

or of both, after the manner commonly seen in the shafts of rickety bones.

A deficiency in cell-formation and a deficiency and irregularity in bone-formation at epiphysial lines are common features of rickets, and cause the deficiency of growth, especially in the lower limbs, of rickety persons. Though the cell-formative processes are deficient, the bone-formative processes are still more so. This causes that relative super-abundance of unossified cells which led to the mistaken idea of an actual super-abundance of them; and this causes also that bulging of the circumference of the epiphysial cartilages which is commonly observed in rickety children at the lower end of the radius, at the sternal ends of the ribs, and, to a less extent, at the bones of the knee and ankle. It is this deficiency in the power of cell-formation and ossification manifesting itself in the lower and outer weight-bearing part of the femur, and in a less degree and less often in the subjacent part of the tibia, which is the common cause of knock-knee, though, as I have said, other rickety manifestations in either or both of these bones may lead to, or contribute to, the same result; and bulging at the weak and yielding parts of these epiphysial lines may not uncommonly be detected.

I may observe that in the ordinary lateral curvature of the spine it is a similar deficiency of growth and ossification, together with bulging, at the upper and lower epiphysial lines of the centre, or bodies, of the vertebræ on one side, together with a flexure or yielding of the bodies themselves, which is the prime feature of the deformity, and which is brought about by the weight being allowed to fall unduly upon that side; lateral curvature and knock-knee being therefore alike of a rickety nature, though both not infrequently occur after the period of life at which rickets usually manifests itself in other bones. The rickety spine of the infant is usually manifested in a bending backwards of the column at the lumbar and lower dorsal parts, and indicates a difficulty in evolving that specially human feature of the column, the anterior dorsi-lumbar curve.

With regard to treatment, I would only remark—*First*, as a preventive, that children should not be encouraged or allowed to stand and walk early, especially when the head is

large. *Secondly*, the natural growing forces will commonly rectify slight abnormalities in the young. In bad cases, which are met with almost exclusively among the poor, where proper attention, etc., cannot be given, I have long used a simple frame, consisting of two light wooden splints united below by a thin band of metal with footpieces and united above by a narrow semi-circular bar of metal. In this frame the child is seated, with the feet on the foot-pieces and the buttocks within the semi-circular bar, the whole being well padded; and the limbs are bandaged to the side splints so as to prevent walking, and therefore prevent any weight being thrown upon the limbs, and so as to exercise pressure upon certain parts of the limbs as may be required—upon the inner side of the knees, for instance, in knock-knee. The limbs and the child may be released at night, and the frame reapplied in the day, or it may be kept on night and day. I have found this very effective in remedying the rickety deformities of the lower limbs in children. *Thirdly*, in more severe cases, and in older children, osteotomy is required.—*Journal of Anatomy and Physiology.*

---

## THE Canadian Practitioner

---

A SEMI-MONTHLY REVIEW OF THE PROGRESS  
OF THE MEDICAL SCIENCES.

---

*Contributions of various descriptions are invited. We shall be glad to receive from our friends everywhere current medical news of general interest.*

*When a change of address occurs please promptly notify the Publishers, THE J. E. BRYANT COMPANY (Limited), 58 Bay Street.*

---

TORONTO, SEPTEMBER 16, 1890.

---

### THE CANADIAN MEDICAL ASSOCIATION.

The annual meeting of the Canadian Medical Association was held in Toronto on September 9th, 10th, and 11th, in the building of the Education Department in St. James' Square. The attendance was not as large as was expected, there being only 100 present. The unusually large meeting of the Provincial Society in June probably interfered, to a certain extent,