

definite tendency for the anterior neurals to show greater differentiation than the posterior members, and thus the familial neural characteristics of the Testudinidae are usually restricted to the first few neurals. However, in *Gopherus* even the anterior neurals show considerable variation in growth pattern (Table 9), although some conceivable combinations of growth patterns have not yet been found. There is no significant difference between the neural growth patterns exhibited in the four species of *Gopherus* (Table 10). It can be seen in Figure 22 that the pleural growth pattern (in which there is alternate equal growth of the proximal ends of the pleurals) is the most common type when each neural is taken as an independently developed unit.

TABLE 10.—PLEURAL GROWTH PATTERNS IN SPECIES OF *Gopherus* INFERRED FROM NEURAL PATTERNS.

Species	Pleural Growth Patterns					
	A	B	C	D	E	F
<i>agassizi</i>	0	3	6	22	2	2
<i>berlandieri</i>	0	2	0	28	3	0
<i>flavomarginatus</i>	0	0	0	3	1	0
<i>polyphemus</i>	1	0	0	15	3	1

It has been said that in all New World tortoises, including *Gopherus*, the usual suprapygial condition is one in which the first suprapygial embraces the second. My findings do not entirely agree, since this condition was not found in about 39% (71) of the 183 *Gopherus* specimens I examined (*polyphemus* 28 [44%], *agassizi* 26 [62%], *berlandieri* 15 [28%], *flavomarginatus* 2 [8%]). It is clear that in *Gopherus* this variation is the direct result of a rather simple developmental phenomenon. In specimens with a carapace length of about 150 mm, in which the suprapygals are not yet fully ossified, there is a fenestrum on either side of suprapygal 2. These fenestrae eventually become filled with bone originating from only one of two centers of ossification (*i.e.* either one or the other of the two suprapygals). Should the ventro-lateral corners of the first suprapygal grow downward to fill the fenestrae, an embrasure will be formed. However, if during ossification the fenestrae are filled from the second, lower center of ossification, the first suprapygal will not embrace the second (Fig. 23).

All emydids and some of the testudinids (*Testudo*, etc.) possess the non-embracing type of pattern (Loveridge and Williams 1957). The earliest known fossil testudinids (*Geochelone* [subgenus *Hadrianus*] and *Styemys*) possess the embrasure. So do almost all the available Tertiary specimens of *Gopherus*. Thus, the lack of an embrasure in Recent *Gopherus* is presumed to be secondary, and due to a simple change in