ture, and their ignorance of its real nature, considered it to arise from a double formation of the spinous processes, and accordingly gave it a name signifying spinis bifida, or bifurcated spine. From the numerous dissections, however, which have since been made of this disease, it has been discovered that it is owing to a deficiency of the spinous processes or the rings of the vertebræ.

Agreeing then, that it is caused by an arrest of development in some part of the ring of a vertebræ, how is this brought about? 1. By a dropy, probably inflammatory, of the membranes before the bones are ossified. 2. M. Cruveilhier thinks it is, in some cases, the consequence of adhesions having taken place between the integuments and the coverings of the spinal cord, before the cartilaginous tissue of the laminae was formed; by these adhesions the cord is kept out of the canal, and consequently prevents the formation of the laminae in the corresponding region. 3. A want of union between the two halves of the foetus while in progress of formation. We have an analogue of this in cleft palate, hare-lip, etc., which abnormalities are often associated with spinis bifida.

II. A case given in the Appendix to this work. Birth, each vertebra consists of three separate pieces, one for the main part of the body, and one on each side for the arch and processes. During the first year, the laminae become united behind by a portion of cartilage in which the spinous process is ultimately formed, and thus the arch is completed. Before puberty, no other changes occur, except a gradual increase in the growth of these centres, the upper and under surfaces of the body, and the ends of the transverse and spinous processes being tipped with cartilage, in which ossific granules are not as yet deposited. At sixteen years, four secondary centres appear, one for each transverse process, and two (sometimes united into one) for the spinous process.

I do not think it can be in any way associated with so-called spinis bifida, because there is no feeling of fluid, no aperture to be felt, and down the spine there is not the required pressure. The fact of his being able to walk, however, and having had there been any congenital malformation of the bony structures, there would in all probability have been a similar defect of the soft tissues, such as one sees in very slight cases of spinis bifida.

Now, let us consider the second cause, viz., an alteration in the process of ossification apart from development. We have seen how the vertebrae are developed from three primary centres of ossification, and that these are supplemented by four secondary centres at sixteen years of age, one for the tip of each transverse and two for the tip of each spinous process, which are sometimes united into one. If we look at the vertebral column, we notice that the cervical vertebrae have bifid spinous processes; the dorsal vertebrae, on the other hand, have no bifid extremity, at least, as far as my experience goes, and I have been unable to find any report of such a case.

I think that, as a rule, the two secondary centres of ossification which may soon appear on the tip of the spinous processes either coalesce at once, or that there is only one such secondary centre; while in the cervical vertebrae, for some reason not exactly known to us, there are always two separate centres which never coalesce, thus forming the bifid spines. This reason, I venture to think, will account for the deformity in the present case; but why it has only attacked these three vertebrae, I am unable to say.

The cause for this is a very interesting case, and suggested that it was not uncommon to find two slight prominences of bone on the top of a dorsal spine.

Mr. Shuter said that, after a careful examination of the man's back, he thought very likely that it was a case in which the point Dr. Humphry had mentioned was very remarkably exaggerated, and that what would explain the abnormality.

TOXICOLOGICAL MEMORANDA.

TEMPERATURE IN A CASE OF BELLADONNA-POISONING.

A case lately occurred in this town (Stirling) in which a child, between four and five years of age, whilst out playing with his companions, partook of some berries of the deadly nightshade, and some time thereafter had symptoms of narcotic poisoning. He took the berries between 5 and 6 P.M., and, having arrived at home in an hour or an hour and a half afterwards, asked for something to eat, when he was offered soup, of which he partook. Immediately after, he staggered and fell on the floor of the apartment. Having found him unconscious, I saw him at 2 A.M., seven hours after the symptoms of narcotic poisoning had manifested themselves. I found him in a state of continual agitation and terror, with frequently recurring convulsive attacks; the pupils were widely dilated; the face congested and swollen, with dryness of the mouth and throat, and consequently frequent demands for something to drink. He had previously been delirious, laughing and singing, and imagining someone was thrusting berries into his mouth. Before my arrival, he had been given an emetic, and after words an apertent. The emetic brought up two thirds of the soup he had taken. There being no doubt about the nature of the poison, he had apertent injections, cold to the head, a mustard-polioise to the stomach, small doses of morphia, and stimulants, etc., administered to him.

Owing, however, to the length of time the poison had been working and the gradual absorption of it into the system, there was little or no hope but that the case would have a fatal termination. I ordered him to have no food the following day, seventeen hours after the first effects of the poison had been observed. I visited him an hour before death, and found him in a state of coma. There was a tympanitic state of the stomach and bowels, which almost certainly pointed to an irritated and inflamed state of the alimentary canal. The chief noteworthy fact, however, was the excessive temperature. At the time of my last visit it was 110°, and it was this several hours before death. I have only observed this temperature once or twice in scarlet fever when death was imminent. To what could the high temperature be owing? Was it to interference with the function of the sympathetic?

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SURGICAL MEMORANDA.

REMOVAL OF PART OF THE APPENDIX VERMIFORMIS FROM A HERNIAL SAC.

T. T., aged 57, a pork-butcher, accustomed to heavy lifting, a well-nourished and healthy man, had suffered for about twenty years from right inguinal rupture, for which he had worn a truss. On the morning of the 2nd of April, after performing the usual toilet, and having dressed himself in great pain, so that he took off the truss, and immediately a large swelling appeared at the seat of rupture, with pain so acute that he lay down writhing on the floor. He went to bed again, applied hot fomentations, and in the evening, feeling no better, sent for me. I found the right side of the scrotum occupied by a hard mass, oblong, having the appearance of a large inguinal hernia, very hard and firm, dilated at the upper part, and not at all tender to the touch. No pain on coughing. Pressure and handling the tumour gave him pain; and the right iliac region was tender and painful. He had not vomited, and some castor-oil taken in the morning had acted freely during the day. Tongue furred; skin cool; pulse 72. He told me that the hernia had often come down on exertion, with the truss on; but that, until this morning, he had always found it soft, gurgling under the fingers, and easily reduced. He was now on a diet of milk and water, which comforted him; to take half a grain of extract of belladonna every two hours, with milk and soda-water as nourishment. On July 21st, the night had been restless, with much pain in the right iliac region and in the swelling, which was unchanged, except in being more tender on pressure, and with more cedema of the scrotum. The bowels had acted at 3 A.M.; he had no vomiting; the pulse and skin were natural. The same treatment was continued. On July 22nd, the night had been bad, with more pain and tenderness in the parts, and a distressed expression of face. There was no vomiting; and no further action of the bowels since 3 A.M. yesterday. The pulse and skin were natural. At 11 A.M. my brother saw the case with me, and we decided to cut down the hernia; as, although there was an absence of vomiting, and, perhaps, of obstruction, there was evidently a strangled mass, and no other way of dissecting it. Under chloroform anaesthesia, I opened the sac, and, on opening it, a little turbid pink serous fluid escaped, of slightly feculent odour. The sac was occupied by a hard solid substance, of about the size of two large fingers. Of bright red colour, and irregular nodulated outline, it looked somewhat like three or four cocks' combs strung together, the irregularities being partly covered by a thin layer of recent lymph. There was no bowel in the sac, and the fingers could be passed through the ring without difficulty. Thinking that it was probably a mass of diseased omentum, I cut away as much as could be easily protruded through the wound, the section being through a solid substance, like a fibrous tumour. The part removed was about two and a quarter inches long. The wound was brought together with sutures, and covered with a lint-compress. The cut surface of the substance seemed the inside of a tube, about the size of a goose-quill, imbedded in a hard dense growth. The corresponding orifice of the upper part of this tube, similarly imbedded, was visible in the wound. On passing a director down the duct in the part removed, and slitting it open, I had no doubt that it was the appendix cecii, this being more certain by finding at its extremity, buried in the mass, a small, sharp, rough piece of bone, which had