

northern migrating whales *came* was a matter of conjecture, and here the results of the Discovery marking experiments have established new facts of value.

W. J. DAKIN.

Department of Zoology,
University of Sydney.

PROF. DAKIN's book "Whalemen Adventurers" and the map therein are well known to me. I am surprised that Prof. Dakin takes such exception to the passage in my article in which I express my view that "a north and south migration [of Humpback whales] along the western coast of Australia has been conjectured for some time past".

In this article the term 'migration' was used only when referring to Humpback whales, for it is only in that species that we have clear evidence, derived from whale-marking, of long-range movements at certain times of the year. Since this evidence is supplemented by the observed movements of Humpback whales off the north-west coast of Australia, we can now speak confidently of a migration along the west Australian coast. I feel that a distinction should be made between 'movements' and 'migrations', and do not consider that the local observations hitherto made fully established a 'migration' along this coast.

In his book, Prof. Dakin does not give very fully the evidence on which he bases his map and the few references to migration in his text. The log book records of which he speaks are for three seasons of very rapidly declining production and for the most part, I imagine, cover only a limited part of the north-west coast of the Australian continent in the vicinity of Norwegian Bay. Prof. Dakin is scarcely justified in extending his conclusions from this neighbourhood to the whole of the west coast, especially as he admits in his letter that the place whence the northward migrating whale came was not known. Whilst Prof. Dakin may have demonstrated the regular movements of Humpback whales off a part of the north-west coast, my remark referred to the west coast, which has a length of about 1,000 miles. For these reasons the word conjectured was used.

I admit our whale-marking data only show, *per se*, that Humpback whales once in the Antarctic may appear later off the north-west Australian coast, but this is a very positive fact and does support much that was previously, of necessity, conjectured.

GEORGE RAYNER.

"Discovery" Investigations,
c/o British Museum (Natural History),
London, S.W.7.

Points from Foregoing Letters

R. S. Krishnan and T. E. Banks report the formation of ^{62}Cu by deuteron bombardment of copper, as a result of a new type of disintegration, namely, $(d - d, n)$ or $(d - p, 2n)$. The threshold for the production of this radio-element seems to be at about 7 Mev. and the yield increases rapidly between 8 and 9 Mev. Further evidence has been adduced to show that in the formation of ^{62}Cu the $(d - p, 2n)$ reaction is more probable than the $(d - d, n)$ reaction.

G. J. Kynch, E. H. Lloyd and W. G. Penney summarize the results of some new calculations on the energies, internuclear distances and vibration frequencies of the benzene and butadiene molecules. An argument is outlined leading to the conclusion that the heat of sublimation of carbon is 170 kcal./mol.

S. Melmore describes a kaleidoscope of eight mirrors; it yields a solid tessellation of cuboctahedra and octahedra.

I. Berenblum, E. Chain and N. G. Heatley present evidence from the literature and from their own work to show that the respiration, glycolysis and respiratory quotient of tumour tissue does not differ fundamentally from that of the normal tissues from which the tumours are derived. In reply, F. Dickens and H. Weil-Malherbe consider that in view of the alteration of metabolism accompanying the formation of a hepatoma from normal liver, no general conclusion can as yet be drawn as to the occurrence of an alteration of metabolism in the development of cancer.

A chemical method for the estimation of vitamin B_6 in foodstuffs, using the diazo reaction or the phenol reagent, has been developed by M. Swaminathan.

F. Verzár and J. C. Somogyi show that although potassium is liberated from the muscles of normal cats by acetylcholine, and muscle contraction is

stimulated, these phenomena do not occur with adrenalectomized cats. They suggest this is connected with the absence of glycogen re-synthesis after adrenalectomy.

Work by Mrs. R. F. Ewer on the function of the chlorocruorin of *Sabella* and by Dr. M. L. Johnson on that of the haemoglobin of the earthworm (*Lumbricus*) shows that both pigments act as oxygen carriers at and below atmospheric oxygen pressures in the environment, and provide for part of the oxygen consumption of the worms.

Younis Sabet records some observations on the development of the mycorrhizal habit in the date palm. The infected roots become hypertrophied and more thickened. Before penetrating the cell wall, the invading hypha develops an appressorium; once in the cell cavity it forms a characteristic spiral. Finally, the whole of the cortex (cells and intercellular spores) become packed with fungus.

The fungus which in New Zealand has been described as the cause of blind seed disease of rye grass resembles under certain conditions *Pullularia* sp. In view of the original description 'Pullularia disease', M. Wilson, M. Noble and E. G. Gray record that *Pullularia* sp. as well as the blind seed fungus are present. Investigation of these two fungi, as well as of others described on rye grass, is being carried out.

W. J. Dakin queries statements made by G. Rayner in his recent article on whale marking. Rayner states that he distinguishes between 'movement' and 'migration', the latter term only being used when discussing Humpback whales. Dakin's evidence is considered to show movement rather than migration, and his conclusions are thought to lack full confirmation. This has been supplied by the knowledge gained from marking experiments.