

vascular, the cells undergo proliferation for a time ; when they assume their individual maturity they cease to divide, and lay down calcareous salts all around themselves just as a coral polyp does ; they are included in the midst of the bone thus formed as bone corpuscles.

Increase in the *length* of the bone takes place by the new additions at each end, where the layer of cartilage between the shaft and the epiphysis is constantly being transformed into bone ; but inasmuch as its cells keep on dividing, the cartilage is not used up in the process until the age of eighteen to twenty-five is reached. It is usual for one epiphysis to unite later than the other, and in that case the increase of length is greater at this end than at the opposite, and the nutrient artery to the shaft will be directed away from the persistent epiphysis because the bone is as it were pushed down inside the periosteum.

So far, the results of recent investigation entirely support and amplify the older opinion. A classical experiment of John Hunter's may be quoted. He inserted two leaden shot into the tibia of a young pig, exactly two inches apart. When the animal had grown up, he found that although the bone was of course much longer, the shot were still exactly two inches apart. Evidently, then, the increase of length must have been at the ends, not by interstitial increase of the shaft.

More recently, Macewen has removed almost the whole shaft of the right radius in a young dog by the subperiosteal method, leaving the two ends. After six weeks, there was strong and vigorous growth