

from each epiphysis, and, aided by a bending of the ulna, the two ends had come together, although no periosteal growth of bone had taken place. One of the epiphyses was damaged; from this end the new bony development was slenderer than from the uninjured end.

In another experiment, two and a half inches of bone with its periosteum were removed from the radius of a young dog, and metal caps fitted over the sawn extremities of the shaft remaining *in situ*. Seven weeks later, the gap was found completely bridged by bone, and the two metal caps had come together. Owing to bending of the ulna, they did not absolutely meet, but passed one another laterally.

In yet another case, the plate of cartilage between the shaft and epiphysis was removed from the radius of a young dog. The bone failed to grow at that end, and a lateral expansion of the epiphysis became attached to the ulna and stunted its growth also. This experiment is of course paralleled in man, when a separation of an epiphysis takes place, or when the growing end is removed in the excision of a joint.

Increase in the *girth* of bone has been attributed to the periosteum. Between it and the bone, osteoblasts are to be found in young animals, and these lay down ring after ring of concentric lamellæ. If the developing animal is fed with pigment, such as madder, for a short period, there may be found months later a buried pigmented ring of bone which was laid down at that time. Another classical experiment we owe to Duhamel (1739), who buried a silver ring under the