

"Great Barrier Reef Province" and on the morphology and distribution of the reefs, with a classification of living reef types in general and of those of the Great Barrier complex, including some new terms. Maxwell recognizes *platform*, *lagoonal platform*, *elongate platform*, *wall*, *cusped*, *prong*, *apron*, *open ring*, *open mesh*, *closed ring*, *closed mesh*, *plug*, *resorbed*, and *remnant patch reefs*, surely a sufficient terminology for the most exacting hermatypicologist.

The biological character of the reefs receives less attention, and the treatment of the various organic groups is somewhat uneven. Although the author points out that the dominant components in reef building biotas are the corals and calcareous algae, there are seemingly exhaustive lists of the species of the latter and the Foraminifera, but only a few genera are given for the hermatypic corals.

Chapter 8, dealing with the sediments now accumulating, is one of the most important, for, after all, the clastics and bioclastics contribute the main mass of reef materials. Those of the Great Barrier include a much wider range than is found on other reef complexes, from the high terrigenous quartzose sands and muddy sands to almost pure carbonates. Among the latter are the surprisingly large stretches of bryozoan detritus, contrasted with the relatively small areas of coral clastics.

Lavishly and well illustrated, this book is rightly termed an atlas, with its many clear, neatly drafted maps and diagrams supplemented with an imposing array of reasonably well reproduced photographs. Maxwell has assembled the first comprehensive physical analysis of a great earth feature.

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## A Victorian Naturalist

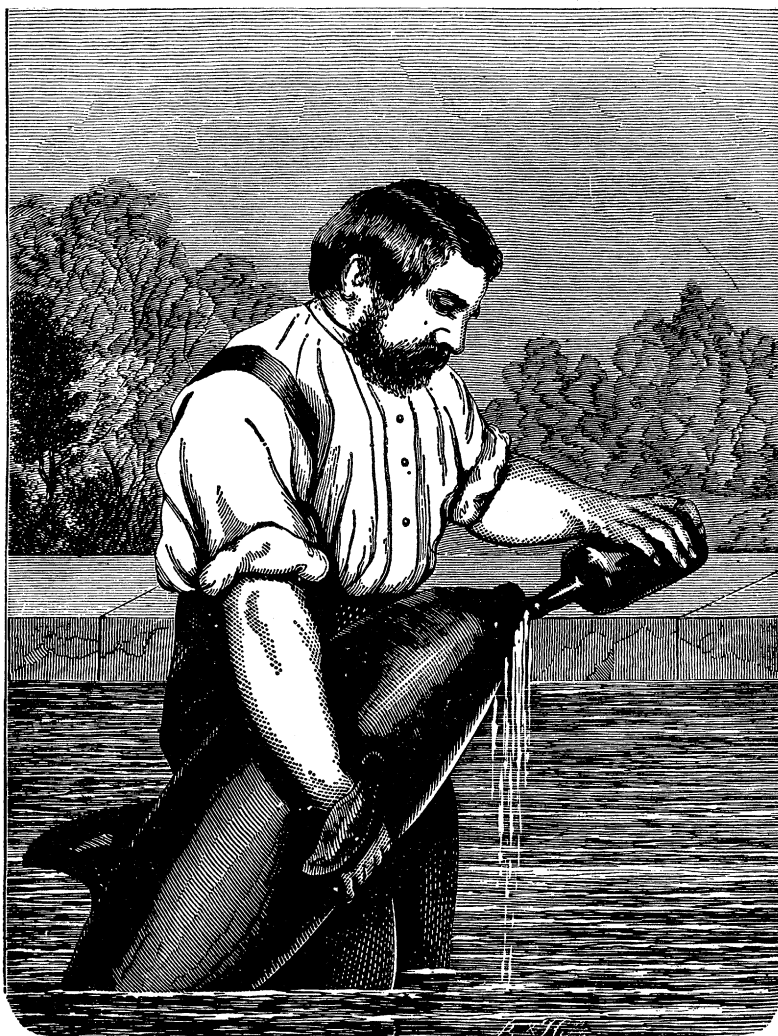
**The Eccentric Ark.** The Curious World of Frank Buckland. G. H. O. BURGESS. Horizon, New York, 1968. xii + 242 pp. + 15 plates. \$6.50.

This book is partly biography, partly natural history, and altogether unique. Frank Buckland (1826-1880) was in a way a composite of Ben Franklin, Will Beebe, and P. T. Barnum. Son of the "scientific" Dean of Westminster,

himself a noted geologist, Frank was educated at Oxford and embarked on a career in surgery, but only briefly. He served as House Surgeon at St. George's, and was later appointed assistant surgeon to the Second Life Guards, a post which provided him with ample time to pursue his varied and widespread interests. He has been described as "the man who tried everything" and "surely the most independent eccentric of all time." He loved riding on the open top of an omnibus in the rain; he once made in his basement a plaster cast of a large sunfish, only to find it would not fit through the doorway; he disrobed and attempted

to climb up a waterfall, to appreciate the sensations of migrating salmon; he personally attempted to doctor a moribund porpoise at the Zoological Gardens in London. At home he kept an odd assortment of pets, served exotic dishes, and entertained giants and dwarfs, rat catchers and flea trainers, as well as the leaders of London's society. Everything curious, unusual, or bizarre interested him, and he had the happy trait of transmitting his enthusiasm to others.

Through these pages stride such eminent scientists and celebrities as Louis Agassiz, Charles Darwin, Michael Faraday, Francis Galton, Thomas Henry



Frank Buckland dosing a porpoise with sal volatile and water, November 1862. Buckland and his friend A. D. Bartlett, superintendent of the London Zoological Gardens, were eager to obtain a live porpoise for display. "Buckland spent much time and trouble in attempting to revive dying specimens which reached the Gardens and in travelling to the coast to inspect and arrange for the transportation of porpoises caught by local fishermen. None of the animals which reached the Gardens alive survived for more than a few days. Buckland, however, maintained public interest in the attempts not only by his contributions to *The Field* but also by writing letters to *The Times* . . . announcing the arrival of yet another specimen. . . . People flocked to the Gardens, generally to discover that the newcomer had just died." [From Buckland's *Curiosities of Natural History*, 3rd series; reprinted in *The Eccentric Ark*]

Huxley, George Hogarth, Charles Kingsley, Edwin Landseer, Charles Lyell, Florence Nightingale, Richard Owen, John Ruskin, and Queen Victoria herself. They enter Buckland's life briefly, or for extended periods, and contribute a nice sense of the state of science and civilization of that day.

For years Buckland contributed to and edited parts of *The Field*. He authored the popular series of books called *Curiosities of Natural History*, and later founded and wrote voluminously for the magazine *Land and Water*; he collaborated with Gilbert White and Lord Selborne on an 1875 edition of *The Natural History of Selborne*. Buckland became concerned about the dwindling supply of food for the growing British population, and became involved in work with fisheries. Presently he was operating a fish hatchery and a Museum of Economic Fish Culture at South Kensington. In 1867 he reached his zenith, with appointment as Inspector of Salmon Fisheries. His life, hitherto energetic, now proceeded at a feverish pace. Besides extensive fieldwork, he devoted much time to lecturing.

Buckland had a winning personality, and his friends and admirers were legion. He combined a peculiar assortment of contradictory traits, being known to some as kind, generous, considerate, and practical and to others as impetuous, tactless, egotistical, and uncritical. He was a keen observer, but in his lectures and writings "he tried too hard to amuse rather than instruct." Thus he failed to gain the reputation of a profound scientist. "Had he attempted less he might have achieved more." He still is remembered best as a popularizer of natural history, but he also made significant contributions to early marine and freshwater fishery research, he pioneered in fish hatchery techniques and in oyster culture, and he recognized the menace of water pollution a century ago. To the end he refused to accept, or even understand, Darwin's evolutionary theory. In his will Buckland endowed an annual lectureship on Economic Fish Culture. The lecturer in 1964 was G. H. O. Burgess, director of the Humber Laboratory for Fish Technology. The occasion stimulated him to gather and publish these colorful and entertaining memorabilia.

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## The Psychodynamics of Disease

**Psychosomatic Specificity.** Vol. 1, Experimental Study and Results. FRANZ ALEXANDER, THOMAS M. FRENCH, and GEORGE H. POLLOCK, Eds. University of Chicago Press, Chicago, 1968. ix + 263 pp., illus. \$7.50.

The theory of psychosomatic specificity, developed more than 30 years ago by the late Franz Alexander and his colleagues at the Chicago Institute for Psychoanalysis, was meant to explain the regularity with which the psychoanalytic treatment of patients with duodenal ulcer, rheumatoid arthritis, asthma, hypertension, thyrotoxicosis, neurodermatitis, and ulcerative colitis revealed specific psychodynamic patterns to be associated with each of these diseases. For example, a typical conflict about dependency needs was noted in duodenal ulcer patients, and problems associated with intense craving for physical closeness, combined with conflict about exhibitionistic tendencies, seemed to characterize neurodermatitis patients. Further, the psychological situation in which the patient found himself at the onset of his physical symptoms appeared to involve the activation of precisely these characteristic psychodynamic conflicts. The original investigators early recognized that the same psychodynamic patterns could be found among patients who did not have the somatic disturbance. Hence they postulated that an organic predisposing factor ("X factor") was necessary to the development of the disease. The specificity concept as formulated by Alexander is as follows:

A patient with vulnerability of a specific organ or somatic system and a characteristic psychodynamic constellation develops the corresponding disease when the turn of events in his life is suited to mobilize his earlier established central conflict and break down his primary defences against it. In other words, if the precipitating external situation never occurs, a patient may, in spite of the presence of the predisposing emotional patterns and of organ vulnerability, never develop the disease.

Alexander's specificity concept enjoyed wide popularity in the 1940's and early 1950's and indeed was the most influential theory in psychosomatic

medicine at the time. Many clinical case reports appeared to give support, though there was not always full agreement with the original psychodynamic formulations. But such retrospective studies could only elaborate, not validate, the theory. Application of projective and other psychological test procedures yielded conflicting findings, mainly because such approaches do not reveal how psychological attributes relate to the development of the somatic processes. Only the study of Weiner, Thaler, Reiser, and Mirsky in 1957 (*Psychosomatic Medicine* 19, 1) was adequately designed to test the validity of the theory. Using a high concentration of pepsinogen in the serum as an indicator of the somatic predisposition for duodenal ulcer, these investigators were able, in a double-blind study of a group of army inductees, to predict successfully that peptic ulcer would develop only in those with a high pepsinogen concentration, and the specific psychodynamic constellation, for whom basic training constituted a precipitating external situation. At the same time they verified that ulcers did not develop in men without the somatic predisposition (low in pepsinogen) or in men who had both the somatic and the psychological predisposition but in whom induction did not arouse the relevant conflict.

With such a paucity of adequate studies it is not surprising that the specificity theory gradually lost its appeal. Few such patients are now treated psychoanalytically; hence only a few analysts have continuing experience with or interest in the problem. Also, other workers less knowledgeable in the psychodynamic approach have tended to embrace less particularistic concepts.

The work reported in this book is a contribution to the methodology of clinical psychosomatic and psychoanalytic research as well as an attempt to test the specificity concept.

Alexander early appreciated that the investigator's prior knowledge of the disease diagnosis might bias his examination of the psychodynamic material, and he proposed testing whether the correct diagnosis of each of the seven