cure is perfected.

10. *Infrequent Necessity of Lane's Operation.*—Some fifteen years ago Metschnikoff pronounced the colon a useless portion of the intestinal tract. The truth of this statement has not been proved. Following this came the remarkable proposition of Arbuthnot Lane, to excise the greater part of the large bowel for all sorts of ailments. Fortunately, the profession did not hastily accept this dictum. It seems apparent now that it was too broad and sweeping. A few, but not many, patients should be subjected to the Lane operation. Careful attention to the early stages of splachnoptosis will reduce these cases to the vanishing point.

11. *Gastropexy, First Advocated by Duret of Lille, and Promoted by Rovsing of Copenhagen.*—This operation offers in many cases a hope of relief. Having exhausted all other means of relief, and having proved by repeated studies with the bismuth meal and the roentgenograph that the ptosis exists, it is our duty to give the patient the benefit of the Duret-Rovsing operation.

Duret did a gastropexy in 1894. He reported his case to the Academy of Medicine, Paris, Oct. 2, 1894.

The patient was a woman of 51, who was afflicted with enteroptosis, together with dilatation and dropping of the stomach to the subumbilical region. All medical treatment having failed, a gastropexy was decided on. An exploration was made for a curable pyloric lesion, and, this being absent, the stomach itself was brought up and its anterior surface fixed to the abdominal wall. The incision was made through the skin and muscle from the ensiform process to the umbilicus. The peritoneum was only opened at the lower angle of the wound, and then fixed at the lesser curvature of the

stomach to the untouched peritoneal surface, high up, with a single thread which led alternately in and out through the serosa covering the stomach and the parietal peritoneum. As a result of this simple procedure the stomach and intestinal functions were regulated, and the patient increased notably in weight. The stomach-splashing disappeared below the umbilicus, which proved that the fixation was complete. No roentgenoscopy was available at this date. Some neurasthenic symptoms remained for a time, but later entirely disappeared.

This observation showed that old cases of stomach prolapse could be greatly benefited by a simple operation, and the majority of the distressing symptoms would disappear. At a later session of the Academy (March 19, 1895), Professor Le Dentu reviewed the paper. Le Dentu expressed the opinion that fixation of a hollow organ, like the stomach or intestine, would have no influence on the symptoms, immediate or remote, depending on the mobility or ptosis of the organ. Besides, gastropexy rarely exists alone, but is accompanied with enteroptosis, gastric ectasia, etc. In these cases gastropexy is evidently insufficient.

Again he said:

The operation is open to two other objections. The first is that, in fastening the pyloric end of the stomach in the epigastric region, we force the organ to bend itself, the median section not being brought back to the same level as the two tuberosities. The second objection is that the formation of adhesions between the stomach and the abdominal wall is not without inconvenience; therefore the operation presents serious chances of success only when the stomach is simply displaced. Even then it is doubtful if the operation will become popular.

It will be seen that the Duret operation was damned by faint praise, and, in effect, was killed where and when it should have been given serious consideration, for the patient was cured and lived many years in comfort. It remained for Professor Rovsing of Copenhagen to develop and extend the operation and prove to the profession that, contrary to any preconceived opinion, it should be given a trial. Rovsing has shown that in Denmark more than 256 gastropexies had been done up to 1911, and that cure, or great improvement, has been obtained in from 70 to 75 per cent., improvement in 10 to 12 per cent., no change in 11 to 12 per cent., and deaths in 3 to 5 per cent. These percentages are in round numbers

DESCRIPTION OF THE OPERATION

The usual incision for the stomach operation should be made, and should at least extend from the tip of the ensiform cartilage to the region of the umbilicus. The whole abdomen should be explored at once. The appendix should be removed if found diseased; the gallbladder emptied of stones if any are present, and excised if necessary; adhesions in any part should be examined, and eliminated if causing kinking or compression; the liver, if prolapsed, should be fixed by sutures to the peritoneal covering of the diaphragm, or the ligamentum teres should be severed and stitched to the diaphragm. Usually, the transverse colon must be brought into position by passing several sutures first through the serous coating of the colon, then in and out through the layers of the gastrocolic ligament, and finally through the serosa of the stomach along the greater curvature.

In doing this, one should be careful to avoid the blood vessels of the omentum. This brings the colon up close to the stomach. We are now ready to attach

the stomach to the abdominal wall. I now give the peritoneum of the stomach and of the abdominal wall a good rubbing with dry gauze to cause roughness and exudation. Rovsing advises scratching these surfaces with a needle. Three heavy silk sutures are passed in and out through the serosa, each thread parallel with the axis of the stomach. These threads are about three-quarters inch apart; one just under the lesser curvature, one three-quarters inch below this, and one $1\frac{1}{4}$ inches above the greater curvature. The ends of the threads are passed entirely through the abdominal wall, at a distance of about $1\frac{1}{2}$ inches from the median line. The wound is closed in the usual manner; a glass plate about 3 by 4 inches in size, wrapped in sterile gauze, is clapped on the abdomen, and over this the stitches are tied. This, of course, is done to bring a broad, flat surface of stomach against a similar surface of the abdominal wall. These threads remain undisturbed for four weeks or until complete convalescence has taken place.

CASE HISTORIES

CASE 1.—The patient was successfully treated by advice, posture, and treatment of ethmoid sinusitis. Mrs. Dr. C., housewife, of Rochester, Ill. Parents living in good health. One sister living in good health. Aged 35 years. Married. No children. First saw her, Feb. 14, 1908. Had typhoid fever in 1895; very mild attack. Bowels constipated. Menses regular. First noticed particular stomach trouble some months ago. Has had numerous attacks of indigestion, which lasted ten to twelve days. There was no regularity about these. Her husband would give her medicine, but the attacks would recur. Average weight, 150; present weight, 115. No fever with attacks. No kidney trouble. No vomiting. Seems to be extreme burning in throat and stomach, which would last four hours and sometimes much longer. If she starves seems to be better. Thinks she has fallen off, because she eats nothing.

Examination shows no tenderness over the gallbladder or in the appendical region. Prolapse of the stomach is well marked. No floating kidney. Teeth good. Tongue in fair condition. Patient states she hurries to remove dishes from the table so that the dining room would look well when patients visited the doctor. Also at mealtime she would answer telephone in order that the doctor might eat without interruption. She eats rapidly. Advise that she stop answering the telephone at meals. Let husband attend to this, as he is sturdy and strong. That she cover the dining table with a clean cloth, and lie down after meals for a half hour with hot water bag to epigastric region. Gave diet, February 21. Thirty days later she reports she has had no burning of the stomach whatever. What she has eaten seems to agree with her. Has excellent appetite. Has gained in flesh. Bowels not so constipated. Nervousness better. Tongue is very clean. Now, 1917, nearly ten years after this advice was given, she tells me that her health has been excellent and she weighs 125 pounds. Health perfect except for occasional rheumatism.

CASE 2.—Gastroptosis successfully treated by posture and bandage. Paul G., aged 18, student, of Springfield, Ill. He began to show signs of failure in strength and flesh, presumably as a result of overwork at school. This was not relieved by a change of climate, but emaciation progressed until his weight became 107 or less. Thorough examination shows negative Wassermann. No tuberculosis. Heart weak. Tonsils diseased. Stomach low down in pelvis so that the stomach, filled with bismuth milk, could be felt with the finger through the rectum. The tonsils were removed under local anesthesia. The patient was put to bed for ten days with the foot of the bed elevated 16 inches. A corset was applied to hold up the stomach, which was only partly effective because of the extreme emaciation. About this time an article appeared in the *New York Medical Journal* showing a bandage designed by Dr. A. E. Gallant of New York, and one of these was fitted to this patient. Proper exercise was pre-

scribed to improve the abdominal muscles, and after four months the patient was allowed to resume his studies. The case has progressed favorably, and the patient's present weight is 143 pounds.

Recent fluoroscopic examination shows the stomach at least 6 inches out of the pelvis. The abdominal muscles are strong, and indications are that a cure has resulted. I can highly recommend the Gallant bandage when an operation has been performed and when an attempt is made to elevate the stomach without an operation. I have prescribed at least 100 of these, and I think some 700 have been prescribed in central Illinois. A large number of patients have been benefited by this simple appliance. They are cheap, cleanly, have no rubber elastic to wear out, and in all particulars have proved satisfactory.

CASE 3.—Long standing stomach ailment due to gastroptosis successfully treated by direct Duret-Rovsing separation. Mrs. Theodore D., housewife, of Springfield, Ill., aged 44; married; height 65 inches; weight 118 pounds; has weighed 145. Father died of typhoid, aged 30. Mother living in fair health. One brother living and healthy. Husband is living and in fair health. Three living healthy children. One infant died of erysipelas. No evidence of disease in mouth or air passages.

She says her abdominal symptoms date from the time when she clerked in a retail furniture store twenty years ago. Her hours of work were long; there was little time for meals; and she hurried back after eating, taking absolutely no rest after eating. She has had chronic constipation for years. She has taken a great deal of medicine for years, and lately has been confined to bed nearly all the time. Has had many spells of a hysterical nature, and has felt she would die, and has had a fear of falling all the time. She refused to go to the hospital for treatment. Her stomach has been washed out daily for two weeks without relief. She entered St. John's Hospital, June 13, 1917. Fluoroscopic examination shows the lower border of the stomach resting on the pelvic pan. The roentgenogram shows the characteristic stocking-shaped stomach.

Urine, 1,010, normal except a trace of indol; Wassermann, ++; blood, hemoglobin, 84; reds, 5,100,000; whites, 7,800; differential, 64 and 36. She was given four intravenous injections of arsphenamin, total amount 0.90, and four deep injections of mercuric salicylate, total 40 minims; and was given also two teaspoonfuls of *mistura rhei et sodae* in hot water before meals. No relief from vomiting, which was of daily occurrence. Finally she was deprived of all nourishment by the mouth, and given rectal feeding only. Vomiting began again after a few days. Her weight was reduced to 96 pounds, and the outlook was quite unfavorable.

A Rovsing operation was done, July 24, Dr. Kelly assisting. An incision was made from the sternum nearly to the pubes. Marked prolapse of the liver was found, marked adhesions about the gallbladder, and marked enlargement and prolapse of the stomach and colon. There was no disease of the gallbladder or of the appendix. The other organs appeared normal, and there was no apparent ulceration or disease of the stomach. Under these circumstances it was decided to break up all the old adhesions, and to anchor the stomach in its normal position as well as possible by the Rovsing method. The anterior surface of the stomach and the peritoneum of the abdominal wall were rubbed. Two of these complete sutures through the abdominal wall were inserted. The ascending colon by stitches through the abdominal wall was anchored in nearly the normal position. Another suture was placed about the middle of the transverse colon. A third suture was not placed in the pyloric region of the stomach because of the prolapsed liver. The patient left the table in good condition.

Vomiting began again the third day after operation, and was so violent that the lower part of the incision was opened. Owing to the critical condition of the patient the small intestine, which had prolapsed through the wound, was merely pushed back, and the wound drawn together with adhesive strapping and allowed to heal by granulation. Undoubtedly, there is a considerable adhesion at this point. She left the hospital, September 16, about seven weeks after the operation.

Her recovery has been slow, but steady, and she now weighs 130 pounds, a gain of 35 pounds. Her bowels move each day without a cathartic. She has an excellent appetite. She declares herself entirely well, and seems to be.

The patient was interviewed, May 20, 1918, and seemed well in every way except for occasional nervousness.

CASE 4.—Long standing stomach ailment due to gastropotosis successfully treated by Duret-Rovsing operation. Miss Hattie H., aged 49, housewife, of Waverly, Ill., weight, 94 pounds; entered hospital, Oct. 15, 1917. Family history rather negative. Father died of kidney disease at age of 70; mother died of heart disease at age of 63. One brother died of tuberculosis; one brother suicide at age of 37; one brother died a soldier in the Philippine Islands; one sister died in childbirth; one sister living at 27 is very nervous; four brothers are living in fair health.

She has had stomach trouble for thirty years. More particularly has suffered in the last six or eight years. Always had pains after meals. The last three weeks has taken only egg water and ice cream. A prominent physician in a neighboring city thought she had gallbladder trouble, and treated her for about one year.

On entrance she was so weak that it was necessary to have a sister support her on each side to get a fluoroscopic examination of the stomach. Examination resulted as follows: Wassermann, negative.

Urine: Specific gravity, 1.030; acid; otherwise negative. Blood: 66, 29, 4, 1; reds, 4,040,000; whites, 6,600; hemoglobin, 80. Feces: no blood; no ova; no tuberculosis; no parasites. Stomach contents: mucus on top; micro, negative; food, well digested. Free hydrochloric, 25; organic, 18; total acid, 55; comp. hydro, 15.

Fluoroscopic examination revealed a ragged outline of the stomach, which fails to empty after seven hours. The bowels are much distended with gas. There is also an infiltration in the lower left quadrant of the stomach which is associated with the infiltrated liver. The heart is somewhat atrophied. The stomach shows a very large amount of gas. The lower border extends down to 2 inches below the crest of the ilium. There seems to be considerable fixation of the tissues of the abdomen. There appeared to be a large amount of fluid in the stomach besides the fluid that had been ingested with the meal.

All conditions being considered, it was thought best to suggest an operation, which was agreed to on the theory that death was better than a continuance of life under the present conditions.

Operation was performed, Nov. 3, 1917. An incision was made from the sternum to below the umbilicus. The liver seemed prolapsed. The gallbladder was examined and found empty. The appendix seemed distended, and was removed. The transverse collapsed colon was sewed to the lower border of the stomach. Three sutures were placed according to Rovsing. The liver was displaced downward and would have been attached to the diaphragm had not the patient shown symptoms of collapse. The wound was brought together, and linen threads (not too heavy) were tied over the glass plate. Two small fibroid growths on the uterus were not removed. The ligatures through the stomach were removed at the end of twenty-three days.

The convalescence was unexpectedly rapid and satisfactory. This patient was seen July 22, 1918. She is keeping house for a brother and seems entirely free of her abdominal and nervous symptoms.

ABSTRACT OF DISCUSSION

DR. CARL E. BLACK, Jacksonville, Ill.: Since we are able to make roentgen-ray studies of these cases, the number has no doubt greatly increased. If anything can be done to take these cases out of the classification of neurasthenics and hysterics, give them a real pathologic basis and put the patients on a plan of treatment which will lead to a reasonable percentage of success, great good will be accomplished. I have been watching Dr. Kreider's cases and have been led to believe that a number of these patients should be treated

with the Rovsing operation. The difficulty that I have is to know how to differentiate them. It is rare that there is simply a ptosis of the stomach and transverse colon. Usually the ptosis is more extensive than that, and combined with it there is usually a history of infection, which, no doubt, in a large percentage of cases, is an underlying factor. These patients are weakened by chronic infection, and the ptosis comes on gradually and insidiously following an infection. That infection may be in the abdomen or elsewhere. In the treatment of these patients it is necessary, first of all, to clear up as nearly as possible all of the foci of infection. I have seen a number of cases where by operating on the gallbladder or the appendix, especially an old chronic appendix with many adhesions, the symptoms disappear, although nothing was done for the ptosis. Some of the most startling successes I have had were achieved by putting these patients to bed, raising the foot of the bed and keeping them there six to eight weeks, following that by the use of a belt for support after they have gained 20, 30 or 40 pounds. One man treated in that way gained 45 pounds after eight or nine months, and now appears to be perfectly well. In that case the difficulty was largely aggravated by a bad habit of taking a quart or more of water the first thing in the morning. He seemed to think that he must drink water by the quart because he had certain digestive symptoms which undoubtedly aggravated his condition.

DR. GEORGE P. MÜLLER, Philadelphia: Dr. Kreider uses the term splanchnoptosis to cover the symptomatology of the type of cases referred to in his paper, and apparently advocates its treatment by suspending the stomach by the Rovsing operation. I believe it is necessary to take a more comprehensive view of the subject and to understand and distinguish between ptosis of the stomach, colon, kidney, cecum, etc. I believe that in the majority of cases the various types of visceroptosis are of congenital origin, and are not acquired by the wearing of tight corsets, high-heeled shoes, by faulty teeth, etc.; while these may bring on the symptoms due to the ptotic state. Some patients have ptosis of certain of the abdominal organs with gastric symptoms. Obviously, it is necessary to know whether the ptotic stomach *per se* is causing the gastric symptoms, or whether these are reflex to a retroverted uterus, to a mobile kidney, etc. I do not think much of the Rovsing operation, but prefer the Beyea operation, properly performed, and, in any event, do not do these operations unless careful roentgen-ray studies have shown that the ptotic stomach is of the so-called water-trap form, and is causing the symptoms from which the patient suffers.

DR. GEORGE N. KREIDER, Springfield, Ill.: I ask you to make in your nervous cases an observation of the stomach with the fluoroscope or roentgenograph, and you will get many surprises by finding that ptosis lies at the base of many nervous troubles, which are absolutely cured by this simple operation, or better still, without operation. I said distinctly, "Never operate on these patients if they can possibly be helped otherwise."

Reclassification of Athletics.—In a word, all branches of athletics must be reclassified on the basis of their effects on the heart and other vital organs, and we must discard the old classification based on popularity and commercial advantage. In the grammar school the form of athletics to which a boy could be assigned or which he would be permitted to engage in would depend on (1) his family history; (2) his personal history, having regard especially to previous illnesses endured; (3) his physical status; (4) his particular type, height, weight, etc., in relation to age, etc. Every class would have its specially prescribed athletics, both physical and tactical, and under no circumstances would a lad be allowed to engage in competitive sports assigned to a class above or below his own. A physical examination would mark his entry to and exit from a class and he would be marked for development of body and for ability to perform the various tactics. While in the grammar school a chart would be begun for him which would accompany him throughout his educational career.—Lieut. D. F. Luby, *Naval Medical Bulletin*, October, 1918.