few weeks, having the false labour pains. I thought I would send you a line to see if it is right for it to be so." No other symptom occurred, and a daughter was born on the date above mentioned. I have seen this lady several times since, and the womb remains in excellent position.

CASE V.—Mrs. D., aged 32, had her last confinement on October, 1883. Since that time she had suffered from the following symptoms, described to me by Dr. Paton, who has attended her for years: "Nervous symptoms, flashing hot pains in legs, weak dull pain in back, general debility of a pronounced type. The burning pains in the legs were at times very severe, and she had frequent hysterical attacks." Some dysmenorrhœa, leucorrhœal discharge at times, and a distinct retroflexion complete the outlines of the picture. The operation was performed on February, 1888, and she was delivered of a son in April, 1889. Dr. Paton concludes his letter to me about her by saying: "Since the operation she has been much stronger, and nearly free from nervous symptoms."

CASE VI.—Mrs. R., aged 28, admitted into the Royal Southern Hospital on October 1st, 1888. She is the mother of two children, the youngest 4 years of age. Since the birth of this child she has suffered more or less from backache, pelvic pain, and discharge from the uterus. At first she was treated for ulcerated womb, then a Hodge's pessary was worn for six months, and afterwards a ring pessary for another six months. Finally a lacerated cervix was operated on nine months ago without relief. Patient very thin, anxious, and nervous. She suffered from acute retroflexion, ulceration of os, with a prolapsed enlarged ovary. She was operated upon on October 1st, 1888. The wound healed by the first intention, and the patient was discharged in six weeks looking plump and bright. She came occasionally to show herself afterwards, and at the beginning of the present year she came complaining of pains in her side. She was then far advanced in pregnancy, and at the end of March she was delivered of a daughter. I heard casually that she had had a miscarriage previously, caused by a doctor passing a sound to ascertain if the uterus was in position. If this was so, pregnancy must have occurred very soon after the operation in this case. I have not been able to verify the position of the uterus in this case.

CASE VII.—Mrs. B., aged 32, mother of one child, was admitted into the Royal Southern Hospital on September 11th, 1888, suffering from prolapse, the cervix protruding from the vulva. Much dragging and some pain accompanied the displacement. The round ligaments were shortened, and the perineum restored on September 13th, 1888. The after-course of the case was satisfactory, and the woman was confined on March 20th, 1890. The labour proceeded satisfactorily, except that the perineum was very much lacerated, and was not stitched up. A midwife only attended her. She came to me three months afterwards complaining of dragging pain. Her perineum had almost disappeared. I inserted a small ring, and I heard the other day that she was quite comfortable.

These cases only include those that have casually come under my observation. I have heard of several others, but have been unable to follow them up. I think these prove practically the propositions before mentioned.

CASE OF PUS IN THE PERICARDIUM TREATED BY INCISION AND DRAINAGE.¹

By HERMANN BRONNER, M.D.

E. S., aged 11, a healthy girl, who had up to the time enjoyed perfect health, awoke ill on February 15th, 1890, during the prevalence of the influenza epidemic. Her temperature was 101.5°, pulse 100. She vomited, her tongue was bad, and, as her illness was attributed to unsuitable food on the day previous, three gr. ij doses of calomel were given, acting promptly. In the afternoon there was much pain in the region of the cæcum, which was tender to pressure. Ice bags were applied all night, with a view to the possibility of typhlitis. On the following morning the temperature, which had risen to 102° in the evening, fell to 100°, and the child

seemed much better, all pain having disappeared. In the evening, however, the temperature rose to 104°, pulse to 122, respirations to 24. On the three following days the child was very ill, temperature, pulse, and respirations remaining unchanged, but absolutely no symptom pointing to the nature of the illness (no pain, no cough) could be discovered, despite the most careful examination by myself and Dr. Major, who subsequently saw the child in consultation with me. On the evening of the fifth day a small area of tubular breathing was discovered under the angle of the right scapula, but no crepitation. On the sixth day this area of tubular breathing was slightly larger, there was slight impairment of percussion note; no crepitation, no expectoration or even cough. On the seventh day crepitation of a rather coarse character was heard over the base of the right lung, dullness was more marked; tubular breathing was absent at times, at times distinct. On the ninth and tenth days respirations rose from 24-26 to 44-54. The temperature, which had always remained high (104° in the evening), fell to 100.2° after sponging on the morning of the ninth day, and we hoped for the crisis. But it rose again in the evening to 104°, and, as the child seemed much worse, antifebrin gr. viijss were given, antipyrin having previously caused violent sickness. Temperature fell to 96°, with great perspiration, the child seeming much collapsed. At noon the thermometer again showed 104°. An ominous pallor now set in; there was great restlessness, tremor of hands and head, the lips were parched and pale, and we feared the worst. Antipyrin gr. xv was then given by the rectum. The effect was very marked. The temperature fell to 98.2°, rising to 101° again in the evening, measuring 100° at 2 A.M. The tremor and restlessness disappeared, the child felt comfortable, and slept for some hours, the first time for several nights. Still no crisis set in. Temperature rose to 102° at noon, the tremor, pallor, and restlessness returning. Antipyrin gr. xx was again given by the rectum, with the same marked beneficial effect. For the following six days, as soon as the temperature rose to 102°, being taken every half-hour, gr. xx antipyrin were given by the bowel, the temperature thus being kept below 100° for the greater part of the twenty-four hours. The dose was only required twice, at the most three times, in the twenty-four hours.

On the morning of the eleventh day there was typical crepitation redux all over the area of the lower lobe of the right lung. Still no crisis set in. This was accounted for by the appearance of pneumonic symptoms over the apex of the left lung on the twelfth day. The pneumonic process then crept slowly through the apex to the front, the cardinal symptoms being still more irregular than they had been on the right side, crepitation especially being of a very coarse character. Dullness extended in front not lower than the second intercostal space, behind half way down the scapula.

On the right side, in the meanwhile, whilst crepitation was diminishing, the dullness gradually became more marked, and it became evident that there was pus forming in the right pleura. This was confirmed by aspiration on March 4th, the sixteenth day of illness, and on March 7th, Mr. Meade, who had seen the child together with Dr. Major during the previous week, made an incision in the sixth intercostal space, behind the axillary line. A pint and a half of sweet pus was withdrawn, and two drainage tubes were inserted side by side, at the suggestion of Dr. Major, for the purpose of eventual irrigation. As three days after the operation the temperature did not go down, the cavity was washed out daily with 5 per cent. boric acid solution, until the fluid ran off clear through the free tube. After three irrigations the temperature went down to 97.8° in the morning, and 99.8° in the evening, and remained so for the next eight days, during which irrigations were not continued.

Still pulse and respirations did not diminish, measuring 140 and 45 respectively. There was clearly still some mischief at work, which Dr. Major and myself vainly tried to discover. An aspirating needle was passed into the seventh intercostal space in the right scapular line, in the hope of finding encysted pus, but in vain. Respirations grew more frequent, necessitating raised position in bed. On March 18th, Dr. Major noticed a slight increase of the area of dullness over the heart and faintness of the heart sounds, and mooted the possibility of fluid in the pericardium. In the course of the following two days dyspnoea increased very

¹ Abstract of a paper read before the Bradford Medico-Chirurgical Society.

markedly, and the increase of the area of dulness over the pericardium became unmistakable.

On the morning of March 20th the child woke up with severe dyspnoea lasting a quarter of an hour. The pulse was scarcely to be felt. Dr. Major advised speedy aspiration of the pericardial fluid and incision with subsequent drainage in case the fluid should be pus, which in all probability it would be. In the afternoon Mr. Pridgin Teale saw the child with Dr. Major and myself, and confirmed the presence of fluid in the pericardium. Dr. Major also pointed out a slight area of dulness high up in the left axilla, and separated from the pericardial dulness by a zone of clear lung sound. It was decided to pass an aspirating needle into the area of pericardial dulness first, and in case this revealed pus to incise and drain.

After the opening into the right pleura had been closed as a matter of precaution, the child was chloroformed, the pulse going down from 160 to 60, and becoming full and bounding. A trocar was passed through the fourth intercostal space, 1 inch to the left of the sternum, in order to avoid the internal mammary artery. Pus appeared. Mr. Teale then made an incision outwards, using the trocar as a director, and carefully watching for any indication of the heart touching the point of the knife. Nearly two pints of sweet, thick pus slowly escaped through the opening. The apex of the heart could afterwards be felt beating against the tip of the little finger inserted into the opening. A short drainage tube was left in the wound and sublimate gauze pads used as a dressing. At no time during the operation were any ill effects of any kind noticed on the heart's action.

The relief afforded by the operation was very great. The child, which before had been sitting bolt upright, could now lie flat on its back, and slept in this position. The temperature, however, which for over eight days had been below 100°, rose to 102° in the evening.

On the following morning, March 21st, after a good night, the temperature was 100°, but pulse and respiration had not diminished, as we had hoped, measuring 148 and 52. In the evening the temperature rose to 102°. There had been much discharge from the wound and the tube had slipped out. It was replaced and held in its place by a bandage of wide-meshed sublimate gauze passed over the tube and round the body before the absorbent pads were put on. An attempt was made to form a valve by suspending a piece of oiled silk over the tube and pressing it against it; but it was never very successful, air being frequently drawn in.

On March 22nd, as the temperature, pulse, and respiration had not diminished, gr. x iodoform, suspended in previously sterilised glycerine and water (Billroth's formula R iodoform gr. 50, glycerine m 80, pulv. acaciæ gr. viij, aq. dest. ad 3j) were injected into the pericardial cavity through the drainage tube. The injection and the process of dressing caused no discomfort or ill effect whatever and did not influence the pulse in the least.

The iodoform injection was repeated on the two following days. Things remained unchanged, except that a troublesome and painful cough set in, necessitating the administration of morphine gr. ½. Readjustment and shortening of the pericardial tube did not affect the cough in the slightest.

On March 25th the child was peculiarly drowsy, and iodoform was not injected during the daily dressing, but as the urine was found free from iodine, iodoform gr. v was on the 26th, injected into pericardium and right pleura, which still discharged much.

In the night of March 27th there was much delirium, the only time during the whole illness. Although no iodoform had been injected on the 27th as a precaution, there were traces of iodine in the urine on the 28th, and it was therefore not considered safe to continue the iodoform injections.

The troublesome cough continued, necessitating the almost constant use of morphine (gr. ½) to procure sleep. There was pain above the left nipple during coughing. Pulse and respiration remained the same, averaging 150 and 45. The temperature rose to 102° and a little above every evening. On March 29th it rose to 104° with much perspiration, but without rigors. During sleep respiration was very irregular and often intermittent, seriously alarming the attendants at times. Cheyne-Stokes breathing was not present. Champagne and small doses of quinine were now given.

As no improvement whatever took place it was decided on March 31st, the eleventh day after operation, to syringe out the pericardial cavity, although the pus had always been sweet. It was with some degree of diffidence that we ventured on this step without previous experience to fall back upon, as the pulse had become very weak and was at times slightly irregular. Two tubes were inserted side by side to give free egress to the fluid and to prevent any pressure on the heart. A 5 per cent. boric acid solution of 100° was run through with a douche, pressure being kept at a minimum, until the fluid ran off clear through the free tube, which it did in jets synchronous with the beat of the heart. There was no ill effect whatever on the pulse, nor did the daily repetition ever seem to have any ill effects whatever. The child used to sit up during the dressing, lending a helping hand and chatting and joking. Only once, on April 3rd, when m j of carbolic acid had been added to 3j boric solution, did the child feel faint and queer, complaining of discomfort. Carbolic was in consequence not tried again.

Pulse and temperature were, however, not in the least influenced by the daily irrigation of the pericardium and right pleura. Respiration grew more frequent, reaching as much as 72, but without dyspnoea. The cough was very troublesome, bringing up very little tough yellow expectoration, which contained no bacilli Kochii. The pulse began to show signs of great weakness. Sphygmographic tracings showed it to be dirotic or hyperdirotic, indicating very low arterial tension, and a pulsus alternans or bigeminus indicating weakness of the heart's action. No cause whatever could be discovered for the persistence of high temperature and rapid pulse, despite frequent examination by Dr. Major and myself. There was no evidence of accumulation of pus or of breaking down of lung tissue. There were never any murmurs heard over the heart valves.

The syringing with 5 per cent. boric acid was continued daily, without any ill effects on the pulse, until April 10th. The quantity of pus discharged had considerably diminished, but still went through the bandages in twenty-four hours; it was still thick, yellow, and sweet. The pulse gradually became weaker. Strophanthus, camphor, toky, and champagne were exhibited without appreciable effect.

On April 10th the child was very sick and perspired freely. On the following day it was remarkably stronger, ate heartily, and played in bed. On the 12th it was again very much weaker. The pulse could only be counted with the aid of the sphygmograph, counting 150 to 160. Great care was now necessary during the daily dressings, irrigation being carried out in the recumbent position and twice having to be discontinued on account of faintness.

On April 14th, tinct. digitalis m v was tried, but the child, which had already been rather sick in the night, became more so, and it was not tried again that day.

On April 15th, digitalis was again given in m v doses, but the second dose again caused sickness. At 2 P.M. the child suddenly screamed out with pain, localised to the left of the navel. I found her in great agony, praying to be relieved, and pulseless. The pulse recovered a little under ether and camphor subcutaneously, but the child sank fast and died shortly in the act of vomiting, on the sixtieth day of illness and the twenty-sixth after the incision into the pericardium. Unfortunately, a *post-mortem* could not be made, but a bent sound penetrated underneath the heart, so that its point would correspond with the third intercostal space on the right of the sternum. Towards the base of the heart it seemed to enter into soft granulations, which had, however, not obliterated much of the pericardial sac, and the sound was passed easily round the heart above and below. It was not found possible to pass it into an opening communicating with the pericardium.

As to the etiology of this case, I have no doubt whatever in attributing it to the poison of the influenza epidemic, which was everywhere marked by frequent complications with pneumonia and empyema. The course of the pneumonia was also a very irregular one as regards the physical signs, an experience, I believe, also made frequently during the course of the epidemic. It tallies remarkably with the description Ribbert, of Bonn, gives of a class of pneumonia which he designates as streptococcus pneumonia, characterised by 'great irregularity of the percutory and auscultatory

symptoms, by a tendency to spread, and by irregular, liquescent infiltration of the lung tissue as presented at the *post-mortem* examination.

The localisation of pain in the region of the cæcum at the commencement struck me all the more forcibly at the time, as I had just seen another case of empyema of the right side, also due to influenza, which commenced almost exactly in the same way, except that the pain in the abdomen was much more intense, causing the muscles to contract in a tetanic manner; it was not until after twenty-four hours that thoracic symptoms appeared.

The difficulties of diagnosis in this case were unusually great—in fact they were never quite surmounted. It was only on the evening of the fifth day that the first indication of the nature of the illness presented itself. Then the empyema of the right side presented some difficulties following so rapidly on the pneumonia of the base, and being partly masked by this. After the empyema had been operated on and temperature reduced, pulse and respiration did not follow suit, the dyspnoea increased, without discernible cause at first, until the pericardial effusion was discovered. It was then found that the pericardium contained nearly two pints of thick pus, although there had been no pyrexia of any account for over eight days, and although there had never before been any symptoms pointing to an acute inflammation of the pericardium, in particular no delirium, no pain over the region of the heart. After this accumulation of pus had been emptied the temperature rose to 102°, and remained as high every consecutive evening without any cause being found for this.

How were we to account for the presence of pus in the pericardium, and how long had it been there? Evidently some time, and we looked upon it at first as the result of purulent pericarditis of a septic nature caused by the same poison as the pneumonia and empyema, and which had run its course with symptoms sufficiently indefinite to be masked by those of the initial pneumonia. When, however, despite all surgical interference, temperature did not come down, the suggestion presented itself that it might possibly have been a case of empyema of the left side, breaking through into the pericardium, and draining through this cavity. The presence of an area of dullness in the axilla, separated from the pericardial dullness by a zone of clear lung sound and which disappeared after evacuation of the pus, would seem to support this view, although not absolutely so, as I find Eichhorst quotes as a symptom of pericardial effusion slight impairment of the percussion note in the first and second intercostal spaces often preceding all other symptoms of pericarditis. The assumption of a collection of pus behind the pericardium, draining into it, becoming septic by the incision and inaccessible to the antiseptic washing, might explain the persistency of the pyrexia. No accumulation of pus could, however, ever be detected by percussion, and there was no *post-mortem* examination to clear up the doubt. Again, the pyrexia might have been of a septic nature caused by endocarditis giving rise to no symptomatic murmurs. But why should the temperature have risen just on the evening of operation had this been the case?

Gangrene of the orifice of the urethra was another interesting feature of the case. It was discovered quite accidentally by the nurse on the day following the incision into the pericardium, never having caused any trouble whatever. There was a black, dry, offensive ring round the urethra, the urine passing freely through its centre without pain. It fell off on the day preceding death. The child only once or twice wetted its bed towards the end of its life. I am strongly of the opinion that it was due to the use of antipyrin. I remember two cases of typhoid in women who were taking gr. xxx doses of antipyrin, where diphtheritic inflammation of the orifice of the urethra was present. Possibly it may only be caused in cases in themselves tending towards such an occurrence; but I remember a lady patient who was taking antipyrin for rheumatic pains complaining of severe pain during micturition for two days, which ceased when the antipyrin was discontinued, and which never returned afterwards. Naphthalin, I believe, also causes pain on micturition, and Mr. Humphreys, of the Bradford Fever Hospital, mentions two cases where beta-naphthol gave rise to similar trouble.

The antipyrin also caused vomiting when given by the

mouth, which was obviated by its administration by the rectum. Otherwise it acted very beneficially indeed, the effect being more evident at the bedside than it is possible to describe. It did not seem possible at the time that the child could have lived had we not been successful in lowering the temperature. Antifebrin caused a distinct collapse with perspiration, and did not give the same marked sense of comfort as the antipyrin. The consideration that antifebrin in some way alters the composition of the hæmoglobin—as indicated by the blue appearance of patients taking it—was another reason for preferring antipyrin in this critical case, although even very large doses in healthy persons do not seem to necessarily have a permanently injurious effect. A case is on record in which a student took 28 grammes, or nearly an ounce, and recovered after three days, whilst again doses of gr. viijss would seem to have had very marked ill effects in rare cases.

With regard to the operation little need be said. Removal of the fluid from the pericardium was absolutely indicated, and when this proved to be pus there was no chance of recovery except by making a free incision and draining. The incision was made in the fourth intercostal space, beyond the mammary artery, and, to use the words of Mr. Pridgin Teale, "the heart never seemed to come near either the trochar or the scalpel." It would only be in cases of old standing, in which adhesions of the pericardium might have formed, that one need fear injury to the heart. It would also seem that rapid evacuation of the contents of the sac may be followed by sudden death.

The admission of air into the pericardial sac, the irrigation with boric acid, carried out as it was with all precautions, never seemed to affect the heart's action in the least, and this case will, without doubt, go to prove that the dangers of surgical interference with the pericardium are no counter-indication, where it is for any reason indicated. In this respect it corroborates the two successful cases I have been able to find recorded. Rosenstein, of Leyden,² incised and drained the pericardium of a boy of 10 years. The wound was closed on the nineteenth day, and perfect recovery took place, the heart being left very little, if at all, hypertrophied, and presenting no signs of pericardial adhesions. West³ was also successful in a case of a boy, aged 16, the patient having perfectly recovered in five weeks.

The rapidity with which these two cases, particularly Rosenstein's, recovered is very striking. It would hardly seem possible that in this time the pericardial sac could be obliterated by granulations gradually creeping over the heart from the base, as one might expect by analogy with the pleural cavity under similar conditions. In the case I have recorded there was certainly no obliteration of the pericardial sac of any extent after twenty-six days, nor did the pus diminish in quantity or thickness sufficiently to warrant the withdrawal of the drainage tube. The absence of a *post-mortem* examination is all the more deplorable, as it might have explained this, and given some idea as to the mode and rapidity in which one could expect a case of this sort to heal up.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

THE PRESCRIPTION OF IRON IN ANÆMIA.

IN his interesting articles on Anæmia, Dr. Stephen Mackenzie discusses with some care and anxiety the proportions of alkali to be combined with sulphate of iron in Blaud's pill. Let me assure Dr. Mackenzie and your readers that these proportions are of no importance whatever, and that the alkali may be omitted without therapeutical loss and with much practical convenience.

For the last five years of my practice I ceased entirely to use the alkali, and my results were equally good. The mistakes and failures in treating adolescent and chlorotic anæmias are often due to the prevailing economy in the use

² *Berliner klinische Wochenschrift*, 1881.

³ *Medico-Chirurgical Transactions*, referred to in the *BRITISH MEDICAL JOURNAL* of 1883.