

WARM-WATER SPECIES IN THE PLANKTON OFF THE ENGLISH CHANNEL ENTRANCE

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Through the kindness of Dr L. H. N. Cooper of Plymouth I have been given the opportunity of examining some of the plankton samples taken by Surg.-Lt. P. Campbell, R.N.V.R., of H.M.S. *Challenger*. It is hoped that the results of these and later surveys will be published elsewhere in more detail, and in association with those made by the Scottish research vessels farther north, but two records of unusual interest are brought to notice here. The collections so far examined in detail were taken during April and May 1953, on a line of stations west of the English Channel, from 49° 39' N., 3° 30' W. to 47° 16' N., 17° 52' W. between 15 and 19 April, and on the return line from 47° 50' N., 17° 40' W. to 49° 28' N., 5° 52' W. between 25 and 28 May. They were made by 10 min. horizontal hauls at 30 fathoms depth.

On 17 April 1953, at 47° 31' N., 14° 21' W. the plankton contained a rich variety of oceanic species consisting mainly of various Siphonophora. Amongst them were found a single specimen of the solitary form of the salp *Ritteriella picteti* Apstein, 15 mm. long, and seven specimens of the aggregate form of *R. amboinensis* Apstein, 10-25 mm. long. No other salps were found there.

This specimen of the solitary form of *R. picteti* has sixteen body muscles, all interrupted on the ventral side, the range for this species being from thirteen to twenty-one or more. It is clearly distinguishable from the solitary form of the closely allied *R. amboinensis*, which usually has only eleven muscles of which the first three are continuous ventrally, but may have from ten to thirteen. There are also other differences, particularly in the form of the gut. The specimen is in excellent condition and was obviously thriving when caught; it is a young one as this species can reach at least 70 mm. in length.

The seven aggregate specimens of *Ritteriella* found by H.M.S. *Challenger* have muscle arrangements exactly corresponding to the published description of *R. amboinensis*, including the arrangement of muscle VI which, according to Thompson (1948), is not known in other *Ritteriella* species or in the *Cyclosalpa* group. The aggregate form of *Ritteriella picteti* is imperfectly known. One very small embryo taken from the stolon of a solitary form and figured by Apstein as *R. amboinensis* was later ascribed by Ihle to *R. retracta*, now thought to be synonymous with *R. picteti*. Three small (3-4 mm.) specimens from Australian waters were ascribed with some doubt to *R. picteti* by Thompson (1948), who also took embryos from the stolon of a solitary

form. It would appear from Thompson's description to have five dorsally approaching muscles, as in *Salpa cylindrica*, and would thus be sufficiently distinct from that of *Ritteriella amboinensis* to make recognition possible. These *Challenger* specimens are in quite good condition, and their identification as *R. amboinensis* and not *R. picteti* would, according to this, seem reliable, although more work and material is required before the relationship between these species can be adequately understood.

Both these species are considered to be equatorial and are regarded as rather rare even there, especially *R. picteti*. Both occur in the Pacific Ocean, particularly in the neighbourhood of the East Indies and Philippines, and in the Indian Ocean. *R. amboinensis* has been recorded in the equatorial and southern Atlantic, off the coast of Africa, but because of a confusion in synonymy it is doubtful if *R. picteti* has yet been recorded from the tropical Atlantic. Neither species has previously been recorded from the north-temperate Atlantic.

The same area was re-examined by H.M.S. *Challenger* towards the end of May, and in the interval the total plankton had decreased and only a few siphonophores were taken, with some *Salpa fusiformis*. However, at 47° 40' N., 13° 58' W. on 26 May, i.e. only a few miles from the earlier station referred to, a specimen of a very large *Coscinodiscus* type of diatom, 1.8 mm. in diameter, was taken. This was identified for me by Mr R. Ross of the British Museum (Natural History) as *Ethmodiscus gazellae* (Janisch) Hustedt, which is the largest diatom known and is recorded up to 1.9 mm. in diameter. He tells me that this species is widespread in tropical waters, being specially common in the Pacific, and that it has been recorded from the Mediterranean (Hustedt, 1930, pp. 374-6) and from the Cape Verde Islands (Castracane, 1886, as *Ethmodiscus gigas*). This is believed to be the first record of its presence in the north-east Atlantic. The specimen was in excellent condition and obviously alive when caught.

The abundance of 'Mediterranean' or 'Lusitanian' species in the plankton west of the British Isles has been remarkable in 1953, and will form the basis of a more detailed report elsewhere.

The specimens of *Ritteriella picteti* and *R. amboinensis* are being held at the Marine Laboratory, Aberdeen; the *Ethmodiscus gazellae* is deposited with the British Museum.

REFERENCES

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