bruise on each elbow there were none. The head showed no sign whatever of any injury. The patient gradually recovered consciousness. Three days subsequently he seemed to be progressing favourably, and complained of nothing beyond slight giddiness and some headache, which he did not seem to localize particularly. He ate and slept well, his pulse and temperature were normal, the bowels open, and urine passed freely. I considered him to be going on very well, indeed practically out of danger, and informed his friends to that effect. On the fourth day, however, he became partially unconscious; he still took his food well; the bladder and rectum acted naturally, all the reflexes, superficial and deep, were normal, as were the optic discs, and there was no paralysis of either limbs or speech; the urine contained no sugar or albumen. I called Dr. F. S. Toogood of Lewisham in consultation, and we gave a hopeful prognosis. Coma, however, gradually increased, and he became actually unconscious; his breathing, which up to now had been quiet, was stertorous; he could still swallow a little.

As the patient's condition looked very serious, I asked Sir D. Ferrier to see him with me. At that time the patient passed both urine and faeces unconsciously, and he was unable to swallow. There were slight twitchings of the muscles of both upper extremities, and occasionally of the lips. The pulse remained steady and regular at about 70, and the temperature ranged between 99° and 100°.

The next day Mr. Ballance saw the patient with me; he advised withdrawal of cerebro-spinal fluid from the lumbar region, and drew off under pressure 1½ oz. of very slightly red-coloured fluid. The patient at this time was thoroughly unconscious, and his state seemed hopeless; his temperature had gone up to 104°.

During the five hours after the aspiration the patient gradually became conscious, and within twelve hours he was talking, taking nourishment, and quite able to understand everything that was said to him. The deep, superficial and conjunctival reflexes, which had been absent, all returned. During this period constipation, which was very marked, was most difficult to overcome.

For the next three days the patient appeared to be going on very well, but on the fourth day after the aspiration I noticed that he was gradually again lapsing into a state of insensibility, with symptoms of paralysis; he vomited twice, and there was less of power of deglutition. Mr. Ballance again visited the patient, and performed a second aspiration in the same neighbourhood, drawing off a similar amount of cerebro-spinal fluid of the same appearance as before. Again within five hours the patient began to show signs of returning consciousness, and at the end of twelve hours he was quite sensible, able to talk, and take food by the mouth. From that time he never retrograded, and has made an excellent recovery; he subsequently went to the seaside, and now—several months afterwards—appears to be in his ordinary health.

The principal aim of treatment was to keep the patient and room as cool as possible. The head was shaved and surrounded with ice-bags. The room had large blocks of ice standing in trays, and an electric fan was kept going continuously. The spray from a garden-hose was kept plying on an adjoining roof, and by so doing prevented the reflected heat-rays from radiating into the room. By these means we were enabled to keep the temperature of the room at 60°, whilst the temperature in the shade outside was about 90°.

I have known the patient intimately for the last twelve years, and beyond the fact that I removed some glands from his neck five years ago, he has always enjoyed excellent health, with no organic disease of any kind. A few weeks before the illness he passed as a first-class life for insurance purposes, but on that occasion he was not examined by me. He came to see me about three weeks prior to this attack, complaining of headache and giddiness, accompanied by slight epistaxis. These symptoms I attributed to the excessive heat, and on keeping him as quiet and cool as possible they passed off. To complicate the diagnosis there was the history of a hurt, and the question arose whether he became suddenly unconscious and fell down in the road, or whether he was knocked down by a cab. However this may be, there was no visible injury to the head, and as he immediately rose up and walked to the railway station there would not appear to be any serious result due to a fall or other possible accident.

My opinion is that he had a sudden heat-stroke and fell down as a consequence of that, the heat being excessive (between 80° and 90° in the shade), and he had passed the morning in the somewhat violent exercise of running up and down stairs and walking about large warehouses. He is a total abstainer and non-smoker, his arteries were in an exceedingly good condition for his age, with no symptoms whatever of atheroma, and there was no increase of blood pressure. I think the existence of intracranial tumour may be excluded in this case, there being no prolonged pressure symptoms beyond the coma. It was at one time thought to be a case of haemorrhage affecting the cerebral cortex; but, although there was slight twitching of the arms, this soon passed away, and there was no motor paralysis.

The remarkable recovery in a few hours from what appeared to be imminent death, on two occasions, after the withdrawal of the cerebro-spinal fluid, seems to rather point to the fact that he was suffering from what might in a sense be described as a "blistering of his cerebral cortex," caused by the excessive heat rays of the sun (a meningo-cortical oedema), and that the fluid was being excreted faster than it could drain away, and by removing the excess a drain was established, and thus the pressure was relieved.

ACUTE ANTERIOR POLIOENCEPHALOMYELITIS IN SOUTH STAFFORDSHIRE.

By L. S. TOMKYS, L.R.C.P., M.R.C.S.,

MEDICAL OFFICER OF HEALTH, RURAL DISTRICT OF LICHFIELD.

THE following cases of poliomyelitis which came under my observation during July and August will probably be of interest, in view of the prominence which has recently been given to this disease in its epidemic form. Six of the cases occurred in my own practice, and the seventh was under the care of Captain Bagshawe, R.A.M.C., to whom I am indebted for details and for permission to include it. Five of the cases occurred in the village of Whittington in five separate families, and two (in one family) in a semi-detached cottage about a mile away, the building being an isolated one.

CASE I.—Male, aged 1 year and 4 months, seemed feverish on evening of July 1st, but little notice was taken of this. The next morning it was apparent that the right leg was partially paralysed. This would seem to have been the first case.

CASE II.—Male, aged 6 years. The date of onset is doubtful, but it was some time between Cases I and III. The boy was feverish one night and two days later it was noticed that the right leg was partially paralysed. No doctor was called in, and when seen for the first time on August 16th, when investigating the cases, the child was quite well, with the exception of a slight limp.

CASE III.—Male, aged 1½ years, had a typical attack of measles about July 8th. He was out four days after the rash appeared. His brother had measles a fortnight before. On July 15th he appeared to be unwell, but there was nothing definite. On July 18th he apparently had pain in the head, which was retracted. The temperature was subnormal, the pulse rapid, the pupils equal but rather large. He was constipated. He had lost the use of both arms, but could move the hands.

CASE IV.—Male, aged 2½ years. On July 21st had headache and feverishness, and next morning it was noticed that the movements of the left leg were impaired.

CASE V.—Aged 1½ year (under the care of Captain Bagshawe, R.A.M.C.). The child was first seen on July 21st, when it was brought to the Military Hospital with slight rise of temperature and tenderness of both legs. The following day there was complete paralysis of both legs from the hips down.

CASE VI.—Male, aged 1 year and 7 months, was sick on August 28th and quite helpless on August 29th. There was retraction of the head and loss of use in both arms from shoulder to elbow.

CASE VII.—Male, aged 2½ years (brother to VI), lost the use of both legs on August 29th, but had been tired and sleepy for about a week previously.

Both these children had suffered from summer diarrhoea.

Whittington, in which five of the cases occurred, is a small village about three miles from Lichfield, and, although the sanitary arrangements naturally leave much to be desired, they are certainly no worse, if anything rather better, than the average. Not being situated near a main road, rapid traffic is scarce, and the village was singularly free from dust, considering the dryness of the summer. The house in which Cases VI and VII occurred is situated in a field close to a by-road.

The water supply is obtained from the South Staffordshire Waterworks Company by the houses in the village, the remaining house being supplied by a well.

Cases II and III had the same milk supply, but the others each had a separate one. The Whittington cases were in the centre of the village, and within a circle with a radius of about 100 yards; the houses were fairly clean and not overcrowded. None are situated near a stable.

It is difficult to trace the origin of the outbreak, as the first child to suffer had never been away from home, and no visitors had been to the house. The child partook of ordinary food, and the only animal on the establishment was a cat. There may, of course, have been abortive cases before this, but I could obtain no information of such. The local veterinary surgeon (Mr. Connell) informs me that he

has not had any cases in animals which could have had any bearing on the causation.

The mother of Case IV took the child inside the house in which Case III was lying ill, but did not enter the bedroom. This was three days before her own child was attacked. Although Cases VI and VII reside a mile away, the grandfather lives in the village, and visits them once a week. I am assured, however, that he had not been in contact with the other cases. This is the only evidence of direct contact which I have been able to obtain, while, on the other hand, the five children attacked in the village were in separate houses, and no second cases occurred in these, although there were other children in each. As regards the two children who were attacked in the same house, the circumstances suggest a common source of infection rather than contact from one to the other. Neither were the children of their immediate neighbours affected, although isolation was not attempted, and communication was as free as usual. With the exception of the child who commenced with measles, I could get no history of nasal or pharyngeal catarrh, and only two had diarrhoea previously. It is noteworthy that, in spite of the character of the season, the village of Whittington was almost free from summer diarrhoea.

The only factor which appeared to be common to all was the plague of flies and wasps.

None of the cases proved fatal, and, although more or less paralysis remains, each case is still slowly improving.

A CASE OF POISONING BY OIL OF MIRBANE (NITRO-BENZOL).

By C. W. HOGARTH, L.R.C.P., M.R.C.S.,

ASSISTANT SCHOOL MEDICAL OFFICER, L.C.C.

OIL of mirbane, known also as essence of mirbane—sometimes spelt "myrbane"—is a clear, bright yellow fluid, with a penetrating aromatic odour of an almond-like character. Caspar,¹ who first described it, says it is used in soap perfumery, but it seems nowadays to be used in the manufacture of blacking, and its peculiar odour is perceived on opening a fresh tin of shoe-blackening. Its specific gravity is 1180 to 1200. It is the product of the action of strong nitric acid on benzene.

W. Blythe quotes Jubell,² "that up to 1876, from the time of the discovery of the compound and its commercial use, 42 cases of poisoning were recorded, 13 of which proved fatal, one being suicidal and the rest accidental."

Caspar³ says the body, long after death, retains the strong odour of bitter almonds; whereas, in poisoning by prussic acid, the body soon loses the characteristic odour. The blood is dark and fluid, and it gives the spectrum of acid haematin.⁴

CASE.

Shortly after 11 p.m. I was asked by a woman to go at once and see her husband, who had taken poison. I could not gather its nature, so I took an emergency case with me. On entering the bedroom one perceived a peculiar odour of an almond-like character.

The patient was lying on his back in bed; the eyelids were open, and there was a slow nystagmus to the right. I was immediately struck with the purple colour of the lips—just, as one writer has described it, as if the lips were stained with blackberry juice. The skin was dusky in hue, the conjunctivae insensitive, and the pupils dilated. The limbs were relaxed. The breathing was somewhat embarrassed, the pulse could only just be detected; on auscultation the heart beats could be heard faintly, and the rhythm was irregular. The patient vomited once whilst I was in the room; the vomit had the same odour as the room.

The following history was obtained: The man had had tooth-ache the previous night, and on the advice of a fellow-workman had obtained some oil of mirbane at his works and applied it on cotton-wool to his teeth. Next morning he had felt drowsy, and had not felt fit to go to work. Later in the evening he got worse, and about 10 p.m. he became unconscious. Inasmuch as he had vomited and the poison had been absorbed it did not seem much use giving an emetic, so I ordered more blankets (the limbs were cold) and hot-water bottles to be applied, and gave the man 0.20 gram of caffeine hypodermically. At this time another medical man arrived (he was seen subsequently by still another). I saw him again at 1.30 a.m.; his condition had been improved slightly.

Next morning he was conscious, but his lips were blue, and there was still the persistent odour, exhaled from his body, filling the room. He made an uneventful recovery; the dusky complexion gave way to one of good colour and the pulse

became bounding. Nothing more was done beyond the ordering of the exhibition of plenty of fluid. I regret I did not examine the blood.

The points that struck me most were that this was not an ordinary want of oxygen blueness, for the breathing was not embarrassed to any marked extent, but that some profound blood change had taken place, as to the nature of which there are many speculations. It is said that the blood loses its power of oxygen carrying, and that the carbonic dioxide content is increased, but in view of the respiration this does not seem satisfactory. The sudden onset of the unconscious condition is to be noted; it came with the suddenness of cerebral haemorrhage, some hours after the nitro-benzol had been taken.

An artificial benz-aldehyde, not by any means so toxic, is now used in perfumery.

REFERENCES.

¹ Caspar's *Forensic Medicine*, vol. ii, p. 50 et seq. ² *Die Vergiftungen mit Blausäure v. Nitro-benzol in forensischer Beziehung*, Erlangen, 1876; W. Blythe, *Poisons*, v, 4th edition. ³ Caspar's *Forensic Medicine*, vol. ii, p. 50 et seq. ⁴ Filchner, Ueber die Giftwirkungen des Nitrobenzols, *Arch. für exper. Pathol. u. Pharm.*, ix, p. 329.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL URINARY DEPOSIT OF CALCIUM CARBONATE.

I WAS much interested in Dr. W. Herbert Brown's communication in the *BRITISH MEDICAL JOURNAL*, January 6th (p. 9), because, though I have never met with a similar deposit during the microscopical examination of urine obtained in the ordinary way, I have found that a similar deposit is not rare in the contents of cysts of the renal cortex, when those contents have become more or less turbid and inspissated.

Dr. Brown's patient was a man, aged 65, suffering apparently from chronic interstitial nephritis, and it is therefore extremely probable that his kidneys contained cortical cysts, the contents of some of which may have been more or less turbid owing to a process of gradual inspissation. The inspissated contents of one or more of such cysts may have found their way into the urinary

tubules, and may thus have been discharged with the urine, giving rise to the unusual urinary deposit discovered by Dr. Brown.

The crystalline bodies in renal cysts, similar to those in the urine described by Dr. Brown, were circular or oval, as seen under the microscope, varying in size from three times the size of a leucocyte to much larger. They showed lines radiating outwards from the centre, and seemed to be enveloped by a clearer outer membrane; sometimes there were three or four concentric circular markings in addition to the radiating striation. They took on the ordinary blue stain with methylene blue. In August, 1895, I noted that these bodies were possibly crystals of calcium carbonate, deposited in an albuminous medium, but I am afraid that I neglected to prove them to be so. On pressure with the cover-slip, they broke up, and doubtless were really spherical (not flat, circular) bodies, having a structure exactly similar to the balls of iron pyrites, which one may pick up any day on the beach of the "Warren" at Folkestone. I here figure drawings of some of the bodies (one of them showing the outer, membrane-like, layer partially detached) which I found in the turbid contents of renal cysts about 1895. I had previously noticed the presence of similar bodies on examining the contents of renal cysts when I was a student, or a member of the resident staff at St. Bartholomew's Hospital. I believe that bodies with a similar appearance have been described as leucine, deposited in globular masses, with concentrically thickened walls and fissured surfaces. Possibly some of the bodies,