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AN OBSERVATION ON THE BUDDING OF THE STOLON OF A BRYOZOAN, *BUGULA NERITINA* LINNÉ[1)]

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It is well known that in Phylactolaemata the statoblast is formed in winter, in Gymnolaemata in fresh water the hibernacula, and in some marine Bryozoa the resting bud. The writer made some observations on the reproduction of one of the most common Bryozoa, *Bugula neritina* Linné, during July, 1959 to May, 1960. The colonies of this species are luxuriant in the warm season, and they liberate the larvae from July to early September along the sea-shore near the station, but the colonies disappear in winter. In September the colonies attached to the surface of stones were collected with the stones, and kept in a glass tank supplied with running sea water through the winter. After a month, the active colonies disappeared completely and the brown stolons were found creeping on the stone surface. These stolons were removed from the stone surface to the Petri-dishes, and kept in the thermostat at 20–23°C. The writer observed the budding from the stolons. Four days after incubation, the formation of masses of blackish brown pigments were observed at several places, especially at the terminal of the stolons (Fig. a, 4). After five days, those masses of the pigments turned to the processes about 0.2–0.5 mm in height (Fig, a, 6 c.). After six to seven days, the processes elongated, and at the tips of the processes the pigments of different colour from that of the proximal parts were observed (Fig. a, 7). After eight days, the anlage of the first polypide produced from the parts of the pigment mass was observed, and the buds of the next zooids were formed already at the apical parts of the processes (Fig. a, 8). After nine days, the first zooid was completed, and the movement of the polypide was observed, and the buds of the next zooids were more developed (Fig. a, 9). At the tips of the the new buds the the masses of the pigments were formed again as observed in the primary zooid. After the completion of the primary zooid, the new zooids were completed in two days, at least in three days, under favourable conditions.

The budding from these stolons took place in late April in the field. The

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stolons are mass or rod-like and not uniform in size and in form (Fig. 1). At first the site of the budding is not visible on the external appearance. It is recognized only by the masses of the pigments after incubation. When the contents of the stolons were squeezed from the ectocyst into the Petri-dishes with sea water, they separated into several pieces. Some of them could give rise to a few buds, and formed the new zooids as in the intact stolons.

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EXPLANATION OF FIGURES 1-10

Fig. a Process of the budding from the stolon of *Bugula neritina* Linné.
1,2, and 3. Various forms of stolons. ca, ×9 4. Appearance of masses of pigments in a stolon, four days after incubation. ca. ×9 5. A pigment mass formed at a place in the stolon, ca. ×65. 6. A process developed from a pigment mass, five days after incubation. ca, ×65. 7. A more elongated process, six to seven days after incubation. ca. ×65. 8. A process eight days later. The anlage of the first polypide can be seen. The buds of the next zooids are observed already. ca. ×65. 9. The first zooid completed after nine days. ca. ×65. 10. Side view of the first zooid, after ten days. ca. ×65.