regions had much in common, being united by the shallow Tertiary sea of Tethys. Climatic change in the Atlantic and the gradual emergence of land destroyed much of the tropical Atlantic fauna, and initiated the present era with its strong contrast between Atlantic and Indo-Pacific faunas. Results have shown that the term Indo – West Pacific must replace the older expression Indo-Pacific, since the faunas of east and west Pacific are radically different, the former having affinities rather with the Atlantic region. The vast island-free area between Polynesia and America was presumably the barrier between the littoral faunas of east and west Pacific. Later climatic change in the North Atlantic with its warm conditions also impeded the evolution of an endemic boreal fauna, which is so much richer in the Pacific.

Such are the type of conclusions brought forward in this most interesting book. Although much of the theoretical picture has previously been constructed by workers in individual animal groups, the probable truth gains added strength by Ekman's work, which has shown how different groups of the animal kingdom follow the same trends. The book is well illustrated, and contains a valuable literature list of some twenty-six pages. This list has an additional attraction in that all titles of papers are given in full, and it thus forms a most useful guide to many of the most important reports on all the marine animal groups.

Prof. Ekman's book is more than a text-book, and is one of the most important additions to marine biological literature since Murray and Hjort's "Depths of the Ocean". Perhaps one of the most striking features brought out is how very great has been the advance in knowledge of species of marine animals within the last century. We cannot be far wrong in saying that in many groups the identification and description of the component species is nearing completion in certain regions. It behoves us now to pay increasing attention to the biology of the species themselves and their interrelationships one with another. It is only with such knowledge that we shall reach a correct understanding of the factors which bind the species to the different ecological associations in the zoo-geographical regions which Prof. Ekman has so ably outlined. F. S. R

Catalytic Reactions

Catalytic Reactions at High Pressures and Temperatures

By V. N. Ipatieff. Pp. xxii+786. (New York: The Macmillan Co., 1936.) 30*s*. net.

THIS is a chemical autobiography; it concerns the life researches of a great Russian chemist, now an exile and professionally active in the United States in the field of catalysis and its industrial application. The author seeks to have correct significance placed upon his investigations, which he claims has not always been done; he retaliates by making little reference to the work of others. As a result, the reader is presented with a mass of information often stimulating and suggestive, which however should be approached critically. It is most valuable to have a subject presented in this way instead of the judicial form necessary in the text-book; instead there is the zeal of the author convinced of the importance of his discoveries and the soundness of his hypotheses. Such are developed here for the reactions of dehydration, alkylation, polymerization and isomerization, in some instances for the first time.

The name of Ipatieff is in particular associated with his pioneer work on catalytic reactions at high pressures and temperatures, and his method is followed industrially in the preparation of such products as cyclohexane, tetralin and decalin. A summary of the main lines of his researches is given in an introduction. He was the first to observe in 1900 that a catalyst could influence the course of decomposition of an organic substance and force the decomposition to go in a certain direction only, and also to recognize that the material of the vessel might play the part of a catalyst. He showed how, according to the nature of the catalyst, alcohol could break down almost quantitatively in three different ways, to aldehydes, to ethylene, to butadiene. To-day such principles are universally recognized and made use of in diverse branches of the chemical industry.

The book is divided into thirteen chapters in which under appropriate headings the various sections of the subject are collected: these are sometimes rendered more useful by a series of numbered conclusions at the end. It can serve no useful purpose, even it it were possible, briefly to summarize some of Ipatieff's hypotheses and results, nor are all of them generally accepted.

The book will be read eagerly by workers in the field, particularly by those in industrial laboratories, and few will do so without some gain either in ideas or knowledge. The author's work has not been in vain; his contribution to progress is a substantial one.