

ternately quadrangular and octagonal. The posterior members are normally 4- or 6-sided; if the latter, the broad end of the hexagon faces anteriorly. All the neurals are generally hexagonal, with the broad end facing anteriorly in the emydid turtles. This arrangement is thought to represent the ancestral condition.

TABLE 8.—CORRELATED SHELL ABNORMALITIES IN *Gopherus* SPECIES.

	Neural or Vertebral	Pleural or Costal	Epiplastral or Gular	Plastral or Abdominal
<i>agassizi</i>				
Neural or Vertebral	2	1	7	1
Pleural or Costal	—	0	1	0
Epiplastral or Gular	—	—	0	1
Plastral or Abdominal	—	—	—	0
<i>berlandieri</i>				
Neural or Vertebral	3	0	2	0
Pleural or Costal	—	0	0	0
Epiplastral or Gular	—	—	0	0
Plastral or Abdominal	—	—	—	0
<i>polyphemus</i>				
Neural or Vertebral	2	0	0	0
Pleural or Costal	—	0	0	0
Epiplastral or Gular	—	—	0	0
Plastral or Abdominal	—	—	—	0

During the early phases of carapaceal ossification a single pair of ribbon-like pleurals is associated with each of the still undifferentiated, plate-like neurals. After this developmental stage is reached, the growth pattern of the proximal end of the pleural is exceedingly important in the final configuration of the neural (Fig. 21). Thus, in emydid and primitive testudinids the growth pattern of the proximal end of the pleural is such that posteriorly it grows more rapidly than it does dorso-anteriorly. This produces the neural formula 4-(6-(6-(6-(6-(6-(6, with the broad ends of the hexagons directed anteriorly (direction shown by "(") (Fig. 21). If the growth pattern of the proximal pleural end is such that the anterior edge grows faster than the posterior edge, the neural formula eventually produced is 4-6)6)6)6)6); if lateral growth in both directions is equal, the neural formula will be 4-8-4-8-4-8-4 (the typical, more specialized tortoise pattern); if every other pleural grows more posteriorly than anteriorly, the formula will be 4-6)4-6)4-6)4; and if every other pleural grows more anteriorly than posteriorly, the formula will be 4-(6-4(6-4-(6-4. All these patterns can be found in *Gopherus*, often in serial or bilateral combination in one specimen. There is a