that the ribs bounding the space are liable to become eroded and to give rise to trouble. This happily did not occur in any of the above cases.

A second point in favour of incision over rib resection is that the operation is a simple one, takes very little time, and can well be done without a general anaesthetic. In many of the cases operated upon the parts were simply first frozen with ethyl chloride. And lastly, the shock from the operation of simple incision is very slight as compared with the larger operation of rib resection. This is a most important point which must be taken into consideration with babies, who are not able to sustain as severe a shock as the older children.

After-Treatment.

I next turn to the question of the after-treatment of cases of empyema, whether treated by rib resection or by incision. To think that, once the operation has been done, there the treatment practically ends is a very grave error. It cannot be too strongly emphasized that very great care and attention is most essential during the whole period from the time that the operation is done to complete recovery and the ultimate success is dependent in a far greater measure upon the after-treatment than upon the immediate line of treatment adopted. A great many of the ill-effects of an empyema can be avoided if the after-treatment of a case is carefully attended to.

For one thing the duration of the illness in a great many cases can be reduced to as little as three weeks, or even a fortnight from the day of the operation. In many of the cases included in the series the wound had healed in three weeks, and in some cases before that period. The one great mistake that is repeatedly made is that the services of the drainage tube are not dispensed with early enough. The longer the tube is retained the longer will the wound go on discharging, and the more tedious will the healing process be. In a very large number of cases the lung soon expands, and the pleural cavity soon becomes obliterated, and the discharge for which the tube has been kept in comes not from the pleural cavity but from a sinus which has been produced and kept open by a tube which was not necessary.

The first point, then, to remember, is to get rid of the tube as soon as possible. In the earlier cases the tube was kept in for a very much longer period than in the later cases, and latterly it was frequently disposed with altogether within the first week after the operation. It is quite certain that this can be done in a great many cases, but every now and then a case will be met with where the utmost difficulty will be experienced in dispensing with the tube; still, if the case is very carefully watched, then there is no harm done by leaving the tube out, even though it may have to be reinserted. In one or two of the cases the tube had to be reintroduced several times before it was ultimately dispensed with altogether. How often one meets with cases of old empyema with a discharging sinus for months and even years after the operation, and when such a condition of things obtains it is only too well known what very great difficulty is experienced in trying to get the sinus to heal; repeated scrapings of the sinus or even fresh resection of a rib or ribs is done in the hope that the wound may heal. Necrosis of the rib would probably not occur so often if the prolonged source of irritation was early removed.

The following was the plan adopted with regard to the after-treatment of a case. The tube was not removed from the wound for two days after the operation, though it was invariably shortened by $\frac{1}{2}$ in. or more on the next day. This was done by withdrawing the tube and cutting off the protruding end. After this the tube was daily removed, cleaned, boiled, and shortened before being reinserted. Whenever the discharge became thin and watery it was very often found to be a good indication for leaving out the tube altogether, and was always considered a good sign. After removal of the tube, as a rule, a thin gauze drain was put into the wound for a couple of days, and each morning when the dressings were done a sinus forceps was introduced to let out any retained discharges. This had to be done only two or three times in most cases. In such cases where a double tube was inserted, one of them was removed on the first or second day, and then the remaining one treated in the usual manner. It was found to be a good plan to apply boracic acid fomentations to the wound when the tube had been omitted; it prevented any scabbing over, and so permitted egress to any discharges. On the whole, aseptic dressings were found to be preferable to antiseptic, since they were not irritating to the skin. Previous to applying

the dressings the wound was dusted with iodoform and a very liberal sprinkling of boracic acid powder all over the side of the chest. Another little detail which was invariably carried out each day, and which was found to be very useful, was to clean the surrounding skin thoroughly with methylated ether. By observing all these little details connected with the dressings there was seldom if ever any trouble with the skin.

Washing out of the pleural cavity was done in several of the cases in the series, not on account of any foul discharges from the wound, but as a means of clearing away any thick pus or flakes of lymph. During this operation (irrigation) patients frequently coughed out through the wounds large pieces of lymph, and there can be no doubt that the duration of their illness was materially shortened. The solution used was one of iodine (one drachm of the tincture to the pint), and great care was also taken to let it run in slowly. The coughing that very often accompanied the irrigation was beneficial in that it helped to expel any pus or lymph. With great care and attention, there is very little danger of any harm coming from washing out an empyema cavity.

With regard to the general treatment, there is nothing much to say. The patients were put on a very liberal diet, and when the weather was fine they were well wrapped up, and their cots wheeled out into the open.

In concluding this paper, I must express my indebtedness to Dr. Eustace Smith, Dr. A. J. Coutts, and Dr. Dawson Williams for giving me permission to make use of these cases which were under their care in the Shadwell Children's Hospital during the time that I held the posts of House-Physician and later of Resident Medical Officer to the hospital—a period extending over nearly three years.

SIX CASES OF EMPYEMA.

By OSWALD F. ROWLEY, M.R.C.S.ENG., L.R.C.P.LOND.,
Honorary Surgeon to the Beckett Hospital and Dispensary, Barnsley.

THE following cases show that pus may be present in the pleural cavity with but few symptoms and a moderate degree of pyrexia; that suspected serous effusions may unexpectedly be found to be purulent, and that in cases following pneumonia, especially in children, the effusion may be purulent early in the case.

CASE I.—A. B., a youth, aged 17, came to me on November 14th, 1891, and showed a small fluctuating tumour of one of the intercostal spaces in the right axillary line, giving a history of a past injury to the rib. The cold abscess was incised with a fine-pointed bistoury, when to my surprise a quantity of laudable pus flowed out soon accompanied by coughing and obvious signs that the abscess was continuous with the pleural cavity, being in fact an empyema apparently caused by caries of the rib with abscess of the chest wall pointing internally into the pleural cavity. The abscess showed no signs of pointing on the surface. Suitable dressing being applied, the patient returned home, where the opening was afterwards enlarged and a tube inserted, and the empyema drained. In six weeks he was quite well and had not much diminution in size of the affected side. Probably the healthy condition of the visceral pleura enabled the lung to more readily expand.

CASE II.—B. C., a girl aged 3, about June 4th, 1894, had an attack of broncho-pneumonia. On June 20th there was left pleural effusion with well-marked displacement of the cardiac apex beat. In this case there were no signs of the effusion being anything but serous. On July 16th aspiration was performed in the mid-axillary line in the sixth interspace, and pus was evacuated which was quite sweet; this was followed by incision and drainage. This child made a very good recovery. There resulted curvature of the spine with contraction of side, which, however, gradually but perfectly expanded.

CASE III.—C. D., aged 10, was found on April 8th, 1899, to have pleurisy with effusion on the right side. On May 20th he was admitted to the Beckett Hospital, aspirated, and the fluid found to be pus. In this case the fluid afterwards was found to be causing bulging in the pectoral region (fifth space), at which spot it was opened and drained. Recovery was protracted and followed by contraction of the lung and falling in of the thoracic wall.

CASE IV.—D. E., a farmer's boy, aged 18, about April 27th, 1899, had an attack of pneumonia on the right side. In this case the temperature fell by lysis on the eleventh day of the disease to 99°, then rose the following day to 102.5°, and then remained at 100° for two days; for the next eight days it varied between 103° and 104°, during which period signs of effusion were present (although exploration with the syringe was negative). On the morning of May 27th he expectorated about 5 oz. of healthy pus almost wholly in one coughing attack, and very easily; this was repeated in the evening, making 10 oz. expectorated that day. On June 1st I found him sitting up in a chair, his cough being very persistent. His daily temperature since voiding the pus had been 101.5° F. On the following day he was able to be removed to his own home two miles away. On June 5th I was shown 1½ pint of healthy pus and was informed that

the patient had voided it all at once while coughing. The temperature at once fell and remained normal, and beyond occasional small quantities of purulent and sometimes bloody expectoration there was an end to the case. He was walking out on June 15th, rapidly gaining flesh, and his recovery was progressive and perfect.

CASE V.—E. F., a girl, aged 10, about June 7th, 1900, had an attack of acute pneumonia. The temperature fell on the seventh day of the disease to 100° F., remained the same on the following day, then gradually rose during the next four days to 101° F.; it then varied between 103° and 104° for seven days, signs of effusion being well marked. With a view to opening the empyema I arranged for her admission to the Beckett Hospital on June 26th. During her short journey in a cab she expectorated a quantity of pus. The following day while in bed she spat up 5 oz. more of healthy pus. Her improvement was at once marked. She returned home in six days, and was downstairs quite well three days afterwards.

CASE VI.—F. G., a man aged about 32. January 20th, 1901, had an attack of acute pleurisy on the left side, followed nine days after by definite signs of effusion. The temperature was 100° to 101°. On February 8th he was admitted to Beckett Hospital. Aspiration was done on February 20th, and 1½ pint of pus evacuated. On March 5th incision and drainage was done, and fetid pus let out. This case was very tedious, the pus discharging for some months, the patient losing ground for a few weeks. At one time the discharge ceased and, hectic symptoms appearing, the sinus was probed deeply with a soft metal probe when it was found that the abscess cavity had become loculated. He improved, and was able to attend the out-patient room for many weeks with some inches of tubing in the pleural cavity. Gradually, however, the tube was shortened, he recovered, and returned to his occupation of shoemaker, but has now practically only one lung functioning.

In Case I the young man's pleura must have been half full, yet he had merely a cough and was only concerned about the swelling near the injured rib. The lung and pleural covering being healthy (that is to say, not primarily affected by inflammatory changes) favoured expansion. In none of the cases was any rib excised. Of the 4 cases operated on 2 (Nos. 1 and 2) recovered very well, and 2 (Nos. 3 and 6—pleuritic) were protracted cases; whilst the 2 other cases ending most favourably were Nos. 4 and 5 (pneumonic) both of which were quickly cured by rupture internally and expectoration of the empyema. Case IV practically emptied his pleura of two pints of pus in three attacks of coughing, and Case V emptied hers practically at twice. These two cases from their very favourable termination illustrate the fact that when the empyema ruptures through the lung into a bronchus the prognosis is by no means necessarily unfavourable.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

CASE OF PLEURISY, WITH EFFUSION AND ASPIRATION OF A LARGE QUANTITY OF FLUID.

I was called to see a man, aged 28, three weeks after the onset of an attack of pleurisy, which, so far as could be ascertained, had not been accompanied by much pain, but was very soon followed by difficulty in breathing and debility. When first seen his respirations numbered between 35 and 40 per minute and his temperature varied between 101° and 102.5°. On physical examination extreme dullness, almost wooden in pitch, was found over every part of the right lung. There was very little respiratory movement on that side, no vocal resonance or fremitus, and the respiratory murmur could only be heard, and that very indistinctly, over the apex, and in the axilla at its highest point. There was great pressure on the trachea, and he was troubled with a throaty cough, and a sense of weight and pressure in that region. Two days later (on July 13th) I aspirated below the angle of the scapula, and drew off 85 oz. of clear, straw-coloured fluid. This gave considerable relief, the circumference of that half of chest being reduced 1 in. The frequency of the respiration was reduced from 38 to 24 per minute, and the pulse-rate from 130 to 116. The respiratory murmur was heard now somewhat more distinctly over the back but not in front; his temperature ranged between 100° and 101.5°. Within seven days the dullness seemed to increase along with other symptoms, and I accordingly aspirated again but only drew off 6 oz., as the operation had to be stopped on account of severe coughing, which came on with each aspiration. The patient was very little better after the second aspiration and the dullness seemed gradually to

increase, so that I had again to aspirate on August 3rd, with the result that 90 oz. of fluid were removed at a point selected at the edge of the pectoralis major muscle. The temperature ranged at this time from 100° to 101.5°, the respirations from 28 to 32, and the pulse-rate from 112 to 140.

For five days following this there was considerable improvement but he later began to show signs of increased secretion of fluid, and on August 15th 80 oz. of fluid were drawn off, it being still straw coloured with no sign of suppuration. The respirations were reduced to 20, the temperature to 99.2°, and the pulse-rate to 98. But yet again signs of re-collection began to appear, and he was aspirated for the fifth time on August 25th, when 75 oz. were removed, and as a result the respirations were gradually reduced to 16, the pulse-rate to 90, and the temperature fell to normal. From this point he gradually but surely improved, all symptoms disappearing, and the chest measurement being the same on each side.

This case seems worthy of record, particularly in view of the large quantity of fluid removed, 336 oz., or fully 16½ pints in all, and also on account of the rapidity with which the fluid reaccumulated on four occasions.

Johnstone, N.B.

W. WESTWOOD FYFE, M.B., C.M.

NYSTAGMUS AS A FAMILY PECULIARITY.

I read Dr. C. O. Hawthorne's article in the BRITISH MEDICAL JOURNAL of February 21st, 1903, on nystagmus in three generations, with much interest; and in connexion with his and Dr. Theodore Fisher's observations the following case, which I came across some years ago, may prove interesting:

Child A., aged 21 months, has had marked horizontal nystagmus; from birth; a brother B., aged 19, had the defect well marked in infancy, and it still reappears occasionally if he gets excited. The mother's sister C. has had nystagmus all her life, and, of her seven children, three present a like peculiarity; a daughter D., aged 23, in whom it is very marked; a son E., aged 25; and another son F., aged 12. I verified the condition myself in cases A., B., and E. The peculiarity could not be traced on the father's side.

While on the subject of physical peculiarities I may mention the following instance I came across of extra digits, a peculiarity which admittedly often runs in families:

Child A. has six fingers on each hand, the supernumerary digit in each case springing from the outer end of the fifth metacarpal bone. The child's right foot has a sixth or supernumerary toe springing from a corresponding position; the left foot is normal. The peculiarity runs on the father's side. The father B. was born with six fingers on the left hand; the supernumerary digit was removed by Professor George Buchanan, when B. was 18 months old, but this did not prevent the peculiarity from reasserting itself thirty years later in his progeny A. B.'s brother C. has six fingers on the left hand; so, also, had B.'s father's (A.'s grandfather's) brother D.

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SKIAGRAPY IN FORENSIC CASES.

In a recent case in which I was a witness, and where the fetal age at birth of a live child was in dispute as relevant to the probable date of conception and other questions arising from this last, I found the use of the x rays of considerable value as an adjunct to the ordinary signs of fetal age, such as weight, length, nails, ear, etc. The child, which was premature, while warmly swathed in wadding, etc., was placed over a plate, and a skiagraph obtained, thereby localizing absence of the lower femoral and presence of the ossifications of the os calcis and astragalus respectively. The sternal ossifications were obscured by the heart, and were thus unavailable. Unfortunately, there does not seem to be any very definite means of deciding by this or other means development corresponding to the eighth month in a live child. In a dead infant the skiagraphy would be simpler, but I venture to draw attention to its use in cases of dispute as to fetal age of live premature infants, provided danger from unnecessary exposure be avoided.

Edinburgh.

JAMES CAMERON.

TONSILLOTOMY SHORTLY AFTER ACUTE TONSILLITIS.

I REMOVED a very large tonsil from a little girl in the Louise Margaret Hospital, Aldershot, recently, a week after she had suffered from an attack of acute tonsillitis. The tonsil was very soft, and the fork of the guillotine almost tore it during