

With almost continuous treatment with nitrogen, root- and shoot-growths were approximately the same as with air. External hyphæ were more frequent and the mycelium in the root cells was often in an advanced stage of digestion.

Work on the respiration-rates of the roots in relation to oxygen supply, and on the precise oxygen concentrations in various bracken and heather soils, is being carried out.

L. W. POEL

Department of Botany,
Agricultural College,
Glasgow, C.2.
March 10.

Etiology of Grass Disease

IN view of the letter in *Nature* of May 22 in which W. S. Ferguson recorded a paralysing action of grass juice on the isolated rabbit intestine, it may be of interest to note that we have succeeded, by ligation of the ileum in experimental ponies, in reproducing the main clinical, biochemical and post-mortem findings of acute grass disease. Although in this disease there is no obvious obstruction to the onward passage of fluid from the greatly distended small intestine to the dehydrated contents of the colon, the close similarity between experimental ileal obstruction and the naturally occurring condition suggests that in the latter there may be some functional upset in this region. As the large majority of cases occur in horses at grass, and as the peak incidence occurs during the active-growth stage of the herbage, it is tempting to suggest that the disturbance may be due to some chemical substance either existing preformed in the grass or produced in the process of digestion. Ferguson's observations would seem to be well worth following up with this possibility in mind.

A. ROBERTSON
D. E. DONALD
J. S. S. INGLIS
H. PAVER

Royal (Dick) Veterinary College,
Edinburgh 9.

Apus and a Rare Cladoceran in Britain

THE primitive crustacean known as apus, or *Triops cancriformis* (Bosc), which is of particular interest to zoologists, has only been recorded five times in Britain. It was found in 1738 in Kent¹, at the beginning of last century near Christchurch in Hampshire², a little later at Bristol³, in 1907 in Kirkcudbrightshire⁴, and in 1934 near Fordingbridge in Hampshire⁵. Last summer, at the suggestion of Prof. J. Omer-Cooper, one of the discoverers of apus near Fordingbridge, I sought it and got it again from the same pool in which it occurred in 1934⁶. It seems, then, as if apus were a permanent inhabitant of Britain and not merely introduced from time to time through its drought-resistant eggs being carried in mud on birds' feet. I am submitting a full account of my find for publication in the *Proceedings of the Zoological Society*. Apus may not be quite so rare in Britain as the recorded finds suggest, for Ray Lankester, in letters to Dr. W. T. Calman and Dr. R. Gurney, related that he found it on Blackheath and in Worcestershire. I should welcome news of

other finds. The habitat in Hampshire is a shallow grass-bottomed pool which is waterless in dry weather.

In 1946, Mr. D. J. Scourfield described a new species of *Daphnia* from Kew Gardens, *D. ambigua*⁷. From the locality in which he found it, Mr. Scourfield suggested that it had been introduced with aquatic plants from abroad. Last summer, and again this summer, I have found *D. ambigua* Scourfield to be abundant in Regent's Park lake. This need not invalidate the hypothesis of a foreign origin, since *D. ambigua* may have been introduced into the lake, in the form of ephippia by birds, from the old Botanic Gardens near by. It was there that the first freshwater medusa was discovered in 1880, in a tank with the water lily *Victoria regia*, coming, therefore, perhaps from South America. Again, I should like to hear of other finds of *D. ambigua*.

H. MUNRO FOX

Bedford College,
University, London.
June 28.

¹ Brown, L., *Phil. Trans. Roy. Soc.*, 40, 153 (1738).

² Leach, W. E., Supp. to 4th, 5th and 6th editions "Encyclopædia Britannica" (1816).

³ Clayfield, W., specimens in British Museum (Nat. Hist.).

⁴ Balfour-Browne, F., see Gurney, R., *Nature*, 76, 589 (1907).

⁵ Hobson, A. D., and Omer-Cooper, J., *Nature*, 135, 792 (1935).

⁶ Fox, H. M., *Agenda Sci. Meet. Zool. Soc. Lond.*, No. 2 (1948).

⁷ Scourfield, D. J., *J. Quakett Micr. Club*, (4), 2, 127 (1946).

Re-discovery of *Apus cancriformis*

IN September 1907 I discovered two shallow grassy pools on the Preston sea merse, near Southwick, Kirkcudbrightshire, in which *Apus* was present. In one of these it was so abundant that when I raised my eleven-inch ring net out of the water it was half full of specimens, mostly full-grown. I searched many other pools in the same area but without finding it and, returning to the same pools a few days later, I found the edges covered with the shells and very few specimens left in the water. The gulls had discovered this mass of food and had destroyed most of the *Apus*. I have visited the area many times during the last forty years but not until this month, working the merse near the mouth of the Southwick burn, have I again seen *Apus*. My son found three specimens in a pool which then yielded us about thirty or more, and several other pools near the first produced small numbers, mostly immature.

Geoffrey Smith¹ remarked upon the erratic way in which the Phyllopods are scattered through the regions they inhabit, and how they may appear in a pond for several seasons and then vanish. While *Apus* occurred in different parts of Britain on each of the few occasions of which we have records, the accepted explanation of its appearance seems to have been that it was brought each time on the feet of geese and other aquatic birds; but when it turns up after forty years within a mile or two of where it was originally found, it is perhaps reasonable to ask, has it been present in the hundreds of pools in the sea merse which extends, with gaps, from Southwick via Ruthwell, Powfoot, etc., and into Cumberland?

FRANK BALFOUR-BROWNE

Brocklehurst,
Collin,
Dumfries.
June 29.

¹ "Cambridge Natural History", 4, 34 (Macmillan).