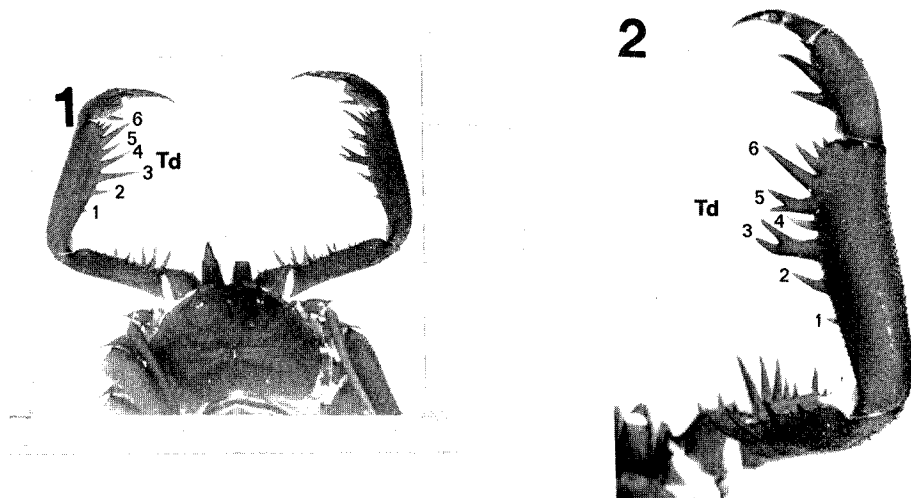


**BIFID SPINES IN *PARAPHRYNUS AZTECA* (POCOCK)
(AMBLYPYGI: PHRYNIDAE)**

The spines on the pedipalps of amblypygids represent very important structures used for the capture of prey, holding it while proceeding to digest it, display threats, and during courtship interactions. Pedipalp spination has been used extensively for systematic studies in all members of this group as a very reliable character. Nevertheless, at the present stage of the knowledge of the group, nothing is known about the functional significance of the different spines, their homologies, the adaptive significance of different spine arrangements, what ontogenic changes they undergo and the basic abnormalities present in their development. During the course of examining several hundred specimens, I have found very few such abnormalities in pedipalp spination, and none, to my knowledge, has been reported in the literature.

A very unusual case of asymmetrical spine transformation into bifid apophysis has come to my attention and the present note serves to describe such a rare case and to review other abnormalities in spination previously noticed.

In a group of two males and three females of *Paraphrynus azteca* (Pocock) (Mex.: Palomares, Oaxaca, 24 July, 1909, A. Petrunkevitch, at AMNH), only one male presented dorsally on the right pedipalp tibia (Figs. 1 and 2) spines 3 and 5 transformed into bifid apophyses, and had normal spination on the left tibia. This abnormality reversed the length polarity in the two spines that characterize *Paraphrynus* species. Normally spine 5 is markedly shorter than spine 4 but on the abnormal right tibia, the bifid spine 5 is about double the size of the same spine on the opposite tibia, and spine 4 is about half the size of the normal spine. The male had both pedipalp tibiae of the same length, while having a shorter right femur 1 (18 mm) than the left (22 mm) but I have frequently found such asymmetries in leg one of *Paraphrynus* species. Although it is foreseeable that the presence of such asymmetries might possibly have unknown disadvantageous effects on the animal bearing them, the male now described had reached the longest pedipalp size in a sample of 20 specimens measured, which included specimens from both described forms,



Figs. 1 and 2.—*Paraphrynus azteca* (Pocock), male, dorsal view. Td, tibia dorsal.

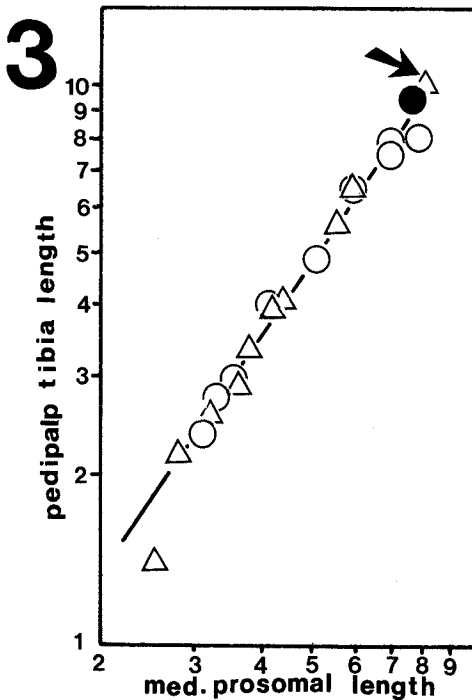


Fig. 3.—Allometric growth curve of pedipalp tibia length versus median prosomal length. All measurements in mm, $Y = 0.50 X^{1.4281}$. Black circle represents measurement of one specimen from syntype series (Tuxtla, Chiapas, Mexico).

Atoyac and Isthmus, (see arrow in Fig. 3). Its body length was 20.2 mm, whereas the longest known specimen (black circle, Fig. 3) measured 23 mm. Its abdomen appeared full which suggested it was a recently fed animal. A similar asymmetry, a bifid spine 3 on the right pedipalp tibia, was seen in a male of *Paraphrynus viridiceps* (Pocock) from New Providence Island, Bahamas (1913, C. J. Maynard, MCZ).

The bifid apophysis that characterizes *Muscodamon atlanteus* Fage at the distal end of the ventral pedipalp tibia, although superficially resembling the bifid spines presently reported of *Paraphrynus azteca*, might have evolved by the distal clustering of the ventral tibial distal spines on a common apophysis. Distal clustering of spines is characteristic of ontogenic changes occurring during pedipalp growth in members of the Phrynichidae and Damonidae but uncommon in Phrynidae.

An unnoticed abnormality in spine Td-3 appears in Fig. 2 of Rowland (1973, Assoc. Mex. Cave Studies, Bulletin, 5:123-128) in an unidentified species of *Paraphrynus* (*Tarantula* sp.), Td-3 is markedly shorter than Td-4 on the right pedipalp whereas on the left it has the normal size.

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