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# STUDIES ON FRESH WATER SPONGES FROM AUSTRALIA. No. 2.

By

NATHANIEL GIST GEE,

(Vice-President of Yenching University, 150 Fifth Avenue, New York City).

THROUGH the courtesy of the Trustees of the Australian Museum, Sydney, Australia, I have been privileged again to examine four additional small specimens of fresh water sponges which have been added to their collections since the publication of "Studies" number 1<sup>1</sup>.

## A NEW RECORD OF OCCURRENCE FOR AUSTRALIA.

### *Ephydatia crateriformis* (Potts).

Two of the four sponges studied have been identified as *Ephydatia crateriformis*, a species which previously has been reported from India, the Dutch East Indies, China, the Philippine Islands and the United States of America. The extension of its range to Australia is therefore not unexpected, and it gives us pleasure to record this discovery. The species is a very variable one and there are decided differences between the more primitive forms and the ones in which the rotules are more perfectly developed. These specimens represent the more primitive form and in many cases the rotules of the gemmule specules are not nearly so well perfected as they are in some of the other specimens from other parts of the world.

1. The first specimen consisted of very small bits of sponge forming thin layers over small plant growths or leaves. The Museum label records only the following facts: "Heathcote Creek at Lilyvale, New South Wales. Collected by M. E. Gray, May 16, 1932." (Gee's No. 55054.)

2. The second specimen consisted of short, less than 3 centimetres, cylindrical growths with rounded or very thin, pointed ends. There were also one or two small pads of sponge in the package. It came from "Waterfall Creek, at falls, near Sydney, N.S.W., June 12th, 1934. Australian Museum No. Z 2684." (Gee's No. 55055.)

*Skeleton Spicules.*—The skeleton spicules vary from around 255 to as much as 323 microns in length and from 7 to 16 microns in thickness. They are rather slender, usually curved, and terminate in sharp points at both ends. They are covered with minute spines which are scattered irregularly over the entire surface except at the extreme tips of the spicule.

*Gemmules.*—The gemmules were not abundant.

*Gemmule Spicules.*—These spicules average about 5 microns in thickness, the extremes ranging from 4 to 7 microns. In length they range from about 110 to 122 microns. They are straight or slightly curved. Many of them have quite irregularly formed rotules, though in the more typical ones the rotules are fairly well developed by the spines around the end of the spicule. The tips of the larger spines at the end of the spicules are slightly curved inward toward the centre of the shaft. Most of the spines are simple, sharp pointed and perpendicular to the shaft.

<sup>1</sup> Records of the Australian Museum vol xviii, No. 9, 10 June, 1933.

As a rule the spines are larger and more numerous at and near the ends of the spicules, while the central portion of the shaft is free, or nearly so, from spicules and when present they are much smaller than those at the ends. The first (No. 55054) specimen is the more regular and typical one. The other one has larger spines and they are more irregularly distributed along the shaft.

### ADDITIONAL LOCALITIES FOR A SPONGE ALREADY RECORDED.

#### *Ephydatia multidentata* (Weltner).

Two additional specimens came to me this fall and I have just had an opportunity to study them.

3. This specimen "from the pipes of the Molong water supply catchment, N.S.W., February 2nd, 1934," was presented to the Museum by the N.S.W. Public Works Department, and is numbered Z 2696. (Gee's No. 55100.) It is a small specimen, 3 by 5 centimetres, is white in colour, and the cottony mass is full of pores and was badly crushed. There were distinct linear fibres made up of several spicules in thickness and these were closely bound together by smaller transverse fibre bundles. The water in which this specimen was found must have been very free from sediment of any kind.

4. The other specimen consisted of small straw-coloured broken bits, a few of them as much as 15 mm. in thickness. The upper surface of the specimens was irregular and somewhat tufted. The vertical fibre rays were quite distinct. The specimen came "From a 36-inch watermain at Chichester Dam, N.S.W., September 23rd, 1933." Presented by Ivor Callen. Museum No. Z 2690. (Gee's No. 55101.)

*Skeleton Spicules.*—The spicules vary in length from around 238 up to as much as 366 microns and are from 10 to 23 microns in diameter. They are spindle shaped and vary from straight ones to those which are decidedly bowed. The spicules are often smooth but many of them bear very fine spines which are visible only under the higher powers of the microscope. The spines in the Chichester Dam specimen are larger and more numerous than in the sponge from Molong. The spicules of the Chichester Dam sponge are also a little thinner than those of the other one.

*Gemmules.*—In the Molong sponge, the gemmules were small, very abundant, white in colour and were crowded throughout the entire structure of the sponge; in the other sponge the gemmules were much fewer in number and those present were clustered in the basal area of the specimen.

*Gemmule Spicules.*—These spicules vary from 26 to 64 microns in length; their shafts are from 4 to 6 microns in diameter; and their rotules have a diameter varying from 15 to 27 microns. The size of the two rotules of the spicule in these sponges often differs, the smaller rotule being the outer one. This characteristic is a very common one of the Australian *Ephydatias* and they often differ from this genus in other parts of the world in this respect. The edges of the disks are incised and terminate in fine points. Both surfaces of the disks are covered with numerous fine spines. The shafts may be either straight or somewhat curved, they are slender and usually uniform in diameter except right at disks where they are enlarged as they join them. They are entirely and abundantly covered with small spines. Now and again one or more long spines are found in the center of the spicules of the sponge from the Chichester Dam; these are not often present in the other sponge.

**NEW COLLECTIONS.**

Doubtless a number of additional sponges will be located in the fresh waters of Australia and its contiguous areas. It is hoped that all collectors of fresh water forms of any kind will keep sponges in mind and maintain a lookout for all forms, not only the most conspicuous ones, but also those which are very minute and which grow on the under surfaces of stones or floating objects in bodies of water. In making collections a good supply of the material should be taken so that one can get some idea of the method of growth of the animal. Also care should always be taken to secure gemmules which frequently are stored away in the basal portion of the specimen. Gemmules are necessary for a satisfactory determination of the species. The Australian Museum will gladly co-operate with collectors of fresh water sponges.