are also baths, lavatories, waterclosets, and all the necessary accessories on each floor. On the cellar floors are the heating and ventilating apparatus, with the usual accommodation. Each pavilion is self-contained, the entrance doors are placed opposite each other, and both are in a separate enclosure, and approached by a separate access, so as to effectually isolate them from the other wards in the general enclosure. They are intended for the treatment of cancer and other malignant diseases which are unsightly, of ophthalmic affections, and the infectious fevers. Of the prudence of placing these different classes of disease in the same building, some contagious and others not so, I am by no means sure.

The superficial area on which the buildings stand, and which also contains the gardens and open spaces in the enclosures, appears to be a little more than twenty acres. The hospital being for 600 beds, there is no pressure of population on area in the arrangements.

From the small plan which accompanies this brief sketch, the form of the land will be seen to be irregularly triangular, and the detached buildings to be—A, the administrative departments in front; B, the six double-storied medical wards, right and left of the main entrance; C, the four surgical pavilions, single-storied, to the left of these; the two double-storied isolation-wards, D, to the right of the main entrance; E, the great bath house, in the immediate rear of the centre, the great economy building; on the left the mortuary, H, with a separate entrance for funerals; behind it, G, the ice-house, and to the left separates gates, and means of access to all these departments. In the rear of the mortuary is a lime-pit. The whole of the interspaces are gardens, accessible to the sick; the small white, oblong space in the central garden is the site of an intended chapel, and on the left, in the surgical enclosure, is that of a projected building for operations. These may have been supplied since I visited Friedrichshain, for the plans before me are dated 1876.

It would occupy an amount of space which I cannot venture to ask for, to attempt a detailed account of the administrative and economical departments, with the other accessories above mentioned. They struck me as more complete and perfect in all their details than any places of the kind I had seen elsewhere, at the time of my visit. The whole cost of the grounds, buildings (which are well constructed and of considerable architectural pretensions), and the details of arrangements (which are of true German thoroughness, leaving nothing unforeseen or unprovided for) was 4,520,789 marks, or about £377 a bed. A hospital of similar character in general design, but with differences of detail, has since been erected on the banks of the Necker, in connexion with the University of Heidelberg. The plans and description of it, by Professor F. Knauff, were published in 1879, in Munich. I preferred, however, describing that which I have myself seen, and which has now been sufficiently long in practical operation to test its merits, and defects, if there be any, and I hope that some German member of the approaching International Congress will make us acquainted with the results in a detailed statistical form, for which the materials doubtless exist.

(To be continued.)

THREE CASES OF ACUTE SUPPURATIVE ARTHRITIS IN INFANTS.

WITH REMARKS.

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THE disease of which the following cases are instances is one of which I think inadequate descriptions are given in discussing the affections of joints in children, and of which Mr. Thomas Smith has alone, as far as I can discover, given us a really complete account in his paper in the St. Bartholomew's Hospital Reports for 1874; and yet it is a condition which cannot be very rare, as Mr. Smith records twenty-one instances of it, and speaks of them as a selection only out of a larger number, while the great fatality occurring among these cases, and the urgent need for prompt treatment, make the recognition of the tendencies of the disease all important. The affection is that of

primary or acute suppurative arthritis occurring in infants at any time during the first year of life or thereabouts. The disease is acute in its onset, it generally affects but one joint at first, and it produces great depression of the child's powers; it is exceedingly destructive, not only to the joint, but to the ends of the bones forming the articulation, in which, indeed, the lesion originates.

CASE 1.—Hannah H—, eleven weeks old, was admitted under my care into the Hospital for Sick Children at Pendlebury on October 8th, 1880, with the following history. When fourteen days old a swelling was noticed in the calf of the left leg; this disappeared, and the child was then said to have had an attack of erysipelas of the thigh and groin, and then the inflammation seemed to focus itself in the left knee, below which an opening formed, and from this discharge had escaped up to the time of admission. The child had been suckled and had had no injury or other illness. There was no history pointing to syphilis. On admission the left knee was much swollen and very painful. Just below and in front of the joint was an opening discharging pus; this led down to a softened patch in the head of the tibia. The child was very ill and marasmic, and its temperature rose at times to above 103°. On exploring the sinus, soft carious bony detritus was felt and gouged away from the upper part of the bone, and it was found that pressure upon the knee-joint caused pus to well through an opening in the articular surface of the tibia into the wound. The joint was then freely incised on each side of the patella, and a drainage-tube passed through it. During the first twenty-four hours the child had carboloria, after this it improved a little for a day or two, but again sank, and died on Oct. 21st. On examining the knee, the joint was found to be completely disorganised, and the upper end of the tibia destroyed.

CASE 2.—Martha R—, aged thirteen months, was admitted on Oct. 1st, 1880. Two months before admission the child had measles, followed by temporary albuminuria, but soon completely recovered. One month later pain and swelling appeared, extending from the hip to the knee. Fourteen days before admission she became feverish, with vomiting, and much pain in the limb. There was no history of injury; the family history was good; the child had been suckled and had never walked. On admission she was very anæmic and worn; there was great swelling round the right hip, reaching up to the buttock, into the groin, and over the lower part of the abdomen, where fluctuation was well marked; the superficial veins were much distended. On Oct. 7th the abscess was opened antiseptically, after the child's condition had been somewhat improved by careful feeding, and six or eight ounces of pus escaped. On exploration with the finger the head of the femur was found to be exposed and rough, and the joint entirely disorganised; the wound was washed out with carbolic acid (one in forty). There was no bleeding of any importance. The same night the child was collapsed and carboloria appeared; this, however, passed off the next day, and up to the 15th she improved somewhat, but there was still free discharge, which was exhausting her; and on the 17th the upper end of the femur was removed, and a small, rough, carious button of bone, covered with granulations, was found to be the only representative of the head and neck of the femur. The operation was antiseptic. From this time the child did uninterruptedly well, and rapidly gained flesh and strength; and on Nov. 16th the wound had entirely healed, and she is now (Nov. 28th) well, and has considerable power over the limb, which is barely half an inch shorter than the sound limb.

CASE 3.—Anna B—, aged nineteen days; admitted Nov. 5th, 1880. The child was said to have been healthy at birth, but fretful. It was suckled, and there was no syphilitic family history. The account stated that it was a "cross birth," and the mother was attended by a midwife, who "helped" the labour. A day or two before admission the child was apparently in pain, and vomited; and on Nov. 4th a swelling was noticed round the right shoulder.

On admission a large fluctuating swelling, without much redness, was found surrounding and obscuring the right shoulder. The child seemed to be fairly well.

On Nov. 6th the abscess was opened antiseptically, and carefully explored with the finger. A large sac was found surrounding the front and outer side of the joint, but no communication with the interior of the joint could be felt, and it was concluded that the abscess was probably peri-

articular, and due to some violence used by the midwife at the time of its birth.

The child went on well until Nov. 16th. There was no heat or tenderness about the shoulder, but it discharged rather freely. The temperature ranged not higher than 100.4° , and the abscess nearly healed. On the 17th a slight swelling was noticed over the right parotid region, and this proved to be an abscess; and on the 18th an abscess appeared over the lower part of the sacrum. Temperature 101.6° to 99.6° . The child took its food well, and did not seem very ill. The abscess over the parotid was aspirated; the one over the sacrum left alone. On the 19th a large abscess was found round the left hip and upper part of the left thigh; the whole leg below was œdematous, and roughness could be felt on moving the joint. Temperature 98.6° . She still took her food well, but was pale. On the 20th the abscess over the left hip was opened antiseptically and carefully explored; no communication with the joint could be felt. The facial abscess refilled, and on the 24th discharged through the ear. There was a great deal of discharge from the hip, which looked unhealthy and was septic. There was much induration round the wound and neighbouring parts. The child went on in much the same state till Dec. 4th, the opening in the shoulder having entirely healed, and no fresh abscesses appeared. The child then got worse, and was sick and refused its food. This and the unhealthy condition of the hip induced me to explore the wound afresh; and so, under chloroform, the wound was examined, and the joint felt to be rough and disorganised. The upper end of the femur was dissected out and removed with a scalpel. No trace of the head of the bone was left; a small hollow in the upper part of the great trochanter, with a few little bony granules upon it, was all that represented the head and neck of the bone. There was very little bleeding, but the child was very low. In the evening it took its food and was quiet. On the 6th there was some carboluria; the child was pale and weak, and vomited twice. During the next two days it sank, in spite of stimulation and careful feeding, and died on the 8th. The carboluria lasted only a few hours.

Necropsy.—On examining the hip, the wound was found grey and sloughy; the upper end of the femur was unhealthy. The acetabular cartilage was soft and discoloured, but not eroded. The child was much wasted, and scattered about the body and limbs were numerous cutaneous pyæmic abscesses. On exposing the right shoulder, the joint was found completely gone, and no trace of the head or neck of the humerus remained. Some repair had taken place, and the wound was soundly healed over the joint, which contained no pus. The abscess over the parotid was empty and healed. The abscess over the sacrum communicated with the lower sacral joints, which were disorganised. In the abdomen some recent lymph was found coating the spleen, but no other peritonitis. In the liver were two pyæmic abscesses, one immediately beneath the capsule, and the other rather deeper. In the right kidney was an abscess occupying almost the whole of one pyramid, and the corresponding amount of cortex. The upper lobe of the right lung was pneumonic, and there were scattered patches of pneumonia with abscesses throughout the rest of the lungs. The brain was not examined; there was no pus in either knee-joint.

Mr. Holmes, and more particularly Mr. Smith, have pointed out that the disease frequently, if not always, begins as a subarticular osteitis, which often penetrates the joint, and of this Case 1 was a typical instance. Mr. Smith, as well as other writers, point out the difference between this disease and the so-called "syphilitic decapitation of the epiphyses," or "syphilitic telostitis," in which the seat of the disease is between the epiphysis and diaphysis, and abscess may or may not occur, while many bones are affected. In the three cases here recorded there was no evidence of any syphilitic taint. A noteworthy point in these cases, alluded to by Mr. Holmes, is the great extent of the primary inflammation, which seems to attack a large area of the limb before it concentrates itself upon the particular joint, and this gives rise to the question whether it is possible that the lesion is primarily a general phlebitis of the limb, in which the veins of the bones are involved, whilst the centre of ossification of the epiphysis being one of the most vascular parts in the neighbourhood, suffers most, for there seems to be little doubt that the disease is a true osteitis, and that the joint affection is secondary by extension. In that case it would resemble rather in its pathology the cases so

often seen of acute periostitis, differing from them in that the inflammation is central rather than peripheral, and attacks the epiphyses rather than the shafts of the bones, while the syphilitic disease has a more chronic course, and affects the end of the diaphysis, or the epiphysal line rather than the ossifying nucleus of the epiphysis. In some of Mr. Smith's patients, however, it appears that the disease did begin in the end of the diaphysis. This probably was in cases where the epiphysal nucleus was not as yet developed. Hence, I think the disease is not improbably an instance of a true osteo-phlebitis going on to abscess; and on this view its multiple development is more readily explained if the cases where many joints are attacked are, as I think, all pyæmic.

The third case is, perhaps, of greater interest even than the other two, for it presented considerable difficulty in diagnosis as well as important pathological features. In spite of my attention being specially alert for such cases, the result of the examination of the shoulder certainly seemed to point strongly at first to the conclusion that the case was not one of infantile arthritis, but probably merely a traumatic abscess. When the other abscesses appeared the case was somewhat altered, and it was considered probable that the abscesses were pyæmic, at the same time that they might be multiple articular abscesses if that condition was not pyæmic, and so when the abscess round the hip was explored, and no communication with the joint made out, the difficulty was not lessened. When it was at last found that the hip was disorganised the case was clear, and no doubt could then exist that the case was one of pyæmia, and probably that the primary lesion was of the shoulder-joint, and, therefore, that the cases of multiple infantile arthritis are in all instances truly pyæmic; and this had been considered probable from the account of Mr. Smith's cases and the apparent pathology of the disease. In three of his cases, indeed, Mr. Smith was satisfied that pyæmia did exist. The three cases illustrate well the destructive tendencies of the disease both to life and joints, and, I think, the necessity for early and complete removal of the source of mischief by operation, I have little doubt, from the progress of the second case after operation, that the first child would have got well had the disease been removed earlier, but one feels very loth to perform amputation at such an age, and nothing else would have been efficient. About Case 3 there is more doubt, though I incline to the belief that excision of the shoulder at first would have been the right treatment, though a decision upon the point is difficult; if it had been made out at first that the shoulder-joint was implicated, removal of the head of the bone would certainly have been performed, though whether that would have had any effect in preventing the development of pyæmia is not clear. It is certain that the shoulder-joint itself would have recovered, as far as disease of the bone went, though not without entire loss of the head of the humerus, but the joint would have been stiff, and, therefore, excision of the head of the bone would have probably done no harm, at least as regards the joint, and, possibly, good as removing an infective pyæmic centre.

On the whole, I think the lesson of this third case, like the others, is, operate early and remove the disease; and I think the conclusion from all the cases, Mr. Smith's and my own, is that if the abscesses are multiple they are pyæmic, though the pyæmia is of rather an unusual and chronic type, in that there is no great amount of pyrexia. Of the twenty-one cases recorded by Mr. Smith thirteen died, and in none of these was any operation, except opening the abscess, performed, in the others more or less useful limbs resulted without further operation; but I cannot help thinking that in these cases the amount of repair required, if the diseased part is not removed, makes too great a demand upon the already over-taxed powers of the child, and that the results would be better if the disorganised bone was removed and the progress of the disease arrested. As to the etiology of the disease, in four of Mr. Smith's cases there was a history of injury, and in one of scarlatina. In one of my own cases there was a history of measles, and in another of possible injury; but there appears no doubt that the disease most commonly arises spontaneously. The drawback of the depressing effects of carbohc poisoning was felt in all these cases, which seem peculiarly susceptible to it, though there was no albuminuria.

NOTE.—Since writing the above, Mr. Morratt Baker's report of two additional cases of this disease (St. Bartholomew's Hospital Reports, 1880) has come under my notice.