

The New Physiology in Surgical and General Practice

CHAPTER I.

THE GROWTH OF BONE.

Recent change in our conception of the growth of bone—Osteoblasts—Increase in the length of bone—Increase in the girth of bone—Function of the periosteum—The regenerative powers of bone—Transplantation of bone—Application of modern researches to surgical practice—Relation of the ductless glands to the growth of bone.

TWO closely allied problems, how bones increase in length and girth in the child, and how regeneration of new bone takes place after loss or injury, are of great interest and practical importance in surgery. Every case of separation of an epiphysis by accident, and every operation on the growing end of a bone in children, involves a consideration of the first problem; every case of fracture, necrosis, periostitis, or osteomyelitis depends for its proper understanding and rational treatment upon the second. A very important research has recently been published which necessitates a radical change in some of our conceptions of this subject.

We may summarize the traditional teaching thus. Bone is laid down by certain cells called *osteoblasts*. In young animals, these are the direct descendants of cartilage cells. When the cartilage becomes