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REPORT ON THE MARINE ZOOLOGY OF OKHAMANDAL IN KATTIAWAR
HIS HIGHNESS SAYAJI RAO III., GAIKWAR, G.C.S.I.,
SENA KHAS KHEL SAMSHER BAHADUR,
MAHARAJA OF BARODA.
REPORT
TO THE GOVERNMENT OF BARODA ON THE
MARINE ZOOLOGY OF
OKHAMANDAL IN KATTIAWAR

BY
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WITH SUPPLEMENTARY REPORTS ON SPECIAL GROUPS BY OTHER ZOOLOGISTS

PART I

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PREFACE

The investigation which furnished the collections whereon are based the reports comprised under the present cover owed its inception to the enlightened policy pursued by His Highness Maharaja Sayajirao III, Gakwar of Baroda, for the educational and material development of the historic State which is so fortunate as to be ruled by him.

Naturally the technical inquiry at Okhamandal which His Highness honoured me by entrusting to me to carry out, had the improvement of the economic marine resources of that district as its foremost object, and indeed its raison d'être from an administrative standpoint; yet, with a generosity towards the furtherance of pure science too rarely found among the heads of States, His Highness most willingly agreed to bear the entire expense involved in the publication of any scientific reports written by specialists upon the zoological collections made during the inquiry. He was also pleased to express the wish that such papers should be presented in the best possible form, and that no efforts were to be spared in their satisfactory illustration.

Hitherto the attention of zoologists dealing with the fauna of Indian seas has been directed in the main towards the investigation of the species inhabiting the deeper zones; in this connection I have only to cite the classic monographs with which the name of the Indian Marine Surveying steamer "INVESTIGATOR" and of Major Alcock, F.R.S., late Superintendent of the Calcutta Museum (Natural History), will ever be associated with all honour. Comparatively little attention
has been bestowed upon the fauna of the littoral zone and inshore shallow water, except in the case of the Gulf of Mannar, where that of the Ceylon side has been ably dealt with by Prof. Herdman, F.R.S., and the workers associated with him, while the zoology of the Indian side has received considerable attention from Dr. Thurston, the versatile Superintendent of Madras Museum, from Prof. Dendy, F.R.S., and other well-known zoologists in England and India. It is hoped, therefore, that the following reports, dealing as they do exclusively with the marginal waters of a little-known region on the West Coast of India, may prove valuable as a local monograph—the first of its kind in India—and from the standpoint of geographical distribution.

In Part I, I have to acknowledge with grateful thanks the invaluable assistance of Mr. Thomas Southwell, A.R.C.S., F.I.S., Professor J. Arthur Thomson, M.A., Mr. George Crane, B.Sc. of Aberdeen, and Sir Charles Eliot, Sheffield University. The first-named, whom it was my good fortune to have as my scientific assistant during the last eighteen months of my service in Ceylon, besides contributing a report on the Anomura, collaborated with me in the description of a new species of Pinnotheces and also afforded me much help in other directions. Mr. Southwell has now in hand a report upon the Actiniza which I hope to include in Part II.

The report on the Alcyonarians of Okhamandal, now furnished by Prof. J. A. Thomson and Mr. George Crane, is particularly valuable on account of the beautifully executed coloured plate which accompanies it and which renders identification easy of the principal species of this group found in the waters of the Gulf of Kutch. The short contribution by Dewan Bahadur V. M. Samarth is of great interest as indicating, among other things, how a wise and progressive rule, such as that exercised by His Highness the Gaekwar, has the power of penetrating every department of government and of endowing each with a portion of the same spirit of enlightened progress.

The whole of the photographs reproduced, except the frontispiece, are the work of the Vividha Kala Mandir, Baroda, whose representative accompanied me
during the greater part of the time spent in Okhamandal, and whom I am glad to have this opportunity to thank for the great assistance he rendered, often enough under circumstances of great personal discomfort.

As regards the groups of animals yet to be described I have received from Prof. A. Dendy, F.R.S., our greatest authority upon the Sponges, the promise of a report, which is the more valuable seeing that this phylum is especially rich in species in the collections from Okhamandal. Mr. Edward T. Browne, M.A., University College, London, has undertaken to report upon the Medusae, while Miss Thornely will report upon the Hydrozoa and Polyzoa and Prof. Herdman, F.R.S., upon the Ascidians. On my own part I hope to furnish contributions upon certain of the remaining groups, together with a general survey of the geographical and vertical distribution of the more noteworthy species and groups represented in the collections.

For the benefit of those readers whose acquaintance with India is not intimate, it may be of interest to mention that Baroda is one of the greatest of the self-governing States of India, having an area of over 8,000 square miles and a population at the last census (1901) verging upon 2,000,000. The present Maharaja is essentially a man of action; he may dream dreams, but his waking hours are devoted to strenuous effort to turn them into practical realities. To the introduction of new industries and the improvement of indigenous ones he has given the greatest attention; he has travelled far and wide through Europe and America to gather ideas and information at first hand pertinent to the schemes he is elaborating for the economic and social advancement of his State. His Highness is specially concerned in fostering the arts of the hereditary craftsmen of India, whose productions tend to deteriorate and decay as the cheap and shoddy wares of Europe and the new Japan crowd them from the shelves and counters of the bazaars.

As the basis of all reform, the Maharaja is convinced of the necessity of placing within the reach of even the humblest of his subjects educational opportunities well-considered for their particular requirements; at the present
moment education is not only free, but is compulsory as well in Baroda. By the enlightening and levelling influences of this system of universal education His Highness hopes so to raise the lower castes that the fetters of caste itself will automatically fall away, but so gradually that the evils of a sudden social revolution shall be avoided. The Maharaja is certainly entitled to be considered the most important personal factor in social reform in India; indeed none but a powerful and orthodox Hindu ruler such as he is dare to approach with any chance of success the domestic problems which fetter Indian society. Among other measures of reform, he has done much for the cause of female education, not only within the bounds of his own State but throughout all Hindu India; he is a staunch advocate of a relaxation of the rigorous enforcement of the purdah system, and by his enactments he has so raised the minimum marriage age, that the evils of child marriage have been put an end to in Baroda.

Those interested in the social and economic regeneration of India should study well and in detail the history of Baroda during the present reign, for therein they will find the record of much attempted and much accomplished in spite of many failures. The present volume is the story of the work done in one of these pioneering attempts.

In conclusion, I desire to thank once more all the Baroda officials who gave their ungrudging help to me in the present investigation; I wish them long life and every possible success in their careers, and especially do I wish all honour and happiness to Dewan Bahadur V. M. Samarth, who, I understand, is about to retire from the service of his State at an early date.

My hearty thanks are also due to Major A. K. Condon, the Assistant British Resident at Dwarka during my visit, for his great hospitality and unvarying kindness and courtesy. I shall ever retain a vivid recollection of the warmth of the welcome which he was so good as to extend to me. To observe the wonderfully good relations subsisting between him and the officers and men of the Okha battalion was not the least interesting of my experiences, and I