

Mr. C. Beaglehole, a local algal collector. Local residents had observed a 'red beach' for a few days before April 14, but not on any previous occasion within recent years. On April 15, a very high tide almost completely removed the beach drift, but great masses were visible out to sea, somewhat east of the original streaks. The floating masses, with some beach drift, were present on April 18 (forming a line about 20 yards wide and a mile or more long), but had disappeared at Mr. Beaglehole's next visit on April 26, and have not been observed since. On April 18, large breakers just off a reef were coloured red by the algæ, which always appeared to maintain its position offshore. No trace of this alga was seen in nearby bays during the period of observations.

This occurrence is apparently more in the nature of a 'bloom' during especially suitable conditions, though its development under the normally fairly rough conditions of Bridgewater Bay is remarkable. On April 14, waves near the beach were about a foot high and similar conditions had prevailed since a storm 8-10 days earlier.

The most striking free-floating marine alga is the *Sargassum* of the Sargasso Sea¹. 'Loose-lying' forms of other marine algæ are known from the Baltic¹, and such forms of Fucaceæ in salt marshes are well known. Moore^{2,3}, has recorded loose-lying forms of *Macrocystis pyrifera* and *Hormosira banksii* in New Zealand. These loose-lying forms all appear to be confined to calm, shallow bays, with dilution a prominent feature in the Baltic, and in most cases the algæ concerned lie on the bottom. Such cases seem to be distinct from the *Antithamnion* reported here. Also these loose-lying forms are invariably sterile, while nearly all of the *Antithamnion* plants were tetrasporangial.

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¹ Fritsch, F. E., "The Structure and Reproduction of the Algae", 2, (1945).

² Moore, L. B., *Trans. Roy. Soc. N. Z.*, 72, 333 (1943).

³ Moore, L. B., *Trans. Roy. Soc. N. Z.*, 78, 48 (1950).

Feeding of a Ctenophore, *Bolinopsis Infundibulum* (O. F. Müller)

Bolinopsis infundibulum, a lobate ctenophore, is known to occur from the arctic to the Mediterranean in European waters, and from the arctic to the Gulf of Maine in North American waters¹⁻³. Full taxonomic details are given by Chun¹ and Krumbach².

On May 15 and 16, 1959, immense numbers of this ctenophore occurred in Port Erin Bay, and up to 1½ miles seawards where they were taken by tow-nets; in the shallow waters of the Bay their distribution appeared to be fairly uniform from the surface to the sea-bed. The next two days witnessed a rapid fall in numbers, and the organisms had practically disappeared by the eighteenth morning; after this date few were observed in the area. The ctenophores appeared during a warm spell, when the waters were fairly calm. They disappeared when a cold east wind sprang up, and the seas became choppy. Previous records attest to the presence of this species during the months of May and June in Manx waters⁴.

The size-range taken in the Bay during present observations was 3 mm. to more than 40 mm. in length (the longer axis of the body was measured). The samples (40-60 specimens) were carefully transferred

to a large aquarium, and their feeding habits observed.

The ctenophores fed voraciously on the smaller copepods, *Podon*, *Evadne* and nauplii offered to them. They appeared unable to capture decapod larvæ and the large copepod *Calanus*. They progressed through the water with their large paired peristomial (or oral) lobes expanded like trawl-doors, and these were observed to come together occasionally to enclose a quantity of water containing food-organisms. The food-organisms were then propelled, by the strong beating of the stout flagella on the auricles, towards the oral tentacles surrounding the cleft-like mouth. The oral tentacles are heavily armoured with colloblasts (or 'lasso'-cells) which have the effect of immobilizing the prey so that they helplessly and passively pass into the stomodæum in a sheet of mucus activated by the oral cilia.

One specimen, 23 mm. long, was thus observed to capture 18 small copepods (*Pseudocalanus elongatus*, *Acartia clausi* and *Temora longicornis*), 11 *Podon intermedius*, and 4 *Evadne nordmanni*. Its stomodæum was only about a quarter full with this meal. This specimen was transferred to a bowl devoid of food-organisms, and the food-organisms it contained were observed to be digested in about an hour (58 minutes) after ingestion. The end-products of digestion were found streaming away from the stomodæum via the four large inter-radial canals into the gastro-vascular network. Indigestible particles were voided through small apertures of the gastrovascular canals, as has been described for ctenophores in general by Hyman³.

The samples kept in the aquarium did not survive for more than 4 days, even though they were fed on fresh plankton.

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¹ Chun, Carl, "Die Ctenophoren des Golfes von Neapel und der Angrenzenden Meeres-Abschnitte"; Fauna Flora Golfo Napoli, Monogr. (1880).

² Krumbach, Thilo, "Ctenophora", Die Tierwelt der Nord-und Ostsee, Lieferung VII, Teil 3 (1927).

³ Hyman, L. H., "The Invertebrata: Protozoa through Ctenophora" (New York, McGraw-Hill, 1940).

⁴ "Marine Fauna of the Isle of Man" (2nd edition in preparation).

ENTOMOLOGY

Stomoxys Control in Uganda, East Africa

SINCE 1956, field research on the bionomics of *Stomoxys* has been in progress in the north of the Mengo District of Buganda Province, Uganda. The experimental area lies in an irregular tract of country of approximately 200 square miles and includes territory ranging from wet seasonal swamps at an altitude of 4,000 ft. above sea-level to wind-swept hills up to 6,000 ft.

The *Stomoxys* population supports an approximate species density of (per cent): *S. calcitrans*, 60; *S. nigra*, 30; *S. omega*, 10.

For simplicity in collecting field data, the area was split into five sections. This report deals with an area of approximately 50 square miles (8 miles × 6 miles) of low-lying, open acacia woodland. During the dry season this area dries out completely, but in the rainy