but this is how it should be. Published work and bottom drawers should be searched and used.

In particular, these intertidal flats are discussed in relation to other habitats. The discussion and summary are well worth reading and pondering upon. The recommendations for further study could well be taken as guide lines for the investigation of any threatened or vulnerable area along the New Zealand coastline. The section of the " abstract " dealing with the ecology of the 31 species of birds is worth repeating here:

" The high tide bird roosts on the sand bars and salt-marsh of the eastern area are the major safe roosts for all the wader species in the harbour, particularly during spring high tides. Though the Aramoana flats constitute only about 10% of the intertidal flats between Waitati Bay and Hoopers Inlet, they carry 1-30% of the Pied stilt flocks, 25% of the Pied oystercatcher flocks, about 40-50% of the Godwit flocks and 60-70% of the Banded dotterel flocks for these areas. Most of the rare Northern Hemisphere waders recorded in East Otago have been found at Aramoana, and it is the only area where one or more of the rarer species can be seen regularly. Along the east coast of the South Island, Aramoana and the neighbouring inlets provide the only large areas of wader habitat between Invercargill and Christchurch. There are no breeding colonies of sea birds on the flats, but small numbers of Pied stilts, Spur-winged plovers, ducks and pukekos breed in the flax and shrubland above high tide. The Aramoana flats provide food and safe roosting areas for large flocks of Pied oystercatchers and safe roosting for Black-backed gulls, both of which are predators of insect populations in inland areas during summer."

As Professor Alan Mark concludes in his Preface, " The authors use the information available to put the ecological features of Aramoana into a New Zealand perspective. They also discuss the much more difficult aspect of assessing possible losses in relation to likely profits from industrial development. Undoubtedly such a value judgement must be made at some stage with Aramoana. Hopefully no person will attempt such a judgement without understanding and appreciating the valuable information contained in this report."

I echo his sentiments and whole-heartedly commend this report to everyone concerned with the conflict of needs and multiple usage of our valuable coastline. Show it to your local body councillors, regional authority members or place it in the hands of whoever must make the ultimate decisions on our behalf. It is a fine example for all.

E. W. D.

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The World of an Estuary. By Heather Angel. Faber & Faber, London. U.K. £1.95.

Bird-watchers have been on the prowl in estuaries ever since ornithology proper began; a fact which is acknowledged by the authoress when she asserts that these " coastal habitats have been ignored by most naturalists — with the exception of bird-watchers." Now under heavy pressure from pollution, industrialisation and the claims of human recreation, estuaries are very much in the news. It was fitting that the value of estuaries as habitats for birds, both resident

and migratory, was a topic for discussion at the first Summer School of Ornithology held near Nelson in January 1975; and when the N.Z. Ecological Society held its annual conference in August of this year, it is significant that one day was devoted to a joint symposium with the N.Z. Marine Sciences Society on the " Estuarine Environment."

Heather Angel sets out to explain in simple terms what an estuary is, the exciting and constantly changing zone where fresh and tidal water meet. Although she is concerned mainly with the estuaries of Britain, with an understandable bias towards her own special stamping ground, the great Severn estuary with its sweeping tidal bore, her text is highly relevant to New Zealand and is calculated to make the local estuary-watcher realise how little is known and how much there is to learn about what goes on below the surface of land and water where rivers flow out to the sea.

Logically and naturally the eight chapters examine different aspects of estuarine biology, e.g. the problems of survival and adaptation, the fascinating flora of salt marshes, marine invertebrates, fish, birds, man. The chapter on birds, of course, can only touch the fringe of a vast subject; but it is worth noting that the British counterpart of our South Island Pied Oystercatcher " eats approximately its own weight each day in mussel or cockle flesh."

This is a thoroughly workmanlike book, admirably produced and set in an attractive type. Furthermore, it is aptly illustrated with photographs, elegant sketches and imaginative diagrams, which ought to stimulate many young zoologists to further study. The long New Zealand coast is blessed with a wealth of estuaries. Like Cleopatra, they have infinite variety which custom cannot stale. Perhaps the time of their scientific neglect is coming to an end. It is tempting to paraphrase Pliny and say hopefully, " *Ex aestuario semper aliquid novi.*"

R. B. S.