

The biologist will find much to attract him and so will the industrialist, as well as the regular colloid chemist.

Naturally the author of the famous Freundlich adsorption formula would present an exhaustive treatment of adsorption, and this is justifiable, for adsorption is the backbone of colloid chemistry. The opposing arguments of Langmuir and Polanyi as to the thickness of adsorbed films, monomolecular or poly-molecular, are given fully and fairly.

The author's clear thinking is illustrated by the following statement: "In comparing different adsorbents we must remember that the amount adsorbed, which is referred to unit weight of adsorbent, does not permit of any proper comparison. It includes two quantities which must be separated: first the *actual specific adsorptive power*, that is, the amount adsorbed per square centimeter of surface; and secondly, the *specific surface area*, that is, the extent of the surface of 1 gram of adsorbent."

It is interesting to note (p. 726) that, in using Debye and Scherrer's method of X-ray study of gels, fibers, etc., it is best to arrange ramie in parallel threads.

In discussing membranes and surface films Freundlich insists that semi-permeability can not be a question of a pure sieve action. "With a sieve action one should be able to arrange the membranes in a series in the order of their permeability. But this is by no means the case; a membrane particularly impermeable to the majority of substances may be more permeable to some substances than is a membrane which is otherwise, in general, permeable."

Enzymes receive extensive treatment under the topic, "The Kinetics of Reactions accelerated by Enzymes." Following this is a discussion of the "Inhibition of Biological Processes by Capillary-active Substances."

It is rather surprising to learn (p. 825) that precipitates of the hydroxides of aluminum and ferric iron formed rapidly by addition of ammonia to the corresponding salt solutions are amorphous, while the micellae of Al_2O_3 and Fe_2O_3 sols, formed slowly by hydrolysis, are crystalline (shown by Debye and Scherrer's methods).

On page 837 the author puts the brakes on Loeb's too-enthusiastic, too-general application of Donnan's equilibrium theory.

The thousands of references given in this great treatise add much to its value. But if one is overwhelmed by the 883 pages one can take refuge in Freundlich's little "Elements of Colloidal Chemistry."

HARRY N. HOLMES

OBERLIN COLLEGE

Deep Sea Fishing in New Zealand: Tales of the Angler's Eldorado, New Zealand. By ZANE GREY. New York, Harper Brothers.

MR. ZANE GREY, "the Izaak Walton of the open sea," the leading deep sea angler of the world, has opened a new field, an "Angler's Eldorado," in his experiences in and about the Bay of Islands, on the North Island of New Zealand. This body of water is a fair rival of Santa Catalina, Cape San Lucas and Southern Florida; three great centers of tuna, sailfish and marlins, which Mr. Grey has already explored.

Besides its thrilling interest to anglers, it has much of value to the ichthyologist in its excellent plates and accounts of distribution and habits. All these fishes (some reaching 1,400 pounds) are too large for bottling and only now and then can individuals be properly preserved and mounted. Most studies of them must be made through photographs.

The two species especially treated and figured by Mr. Grey in this work belong both to the genus *Makaira* or "Marlin-spike-fishes." One of these has been very lately named *Makaira zelandica* by Jordan and Evermann, on photographs from the Bay of Islandi, the other, as Mr. Grey asserts, is still unnamed and is called by him "the black marlin" to distinguish it from the striped marlin or *zelandica*. It is closely related to the huge "black marlin" (*Makaira marlina*) of the west coast of Mexico, but its fins are still lower and the spear shorter. In Jordan and Evermann's recent memoir on "The Giant Mackerel-like Fishes" of the world, the New Zealand "black marlin" is provisionally identified with the marlin of South Africa, *Makaira herscheli*. But this species has longer fins and a longer spear.

The generic *Makaira* must be used for the "marlin-spike-fishes," which differ from the sailfishes, *Istiophorus*, in the very low dorsal. *Tetrapturus*, the spearfishes, a third genus, is intermediate, having a low dorsal also, but with the posterior spines relatively elevated, almost as long as those in front. No species of *Tetrapturus* is known from America, but species occur in the Mediterranean, in Hawaii and in Japan.

DAVID STARR JORDAN

SCIENTIFIC APPARATUS AND LABORATORY METHODS

"A F S," A NEW RESIN OF HIGH REFRACTIVE INDEX FOR MOUNTING MICROSCOPIC OBJECTS

A LARGE percentage of objects mounted on glass slides for examination through the microscope depend