rich deposit. Potato medium yields a pale reddish-brown, glistening, vigorous growth of butyrous consistency. They produce catalase and ammonia, show positive methyl red test and do not produce indol and acetylmethylcarbinol. They are not able to grow in the presence of more than 0·05 per cent phenol.

Only *P. perolens* var. *Gdansk*, *A. perolens* and *P. graveolens* produce a green, fluorescent, water-soluble pigment, cause green egg-white, grow fairly well at 0° C., and use acetates as a single source of carbon.

Some other properties are summarized in the accompanying table.

It is proposed to place *Achromobacter perolens* (strain No. 4430) in the genus *Pseudomonas*[7] with the name *Pseudomonas perolens* because of a single polar flagellum as reported by Turner[1] and myself[4] and because of the production of a greenish, fluorescent, water-soluble pigment.

It is hoped to publish a fuller account of this work elsewhere.

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WACLAW SZYBALSKI

Polytechnical Institute,
Gdańsk, Poland,
and
Department of Biology,
Technical University of Denmark,
Copenhagen.
Nov. 25.

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Temperature Requirements of *Penilia avirostris* Dana in the Hauraki Gulf, New Zealand

IN a pilot survey, still in progress, of the plankton of the Hauraki Gulf, New Zealand, *Penilia avirostris* Dana was found from December 1948 until April 1949. In December, *Penilia* was found in small quantities at some stations only; except in one case, the numbers were less than 1 per c.m., and *Penilia* was only recorded from stations of surface temperature 17·8° C. or above. In January, when apparently extensive multiplication occurred, as many as 1,250 per c.m. were recorded, more usual records being 300–400 per c.m. The modal recorded surface temperature for January was 20° C. In February, with a modal recorded surface temperature of 20·4° C., the numbers of *Penilia* declined to 50–150 per c.m., and continued to decline until April, when a sample with less than 1 per c.m. was recorded at a temperature of 18·7° C. This decline in numbers was reflected in other species. In both January and February, *Penilia* was frequently the dominant member of the plankton, sometimes forming more than 50 per cent of the planktonic animal population of coastal waters of depth 10–20 fathoms.

Although observations are so far available for one year only, the earlier record of Krämer[1] that *Penilia* is a normal member of the summer plankton of the Hauraki Gulf is apparently confirmed. Occurrence of *Penilia* in the Gulf is significant because observations made by the Marine Department, New Zealand[2], over a period of years show that the Hauraki Gulf lies just south of the 17° C. mean annual isotherm. Temperature observations in the coastal waters of the Gulf for the year December 1948 to November 1949, taken during the plankton survey, give a mean annual value of 17° C. It is clear, therefore, that as suggested by Calman[3], *Penilia* is not restricted by the 18° C. mean annual isotherm in New Zealand. It is not known if *Penilia* extends south of the Hauraki Gulf.

From these observations, the temperature requirements for the establishment of *Penilia* in a district appear to be: (1) the mean annual surface temperature may be as low as 17° C.; (2) a summer period is necessary in which the water remains at between 18° C. and 20° C. long enough for reproduction to occur.

Since neither of these conditions is found in the North Sea, it appears unlikely that *Penilia* will establish itself there, although it has been recorded[4], unless the North Sea offers unknown advantageous environmental conditions which will offset the lower temperatures.

A. S. FULLER

Department of Zoology,
Auckland University College,
New Zealand.
Dec. 16.

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Occurrence of a Filter-feeding Mechanism in the Polychæte *Nereis diversicolor*

THE Nereids as a group are regarded as typical examples of the predaceous errant polychætes[1]. *Nereis diversicolor* O. F. Müller (Annelida: Polychæta) has been recorded as feeding on small crabs, mussels, pieces of algæ, and also on detritus, and stress has always been laid on the role of the powerful jaws in seizing prey and dragging it down into the burrow[2]. The discovery of a filter-feeding mechanism is therefore of interest.

Evidence points to the conclusion that the filter-feeding funnel is made from long fine threads secreted by the parapodial glands[3,4] (*Spinndrüsen*[3]), and that these threads are moulded into the shape of a funnel by the parapodial setæ.

So far it has not been possible to determine the conditions under which *Nereis diversicolor* will use the filter-feeding mechanism; but the phenomenon has been observed many times in a number of different animals collected from two places. There can be no doubt that this mechanism is used, although its importance as a method of gathering food in the everyday life of the animal remains to be determined.

Worms were observed in pieces of glass tubing of suitable length and diameter immersed in a dish of sea water. When a suspension of carmine in sea water was added, the worm sometimes moved to one end of the tube and expanded laterally the anterior end of its body (from about the sixth to about the thirteenth parapodia-bearing segments), thus fixing the secretion of the parapodial glands to the wall of the tube. When the anterior end of the body relaxed