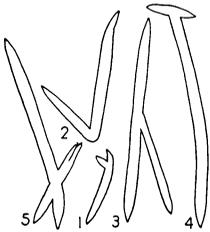


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UNUSUAL VARIATIONS IN THE SKELETON-SPICULES OF FRESH-WATER SPONGES.—The examination of a series of spicule slides used in the identification of fresh-water sponges has revealed a few interesting variations in skeletal spicules, which to our knowledge have not been mentioned in the literature. Old (*Papers Mich. Acad. Sci., Arts, & Lett.*, 15:439-77, 1932) and Potts (*Proc. Acad. Nat. Sci., Phila.*, 1884:184-5) have both reported modifications in skeletal spicules, but none of their reports appear to duplicate the variations in spicules shown in this series. Fig. 1. The "scissors" type has probably been produced from two scleroblasts, the cells crossed and in close apposition to each other; the result is a fusion of siliceous secretions. The axial canals are distinct, one seemingly superimposed upon the other. Fig. 2. The "elbow" type is a complete spicule, but bent. This type might have been caused by the formative cell's having been bent, owing to some obstruction in the dermal layer. Fig. 3. The "Y" type. The axial canal which traverses the stem of the Y and continues



without interruption into and through one of the arms of the Y. The other arm has probably resulted from a division of the scleroblast, one daughter-cell moving out at an angle from the "mother-stem" and depositing the accessory arm. Fig. 4. The "T" type. One plausible explanation of this formation lies in the equal division of the scleroblast; each daughter-cell then extends at right angles at the end of the main axis, thus producing a short spicule which is fused solidly with the central spicule. Fig. 5. The "tetraxon" type. The silica has been deposited along four radii which meet each other at the center. One ray is longer than the other three, thus giving the effect of a triaxon-spicule which has been fused to the end of a monaxon-spicule.—E. P. Cheatum & Joseph P. Harris, Jr.

Abnormal Digits in Necturus

Joseph P. Harris, Jr.

Necturus normally has four digits on each limb, but several variations of this basic pattern have been recorded. Necturus with three toes on one or more feet have been reported by Jenness (1942, 1944), Hutt (1945) and Mattox (1944). Individuals with five toes were reported by Jenness (1942, 1946); one with eight toes was reported by Mattox. Digits may have one phalanx less than is usual (Mattox) or one phalanx more than is usual (Harris, 1952). Mattox had one specimen in which digit 4 was missing on one leg, and another in which an extra phalanx grew from the side of digit 3 on one forefoot. Jenness (1942) found webbed toes on the hindfoot of one specimen; and in another specimen (1946) found the second and third toes fused at the second