and others have shown that there is sometimes a curious relation between ocular defects and torticollis." (Referring to Trans. Amer. Orthopedic Association, 1891, Vol. i, p. 46; Vol. ii, p. 230.) I have not access to these reports.

The first instance in which I was able eventually to predicate ocular influence in the cause, occurred in 1893, in a boy of 15, whose deformity had existed for several years, and in whom the muscular contraction was apparently structural. There was no spasmodic element; the abnormal position was constant, the head drawn well toward the right shoulder. Finding that any forcible correction was attended with diplopia, I was led to the discovery that paresis of the left inferior rectus existed, and a subsequent tenotomy of the superior rectus led to a gradual but eventually complete recovery from torticollis.

The second case, P. N., male, age 12, was seen in June, 1896, and gave a history of impaired vision, and asthenopic symptoms existing for more than a year preceding. Three weeks before examination, he had severe headaches, followed by nausea and vomiting, coincidentally with diplopia. As he got better the head became twisted and drawn toward the right shoulder. Examination showed 8 degrees of esophoria, each eye, also a low grade of hypermetropic astigmatism with squint apparent at times. In this case correction of the refraction and "ocular gymnastics" brought about recovery in two months.

DISCUSSION.

Dr. D. R. BROWER of Chicago—I would like to ask Dr. Hobby one or two questions about his wry-neck cases in regard to this matter of a possible reflex origin in connection with these several conditions that have been mentioned here. I would like to know something about the neurotic condition of these cases that Dr. Hobby has described, and in which his treatment seems to have been so remarkably successful. It is my impression that in the care of these and of similar cases, the condition of every peripheral end organ should, if possible, be ascertained, and the errors, if any be found, corrected; but I wish to emphasize what Dr. Norbury has said, and what my friend, Dr. Gradle, has also emphasized in his paper; that after all it is the constitutional condition that demands our most careful attention. End-organs that are out of order must be put in order. I care not whether it is a defect in the eye or in the nose, wherever there is a peripheral end-organ out of order, the derangement of which can be corrected, it should be corrected. But I think there are very few cases of wry-neck, of headache, or any other condition of the nervous system similar in kind, that are altogether and entirely due to some such disturbance of the peripheral nervous system as has been so ably described in those two interesting and valuable papers. I desire to emphasize the necessity of finding out the constitutional state; and herein lies the difficulty in the treatment of these cases of headache.

Dr. C. C. HERSMAN of Pittsburg—With reference to Dr. Hobby's paper, the author has had better success in treating wry-necks than I have. Sometimes these wry-necks will continue for months, however greatly improved. Occasionally we may make a mistake in the diagnosis of wry-neck. A patient of mine, a child of three years, I diagnosed as suffering from meningitis. Another physician however, a week later diagnosed the condition as wry-neck. I was not much relieved by the other doctor's opinion. The trouble continued until about the thirteenth day, when the child was very much better, but I still told her mother not to be hopeful. On the fourteenth day the child took suddenly worse, and a very severe meningitis developed, followed by death.

Dr. HOBBY—I especially disclaim the belief that peripheral irritation was the fundamental cause in the great majority of those cases which were relieved by the removal of the peripheral irritation, such as the occasional relief of epilepsy by treatment of ocular conditions and matters of that kind, the operation of phimosis, etc. We used to be taught concerning the immediate cause and the remote cause; and we used to think that sometimes the peripheral irritation, added to the constitutional condition, would produce the given difficulty. It was as exceptional instances that I reported these two cases

of wry-neck in which the ocular cause seems to have been extreme. I do not believe that many others of these cases will be relieved in the same manner. I simply wished to bring the attention of the Section to the fact that wry-neck was due to ocular diseases in some cases.

DO WE DRAIN TOO FREQUENTLY IN PELVIC SURGERY?

Presented to the Section on Obstetrics and Diseases of Women at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY W. H. HUMISTON, M.D.

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Since the publication of a few cases in the February, 1898, number of the *Medical Council*, I have had a series of pus cases, some of which were of such a serious nature, and of such a virulent infection, that a most thorough test of non-drainage of these cases has been made, and the results in all have been satisfactory and beyond my expectation.

I am fully alive to the fact that there must be a certain (small) percentage of our cases in which death can not be averted whatever the technique may be, but on the other hand I am assured from the careful study of my own, and the cases of other surgeons, during the past five years, that the mortality in pelvic surgery has been kept too high, *partly* by the indiscriminate use of some form of drainage. Lawson Tait says, "That there is an inevitable mortality in abdominal section I think is certain." He bases this "inevitable mortality" rate between 3.5 and 5.5 per cent. upon a series of 1350 consecutive operations.

For years I had relied upon the glass drain as one of the most necessary adjuncts to my technique in pelvic surgery. In all cases where there have been extensive adhesions separated, and large areas of oozing peritoneal surfaces left, I have been most careful to thoroughly wash the peritoneal cavity free from all debris, and held it especially important to use a glass drainage-tube for twenty-four or forty-eight hours. However, my records show that during the past four years only one case outside of my own private hospital was drained in this manner.

It was not that the cases were of a less serious nature, but they were not drained because I feared a subsequent infection of the peritoneum through unskillful handling and dressing of the tube. In such cases, then, it was a choosing of the lesser evil when I closed the belly without supplying an artificial drain. I have reached this confidence in the closing of the abdomen without drainage through a long series of cases.

A widow, aged 23 years, had one child, and had had one miscarriage. Tubercular tendencies inherited from both father and mother. Contracted gonorrhea one year previous to her admittance in City Hospital. Operation December 21, 1894. Double pyosalpinx with general pelvic adhesions. Uterus held in retroversion by inflammatory products. Pelvic organs and intestines were covered by miliary bodies, closely resembling, in macroscopic appearance, tubercular areas (pathologist failed to report his examination). Considerable oozing. The peritoneal cavity was carefully cleaned and dried and the belly was closed without drainage. This is only one example of a number of early cases in which I felt compelled, on account of unfavorable surroundings and conditions, to close

the peritoneal cavity without the use of a drain, a measure inconsistent with my teaching and usual practice of that time. The uniformly happy result in each successive undrained case in the 1894 series was very unexpected.

My mortality rate has been decreased almost *pari passu* with the declination of the rate of drained cases: In 1894, 71 per cent. drained, 14 per cent. mortality; in 1895, 36 per cent. drained, 7 per cent. mortality; in 1896, 33 per cent. drained, 6 per cent. mortality; in 1897, 4.33 per cent. drained, 4.66 per cent. mortality. And so far in 1898 I have drained no case, and the mortality rate is as low as 3 per cent.; in fact, to be exact, 2.8 per cent.

During the year of 1896 the glass tube was supplemented by gauze in almost every case in which the glass was used. In these cases the dressings would not be disturbed until the expiration of the first twenty-four hours. The tube would then be removed, and the gauze would remain undisturbed for three or more days. This was merely an expedient to avoid frequent dressings and so lessen the danger of infection. During the past year, however, I not only discarded the glass tube, but also any former conception of the values of all drains in the ordinary cases of pelvic surgery, so that the 4.5 per cent. of cases which are counted as drained during 1897, really only represent the cases in which gauze was used—either in the form of the Mikulicz apron, or of simple strips—for the purpose of controlling such oozings which I feared would be too copious for the peritoneum to care for. I feel that this is yet too high a percentage of open wounds, and confidently hope to almost minimize the number during this present year.

In those cases in which I know the peritoneal cavity is contaminated, I thoroughly wash out the pelvis with a saline solution, using it for the purpose of dilution of infection rather than with any idea of antiseptic worth, and close the wound, leaving within the peritoneal cavity as much of a fresh salt solution as it will contain. This radical change of opinion in the management of my cases has been slowly brought about by close observation and study of my clinical cases. I have been reassured, however, in my position by the reports of different bacteriologic researches, such as that from Dr. John Clark of Johns Hopkins Hospital, wherein particularly the dangers of drainage are well defined. This report was published in the *American Journal of Obstetrics*, in April and May, 1897, and should be carefully considered by every abdominal surgeon. I append a few illustrative cases:

GENERAL AND PELVIC PERITONITIS.

Suspension of the uterus was performed upon Mrs. S. in December, 1895, in Philadelphia, and in January, 1896, a second operation was performed for a ventral hernia.

In February, 1897, when she had been seven months pregnant, she began with severe labor pains. The doctor in attendance removed per force, a dead and macerated child. She developed thereafter a very severe form of puerperal fever.

On May 11, 1897, when I first saw her, the exudate extended midway to the umbilicus. No areas of softening could be found. She was very much reduced in general health.

On July 12 she was operated upon at the City Hospital. Throughout the upper two-thirds of the old scar were found very dense omental adhesions; and about the lower angle, the anterior uterine wall, near the fundus, was adherent over a space of nearly three inches square. The uterus was exceedingly large and very dense. The pelvic organs were matted together with inflammatory exudate. The uterus and its appendages were removed and an effort was made to cover as much surface as was possible with the remnants of peritoneum left in the pelvis. The belly was closed, and the patient passed through to a rapid convalescence.

RUPTURED TUBAL PREGNANCY.

On July, 27, 1897, at my hospital, Mrs. H. was operated upon. The right half of the pelvis was completely shut off from the general peritoneal cavity by adhesions between omentum, intestines and belly walls. This formed a pocket which was filled with partially organized blood and lymph, and in the bottom was found a large hematoma of the ovary and the ruptured tube. The left appendage was normal. Adhesions were carefully separated, the vessels were tied, the pelvic cavity was thoroughly cleansed, and the belly was closed. She left the hospital on the twenty-fifth day in good local and general condition.

GONORRHEAL PYOSALPINX.

At Akron City Hospital, on July 31, 1897, I operated upon a case for Dr. Cleaver. Case had had recurring attacks of pelvic peritonitis until she was very much reduced. The pelvic organs were closely matted together by adhesions of both old and recent date. Bleeding and also general oozing was free. Both tubes contained pus, and the ovaries showed evidences of chronic inflammation. After the pelvic cavity was wiped dry and clean by strips of plain gauze, three pints of salt solution were poured into the belly, and the wound was closed. Dr. Cleaver reported that her progress was rapid and favorable.

Mrs. K. conceived in June, 1897, miscarried in October, and was admitted to the City Hospital in the first week in December. A diagnosis of double pyosalpinx was made, and the operation was performed on December 11, 1897. During an examination by several of my students, just immediately preceding the operation, the left tube was ruptured. On opening the belly it was found that the pus had escaped into the pelvic cavity, but had been hindered from contaminating the general peritoneum by a wall of adhesions. The appendages were removed, and the pelvis was cleaned by mopping the cavity out with gauze strips and irrigating with saline solution. Just before closing the belly $2\frac{1}{2}$ quarts of salt solution were poured into the peritoneal cavity. From cover-slips a staphylococcus was found, together with what was thought to be the gonococcus. A culture in bouillon was obtained, but unfortunately no differentiation was made.

In this case the temperature after operation never reached a point above 101%, and after the tenth day was noted as normal both at morning and evening. She was dismissed on Jan. 3, 1898—twenty-three days after operation.

AN OVARIAN CYSTOMA (SUPPURATING).

Mrs. P., a widow, aged 50 years, has borne two children, the youngest of whom is 17 years of age. Her first menstrual period occurred when she was 18 years old. They recurred regularly and lasted usually five days; they were unattended by pain, and the quantity of the flow was small.

Since the birth of her last child, however, she has suffered severely with dysmenorrhea, and her general condition has been much impaired. The labor was long and difficult, and shortly after the puerperium, she noticed a prolapse of the uterus which eventually became complete. Her family history is good, and there is nothing in her general previous history which bears upon the case. On May 20, 1895, she first noticed an enlargement of the belly in the left iliac region. It continued to increase, making unusual gains at irregular intervals, until the latter part of March, 1897, when the tumor steadily and rapidly increased. About this time she began to have repeated attacks of chills followed by fever, great tenderness throughout the entire abdomen, and emaciation with loss of strength. The diagnosis of an abdominal tumor was made a year ago, but the patient refused then to permit an operation to be made. I first saw the case on June 13, 1897, in consultation. We found the patient in great distress because of the interference with the respiration and the heart's action. Her temperature was 103, and pulse 130. She was anemic and greatly emaciated. Edema of the lower extremities extended above the knees. The tumor completely filled the abdominal cavity, pressing the xiphoid outward at a right angle to the sternum and widely flaring the lower ribs. The circumference of the belly at the umbilicus was forty-five inches, from the xiphoid to the symphysis pubis twenty-three inches, and from the free end of the twelfth rib to the middle of Poupart's ligament of the opposite side thirty and one-half inches. A complete prolapse of the uterus was found. Her general condition was very poor. Her temperature when she was admitted to my hospital, June 16, 1897, was 100 degrees, pulse 130 and very weak. Examination of the urine showed a very small daily quantity, with a large amount of albumin, renal cells, and granular casts. The case was not a promising one for radical operative measures. She had reached such a point in her suffering that she was willing to submit to an operation, preferring death to an existence accompanied by such extreme discomfort.

We operated after five days of preparation, in which laxative baths, restricted diet, drinking of hot water, and strychnin were used. On June, 13, through an incision in the linea alba, I tapped the cyst and removed its walls. Sixty-four pounds of fluid were drawn off. There were no adhesions to the anterior wall, nor to the small intestines. The posterior wall of the cyst was intimately adherent to the omentum. To both sides, but particularly the right side, the adhesions to the lateral abdominal walls were both dense and vascular. A great deal of organized lymph was found between the stomach and the apex of the cyst. All adhesions were broken, and immediately the bleeding points were ligated. It became necessary to remove the entire omentum. A great surface of the lower curvature of the stomach was adherent to the fundus of the cyst, and a mass of inflammatory exudate was removed between the cyst and the lower surface of the liver. The pedicle was three inches in length and about the size of the little finger. The patient's condition was very precarious. The pulsations in the radial arteries had ceased for a time, but quickly responded to the application of a large quantity of hot saline solution into the belly cavity. After thorough washing, four quarts of the normal physiologic salt solution, at a temperature of 114 degrees F., were left in the peritoneal cavity, and the incision was closed *without drainage*. The pulse steadily gained in strength and fullness, and became less rapid as the fluid was absorbed, and contrary to expectations there was no interruption to a very rapid convalescence. Her condition did not even warrant an attempt at suspension of the uterus. In truth, we made haste to get her off the table alive. She was dismissed in four and one half weeks from the day of operation. We found a prolapsed right kidney and an attempt to replace the prolapsed organs was made. Failure to reduce them was evidently caused by adhesive bands.

On September 18 the family physician reported that he found the patient working hard at the family washing. She had gained twenty-five pounds, and was free from all aches and pains, excepting at times a dragging in the region of the prolapsed liver. Microscopic examination of the mass bounded by the liver, stomach, and fundus of the cyst showed simply a mass of organized lymph, although macroscopic appearance was that of malignant degeneration. The weight of the tumor and its contents was seventy-two pounds, and the patient after its removal weighed not more than eighty-five pounds. The tumor was a simple glandular ovarian cyst with suppuration.

DOUBLE TUBO-OVARIAN ABSCESS (GONORRHEAL).

Miss A., aged 18 years, gave the usual history of gonorrhea and its sequelæ. On March 8, 1898, with great difficulty I removed both uterine appendages—they were tubo-ovarian abscesses. The pelvis was roofed in by inflammatory exudate, and the appendages were deeply imbedded. In their removal pus was spilled. Much of it was caught on the gauze strips with which I always protect the general peritoneal cavity, but the structures in the pelvis were thoroughly covered. The pelvis was irrigated with hot saline solution and the belly was closed with two quarts of salt solution remaining.

In the bacteriologic examination of the contents of the tubes and ovaries, a *virile* staphylococcus was found. A severe form of ether pneumonia was first noticed eighteen hours after operation. Complete hepatization of the two lower lobes of the right lung followed. Barring this accident the convalescence was normal. The patient was dismissed in four weeks. Later she reported herself in good general health.

In conclusion I would again affirm the opinion that almost, if not every case of pelvic surgery requires no drainage. That even those cases in which there is a general infection (the cases which make up largely the totality of those designated by Tait as the "inevitables") can not be benefited by drainage.

Let us then recognize more fully both the expediency and the dangerous factors in the use of the drain, and so lower to a minimum the present high rate of mortality, that even the best of our operators yet attain.

122 Euclid Ave.

From the Little Red Schoolhouse.—A school teacher at Port Allegheny, N. Y., the other day received the following note: "My boy tells me that ven I trink beer der overcoat vrom my stummack gets to thick. Bleese be so kind and don't interfere in my family affairs."—*Life*.

THE IMPORTANCE OF THE STERILIZATION OF FOODS AND DRINKS BEFORE THEIR INGESTION.

Presented to the Section on State Medicine, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY AUGUSTUS P. CLARKE, A.M., M.D.

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In presenting this subject for consideration it has not been so much my aim to cover all the phases which the question involves as it has been to bring before the Section that portion of the theme on which I have some definite conclusions. All will admit the importance of bacteriology and will not fail to appreciate the wonderful results achieved.

Professor Virchow, in his address on "The Continuity of Life," before the general session of the Twelfth International Medical Congress at Moscow, spoke of the gradual progress that had been made by the use of the microscope, and said that its evolution had given rise to a new impulse in the march of medical science toward the development of biology. He attributed our indebtedness for the marvelous working of that instrument to Ehrenberg of Berlin. Prior to the achievements, the results of the study of Ehrenberg, as published in his "Über die Infusionsthierchen als vollkommene Organismen," all the ultimate aspects relating to the nature and character of the various histologic elements and bacterial agents were shrouded in the deepest mystery.

One of the most striking illustrations of disregard by the public of proper precautions that should have been taken for protection in the use of milk, which is subject to infection, occurred in Cambridge in the summer of 1896. Though typhoid fever is a disease that has been more or less endemic in the metropolitan district, the cases are usually sporadic, and in their manifestation are for the most part of the milder type. During the months of August, September, and October of 1896, an epidemic of that disease raged with unusual severity. For the month of July of that year the number of cases reported by the various physicians in practice was 19, the number in August was 84, in September 56, in October 43, in November 23, and in December 14. The number of cases reported for the six months immediately preceding was as follows: in June 4, in May 3, in April 0, in March 3, in February 3, and in January 3. The local board of health, aided by an agent of the State board, in endeavoring to ascertain the cause of increase in the number of cases that occurred, succeeded in tracing their appearance for the most part to families supplied with milk by one particular dealer. Careful inspection of the dairies did not reveal any irregularity in the conduct of the business. There was, however, evidence tending to show that a workman who had been indisposed with what seemed to be a mild attack of typhoid fever, had been allowed to wash the cans. The total number of deaths from typhoid fever in Cambridge during the year of 1896, omitting the non-residents, was 30, while the number in 1897 was only 11, a fraction over a third of the number in 1896. The number of cases of typhoid fever reported in 1897 was as follows: in January 5, in February 5, in March 1, in April 1, in May 7, in June 6, in July 5, in August 10, in September 15, in October 24, in November 12, and in December 14—making a total of 105 cases, or 150 cases less than in 1896.

In this connection there were some personal obser-