

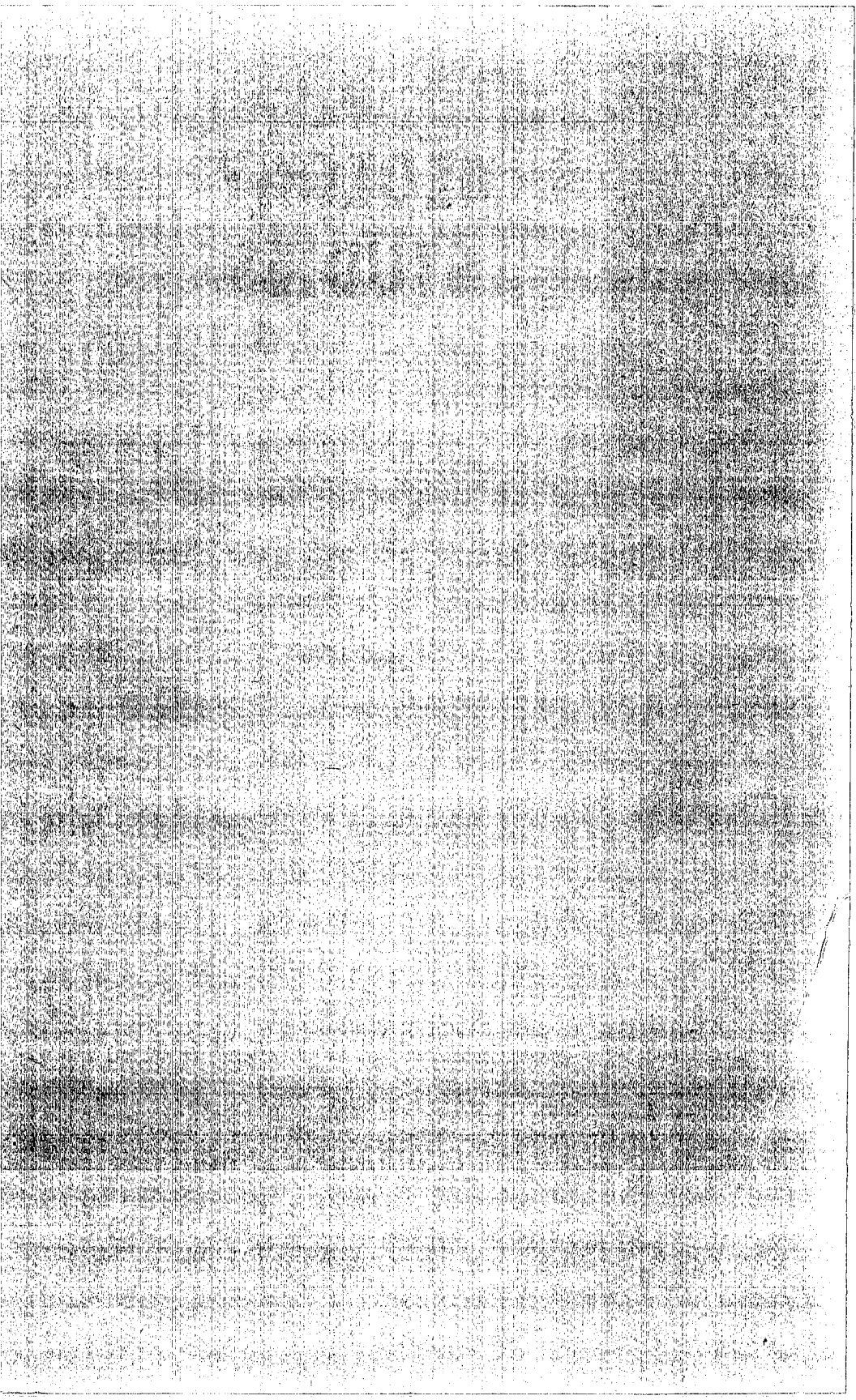
GEOLOGY STUDIES

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Sponges from the Silurian Laketown Dolomite Confusion Range, Western Utah

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ABSTRACT.—Eight large root tuft (?) spicules document the first known occurrence of sponges in the Silurian Laketown Dolomite in Utah. They occur as part of a silicified brachiopod fauna in the upper part of the formation in King's Canyon, in the Southern Confusion Range in western Millard County.

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INTRODUCTION

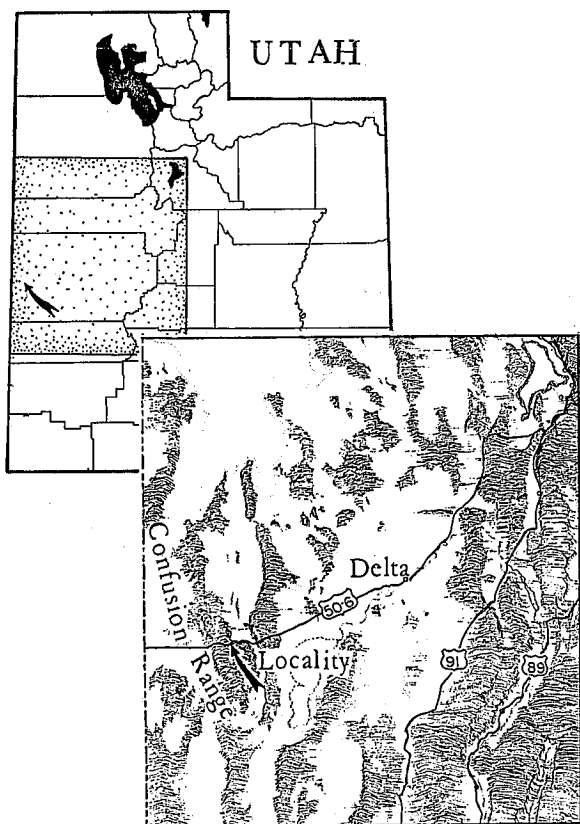
Eight large, but somewhat fragmental, spicules are the first occurrence of sponges from the Silurian Laketown Dolomite in Utah. These are particularly significant because Silurian sponges, in general, are rare in the Western states. *Hindia* sp., a lithistid sponge, is the only form known to the writer to have been reported previously from the Great Basin area, and this only from the Hidden Valley Dolomite in the Panamint Range of California (McAllister, 1952, p. 16-17; McFarlane, 1955, p. 23).

The present specimens were recovered by workers at the California Institute of Technology as part of the silicified brachiopod fauna from the upper part of the formation in King's Canyon, in the southern part of the Confusion Range, Millard County, Utah (Text-fig. 1). The collection was made by Arthur J. Boucot in 1967, based upon locality data furnished by John C. Osmond; J. G. Johnson kindly sent the spicules to the writer for study.

DESCRIPTION

Fragments of eight disarticulated spicules are in the collection. Each consists of the central part of a polyactinal spicule, with partially complete, variously oriented rays. On each spicule there is an identifiable pair of opposed vertical rays, and a series of from 5 to 7 laterally arranged rays, all of which meet the vertical rays near a common center. Lateral rays are somewhat irregularly spaced radially and vary from right angles to steeply inclined to the axis of the vertical rays.

In one specimen (Text-fig. 2-D) there is a circlet of 4 relatively evenly spaced lateral rays, with an irregularly spaced second series of 3 rays inserted

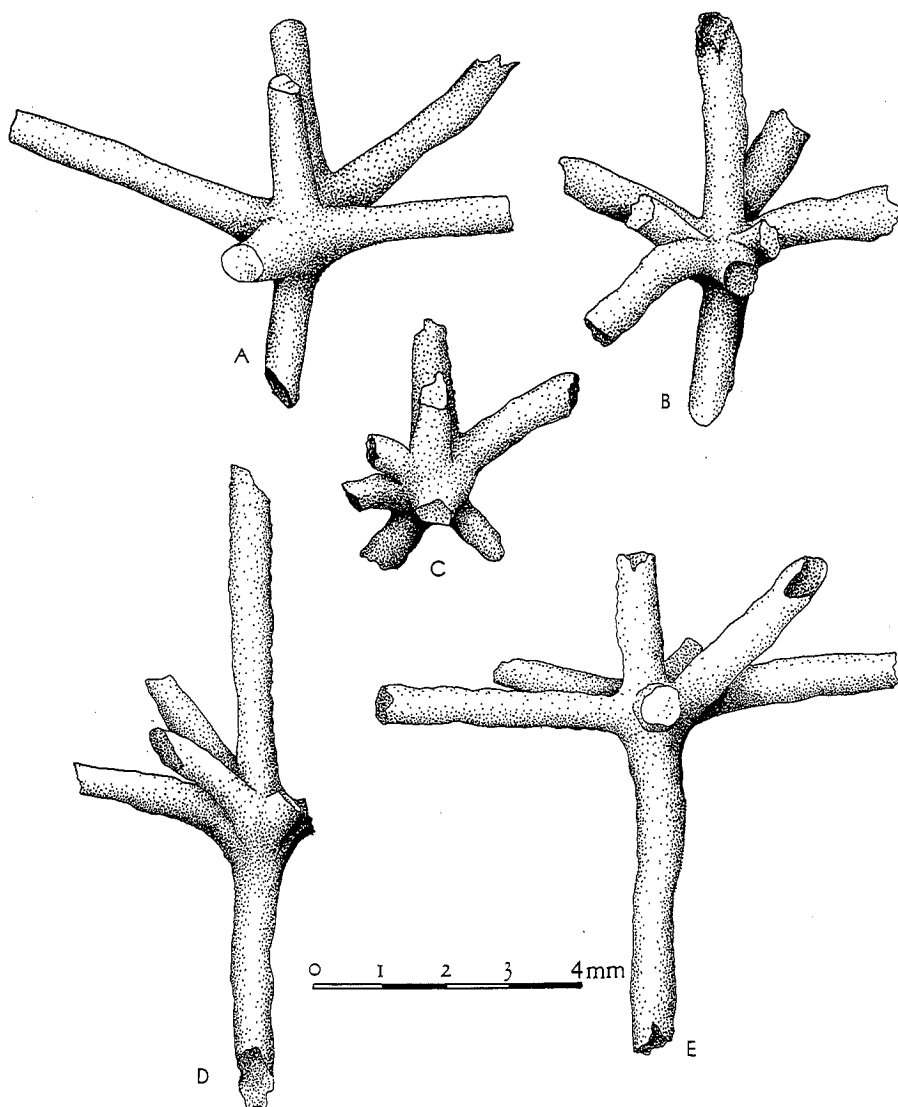


TEXT-FIGURE 1.—Index map of locality of Laketown sponges, Confusion Range, Millard County, Utah. The spicules were collected in the upper dark dolomite of the Laketown Dolomite, on the south side of King's Canyon.

between the lower 4. In another specimen (Text-fig. 2-C) there is a single circlet of 6 rays, all of which join the vertical rays at a uniform height.

Vertical rays are nearly straight throughout the preserved fragments, but lateral rays commonly sweep upward and outward away from the vertical axes (Text-figs. 2 C, D). A few lateral rays diverge abruptly from the vertical axis at angles approaching ninety degrees (Text-fig. 2-E).

Ray fragments range up to 5 mm long, from the spicule center to the broken tips, and generally appear as very gently tapering cylinders. Ray diameters range from 0.5 to 0.7 mm at their bases, and most taper to approximately 0.5 mm at the fragment tip. On one ray fragment approximately 5.2 mm long, the basal diameter is 0.70 to 0.75 mm just beyond the slight swelling at the junction of rays. The ray tapers very slightly, but evenly, to a diameter of 0.60 mm at the tip of the fragment. There is no method of accurately estimating the total length of various rays, but judging from the rate of taper and the very large diameter, these rays could have been over 2 or 3 cm long.



TEXT-FIGURE 2.—Camera lucida drawings of Laketown spicules. Vertical rays are vertical and lateral rays show variations in inclination with respect to the vertical rays. The ray surface is formed of a minute crystalline quartz mosaic.

A, BYU 1406; *B*, BYU 1407; *C*, BYU 1408; *D*, BYU 1409; *E*, BYU 1410.

All the spicules are now of dark, crystalline silica, covered with a fine mosaic of quartz crystals which show faceted terminations. These crystals obscure what is interpreted as an originally smooth surface. Evidence of nodes or spines on the spicule surface is wanting.

DISCUSSION

Growth position of the spicules within the sponge is unknown, but in comparison with possibly related forms, the spicules at hand appear similar to root tuft elements. The radiating lateral rays, once buried in a substrate, would have been very efficient anchors, even in soft material.

The spicules occur in association with the following: *Dalejina* sp., *Salopina* sp., *Leptaena* sp., *Brachypirion geniculata* (Waite), *Stegerhynchus* (?) cf. *lincolnensis* (Johnson), "*Zygospira*" aff. *paupera* (Billings), *Meristina* sp., *Spirinella pauciplicata* (Waite), *Hovellella* sp., indeterminate small atrypid brachiopod, and indeterminate trilobites and gastropod species, according to Boucot and Johnson (personal communication, 1967). They also conclude that the faunule is difficult to date at present but that it appears to be in the interval Wenlockian to Ludlovian.

LOCALITY AND REPOSITORY

Upper dark dolomite of the Laketown Dolomite south side of King's Canyon, approximately 8,500 feet south and 4,000 feet west of the northeast corner of T. 20 S., R. 15 W., Conger Mountain quadrangle, Confusion Range, Millard County, Utah, U. S. National Museum locality 13637.

Figured specimens, BYU 1406-1413, are in collections of the Department of Geology, Brigham Young University.

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