

the posterior surface of the thighs, the hind foot, and the forearm. These ossicles, which are covered by horny scales, vary ontogenetically, sexually, individually, interspecifically, and geographically; the most obvious variation is interspecific. The anterior forelimb ossicles of both *G. polyphemus* and *G. flavomarginatus* are usually flattened, and though variable in shape, are usually hexagonal or pentagonal (Fig. 16). Those of adult *flavomarginatus* are often very thick and sometimes partially fused. A single scale on the anteromedial surface opposite the elbow is noticeably enlarged, particularly in *polyphemus* and *flavomarginatus*. This scale may be important in courtship (Auffenberg 1966b). The scales at the outer edge of the forearm are usually longer and more spine-like in all the species. In *G. agassizi* and *G. berlandieri* the ossicles of the anterior surface of the forearm are more imbricate and are often keeled and spine-like. *G. agassizi* is much more variable than *G. berlandieri* in this character, and the variation may be geographically correlated. The material available is insufficient to prove this, however.

The dermal ossicles of the thigh are usually best developed in large males. They are often arranged in a circular patch, with one or two central members largest. They are best developed in *G. flavomarginatus*, where they are cone-like in adults. In *G. polyphemus* they are often completely flattened.

The dermal ossicles of the hind foot are best developed on the posterior surface of the foot at the heel. Males tend to have larger heel spurs than females. They are best developed in *G. flavomarginatus*.

#### RADIUS AND ULNA

The radius is always the larger of the two elements. Its curvature and proportions are slightly different in *G. polyphemus* and *G. agassizi*, although there is considerable overlap and single elements of the two species usually cannot be separated. In general, the radii in both *berlandieri* and *polyphemus* are flatter and less curved than that of *agassizi* (Figs. 10-13). *G. flavomarginatus* has a radius similar to that of *polyphemus*. In large adults it is often possible to discern the number of carpal elements that had articulated with the distal end of the radius. Four facets are usually evident in *polyphemus* and *flavomarginatus*, and two or three in *berlandieri* and *agassizi*. This is of particular importance in the study of fossil radii.

The ulna in all land tortoise genera is considerably shorter than the radius. The ulna is very similar in all the extant species but occasionally is more twisted in *berlandieri* and *agassizi* than in *polyphemus* and *flavomarginatus*.