vertebrae. In some other Amphibia, as in many Sauropsida (*e.g.*, the Crocodile), there are procelous vertebrae. The vertebrae in the Sauropsida are either connected together by aid of synovial membrane, or (as in Crocodiles and Chelonians), their adjacent faces are connected by true intervertebral cartilages. In Mammals, these cartilages contain gelatinous remains of the notochord. The vertebral columns of the different groups vary as to the number of regions into which the component vertebrae may be divided.

In the Ichthyopsida, in all probability, no fusion of the cartilaginous arches in the haemal or descending laminae takes place in the middle line of the ventral aspect of the body. There is, indeed, a sternum in certain Amphibia, but this does not arise through the extension inwards of the cartilaginous ribs. In the Fishes no more regions than two can be distinguished: 1. the dorsal region; 2. the caudal region. The descending arches in the dorsal region do not coalesce below with their fellows of the opposite side. In the caudal region, however, they do so coalesce. The posterior end of the tail in Fishes assumes always one of three forms. 1. The vertebral column may end posteriorly in a truly horizontal line, with as much of the caudal fin above it as there is below it. Such a tail is called *Diphycercal*. 2. The vertebral column may ascend at its hinder end in the simplest and most manifest way, a very much larger amount of fin being visibly attached to the lower side of the tail than is to be seen on its upper aspect. Such a tail may be seen in the Sturgeon, and it is called *Heterocercal*. 3. The third and last mode of termination is that presented to us by osseous fishes, and most plainly seen in the salmon. Here the tail appears to end medianly, and the caudal fin to be disposed equally above and below its hinder end. But in fact, the extreme end of the spinal column turns sharply upwards (though it is more or less hidden and concealed), while the great ray supporting "hypural" plates are placed altogether below that inconspicuous and ascending posterior termination. This form of tail-end has unfortunately been termed *Homocercal*, a name which, however inappropriate, it is not now advisable to change.

ON A METHOD OF CONVERTING THE SKIN INTO LEATHER.

By JOHN MARTIN, Esq.,

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It becomes sometimes advisable in surgical practice to render parts of the surface of the body tense, and firmly pressed on to the subjacent tissues. This pressure is generally effected by bandages, strips of plaister tightly applied, direct pressure by weights, etc. But it does not appear that surgeons have hitherto adopted a more convenient and effectual method of applying pressure, when such is required, more uniform than great; namely, that of converting the cuticle into a temporary bandage. This may be done by forming a tannate of gelatine in the skin. Ordinary solutions of tannine applied to living tissues act astringently, by causing contraction of blood-vessels, as is seen by the paleness produced in mucous membrane by such application. A very strong, or a saturated solution of this substance, however, applied to the external surface of the body, combines chemically with the gelatine of the skin, before reaching the vessels, forming a contracted impermeable layer of tannate of gelatine; it, in short, tans, or converts into leather, the superficial layer of the cuticle.

The practical application of this fact is sometimes useful, as in the affections presently to be referred to. These may be classed in five divisions, according to the *modus operandi* of the remedy. They are those in which its curative effects depend on (a) the *insensibility*; (b) *contraction*; (c) *impermeability*; (d) *contraction and impermeability combined*; (e) *removal of part* of the skin which are caused by its application. As examples of these effects may be mentioned, (a) the relief of pain caused by external pressure on tender parts, as the integument covering abnormal projections of bone (as the spinous process of a prominent vertebra, in Pott's curvature, for example), where there exists no corresponding natural thickening of the skin, or in bunions, relieving the abnormal sensibility of the part; likewise the prevention of bed-sores of any kind, if applied at the commencement before the skin breaks. (b) The binding down of the subjacent parts by contraction and slight pressure, as, for example, in weakening of the abdominal wall, and protrusion of the internal oblique muscle, by a long split in the external oblique, in the direction of its fibres (an occasional effect of falls from scaffolding, etc.), too extensive for the truss; reducing an enlarged testicle, by first drawing the integument tense, and retaining it by means of a strap of plaister encircling tightly the cord, immediately above the gland, and applying the solution. (c) By its imper-

meability it checks and prevents unhealthy local sweatings. (d) By its early application it causes the absorption of matter deposited in the tissues, which may otherwise point at the surface. Its action, last mentioned in the above enumeration, (e) renders it useful in the treatment of cutaneous affections which depend on a local cause, as the layer which it forms peels off after a short time, removing, when they exist, such parasites as the *pediculus pullex penetrans*, *acarus scabiei*, *entozoon folliculorum*, etc. The strength of the solution of tannine required for the purposes mentioned is about 600 grains to an ounce of water. It may be applied, according to circumstances, by a layer of lint or wadding, saturated with the solution, or by means of a brush.

There are three points which must be attended to in using this remedy. *Cold water must be employed*, otherwise a solution of pyrogallic acid is used, not of tannine. *The solution must be quite recent*, and prepared in small quantities at a time; and the *tannine employed must be perfectly fresh*, for, unfortunately, tannine remains but a short time exposed to the atmosphere without being converted into gallic acid. It will be remembered that gallic and pyrogallic acids do not form *insoluble* compounds with gelatine.

CLINICAL MEMORANDA.

NOTE ON THE PATHOLOGY OF HEPATIC ABSCESS.

By C. MOREHEAD, M.D., F.R.C.P., Edinburgh.

DR. BUDD, in his work on *Diseases of the Liver*, published in 1845, concluded, from very limited data, that abscess in the liver depended, if not exclusively, most generally on intestinal ulceration—in other words, that it was pyæmic in its origin. In my *Clinical Researches*, first edition, published in 1856, it was contended that, though hepatic abscess caused by pyæmia might be an occasional occurrence, the theory could not be accepted as generally correct; because, in my own experience, there had been fifty fatal cases of dysenteric ulceration without hepatic abscess, and seventeen fatal cases of hepatic abscess without ulceration of the intestine. In the second edition of my work, published in 1860, the same statement is repeated, with the addition of four to the cases of hepatic abscess without ulceration.

In the report of the European General Hospital of Bombay, for the year 1859, published in the *Transactions of the Medical and Physical Society of Bombay*, in 1860, Dr. H. A. Leith remarks:—"On arranging all the cases in which dysenteric ulceration, and all in which hepatic abscess was seen after death, there are found dysentery without hepatic abscess in thirty, dysentery with hepatic abscess in five, and hepatic abscess without dysentery in four instances. If all such cases that have occurred in this hospital during the last three years be added to those given in Dr. Stowell's decennium of the hospital statistics, recorded in the *Transactions of the Medical and Physical Society*, 1855-56, there will be the aggregate of—dysentery without hepatic abscess 188; dysentery with hepatic abscess 50; hepatic abscess without dysentery 41." Adding these figures to my own, we have 238 of dysenteric ulceration without hepatic abscess; and 62 of hepatic abscess without ulceration of the intestine—sufficient, I apprehend, to disprove the pyæmic theory. I recur to this subject at present, because Dr. Leith's statement has only now for the first time caught my attention, and it is of importance that there should be no doubt respecting a pathological error which Dr. Budd still teaches without modification or reserve in an edition of his work published subsequently to my *Clinical Researches*.

EXTENSIVE CASE OF EPITHELIOMA OF THE LIP.

By WILLIAM ANDERSON, M.D., Newfoundland.

RICHARD P., aged 68, hunter, was affected with epithelioma of the outer angle of the mouth and nearly the whole of the lower lip. On November 1st, with the assistance of my friend Dr. Howley of Harbour Grace, I removed the whole of the disease, cutting as wide of it as seemed necessary. Owing to the amount of substance removed, the sides of the wound could not be approximated without risk of tension. I therefore continued the apex of the first incision downwards under the chin, and then made two incisions, right and left, at right angles to its extremity, as far back as the facial artery on each side. The soft parts were then raised and turned upwards; they were then apposed in the middle line, so that the cut surface of the original incision became horizontal to form the new lip. The gap made by removal of the angle of the mouth was filled by stitching its upper edge to its lower, the parts being now sufficiently loose to admit of it. Recovery was uninterrupted, and the patient left his bed seven days after the operation.