Owen asserts, on the authority of Müller and Quekett, that the echinococcus hominis differs from those of the hog, in having suctorious cavities beneath the circlet of hooks, and visible when this is protruded. Dr. Budd says that these suckers have not been visible in any specimens he has examined, whether taken from human hydatids or from those of the sheep. I must add my humble testimony to the same effect. The well-known accuracy of the two first-mentioned observers, forces us to believe that there is more than one kind of echinococcus, viz., those having suctorious cavities, and those in which they are absent.

The following is Dr. Budd's description of the kind he and most others have seen:—"Echinococci are oval, transparent, colourless creatures, somewhat egg-shaped, and presenting under the microscope a distinct double outline. The anterior end has a depression or cleft, from which there is an evident canal or mouth, leading to a circlet of hooks which is within the body, and nearer the posterior end than the anterior. The posterior end has also a slight depression, which has now and then a fibrous pedicle attached to it. The creature is studded with globular bodies, which from their refracting light strongly, have under the microscope a strong dark outline, and a bright centre. They seem to be in the membrane of which the body is composed, or rather between the outer membrane and an interior solid body, and are at different depths from the object-glass, so that while some are clear under the microscope, others are indistinct."*

I have not detected any muscular or nervous structure in the creature, the circlet of hooks is retracted by the irritability or rather the contractile nature of the surrounding parts. After the death of these creatures, during decomposition, the circlet is protruded; whilst they are attached to the cyst-walls such is also the case; the stimulus of light, however, excites the contractility of the tissues which retract the circlet, and we see them with the row of hooks in the centre of their body. It would appear that the protruded state was the natural or usual one, and that only under peculiar circumstances, owing to an unusual stimulus, or before perfect development for instance, the circlet is retracted. The hooks or teeth of which the circlet is composed, are generally between twenty or thirty in number, they are hard, and resist decomposition, resembling somewhat the iron part of a pickaxe in shape, they have a sharp and a blunt extremity, and there is a tubercle in the centre. The teeth are fixed around a circular base, the sharp end points posteriorly, so that when the circlet is plunged into the albuminoid texture of the cyst, it is not very easily removed.

The echinococci have not been discovered elsewhere but in acephalocysts, primary or secondary; they appear in these last very shortly after they have become visible to the naked eye, and as the cyst increases in size, so do its inhabitants increase in number.

The organization of the echinococci is very simple, and their place is also very low in the animal scale; they

do not always present the refractile globules beneath the superficies. In one of the cases I have described there were none to be seen, but in considerable numbers, in the vicinity of several echinococci, there were globular cells, some refractile, others presenting a granular mass in their interior. In this case the fluid of the acephalocyst had become absorbed, a simple halitus remained, and numerous echinococci and these cells were found congregated wherever there was a slight excess of moisture. Now, as the acephalocyst must have been in the state described, for at least fifteen years, it becomes interesting to observe the great latent powers of life possessed by these entozoa, a peculiarity almost equalling that of the rotifera. The refractile globular bodies I believe to be ova, of whose future destiny I shall presently treat.

[To be continued.]

DEATH CAUSED BY THE INHALATION OF CHLOROFORM.

By EDWARD JACKSON, Esq.,

Demonstrator of Anatomy at the Sheffield Medical Institution.

J. S. aged 21, a young man studying for the medical profession, of a reserved disposition, but at times immoderately cheerful. Has enjoyed tolerable health throughout life, although suffering very frequently from toothache or tic doreux. A week previous to his death he sustained a great loss in the death of his master; this threw into his hands a more than usual amount of labour, and he appeared somewhat anxious as to the course he should pursue in carrying out his studies, but there was no evidence of any remarkable depression of spirits. He had been accustomed at various times, when he suffered from toothache, to inhale chloroform on a pocket handkerchief, but in the presence of the servant man, to whom he gave instructions to arouse him, if stupor continued beyond a certain time; he had also been accustomed to take small quantities of opium at bed-time, being subject to restlessness and disturbed sleep.

On the 23rd of June he followed his customary avocations, and in the evening went to church, and from thence accompanied a friend to supper. Although he complained of not being in his usual health, still there was nothing to attract attention, and he parted from his friend cheerfully, promising to meet him the following evening. He had partaken, for his supper, of veal and tart, with a little sherry, and retired to rest at half-past eleven. At a quarter to twelve, a gentleman, (Mr. R.,) who occupied a bed in the same room as the deceased, retired to rest. The deceased had extinguished his light, and appeared to Mr. R. to be in a sound sleep. The latter got into bed without taking further notice, and after a period of fifteen minutes, he heard a moan, which he regarded as nothing unnatural, or probably, he thought, the result of dreaming, and fell

* Budd on Diseases of the Liver, p. 339

asleep. He arose at six in the morning, and having finished his toilet, went out for a walk, leaving, as he supposed, the deceased in a sound sleep, and lying in a composed and natural position. About fifteen minutes past eight A.M. the servant knocked at his door, and receiving no answer, went to his bed and shook him, but without rousing him. She found the bed clothes almost entirely covering his head, and immediately alarmed the inmates, when I was sent for, they supposing him to be in a fit. When I saw him first I found him in the following position:—He lay on his right side, the head rather bent on the chest; limbs flexed, the knees being up, the limbs were rigidly fixed in this position; in fact the whole body was as that of a person in tetanus; the jaws were firmly closed, and the tip of the tongue, which protruded, had been lacerated. A pocket handkerchief, rolled up, was pressed tightly over his mouth and nostrils by his hands, which were rigidly fixed in that position, the fingers being bent in segments of circles. The whole of the dependent surface of the body was deeply discoloured, of a purple colour, from the ordinary gravitation of the blood; the pupils were about the natural size; the body was almost cold; the rectum and bladder had been evacuated.

Sectio cadaveris.—11 A.M., June 24th.—The first circumstance noted, in making the integumentary incision, was an *exceedingly fluid state of the blood*, which was very dark in colour. The brain and membranes were healthy, the former perhaps not being of so firm a consistence, as natural, and slight congestion being evident in both; the sinuses at the base were largely distended with blood; the same state was also observed at the upper part of the spinal cord. The lungs were perfectly healthy in structure, but somewhat congested, and a frothy fluid exuded on pressure; they were not collapsed or but partially so. The heart appeared to be larger than usual, but this arose from the *excessive distention* of the right cavities with *very dark fluid blood*; the left cavities were almost empty; the structure was perfectly natural; valves, endo- and peri-cardium healthy. The *stomach* contained a quantity of dark reddish-brown matter, apparently the last meal which had undergone reduction in the stomach. The mucous membrane was moderately congested and vascular, but not more than probably occurs in healthy digestion; it was not at all softened. The liver, spleen, kidneys, intestines, and pelvic viscera, were perfectly healthy, but the venous system in each, was largely engorged with blood. There was not the slightest internal wound.

OBSERVATIONS.—The chief point of interest in this case was the cause of death; and to assist in discovering this, it will be necessary to note several collateral circumstances connected with the case.

1st. In a watch pocket just over deceased's head, was an empty half-ounce bottle, the cork being loose in the same pocket. Not the slightest smell could be detected arising from anything the bottle might have contained.

2nd. The pocket-handkerchief which covered the mouth was perfectly free from odour.

3rd. In a private drawer belonging to the deceased was found a one-ounce bottle, containing about five drachms of chloroform. Knowing the great volatility of chloroform, I performed an experiment with regard to this point; I took a small bottle, containing one drachm of chloroform, and having poured it on a pocket-handkerchief, I wrapped the latter up tolerably close, and allowed the bottle to remain open. In three hours I could not detect any smell from either which would justify me in stating that chloroform had been present.

The appearances presented by the *post-mortem* examination, were those of death by apnoea (asphyxia.) The question arises—How was this produced? Chloroform produces various effects, according to quantity, purity, duration, and manner of inhalation. Thus anæsthesia, general insensibility proceeding to profound coma, paralysis of voluntary, and afterwards (very probably) of involuntary motion, are its usual effects, according to the length of time administered. Convulsive action has been remarked in many instances. I have seen a case in which violent maniacal delirium resulted, lasting two or three hours, relieved by opium. In the case in question, the apnoea may have been the result of—1st, profound coma, from prolonged inhalation; 2nd, or, more immediate, from prevention of entrance of air into the lungs, by closure of the external orifices of respiration, by the hands and handkerchief, these effects being increased by convulsive action, which would also implicate the larynx and trachea; 3rd, or, from a combination of all these circumstances, as is most probable. Now, supposing the deceased to have inhaled chloroform, the following is my impression as to the course of events. He poured the usual quantity (say $\frac{1}{2}$ drachm to 1 drachm) on his handkerchief, laid himself down, and (probably, although thoughtlessly) to increase its effects, pulled the bed-clothes over his head, the usual effects of chloroform took place, insensibility resulted, consequently he could not remove the handkerchief from his mouth on account of his peculiar position in bed.

The inhalation would thus proceed, evaporation of the chloroform being greatly prevented by the bed-clothes, at the same time the air being almost entirely excluded. The next effect would, most probably, be convulsive action, of a tonic character; this may in a great measure be inferred from the rigid condition of the muscles after death, which was far greater than the usual rigor mortis. The handkerchief would thus be pressed more closely by the hands against the mouth and nostrils, the rigidity affecting more especially the flexor muscles. Apnoea would be the result, and consequent death from—1st, the chloroform producing insensibility; 2nd, the passage of air to the lungs being prevented, or nearly so, by the continued inhalation, as well as by the external orifices of respiration being in a manner closed, and by the convulsive action implicating the glottis, together with the external respiratory muscles. All these causes would concur in

producing apnoea. And there can be little doubt, from the circumstances detailed, that chloroform was continuously inhaled for a long time, and produced its fatal effects from the peculiar concurring circumstances above mentioned. Had he inhaled it whilst sitting up in bed, the result would, most probably, not have proved fatal. The quantity inhaled it is impossible to state, but the quantity usually employed might produce death under such circumstances as those above mentioned.

Bank Street, Sheffield,
January 21, 1851.

REMARKS ON CASES IN PRIVATE PRACTICE.

By W. C. COOKSEY, Esq., WORCESTER.

ON A NEW APPARATUS FOR CLUB-FOOT.

In the *Journal* of the 26th of June last, I directed attention to a method of treating talipes equinus by a simple apparatus, and I mentioned at the time that a modified splint on a similar principle, might be applied to other forms of the same affection, with equal advantage. I have since used the splint to which I refer in a case of equinus varus; I found that its effect in bringing the foot to the proper angle with the leg was as good as possible, but something more was necessary to uncurb and expand the contracted foot, and to give it as early as possible the power of being placed flat and firmly on the ground. I therefore had an apparatus made, of which the following sketch may convey an idea, and which has answered the end in view perfectly well:—

Fig. I.

Fig. II.

It consists of a wooden sole somewhat larger than the bottom of the foot, (*Fig. I.*); to the under surface of this is attached a bar of steel about four inches in length, and

moving loosely on a pivot in the plane of the sole; this bar may be placed at any angle with the long axis of the sole, and secured in its position by means of a stud on its upper surface, which enters the holes in a segment of brass let into the sole. At the free end of the bar is an eye holding a strap, which meets the buckle on the collar at the knee, *Fig. II.* Thus the pull may be made in any direction or to any extent. I do not know any case of deformity affecting the foot and ankle-joint, in which this splint may not be available, or in which, unless the case be beyond the reach of mechanical art, a cure may not be effected by its use, after the proper division of the tendons, it being always borne in mind, that while no class of cases may appear at first sight more hopeless than those in question, there are none which better repay a diligent, careful, and patient use of the remedial means which we possess for their relief.

In applying this apparatus, the foot should be first firmly bandaged down as flat as possible on the sole, and to prevent its moving aside when the strain commences, the heel should be surrounded by a piece of stiff leather, three quarters of an inch in depth, with a strap to buckle across the instep over the bandage. The sole and collar must be carefully padded, and the whole removed once a week, without which precautions the long-continued pressure may endanger the skin.

DEATH CAUSED BY THE IMPACTION OF A PIECE OF WALNUT IN THE LARYNX OF A CHILD.

On the 26th of October my attendance was requested upon a child who was thought to be dying; I was from home, as was also another medical man to whom the messenger applied. When I arrived at the house, the child had been dead half an hour. The parents told me it had been attacked while in perfect health, with sudden difficulty of breathing, threatening immediate suffocation; it appeared in great distress; there was no cough, but a wheezing sound on each inspiration. The symptoms, as described, appeared to resemble those of sudden oedema of the parts around the glottis, but the manner of the attack, and the rapidly fatal termination of the same scarcely bore out this view. I passed my finger into the pharynx, expecting to find some foreign body pressing upon the glottis or otherwise impeding respiration; the throat, however, was clear, and the parts natural and healthy. I then requested leave to examine the body, which being granted, on the following day I cut down upon and removed the larynx and part of the trachea, when the difficulty was at once explained. A piece of the kernel of a walnut had passed through the rima glottidis, and was wedged within the cricoid cartilage, by the ring of which it was firmly embraced, so as to be with difficulty removed. The angular shape of the walnut, by allowing the passage of a small portion of air, accounted for the little patient having survived the accident an hour and a half. It was only six months old. The case appears to me to suggest the question of—How far, under similar circumstances, mechanical interference would be justified? as, for instance, endeavouring to pass an elastic bougie through the rima glottidis before thinking of tracheotomy, with the view