OBSERVATIONS ON ALLOMETRIC GROWTH AND REGENERATION IN PALINURID LOBSTERS

DURING routine examination of palinurid lobsters from Mandapam a few large male specimens of *Panulirus ornatus* (Fabricius), *P. versicolor* (Latr.) and *P. homarus* (Linn.) were found to show a striking phenomenon of allometric growth of peraeopods II and III. In these male specimens due to the increased lengthening of the merii and propodii considerable difference in the length of the 2nd and 3rd peraeopods from that of the 1st and 4th was noticed. There is not much difference in the length of peraeopods of 2nd and 3rd legs in females of corresponding size.

Length of merus and propodus of legs I to IV and the total length of the specimens examined, and their sex are given in the table.

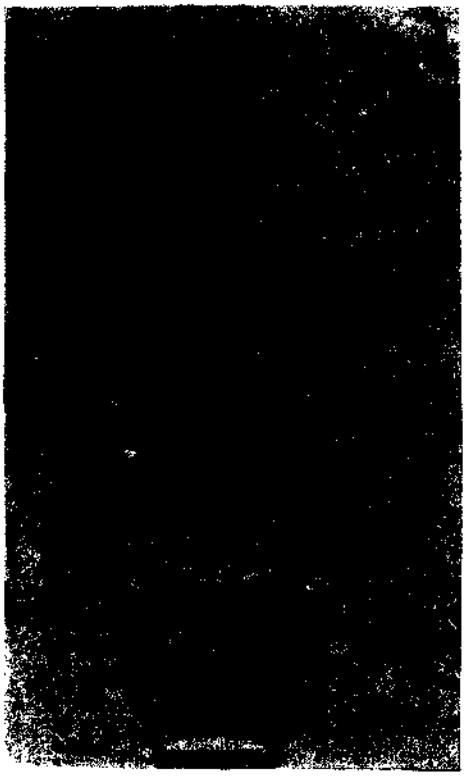
Gordon (1960) noticed this phenomenon of allometric growth in two male specimens of *P. ornatus* from Zanzibar and suggested the possibility of the occurrence of the same in other tropical species of the genus *Panulirus*. It is of interest here to

TABLE I

Details of allometric growth in the legs of palinurid lobsters

Species	Sex	Total Length	Length of Merus				Length of Propodus			
			I Leg	II Leg	III Leg	IV leg	I Leg	II Leg	III Leg	IV Leg
Panulirus ornatus	♂♀	.. 363 mm.	74 mm.	89 mm.	94 mm.	81 mm.	28 mm.	50 mm.	65 mm.	50 mm.
,,	♀	.. 385 ,,	60 ,,	79 ,,	87 ,,	68 ,,	39 ,,	52 ,,	62 ,,	60 ,,
,,	♂	.. 387 ,,	63 ,,	82 ,,	100 ,,	68 ,,	31 ,,	56 ,,	74 ,,	58 ,,
,,	♂	.. 435 ,,	86 ,,	141 ,,	174 ,,	84 ,,	42 ,,	99 ,,	130 ,,	68 ,,
,,	♂	.. 442 ,,	90 ,,	172 ,,	215 ,,	95 ,,	46 ,,	130 ,,	172 ,,	77 ,,
,,	♂	.. 425 ,,	87 ,,	134 ,,	166 ,,	94 ,,	42 ,,	100 ,,	144 ,,	81 ,,
,,	♂	.. 392 ,,	77 ,,	114 ,,	138 ,,	84 ,,	38 ,,	77 ,,	114 ,,	74 ,,
,,	♂	.. 434 ,,	81 ,,	122 ,,	150 ,,	83 ,,	41 ,,	84 ,,	125 ,,	75 ,,
,,	♂	.. 332 ,,	63 ,,	101 ,,	117 ,,	70 ,,	31 ,,	72 ,,	95 ,,	60 ,,
P. versicolor	♂	.. 293 ,,	70 ,,	96 ,,	113 ,,	74 ,,	33 ,,	68 ,,	95 ,,	61 ,,
,,	♂	.. 330 ,,	77 ,,	105 ,,	134 ,,	81 ,,	46 ,,	72 ,,	106 ,,	66 ,,

record the presence of the same kind of phenomenon in all the species of *Panulirus* found in Mandapam area. In this connection it may be mentioned that this type of growth in peraeopods is not noticed in *Puerulus sewelli* Ramadan a species which has been reported in large numbers from the deep waters of the South-west Coast of India (Mr. M. J. George, personal communication).



Panilurus ornatus with newly regenerated right antenna and the stump of the original antenna.

Regeneration of the Antennae

Autotomy and autospasy are very common in crustaceans followed by regeneration (Bliss, 1960). A specimen of *Panulirus versicolor* (Latr.) in the aquarium, exhibited autospasy by breaking off the antennae. After about three months the specimen moulted and then it was found that the antennae were not quite straight, about 25 cm. in length, and the spines were not sharp. The same phenomenon of sudden regeneration of antennae preceded by moulting in the night was observed subsequently in *Panulirus ornatus* and *P. homarus* in the aquarium. Usually the antenna is broken at its joint, but in a specimen of *P. ornatus* it was found that the right antenna was broken leaving a stump of about 4 cm. in length. After the next moult the entire antenna was found to regenerate on the right side of the stump pushing it a little to the centre and thus exhibiting an anomalous condition (Photograph). It is highly probable that regeneration takes place only from the breakage plane and hence this type of growth of the regenerate.

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