(*E*–1137) and the National Science Foundation (*G*–2184).

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Relaxation of Snails before Fixation

NUMEROUS narcotizing agents have been used for relaxing snails, and among the more important of these employed recently are menthol and nembutal[1,2,4]. Menthol has been reported as giving variable results[4]; some snails become well extended, but others contract when this agent is used. This variation in results is observed especially when larger freshwater snails (shell height 15–25 mm.) such as *Lymnaea palustris* and *Physa gyrina* are placed in water to which menthol crystals have been added. On the other hand, smaller lymnæids such as *L. humilis* (maximum shell height, 12 mm.) relax well with menthol[3]. Nembutal gives good results with *Pomatiopsis lapidaria* and *P. cincinnatiensis*[4], but, like menthol, is unsatisfactory for the much larger *L. palustris*. This snail will contract slowly over a period of 4–5 min. when placed in 10 per cent formaldehyde even after being in rather high concentrations of nembutal (5 ml. stock veterinary nembutal in 150 ml. water at 4° C. for more than 40 hr.). Using this concentration of nembutal at room temperature results in contraction of *L. palustris* before it is properly narcotized, so that it is unsuitable for fixation. The same result occurs with snails in higher concentrations of nembutal (10 ml. in 150 ml. water) at 4° C.

However, by combining nembutal and menthol in the following way good results with *L. palustris* and *P. gyrina* are obtained. As many as 80 animals are placed in 150 ml. of tap water containing 1 ml. stock solution of veterinary nembutal (60 mgm. per ml.). The snails are left in the nembutal-treated water at room temperature for 1¼–1½ hr., and at the end of this time the soft parts are well extended. Then powdered menthol crystals are added (sufficient to cover the surface of the water), and the snails are refrigerated (4° C.) for 16–18 hr. in a capped jar. After this period of refrigeration, the snails can be fixed with the soft parts remaining in a well-extended position. When first placed in the fixative, slight movements of the tentacles may occur. During the period of relaxation in nembutal alone, the snails must be kept separated from one another and prevented from clinging to the sides of the container, otherwise interference with the extension of the foot may result. After the snails have been placed in the nembutal-treated water (before menthol is added), the time necessary for extension of the foot with cessation of movement is related to the size of the snail. *L. palustris* with a shell height of 6 mm. takes about 35 min., a 17 mm. snail about 55 min., and a 26 mm. snail about 65 min.

An interesting seasonal difference has been observed with *L. palustris* using this nembutal–menthol method of relaxation. Better results have been obtained with snails collected in the spring than with those collected in late summer and early autumn.

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Occurrence of a 'Rare' Earthworm in Montgomeryshire

A PRELIMINARY survey of the Lumbricidae in Montgomeryshire has revealed large numbers of *Eisenia veneta* (Rosa) var. *zebra* (Michaelsen) in compost heaps, manure, under decaying wood and under stones at Caersws.

Michaelsen's specimens were from the Caucasus, and up to 1947[1] the only British records were two specimens from Limerick[2] and one specimen (?) from Colwyn Bay, North Wales[3]. In 1954, two specimens were sent to the British Museum (Natural History) from a compost heap in Staffordshire.

Var. *zebra* occurs, in Caersws, together with the common lumbricids of compost heaps, *Dendrobaena subrubicunda* (Eisen) and *Eisenia foetida* (Savigny); but has not been found in similar habitats in any of the neighbouring villages.

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Three Zoopagales from Brackish Water

THE Zoopagales are a small group of predacious fungi, at times placed in either the Mucorales or the Entomophthorales, but now more generally given ordinal rank. Most species prey on rhizopods (usually amoebæ); a few on eelworms, by adhesion to their rather sparse mycelium. Consequently they are most frequently found where these animals are active. Duddington[1] and Dixon[2] have recorded several species from compost heaps, decaying wood and moss cushions, and Juniper[3] from decaying animal dung, while Peach[4] restricted her searches to the aquatic habitats of pond and stream, which produced a remarkably rich flora.

So far no known recordings have resulted from saline habitats, but I have recently obtained three species from a salt-marsh in the Blackwater Estuary.

Samples were collected on three occasions during 1957 near Maldon, Essex; and consisted of decaying

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