healthy. The operation wound was healthy and showed no signs of suppuration. To summarise. On Monday, Nov. 18th, 1907, the child was operated upon and was under the anaesthetic (chloroform) for one and a half hours. The anaesthesia was followed by three days of apathy and drowsiness, accompanied by nausea and retching with occasional vomiting. On Thursday, the 21st, there were general jaundice and an odour of acetone in the breath. On Thursday evening restlessness, excitement and delirium became so frequent and on this occasion the patient had hallucinations. Acetone odour in the breath became more perceptible.

Acetone odour in the breath three days before the urine contained acetone. It occurs in from 12 to 36 hours after anæsthesia, but the average duration is three or four days. This case ran an average duration of about eight centimetres long in the mid-line at the back of the arm, the mid-point of the incision being over the fracture. The muscular tissue was separated down to the fractured ends of the bone which were gradually manipulated into position. A small amount of a substitute for the inoperative bloodvessel was closed by uniting the split muscle with two or three thread sutures and the skin incision was sewn up by a subcuticular stitch of thread. The arm was bandaged to an anterior angular splint. The wound was dressed on the fourth day and the stitch taken out on the eighth day; at the same time the splint was taken off and the arm manipulated. The arm was exercised each day more and more and the splint left off during the day. The boy progressed rapidly and in three months was able to play all games as well as ever. When seen in October the arm could be fully extended and flexed and for all practical purposes the arm was as useful as before the accident.

CASE 2.—A boy, aged seven and a half years, fell on a pony on April 2nd and fractured his humerus transversely at the lower end just above the olecranon fossa. The boy was taken home and anaesthetised and the arm was "set" and put on an internal angular splint. Next day the joint was x-rayed and the fracture found to be stable. The arm was bandaged to the body with the left hand pointing over the right shoulder. The arm was down a week later and the arm was daily exercised and massaged, but notwithstanding the treatment at the end of six weeks the flexion and extension of the arm were extremely limited. The boy was taken to see Mr. Frank Romer, and a consultation was held, and a decision made to operate.

It was found that on extension after the arm had passed the right angle a few degrees the joint locked and no further extension could be made. The arm was x-rayed by Dr. Brace on July 24th and the radiogram showed considerable displacement backwards of the lower fragment in the lateral view, and considerable lateral displacement in the postero-lateral view.

Operation was performed by me on July 29th. The procedure was the same as at the last operation until the bone was exposed. The fracture was found to be firmly united, but on extending the arm the inner edge of the olecranon instead of fitting into the fossa came against the inner wall and could not be further extended because of this. It was obvious that the lower fragment had been rotated inwards in this case as in the last and had united in this malposition. The bone was sawn through at the seat of fracture with a fine Gigli's saw. The lower fragment was pushed into place and fixed by means of a staple. The wound was then sewn up by a subcuticular stitch of thread. The arm was bandaged to the body with the left hand pointing over the shoulder.

This was performed on April 16th, when an incision was made about eight centimetres long in the mid-line at the back of the arm, the mid-point of the incision being over the fracture. The muscular tissue was separated down to the fractured ends of the bone which were gradually manipulated into position. A small amount of a substitute for the inoperative bloodvessel was closed by uniting the split muscle with two or three thread sutures and the skin incision was sewn up by a subcuticular stitch of thread. The arm was bandaged to an anterior angular splint. The wound was dressed on the fourth day and the stitch taken out on the eighth day; at the same time the splint was taken off and the arm manipulated. The arm was exercised each day more and more and the splint left off during the day. The boy progressed rapidly and in three months was able to play all games as well as ever. When seen in October the arm could be fully extended and flexed and for all practical purposes the arm was as useful as before the accident.

THREE CASES OF FRACTURE OF THE LOWER END OF THE HUMERUS.

BY F. C. WALLIS, B.A., M.B., B.C. CANTAB., F.R.C.S. ENG.

SURGEON TO CHARING CROSS HOSPITAL, ETC.

Fractures of the lower end of the humerus are of frequent occurrence in young active boys and girls and the result of ordinary expectant treatment is too often a faulty union with limitations of movement. The difficulties of giving a complete account of such fractures are great, but the accidents should be well known, and the following cases bring out most of the points to which attention must be paid in dealing with this form of fracture.

CASE 1.—A boy aged seven and a half years, whilst riding a pony on April 2nd, was thrown by the pony putting its foot in a rabbit-hole. The boy pitched on his left elbow and fractured the humerus transversely at the lower end just above the olecranon fossa. He was brought to London and seen by Mr. Frank Romer who found the lower end of the bone displaced inwards and upwards and also rotated outwards; the joint was distended and there was much bruising.
to see whether any actual separation did exist on manipulation and to see also whether it was desirable to endeavor to force the lower fragment back into position. This was done a few days later and it was found that the fracture was a greenstick one with no separation or limitation of movement, and no attempt was made to replace the lower end into position. The after-treatment consisted of massage and gentle exercise, no splint was worn, and the arm was carried in a sling. When last seen about four weeks after the accident the arm could be moved without any trouble or pain in all directions. The hand still some swelling, but this was rapidly disappearing.

Mr. Romer who saw the case with me has since sent me the skiagrams of an exactly similar accident which he had seen in a boy 12 months previously who, since the accident and after similar treatment, had been passed into a naval college where he was carrying out his education.

Remarks.—These three cases of fracture at the lower end of the humerus are of considerable interest both to surgeons and practitioners. Anyone is supposed to be able to set a fracture, but when the result is not good the "setter" is usually blamed no matter what the difficulties may have been. The first question to decide is whether there is a fracture or not. Where the fracture is obvious and the displacement marked this will present no difficulties. When there are no displacements and no crepitus but considerable swelling, as in Case 3, and the indications are negative, it is better not to give a positive diagnosis that there is a fracture but to wait until a skiagram can be taken. It is well recognised now that a skiagram should be taken in every case of injury where a fracture may possibly occur, and the help obtained from a good skiagrapher both as to diagnosis and treatment is of the greatest importance and value.

The next question is whether an operation should be done or not. The expectant treatment carried out originally in Case 2 is one which often produces a good result with union in proper position and normal joint movements, and it was only after the fracture had united that the limitation of movement was definitely made out. As these operations are conducted in the present day the danger of sepsis is so slight that it must not be considered as a bar when the disadvantages of a crippled arm (especially in a boy) are thought of. When a recent fracture is operated on there is no doubt but that the draining of the tissues at the time of the operation apart from the fixing of the fragments is of great benefit and accelerates convalescence considerably. This is a clinical fact upon which I have remarked before when writing on this subject and was well recognised now that a skiagram should be taken in every case of injury where a fracture may possibly occur, and the help obtained from a good skiagrapher both as to diagnosis and treatment is of the greatest importance and value.

For permission to use these cases I am indebted to the honorary staffs of the respective hospitals. In addition I must acknowledge the use of the very valuable series of cases reported by Mr. A. E. J. Barker, Mr. C. P. B. Clube, Dr. H. J. Dunbar, Mr. B. Pitts, and Mr. P. W. G. Sargent. Space does not allow me to acknowledge individually the many observers whose cases are included in the tables, but where special mention of any case is made I trust a full reference is given.

The title of the paper obviously covers a very wide field and I shall endeavour to confine myself to the consideration

Fig. 5 shows the anterior displacement of the condyles with- out separation in Case 5.

I.—SOME POINTS IN THE PATHOLOGY AND METHOD OF TREATMENT OF INTUSSUSCEPTION FROM THE STUDY OF 1000 CASES.

BY DUNCAN C. L. FITZWILLIAMS, CH.M. EDIN., F.R.C.S. ENG., DEMONSTRATOR IN AMBULATORY SURGERY, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

The figures contained in this series of papers and the theories based thereon are the result of the investigation of over 1000 cases collected from the records of the Hospital for Sick Children, the West London Hospital, from cases published in THE LANCET and the British Medical Journal for the last 17 years, and from the Transactions of the Clinical and the Medical Societies and the Society for the Study of Disease in Children. For permission to use these cases I am indebted to the honorary staffs of the respective hospitals. In addition I must acknowledge the use of the very valuable series of cases reported by Mr. A. E. J. Barker, Mr. C. P. B. Clube, Dr. H. J. Dunbar, Mr. B. Pitts, and Mr. P. W. G. Sargent. Space does not allow me to acknowledge individually the many observers whose cases are included in the tables, but where special mention of any case is made I trust a full reference is given.

The title of the paper obviously covers a very wide field and I shall endeavour to confine myself to the consideration

1 Archiv fur Klinische Chirurgie, Band lxxi., Heft 1.
3 Scottish and Medical Surgical Journal, August, 1906.
4 St. Thomas's Hospital Reports, 1906.