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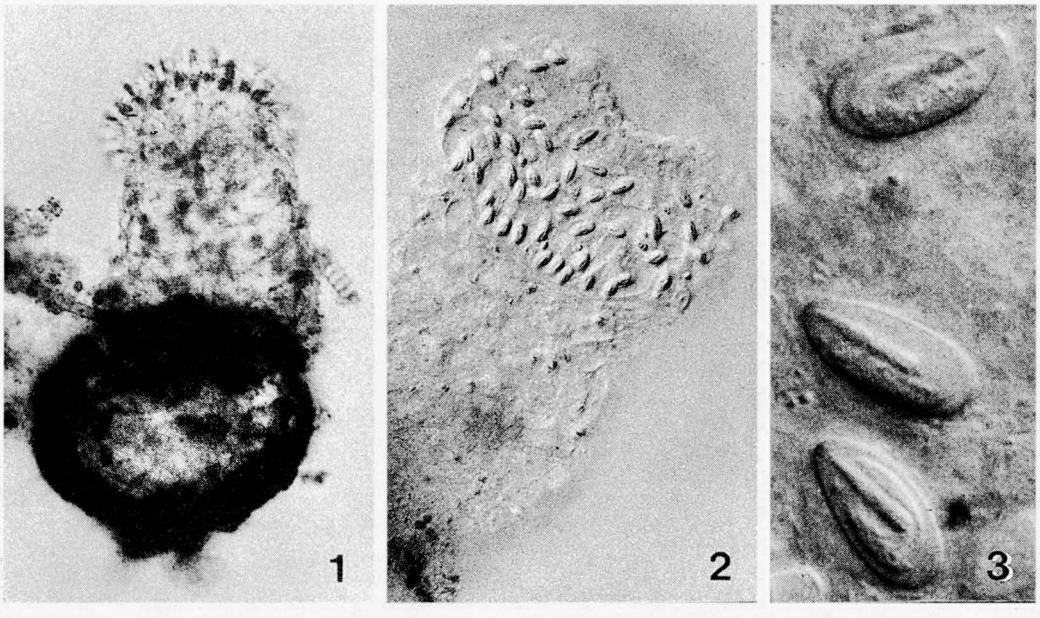
A Sewage Plant as a Remarkable New Habitat of the Fresh-Water Polyp *Craspedacusta sowerbii* (Hydrozoa : Coelenterata)[1])

With 4 Figures

Craspedacusta possesses an extremely wide morphogenetic potential (REISINGER 1957). Beside the "normal developmental stages" of the Hydrozoa as there are planulae, polyps, hydroid budding stages, and medusae there exist also saccules, terminal monomere buds (frustules), multiple segmentations, spherical frustules, and podocysts (resting cysts) (REISINGER 1972).

Medusae of *Craspedacusta sowerbii* have been found for the first time in 1880, polyps in the year 1884 in artificial water basins respectively. Later *Craspedacusta* has been observed in streams, quarry ponds, aquaria, wells, and industrial reservoirs. DEJDAR (1934) specifies the known localities and supposes that *Craspedacusta* might be more frequent at similar sites if one takes into consideration how rare and cursory attention has been payed especially to industrial works by biologists. He already suggests a world-wide distribution of the medusa. STADEL (1961) confirms this and notes that the migrating and nice medusae are found much

1 We wish to thank ANDREAS UNTERWEGER and WOLFGANG WIENER for providing us with the samples and KARIN BERNATZKY for her fototechnical assistance.



Figs. 1—3. *Craspedacusta sowerbii*, polyp.
Fig. 1. Total view, the body is masked by deposited sediment.
Fig. 2. Anterior region with mouth opening and nematocysts around it (Interference-contrast).
Fig. 3. Nematocysts at higher magnification (Interference-contrast).

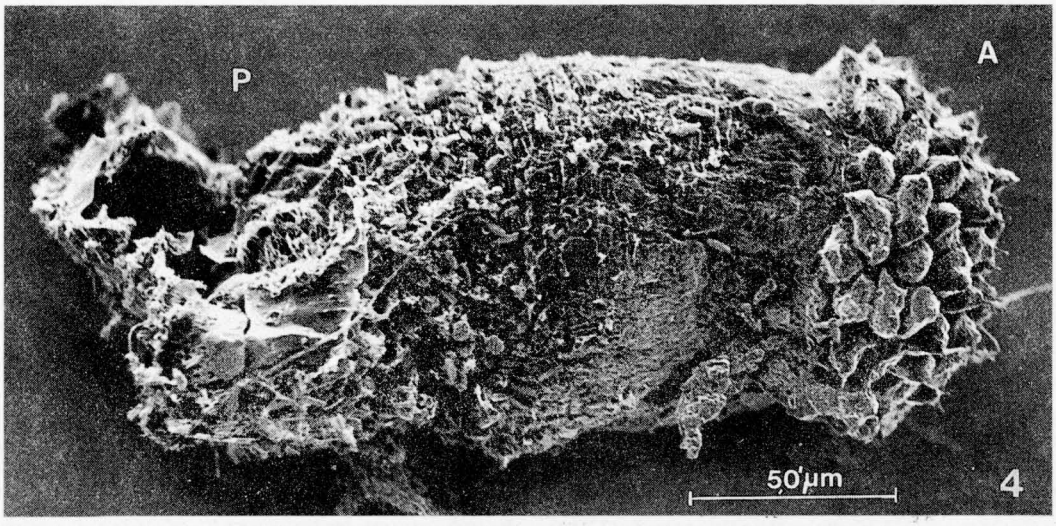


Fig. 4. *Craspedacusta sowerbii*, prepared by freeze-drying, total view. *A* = anterior region with nematocysts; *P* = posterior region covered with sediment (Scanning electron micrograph).

more frequent than the inconspicuous polyps, which are smaller, live more concealed and are often masked past recognition by deposited sediment (Fig. 1).

For our taxonomical investigations of the ciliates in sewage treatment plants we put activated sludge samples in glass petri-dishes (10 cm ∅) and let them digest without additional aeration. We were very surprised to discover polyps of *Craspedacusta sowerbii* (Figs. 1 to 4) in such a sample from the sewage plant Zellhof (Reinhalteverband Trumerseen, Mattsee, Austria). As far as we know this is the first record of this organism from an aeration tank of a sewage plant. This finding corroborates the speculation of STADEL (1961) that the polyps are more resistant to adverse environmental conditions than the medusae.

According to DEJDAR (1934) medusae as well as polyps feed on smaller crustaceans, rotifers, ciliates, amoebae, nematodes, and oligochaets. DUNHAM (1941) mentions rotifers, small nematodes, large protozoa (*Spirostomum*, *Frontonia*), nauplia, and *Cyclops* as food for the polyps. Our specimens fed on copepods (Harpacticoida) and their nauplia as well as on rotifers. Whether the ciliates being present in the culture have also been eaten could not be found out. In any case, we did not succeed in nourishing the polyps by ciliates (*Euplotes*, *Paramecium*) only.

References

DEJDAR, E., 1934: Die Süßwassermeduse *Craspedacusta sowerbii* LANKESTER in monographischer Darstellung. — Z. Morphol. Ökol. Tiere **28**, 595—691.

DUNHAM, D. W., 1941: Studies on the Ecology and Physiology of the Fresh-Water Jellyfish *Craspedacusta sowerbyi*. Dissertation presented in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the Graduate School of the Ohio State University (cited after STADEL 1961).

REISINGER, E., 1957: Zur Entwicklungsgeschichte und Entwicklungsmechanik von *Craspedacusta* (Hydrozoa, Limnotrachylina). — Z. Morphol. Ökol. Tiere **45**, 656—698.

— 1972: Süßwassermedusen (Limnomedusae = Limnotrachylina). — In: ELSTER, H.-J. & W. OHLE (eds.), 1972: Die Binnengewässer. Band XXVI, 1. Teil, 84—98. — E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.

STADEL, O., 1961: Neuere Kenntnisse über die Ökologie und Verbreitung der Süßwassermeduse *Craspedacusta sowerbii*. — Abh. u. Verh. Naturwiss. Verein Hamburg, N. F. **5**, 157—192.

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