with water vapour, may result in a temporary upward migration to the cliff face, where evaporation and convection together lower the body temperature.

The humidity measurements referred to were made with a small electrical hygrometer, about the size of *Porcellio*. The instrument is to be described elsewhere shortly.

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E. B. Edney

Zoology Department,
University of Birmingham.
March 21.

[1] Parry, D. A., *J. Exp. Biol.*, **28**, 445 (1952).
[2] Edney, E. B., *J. Exp. Biol.*, **28**, 91 (1951).

Pelagia in Manx Waters

The occurrence of the scyphomedusan *Pelagia* near Plymouth referred to recently in *Nature*[1] reminds one that early in October of 1899 the genus invaded Port Erin Bay, Isle of Man, in astonishing numbers. It was a truly remarkable spectacle. The sea looked as if converted into a solid mass of the jelly-fish. The species had not been reported in Manx waters before, nor has it been seen there since. They appeared suddenly, remained for a short time, and as suddenly disappeared. When the record was posted to the late E. T. Browne, he was at first very sceptical as to our identification; but an examination of some actual specimens enabled him to recognize the animal as *Pelagia perla*. He assumed that its presence in Manx waters was due to "a northerly current bringing down animals through the north channel from the Atlantic shores of Ireland and Scotland". Two of the specimens are preserved in the Zoology Museum, University of Reading. It may be added that on August 10, 1903, a large shoal of *Pelagia* appeared in Valencia Harbour, along with a huge drift of Salpas on which the pelagias were feeding[2].

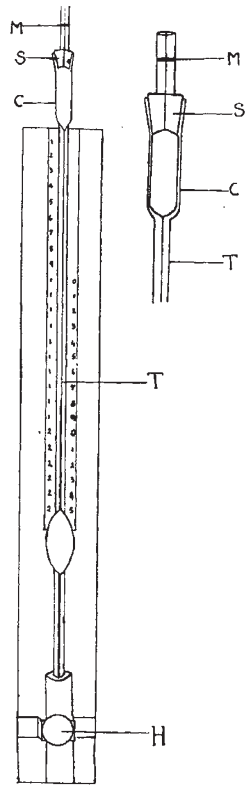
F. J. Cole

Littledown,
Kingwood Common,
Henley-on-Thames.
June 5.

[1] *Nature*, **169**, 934 (1952).
[2] Cf. Report on Sea and Inland Fisheries of Ireland for 1905, 163 (Dublin, 1907).

A Simple Device for measuring the Volume of an Aquatic Animal

Different methods of determining the volume of small animals have been described by Lowndes, Holter, Kuenen and Smallman[1]. None of these is convenient and simple for rapid measurements. I have found the volumometer sketched here very useful. It consists of a long capillary tube *T* with a small cylinder *C* closed with a stopper *S* to ensure a vacuum seal. The capillary and the cylinder are filled with water and the cylinder is then closed with the stopper. By using the screw-head *H* at the bottom, mercury is forced from below and the water is raised up the capillary within the stopper to the mark *M*. Using a hand lens, the base of the water column in the capillary *T* is read to a fraction of a millimetre. Water is lowered well below the stopper.



The creature whose volume has to be measured is dried with filter paper and dropped into the cylinder. When the stopper is replaced, the water is raised to the mark once more and the position of the base read. If the creature cannot be safely wiped with filter paper, the water in the cylinder is lowered until a short column of air enters the capillary and the animal is pipetted along with a minimum of water into the cylinder. The water around the creature is drained into the capillary, and a spill of filter paper is used to remove the last traces of water. The stopper is replaced and the column of water thus drained from the creature is measured. Next, the water is raised to the mark and its position read once more. The last reading minus the column of water drained from the animal will give the volume of the animal.

To test the accuracy of the apparatus, a copper wire, 0·315 gm. in weight and 35·1 c.mm. in volume, was cut into pieces; the pieces were introduced into the apparatus with some adherent water and their votal volume was measured. The mean of ten readings was 34·928 c.mm. — an error of 0·57 per cent (S.D. ± 0·2207, S.E. ± 0·069). Volumes were measured on *Gammarus pulex*, using single specimens of different sizes, and the results were compared with volumes calculated from density measurements. The density was found by weighing groups of ten animals first in air and then in water; from six such groups the average density at 20° C. was found to be 1·0665, varying from 1·032 to 1·087 (Lowndes gives the range as 1·065–1·086). To take an example, a specimen weighed 34 mgm.; its volume calculated from density is 31·880 c.mm. The cross-sectional area of the capillary being 0·476 sq.mm., this volume corresponds to a scale-reading of 66·9 mm. When this specimen was introduced with some adherent water and drained into the apparatus, the mean of eleven readings was 70·3 mm., an error of 5 per cent (S.D. ± 0·511, S.E. ± 0·154); when the animal was dried before being introduced into the apparatus, the mean of ten readings was 63·9 mm., an error of 4 per cent (S.D. ± 0·679, S.E. ± 0·214).

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C. P. Gnanamuthu*

Department of Zoology,
Cambridge.
March 10.

* Zoology Laboratory, University of Madras, South India.

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