O, Operation; D, dressing; A, S, injection of antistreptococcus serum; E, erythema appeared. The temperature was recorded twice daily from June 20th to 27th, and afterwards every four hours.

temperature immediately improved, but remained irregular. Thinking that there might be some intracranial complication, I asked Dr. Jelly to examine the optic discs. He reported that there was no optic neuritis, but on both sides the fundus was rather congested. A few scattered rhonchi could be heard in the chest, otherwise the general condition of the patient was good. On July 5th, the wound was again dressed; on this occasion the piece of gauze in the aperture in the sinus was left undisturbed. This was removed on the following day, with the exception of a very small piece, which was adherent to the sinus wall; this was removed piecemeal at the subsequent dressings as it became detached. Antistreptococcus serum was again injected on the evening of July 5th, but had no immediate effect on the temperature, which remained high for another two days.

During the following week the progress of the case was satisfactory. Although the temperature was irregular, it steadily approached the normal line. The pulse-rate, also, was considerably lower. After July 13th, the irregularity of the temperature became more marked, the evening temperatures especially becoming more elevated, and on July 16th an erythematous rash made its appearance upon the face and trunk. The use of iodoform in the dressings was at once stopped, and from this time until August 10th, when the patient left the hospital cured, the progress was uneventful. The wound behind the ear entirely closed, and the cavity became lined with healthy epithelium. The hearing power was much increased, the patient being able to hear a medium voice up to 16 ft., whispering 9 ft.

One or two points in the case are of interest. In the first place, the rise of the temperature at the end of the first week after the operation was due, in my opinion, to septic infection of the sinus wall. This may have been slightly injured at the time of the operation, although there was no evidence of the fact; certainly there was no haemorrhage from the sinus either at the operation or until the ninth day afterwards; at the latter period the part of the sinus wall which had become septic appears to have sloughed, and in consequence haemorrhage occurred. When, at the subsequent operation, the clot in the cavity was displaced with the greatest care, the haemorrhage was very rapid and was obviously coming from a considerable aperture in the sinus wall. After plugging the sinus and clearing out the operation cavity, the advisability of ligaturing the jugular vein was considered, but, as the sinus was evidently not occluded and there was no evidence that the septic process had spread beyond the portion of the sinus which was exposed, I decided to await events (in which decision my colleague, Dr. Arnold Jones, who was assisting at the operation, concurred).

The influence of antistreptococcus serum on the case was indefinite. On July 2nd the temperature was rising (100.8°) when the case was dressed; after the dressing it continued to rise, and when the serum was injected six hours later, was 103°; it then fell steadily to 99.8° twelve hours later, and remained low for almost a couple of days.

After the second injection, on the 5th, however, although there was a slight fall, it was of very slight duration. At the latter period the patient was suffering from slight bronchitis, which may to some extent account for the irregularity of the temperature. The slow, unsteady rise of temperature from July 13th to 16th was due, I think, entirely to the toxic effect of iodoform, which had been freely used in the dressings from the second operation until this date. When, on the 16th, a definite erythema appeared, the use of iodoform, as stated above, was immediately suspended. The erythema then rapidly disappeared and the temperature fell to normal.

TREATMENT OF DELAYED RESOLUTION AFTER PNEUMONIA.

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THERE is, as far as I am aware, no recognized treatment for the above condition. The following case of delayed resolution was treated by intramuscular injections of fibrolysin, a double compound of theosinamin and sodium salicylate.

Previous History.

A labourer, aged 32, had had an attack of pneumonia in the left lung two years previously, and had since frequently been troubled with a cough.

History of Present Illness.

He was suddenly seized with a severe pain in the left ilio-lumbar region and dyspnoea. He had all the physical signs of pneumonia of the lower lobe of the left lung; the expectoration was blood-stained. Temperature 104° F. Hot applications and a calcium chloride mixture quickly relieved the severity of the pain. On the third day there were signs of heart failure necessitating digitalis and strychnine instead of the calcium chloride; his heart recovered its force under this treatment. His temperature was very irregular, ranging from 100° to 104° F. On the fifth day a severe general bronchitis supervened, with profuse expectoration which he found very difficult to get up, and he was becoming cyanosed; a mixture containing ammonium chloride and ipecacuanha wine gave him relief. On examination of the affected lobe it was now found that the previous tubular breathing had disappeared and no breath-sounds could be heard over it except a faint murmur over the upper part of the lobe at the back. The outline of the dullness corresponded with the lobe. There was no displacement of the apex-beat; the lung was in a condition of massive pneumonia. From this till the ninth day, when a crisis occurred, his illness was uneventful.

A month after the crisis there was no improvement in the local condition, in spite of counter-irritation, tonics, etc., but his temperature was normal; he was allowed to get up, and after a week he got out of doors, but was extremely weak and

had a distressing cough which only brought up a small quantity of viscid yellow sputum. He remained in very much the same condition for another six weeks (ten weeks after the crisis), so that I was afraid he was doomed to fibrosis of the lobe. Knowing that thiosinamin had the power to dissolve pathological fibrous tissue, I determined, as a last resort, to give him intramuscular injections of fibrolysin. The morning after the first injection he brought up a large quantity of greenish-yellow sputum, and continued to do so during the treatment in gradually decreasing amount. He received an injection (2.3 c.cm.) every second morning and had eighteen in all. His lung has completely cleared up; his cough has almost disappeared; the sputum is reduced to a small quantity in the morning, and he is steadily increasing in weight, as much as 3 lb. a week.

When the tubular breathing disappeared the diagnosis had to be made between pneumonia complicated with effusion into the pleural cavity and massive pneumonia. The limits of the dullness and the normal position of the apex-beat made the latter most probable, and the result of the treatment confirmed it. The unchanged condition of the lung ten weeks after the crisis made the prognosis as to resolution very bad, although I am aware resolution has taken place after eleven weeks (Osler). The fibrolysin injections are practically painless.

The following report on the sputum during the fibrolysin treatment was made for me by Professor McWeeny:

Naked eye.—Thick, greenish, muco-purulent.

Microscopically.—Genuine polynuclear leucocytes numerous. Micro-organisms not very numerous and consisting of—

- (a) Gram-positive encapsulated diplococci (probably pneumococci).
- (b) Gram-positive streptococci.
- (c) Gram-negative purple diplococci.

On culture on ordinary agar only (b) and (c) grew.

(c) Strongly resembles Pfeiffer's *Micrococcus catarrhalis*.

A CASE OF CHYLOTHORAX:

WITH A RECORD QUANTITY OF FLUID WITHDRAWN FROM
THE LEFT PLEURAL CAVITY, AND ULTIMATE
RECOVERY.

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The following case of chylothorax, I believe, constitutes a record in the amount of fluid withdrawn from one pleural cavity at one sitting—namely, 300 oz. (15 pints). The case is interesting because of its long standing, and also from the fact that the patient has made a good recovery, which is somewhat unusual.

K. D., aged 25, formerly a female telegraphist, consulted me in the summer of 1905 for general ill-health and amenorrhoea. She was anæmic, and crepitations with dullness were found at the right apex. Tubercle bacilli were found in the sputum. The heart was displaced slightly to the right, and the base of the left lung was dull. As the diagnosis was apparently evident, open-air treatment was carried out, but not in a sanatorium. I did not see the patient again until February, 1907, when I found her in bed in a helpless condition. She had been on her back for many weeks, and her parents reported that she had often been at death's door. The left chest was full of fluid, and this was responsible for most, if not all, of the symptoms.

She was admitted to my sanatorium on June 27th, 1907, when the physical signs were the same as in February, but her general condition slightly better. There was much dyspnoea on exertion. Emaciation was not marked. The facial expression was anxious. The temperature was normal. The chest resembled a barrel, with bulging intercostal spaces on the left side, and complete collapse of the left lung. The spine was curved to the right. Cardiac and breath sounds could be heard on the left side, evidently conducted from the right side through the fluid. The heart was in the right mid-axillary region, very near the surface, and a loud systolic murmur was present. The right apex had quite cleared up since 1905, and only roughened breath sounds and prolonged expiration were heard. The chest measurement was: Right, 16 in.; left, 18½ in. The radial pulses were unequal, the right being greater than the left.

On July 1st an exploratory puncture confirmed the diagnosis of fluid. On July 2nd a trocar and cannula was inserted just below and to the outside of the angle of the scapula; the fluid was allowed to run until it had exhausted itself, the remainder being withdrawn by aspiration. The total quantity withdrawn was, approximately, 300 oz. (15 pints), weighing roughly 23 lb. Some was spilt during the operation.

The following is the report of the bacteriologist of Messrs. Ferris and Co., of Bristol:

"Yellowish, turbid, puriform fluid. Specific gravity, 1027. Reaction alkaline. Cells conspicuous by their absence; so few and disintegrated that differential counts could not be made. No tubercle bacilli, but a few cocci, mostly in pairs, and one or two bacilli. The fluid contains a large amount of fat and also of coagulable albumen. It is, therefore, like the fluid met with in cases of chylothorax."

I began the operation at 10.15 a.m., with the assistance of my nurse, the patient being placed in a comfortable position, and the trocar inserted as above described. Delays occurred, owing to the onset of cough and attacks of faintness. Digitalin hypodermically was given, also brandy by the mouth, the patient picking up each time. There was such a large amount of fluid to be withdrawn that I thought of repeating the process in a day or two, but as the general condition of the patient was so good and there were no signs to contraindicate it, I completed the withdrawal of as much fluid as would come away, and with no ill effects, as the result shows. The operation was concluded at 4.15 p.m. The physical signs at the finish showed the heart just to the right of the sternum, and it had receded more into the thorax. The pulse was good, but slightly intermittent and quick. Dyspnoea was much relieved. There was a slight pneumothorax, induced by the entry of air through the cannula; it occurred to me that this was good, as the air took the place of the fluid to a certain extent and prevented a little the shock generally following too quick a relief of tension, and in this case also too quick a change in the position of the heart. From this point to the date of her discharge convalescence was uneventful and rapid.

The physical signs of the chest on July 29th, the date of discharge, were: The left lung had expanded nearly to the base, at which there was a very small collection of the fluid left after aspiration. The measurement was: Right 14 in., left 15½ in.—a diminution of 2 in. on the right and of 3 in. on the left. The heart was behind the sternum and slightly to the left of it. The systolic murmur had disappeared and the radial pulses were equal. The spine was almost straight.

The following points, observed during convalescence, are interesting: When the patient started exercise she complained of a feeling of lost equilibrium, which was natural considering the position of the spine and the weight of fluid withdrawn. As the spine became straight equilibrium was recovered. The pneumothorax disappeared in a few days. Menses, which had been absent for a long time, became established. The weight gained from July 2nd to the 29th was 9 lb. The temperature was normal throughout except for a slight rise on first going out.

On August 22nd last I examined K. D. at her home in Cornwall. Her improved condition was remarkable, and her general appearance, beyond a slight look of weakness, was one of health. She could walk several miles without discomfort or dyspnoea, and she was up and about all day. The left lung had expanded practically to the base, and the air entry was good; it was very slightly dull low down. She eats well, feels well, and sleeps well. There is no apparent re-collection of fluid.

The patient has been ill since early in 1905, and her condition was always one for alarm. As soon, however, as the fluid was withdrawn, recovery was remarkable in its quickness. I am unable to find that such a large collection of fluid as 15 pints has ever been withdrawn from the pleural cavity at one sitting.

In Fowler and Godlee's *Diseases of the Lungs* Dr. Fowler quotes a case in which 264 oz. (13 pints 4 oz.) were withdrawn over a period extending from October to January, 80 oz. being the largest quantity withdrawn at one time.

Suggestions have been made that the fluid in my case was withdrawn from the abdomen through the pleural cavity. The position of the insertion of the cannula at the angle of the scapula, its length of 1½ in., and the absence of all abdominal signs, disproves this theory.

The original signs in the right apex, which have cleared up in a remarkable manner, point to the case being of a tuberculous nature, and, as it has apparently gone on to recovery, it is probable that compensation by anastomosis through the right lymphatic duct has taken place, and that the original lesion in the thoracic duct has healed similarly to the disease in the right apex. Dr. Kingston Fowler (loc. cit.) says: "We are not, indeed, aware that recovery has ever occurred, but if obstruction is slowly produced it is quite possible that, as suggested by Dr. Cayley, an anastomosis may be established through the right lymphatic duct." Of the two cases quoted by Dr. Fowler (1) his own case died in eight and a half months; (2) in Dr. Martin's case death occurred in six months. My case has been bad for at least two and a half years, is now apparently well, and I feel no doubt she will become a permanent cure.