been committed with respect to the lower epiphysis of the humerus; and that those authors who have written upon the subject of injuries of the elbow-joint have confounded with each other fractures above the condyles and disjunction of the epiphyses, from ignorance of the anatomical fact that the lower epiphysis of the humerus does not include the condyles, which belong entirely to the shaft of the bone; the epiphysis includes nothing but the trochlea and capitulum. The fundamental mistake of placing fracture through the line of the epiphysis among supracondylar fractures (as has been done by Malgaigne, Vidal de Cassis, Dupuytren, and others) has involved the equally glaring error of distinguishing these two injuries from luxation of both bones backwards by the same diagnostic sign—namely, the loss of the normal relation of the olecranon process to the condyles of the humerus."

Fortunately, gentlemen, it is not often that we are able to demonstrate what has actually taken place in accidents such as these. In the majority of instances, they are simple fractures or dislocations, and the true condition of the parts is hidden beneath unbroken skin; but, now and then, it happens, either because the injury forms part only of some more serious accident, or because it leads to consequences which are, happily, uncommon and necessitate amputation, we are enabled to do so. When we are, the illustration becomes doubly valuable, and I am able to show you one such to-day.

In this preparation, we have one such which implicated the lower extremity of the femur. The patient was a youth aged about 17, who had been caught in some machinery, and had been violently twisted round. A serious injury to the knee was the result, and he was admitted into the infirmary under the care of the late Mr. Samuel Smith. A fracture very low down in the shaft of the femur was diagnosed, and it was found impossible to rectify the displacement which had taken place. The accident had occurred a few days before my election as surgeon to this institution, and the case was amongst the first handed over to my care by Mr. Smith. The preparation has, therefore, an especial value, on that account, in my eyes, and is one to which I have often had occasion to refer.

When I took the case over, I found gangrene setting in in the foot and leg; and, by Mr. Smith's advice, I amputated the limb above the fracture, and here we see exactly what had happened. The lower epiphysis of the femur had been torn from its connection with the shaft, and had remained, with but little displacement, almost *in situ*. The shaft had been driven down into the popliteal space, and had so stretched the vessels, both artery and vein, and the popliteal nerve, that gangrene was inevitable; and it was clear to demonstration that no power would have sufficed to replace the fragments in position.

Once since I have seen an almost identical case in the hands of Mr. Atkinson, and a knowledge of what had taken place in this case of mine enabled us from the first to form a correct diagnosis concerning it. In that case, Mr. Atkinson endeavoured, in the first instance, to excise the displaced epiphysis, but without success; and was compelled, as I had been, to resort to amputation, which, as in my case, also proved successful, so far as the life of the patient was concerned.

Cases such as these cannot fail to make a profound impression on the minds of those who have charge of them; and as, when the first occurred to me, I registered a mental vow that I would never forget how important a part the epiphyses may play in such accidents, so now, after twenty years of further experience, I stand here thankful for the lesson I then learned, and feeling it to be my bounden duty to urge upon you the observance, through life, of a similar course of vigilance and care.

CUCAINE.

By A. PERCY SMITH, F.C.S., F.I.C., Rugby.

If the demand for cucaïne increase to any great extent, it is not unreasonable to suppose that some adulterated specimens may find their way into the market; although, no doubt, since few practitioners will purchase the drug from any but well known houses, the risk of adulteration is small.

Owing to the liberality of Herr Merck, of Darmstadt and London, who placed a small quantity at my disposal, I have been enabled to apply a few tests to this alkaloid, with the object of ascertaining its properties, so that I might be able to detect the presence of adulteration, if such should arise.

Since the quantity I had was but small, I directed my attention chiefly to optical tests, or the study of the crystals deposited from various solvents, viewed under the microscope by the aid of polarised light, as I have found this method very useful, and of great assistance

to chemical tests. There are a few alkaloids, such as strychnine, cantharidine, and salicine, which can at once be identified by this means alone. In other cases, where the crystalline form is not distinctive, it serves as a means for determining its purity, since admixture frequently alters the manner of crystallising (for example, quinine-sulphate pure, and mixed with cinchonine-sulphate), or else prevents it altogether, nothing being left, on evaporation of the solvent, but a gummy mass.

Cucaïne-hydrochlorate is soluble in chloroform, ether, and alcohol. From chloroform it does not crystallise (owing, probably, to rapidity of evaporation); from ether and alcohol it does; but best from the latter medium. The method of procedure is to place a fragment of the alkaloid in a watch-glass, add some alcohol and a few drops of ether, and allow it to evaporate spontaneously in a warm room. In a few hours, feathery rosettes of crystals may be seen on the glass. Strong heat, and consequently rapid evaporation, are fatal to crystallisation.

Crystals of cucaïne-hydrochlorate, crystallised from alcohol, seen by polarised light. Magnified 24 diameters.

If the crystalline film be very thin, it will appear of a bluish-white under polarised light; but usually the crystals are thick enough to produce prismatic colours.

The advantage of using polarised light may not be obvious in this case, since the crystals are visible without its aid. This is not always the case; for instance, strychnine deposited from chloroform may be completely invisible without this illumination.

So far, it must be confessed that there is nothing peculiar about the crystals of hydrochlorate of cucaïne, sufficient to distinguish them from other alkaloids with monoclinic crystals in a radial form; yet, where we are dealing with a known substance, any alteration or modification of a recognised crystalline form would naturally suggest the presence of an impurity; but it yet remains to be seen if adulterated specimens are to be obtained, and what effect such adulteration will have.

One peculiarity about the crystals is that the hydrochlorate and the free base both assume the same form, which is rather unusual.

The other tests which I was able to apply are:

Sulphuric acid No colouration.

„ + Potash-Bichromate „

Nitric acid „

Shosphomolybdic acid Yellowish-white precipitate, soluble in ammonia and in hot nitric acid.

Phosphotungstic acid Gelatinous white precipitate, soluble in ammonia.

THE ACTION OF CUCAINE ON THE NASAL MUCOUS MEMBRANE.

By E. CRESSWELL BABER, M.B.Lond.,

Surgeon to the Brighton and Sussex Throat and Ear Dispensary.

It may be interesting to know that I have been able to confirm Bosworth's important observation ("A New Therapeutic Use of Cucaïne," *New York Medical Record*, November 15th, 1884, abstract in *Centralblatt für Laryngologie*, vol. i, No. 8), in which, however, he appears to have been forestalled by Jellinek (compare Professor B. Fränkel, *Monatsschrift für Ohrenheilkunde*, etc., vol. xix, No. 1, p. 18), to the effect that cucaïne not only acts as a local anæsthetic to the nasal mucous membrane, but also has the power of contracting

the vascular erectile bodies on the turbinated bones. Bosworth found that cocaine acted only on the venous sinuses, and not on the capillaries. He noticed its effect both on the middle and inferior turbinated bodies. My observations are confined to the latter. I append brief notes of its action in two cases; but the effect of cocaine in this respect is so remarkable, that it really needs to be seen to be believed.

CASE I.—E. C., aged 19. On February 18th, an examination of the right side of his nose was made with the electric light and Fränkel's speculum. The inferior turbinated body was considerably swollen at its anterior part, so that only a slight view of the middle turbinated body could be obtained. The mucous membrane of the inferior appeared red. The anterior part of the inferior turbinated body was painted with a 4 per cent. solution of hydrochlorate of cocaine, by means of a camel's hair brush. After three minutes, the anterior extremity of the inferior turbinated body was decidedly less swollen, and more of the middle body could be seen. A globular prominence was visible on the inner (median) surface of the inferior turbinated body, at some distance from the anterior nares. This swelling was then painted with a 4 per cent. solution of cocaine. Five minutes later, the swelling had become pale and much diminished in size, so that the whole of the lower part of the middle turbinated body (including its inferior border) could be plainly seen. The inner surface of the inferior turbinated body could also be traced backwards to a great extent. The movements of the palate, during deglutition, were not seen, probably on account of swelling of the posterior extremity of the turbinated bodies, or of a swelling on the right side of the septum, which was seen on posterior rhinoscopy. More than a quarter of an hour later, the inferior turbinated body continued collapsed, and the globular swelling mentioned on its inner surface had almost disappeared.

CASE II.—J. M., aged 60. On February 19th, an examination of the right side of the nose was made with reflected sunlight and with Fränkel's speculum. The inferior turbinated body was erected at its lower part, and very red—thus preventing all view of the palatal movements on deglutition, but allowing a clear view of the middle turbinated body. The inferior turbinated body was painted with a four per cent. solution of hydrochlorate of cocaine, not very freely. After three minutes, it was found rather less swollen at its anterior part. It was painted again freely and deeply with a four per cent. solution of cocaine. Five minutes later, the inferior turbinated body was collapsed so that its inner (median) surface could be traced to a great depth, and the palatal movements during deglutition could be plainly seen through the inferior meatus. It was still red at its anterior extremity. More than half an hour later, the inferior turbinated body remained in the same condition, and the movements of the palate could be plainly seen.

In another case, as in the first above mentioned, I have observed that the application of cocaine had a blanching effect on the inferior turbinated body. It therefore, contrary to Bosworth's opinion, appears sometimes to act on the capillaries, as well as on the cavernous tissue.

The great practical value of this contracting power of cocaine will be fully recognised by those accustomed to practise anterior rhinoscopy. It will render inspection of the nasal cavities easy in many cases in which it would be impossible except by drawing aside the swollen turbinated bodies. It will facilitate operative procedures on the nose; and cocaine, applied to the nasal cavities, will doubtless come into use as a therapeutic measure in cases of undue tendency to erection of the inferior turbinated bodies. Again, it will very probably be of service in cases of hæmorrhage from these structures; and will, if needed, help to settle the diagnosis between hypertrophy of the inferior turbinated bodies and simple erection of their cavernous structures.

The anæsthetic action of cocaine is now so well known that it needs no confirmation. But I may say that recently, in a highly nervous lady under my care, after two applications of a four per cent. solution, I have removed roots of nasal polypi with the cold wire-snare, and touched the same freely with the galvanic cautery, without her experiencing any pain.

DONATIONS AND BEQUESTS.—The Brompton Hospital for Consumption and Diseases of the Chest has received £100, and St. George's Hospital £100, "In loving memory of T. B. Christmas."—Mr. T. Martin, of Beechwood, has given £100, additional, to the Sussex County Hospital, Brighton.—Messrs. Coutts and Co. have given £105 to the Middlesex Hospital.

MEDICAL MAGISTRATE.—Mr. John Francis Marshall Miles, The Grove, Dingle, has been appointed to the commission of the peace for Kerry, upon the recommendation of the Right Honourable the Earl of Kenmare, K.P., Lieutenant of the county.

CASE OF RECENT FRACTURE OF PATELLA, TREATED BY WIRE SUTURE.

Read before the Bath and Bristol Branch.

By JOSEPH HINTON, M.R.C.S.ENG., Warminster.

It must be acknowledged that the routine-treatment of fractured patella rarely gives the surgeon much satisfaction. After months of somewhat anxious watching, an apparently very successful case of short ligamentous union may be attained; but a few months' use often stretches the ligament, and renders the limb permanently weak. What if, by a special good fortune, bony union have attended our efforts; is it not more than probable that most of our professional brethren examining the case would doubt the correctness of our original diagnosis?

About fifteen years ago, a patient who had recently come to reside in Warminster, and who, moreover, was only just recovering from this accident, in getting out of a fly at my door, slipped, and the other patella gave way. This case, my old partner, Mr. Bleack, whose whole professional life was spent in the town, used to say was the only case of this accident he had heard of in the district; yet, strange to say, while this lady was under treatment, her sister, living in the same street, slipped in her bedroom, and the same accident occurred. In this second case, the upper fragment was remarkably small, and though the ligamentous union was both very firm and short, her powers of movement and her confidence in the leg were equally small. This went on several months, without any improvement, the upper fragment always appearing to me to be tied down below the level of the lower portion. She never had any other feeling, but that the leg would double up under her. I then sent her up to the late Mr. Hilton, and I put this question to him: Would it not be possible to lift this upper fragment and place it in a better position? Of course, he discountenanced the idea. Antiseptics were then in their infancy. My patient returned with a cumbersome but most useful apparatus, which prevented her knee from bending beyond a certain point. With this, she contrived to walk very fairly; without it, the leg was almost useless. I have little hesitation in saying now that the lifting of this upper fragment, and the tying together of the two fragments, would have placed her in a far more favourable position. Since that date, no case had occurred in the neighbourhood until January of this present year.

On Sunday, the 28th of that month, a fine well built young fellow, the factotum of one of our neighbouring villages, slipped in church, and his right patella yielded. He was brought to our Cottage Hospital, and on my arrival I found that one of my medical brethren had at once carefully adjusted the leg on a back-splint. There was already considerable effusion in the joint.

I had been particularly struck by the series of cases recorded in our JOURNAL, in November 1883, by Sir Joseph Lister, in which he described several cases of this accident treated most successfully by suturing the fragments with silver wire. Little dreaming I should so soon meet with a case, I had mentally resolved to try to follow his steps, if ever the accident presented itself. Accordingly, on February 4th, eight days after the accident, I proceeded, under strict antiseptic precautions, to operate. As all the steps of the operation are graphically described by Sir Joseph Lister in his most interesting paper, it is quite unnecessary for me to occupy your time with any account. I only differed from his plan, if difference it can be called, in placing a drainage-tube on each side of the joint, instead of on one. Suffice it to say that there was never anything like a bad symptom. The leg was placed on a MacIntyre's splint; the dressings were changed on the 7th, 12th, 18th, and finally 25th. One drainage-tube was removed on the 18th, the other on the 25th. The temperature never rose to 101°, nor the pulse beyond 90.

Sir Joseph Lister had kindly written me, that if I used wire sufficiently strong, one-sixteenth of an inch, I might let my patient walk about in a month. I scarcely dared to follow this; but on the day five weeks after the operation, he walked across the ward, and six weeks after the operation, he returned home, having walked nearly a mile on the previous day. [The patient was introduced.]

You will notice that the natural condition of the patella is somewhat out of the ordinary shape, and that the lower segment is altogether narrower; it was here that the fracture occurred. Also, the fracture extended higher at the posterior part.

It may appear somewhat presumptuous in me to attempt to add anything to Sir Joseph Lister's clear and admirable directions; but as any operation may develop fresh contingencies, I hope I may be pardoned for venturing on one or two remarks.