and carefully secure same by means of tapes, then place in canvas or rubber bag, so that the discharge pipe will project as far as possible through the lower opening of the bag and carefully secure same by the binding cord attached. Place cork in end of discharge pipe.

3. *To use filter*, having previously assembled and sterilized the apparatus, the canvas or rubber bag is filled with raw water by means of spout, or cup, or by immersing the whole apparatus in the water. The discharge pipe being corked, the disinfectant and precipitant powder is then sifted into the filled

About five grains is sufficient for a quart of the most grossly polluted water.

The whole process takes about five minutes. This apparatus can be made for about 60 cents.

The filtering cloth consists of a piece of heavy outing flannel 4 inches by 5 feet.

SARCOMA OF THE CHEST-WALL; REPORT OF CASE.

BY CASA COLLIER, M.D.,
Memphis, Tenn.

bag in sufficient quantity to cover lightly the surface of the water. The bag is then closed and shaken well several times, and the apparatus is then held upright for a few minutes, after which the cork is withdrawn and the filtered water permitted to pass into the canteen or other vessel.

The disinfectant and precipitant powder consist of:

Sulphate of aluminum	500 grains
Carbonate of sodium.....	475 grains
Calcium chloride	25 grains

Surgical procedures necessitating the opening of the thoracic cavity in the removal of tumors of the chest-wall are comparatively rare in the literature.

Since the operation of the case of sarcoma that I wish to report, I have searched rather carefully and have been able to find only 82 cases. Most of these were operated for the removal of malignant tumors, involving the ribs or sternum.

Tumors that involve the chest-wall may be either primary or secondary. The primary may be subdivided into: fibroma, sarcoma, chondroma, and combinations of any two of these or all of them; and the secondary tumors may be: carcimona or sarcoma. These growths involve the ribs far more frequently than the sternum—as a rule they appear in the lower ribs, but they have been met with in the first, second and third. Only one rib is involved at first, and frequently the rib above and below are involved rather earlier than would be expected when we bear in mind the fact that they do not spread through the medium of the lymphatic circulatory systems but by direct growth—and in this growth it, as a rule, does not attack the skin.

The bulk of the tumor growth is most frequently outward, but it may encroach upon the pleural cavity early, and it practically always does late, and causes more or less indentation of the lung. The parietal pleura is in-

volved frequently, but this is not so of the visceral layer, except in a very few cases, because it rarely becomes adherent.

The pain is a very negligible symptom until the growth begins to spread into the intercostal spaces and encroaches upon or includes the intercostal nerves, then it becomes the most prominent, and it is frequently this symptom that brings the patient to the surgeon, as it was in the case that I have to report.

In the earlier days of surgery those few cases that lived through the shock incident to the opening of the pleural cavity and withstood the loss of blood which it frequently entails died of infection. The shock incident to the wide opening of the pleura is greater than that met with in surgical procedures of the same calibre in almost any other part of the body, probably on account of the close proximity of the heart and great blood vessels, but most important of all, the interference with the respiratory rhythm due to the collapse of the lung and the motility of the septum of the mediastinum. So great has been the fear of this collapse that there has been made and used a number of types of air-tight cabinets and appliances, and various procedures have been advocated for the prevention of this collapse. The various positive and negative pressure cabinets are so large and expensive and are so infrequently needed that they are rarely ever included in a general operating room equipment. Intra-tracheal anaesthesia allows us to prevent the lung collapse perfectly, as we can raise or lower the pressure inside the lung at will.

The article published by Parham of New Orleans in 1898 covered the field of surgery of the chest-wall thoroughly. He had been able to find only 52 cases up to that time. F. B. Lund of Boston published the report of a case in 1913, and was able to report abstracts of 28 others. I have been able to find one case reported by Lassentesky that was not included in Dr. Lund's reports, and since his paper one case by J. F. Baldwin, in the *Annals of Surgery*, making up to the present date

a total of 82 cases, and my own making the 83rd.

My excuse for reporting this case is, first, its comparative rareness; second, the long time that elapsed between the injury and the development of the sarcoma; third, the unusual method that we were compelled to resort to to close the large defect.

Patient J. B. W., 56 years of age, barber by profession, is a widower and the father of two healthy grown children. There is nothing of importance or interest in his family history, and his personal history is negative with the exception of one significant fact: 37 years ago he was engaged in a friendly wrestling bout when suddenly he and his antagonist were precipitated to the ground, he falling upon the heel of his friend. He experienced quite a severe pain at the site of the injury, which was at the right costo-chondral junction at about the level of the ninth or tenth rib. This pain bothered him for a few days, but he soon dismissed it from his mind and at the time of the examination had to be questioned rather closely to elicit the facts.

Examination revealed a very thin, tall man, not exceptionally well-preserved for a man of his age. His arteries were moderately sclerosed, and he had a moderate arcus senilis. There was just at the site of the old injury a small tumefaction, about two and a half or three inches long in the long axis of the ribs, and it seemed to spread over two or three ribs—it was not elevated over three-fifths of an inch above the level of the surrounding skin. He came in because of the pain. The tumefaction was very tender to the touch and the patient said that a cough, sneeze or sudden movement almost prostrated him with the pain. This little swelling was noticed about four years ago and the pain had been present only three months.

Under 4 per cent novocain anaesthesia a small section was removed for microscopic inspection. The tumor was very vascular and bled freely—and it was necessary to pack the incision with gauze to control it. Dr. J. J. Cullins made the pathological examination and reported sarcoma of the large spindle cell type.

Under ether anaesthesia an incision 7 inches long was made over the center of the swelling parallel to the ribs, and this was crossed at each end at right angles by another incision 3 inches long, and a flap consisting of skin and a thin layer of subcutaneous fat turned up and down. This gave us an ex-

cellent exposure of the pathology. An incision was made in the intercostal space and the pleura separated from the tenth rib—the rib divided in front of and behind the pathologic field and turned up. It was then seen that it would be necessary to open the pleural cavity and remove that part of the parietal pleura that was attached to the tumor. A small hole was made in the pleura and the lung allowed to collapse very slowly. After the lung had collapsed rib shears were passed in under the ribs and about 7 inches of the ninth and 5 inches of the eighth and tenth ribs were removed with the pleura, muscle and fascia attached. This left a large defect to be closed, and as the man was very thin and sparsely built, very little muscle was available. The diaphragm was sutured into the lower portion, closing probably one-third of it, the base of the lung was then pulled down and sutured to the diaphragm and the margin of the rest of the hole, and the small strip of muscle brought across the suture line between the lung and diaphragm. This closed the defect very nicely and the stretching out of the collapsed lung displaced quite a volume of air and consequently reduced the size of the pneumothorax. The skin and thin layer of subcutaneous tissue were then sutured in place over the closed defect. *We then had the otherwise raw area of our skin flap which would have bled in close apposition to the lung and diaphragm and agglutination between them prevented any oozing of blood into the pleural cavity. The thought of aspiration of the air left in the pleura was abandoned for fear of the negative pressure causing hemorrhage.*

The patient bore the operation well. He was kept under morphia for two days. On the fourth day he had very good breath sounds over the posterior aspect and his pneumothorax rapidly disappeared. The wound healed beautifully by first intention and he was dismissed on the twenty-seventh day.

INTESTINAL STASIS.

By S. H. McLEAN, M.D.,
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Ceco-Sigmoidostomy for Hirschsprungs Disease.

I desire to report a successful case of dilated colon completely relieved by uniting cecum to

sigmoid by suture method. This young lady, about eighteen years old, had been a sufferer for about six years—having been opened in median line six years prior, and appendix removed by a local surgeon. Not getting relief, in November, 1913, she was opened again by another surgeon, thinking perhaps she had a band of adhesion producing partial obstruction. Nothing was found, and she was closed, making a good recovery, but not in the least relieved. She is a blind girl, attending the School of the Blind Institute of this city. She was an extreme sufferer, requiring as much as two grains of morphine by needle at times when she would become greatly distended. This distension would not be relieved by enemas or purgatives or diet. I consulted her physician, Dr. Curry, of the Blind Institute, and with his consent and the young lady's, I united the cecum to the sigmoid with complete relief, bowels moving on the fourth day with slight pain, but never any distension, and she has remained well since, and left the hospital for her home in about two weeks after her operation. Several weeks prior to her leaving she could not eat anything, bowels always distended and constipated. It has now been about two months since operation, and she has remained well, *has a different expression, and so far as I am able to determine, is in perfect health.*

TRANSFUSION—DIRECT AND INDIRECT. SIMPLIFIED METHODS.*

By BERTRAM M. BERNHEIM, M.D., and
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The possible therapeutic value of fresh human blood has been recognized for many, many years, but technical obstacles to its transfer from one individual to another have retarded the development of this line of treatment until quite recent times. Even today it has not come into its own by any means. The border lines only have been touched; but so rapidly are we advancing that it would surprise us but little within the near future to hear physicians ordering 10 or 20 c.c. of blood three times a

*Read before the Johns Hopkins Medical Society, March, 1914.