

NUDIBRANCHIA FROM THE CLARENCE RIVER HEADS, NORTH COAST, NEW SOUTH WALES.

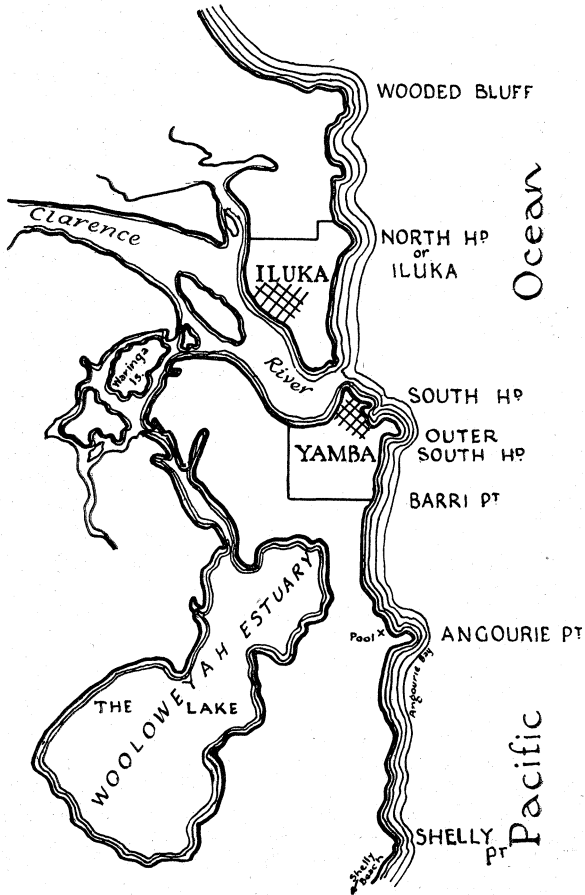
By JOYCE ALLAN.

The Australian Museum, Sydney.

(Plates xli-xliii and Map.)

Introduction.

In June, 1941, the Clarence River Heads, north coast of New South Wales, were visited for the purpose of collecting certain marine molluscan material, in particular, Nudibranchia. For some time Mr. A. A. Cameron, of Harwood Island, Clarence River, had forwarded to the Museum marine specimens from this locality, a considerable proportion of which had indicated the presence there of a strong, extra-Australian tropical influence of ecological and zoo-geographical importance. The nudibranch material was particularly interesting in this respect, since the majority of the rare species he had forwarded were collected in a restricted area, the Angourie Pool, a



small excavation in the rocky shore shelf at Angourie, a popular fishing spot. The trip was therefore undertaken to investigate the molluscan fauna in that locality, with special attention to the preparation of field notes and colour sketches of the Nudibranchia encountered.

A considerable variety of both tropical and temperate rocky shore shells was present in all areas visited—in one locality alone, Shelly Beach, no less than eleven species of cowries were noticed in an hour or so. Notes only were kept of the various species of molluscs seen, as the main concentration was to be on the Nudibranchia, which forms the basis of this paper. However, a collection was also made of several other very interesting Opisthobranchia, including species of Aplysiidae, and Lamellaridae, which it is intended to deal with at a later date.

Mr. Cameron not only gave every assistance by arranging transport at that end and acting as an enthusiastic guide to all the spots, but helped considerably with the actual collecting, and much of the success of the trip is due to his untiring efforts in this direction. My thanks are here tendered for his consideration and the interest he has always shown in this particular molluscan group. I should like to thank Mrs. D. Cameron also for the colour sketches she has prepared on occasions in the past, and Mrs. L. Woolacott and Miss G. Thornley for similar kindnesses while they have been holidaying at Angourie. My thanks are also due to Miss Betty McKinnon, of the Lands Department, Sydney, for preparation of the map.

Unfortunately, squally rain and very cold conditions, with heavier seas than had been experienced for many years along that part of the coast, continued during the two weeks of collecting and made the work most difficult and at times very unprofitable. Dredging was out of the question. The only attempt at this was abandoned early, owing to the adverse conditions. Fishing boats were often unable to operate, and the nets, when they were put out, brought in little material of personal interest, but fragments of coral, sponges, and other marine organisms clearly indicated the coral reef influence adjacent to the shore. Lobster pots were set down on several nights, but collected only common rock shells.

Collecting was confined generally to the Angourie Pool, with a few short trips to nearby grounds, Angourie Point, Green Point, Shelly Beach and Woody Head, all regarded as excellent collecting spots. Their principal features are detailed later.

Only one new species of Nudibranchia was found. But of far more importance than the establishment of new species was the predominance of tropical species (some of which are rare even in their type localities) which are now recorded from Australia for the first time, linking up a definite Africa-Indo-Pacific relationship of a significance not fully appreciated before amongst the nudibranchs. One family, Caliphyllidae, three genera, *Cyerce*, *Baeolidia*, and *Peronodoris*, and sixteen species have been added to our list as a result of this collecting. Amongst the species, six *Glossodoris*, out of a complement of nine *Glossodoris* collected, are new records. When the unfavourable conditions existent at the time—conditions which normally drive many nudibranchs out of collecting range—and the fact that the majority of rarer species came from a restricted pool not more than 60 feet long are taken into consideration, the result is somewhat amazing.

Throughout this paper the general classification is along the lines adopted by Thiele, and reference is made in the text to any doubtful points in this regard when necessary.

Character and Relationships.

Hedley, Iredale and others have indicated in various papers on zoo-geographical relationships of molluscan fauna the presence of an invading tropical fauna into Australian waters. Hedley (1893, p. 189) indicates that there appears no definite temperate and tropical division as a result of this invasion. This fauna gradually