

period mature fish are nowhere caught by hooks. Ripening and spent individuals are caught in certain localities, as they migrate in shoals to and from the place of spawning, by elaborate stake-net traps situated on the sea coast. The position of these traps or "madragues" in Tunis, Tripoli, Sardinia and Sicily and again on the Spanish, Portuguese and Moroccan coasts west of Gibraltar, infers spawning grounds somewhere between Sardinia, Sicily, and Tunis, and somewhere west of the Straits of Gibraltar. It is also thought that there may be another spawning ground near the Azores.

After spawning the tunny of the European side of the Atlantic embark on a feeding migration which may extend as far north as the Murman coast. With the onset of colder weather the area of distribution contracts to latitudes below those of British seas.

It is known that individual fish migrate between different regions of their distribution, but it is not known whether fish from different spawning areas remain generally true to that area or if there is a wider interchange.

The tunny occurs in the Mediterranean, the Black Sea, and in the eastern Atlantic from Morocco to the north of Norway.

Another species is found from Cape Hatteras to Nova Scotia, and on the Pacific coast of America there is a form which has also been established as a separate species — the "blue-fin tuna". Mr. Russell thinks it possible that these species are only subdivisions of the European one, but points out that *Thunnus orientalis* (Schlegels) — the common tunny of Japan — has been accorded separate specific status on good grounds.

R. S. W.

M. V. Lebour. "The Life-History of *Dromia vulgaris*." Proc. Zool. Soc. London. Pt. 2. London, 1934.

Although certain stages in the development of *Dromia* have long been known, Miss Lebour's account carries our knowledge forward considerably. She has obtained the first zoea by hatching from the egg, and the second and last stages from plankton, one specimen of the latter providing a megalopa by moult. She concludes that there are five stages in all. The special importance of the paper lies in its bearing upon the systematic position of the genus, which has generally been accepted as a member of the Brachyura or true Crabs. She shows that "the larvae differ in almost every point from those of the Brachyura." The zoea has a number of characters pointing on the one hand to relation to the Thalassinidea, and on the other to the Anomura, and she is doubtless right in her conclusion that "the Dromiacea must be removed from the Brachyura." How the true relationships are to be expressed is not so clear, for *Dromia* cannot be placed actually among the Anomura or the Thalassinidea. Miss Lebour's suggestion is that the Dromiacea should stand apart as a distinct group.

The life history of *Dromia* is an excellent example for those who urge that larval characters must be taken into account in framing systems of classification, and shows the danger of relying too much upon the general form of the adult. *Dromia* and some of its allies are so obviously "Crabs" in form that, in spite of such un-Crab-like features as the gill formula, they have readily been accepted as Brachyura. On the other hand the "Crab-facies" is known to have been independently assumed among the Anomura by *Lithodes*, *Porcellanopagurus* and *Porcellana*, and it seems now reasonably certain that *Dromia* is but another offshoot of the Anomuran stem, owing nothing to the Brachyura.

R. G.