RESOLUTIONS OF THE CONGRESS

Not only because of their inherent value to foresters and other scientists, but because of the decision to set up a permanent international forestry body, in which the United States will be represented, the resolutions passed at Budapest might well be considered as signposts of international cooperation and good will. They covered a wide range of subjects in the fields of pure forestry, forest industry, control of forest damage by insects, fire, floods and overgrazing, forestation of wastelands, preservation of scenic beauty and mountain lands, forest geography, certification of forest seed, standardization of forest statistics, measurement of forest volumes and terms in phyto-sociological studies, tropical forests, etc.

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SCIENTIFIC BOOKS

MARINE ZOOGEOGRAPHY

Tiergeographie des Meeres. By SVEN EKMAN. Akademische Verlagsgesellschaft, M.B.H., 1935, Leipzig, pp. I–XII, 1–542, text figs. 1–244.

THE appearance of Sven Ekman's marine Zoogeography is of the greatest interest to all students of marine biology as well as to those interested in zoology as a whole. It is a work which has been much needed for many years, and one could hardly imagine a more satisfactory treatment of the subject. The book is equally valuable for the beginner and for the advanced worker or teacher of marine biology. It contains a wealth of facts, well selected, a clear presentation of the different theories and it is tremendously inspiring because it shows how much work there is still to be done along many lines.

The book is obviously the result of a lifelong interest in the subject, and there are probably not many so eminently fitted for doing this gigantic work as Dr. Ekman. He has had a varied experience in many fields, both as taxonomist and field ecologist; is equally at home in the well-explored waters around Sweden and in the newly discovered Antarctic seas, and he is an experienced teacher, as the logical arrangement of the material shows. The Scandinavian biological tradition and methods of attacking problems are quite evident in this book, which reviews almost two hundred years of marine research, much of which is based upon the pioneer work of the early Scandinavian workers. It is therefore very appropriate that this great milestone has been set by a countryman of Lovén, the outstanding student of marine life in Sweden, a country always famous for its good biologists.

To give a brief abstract of the contents of this book is impossible, for in spite of its 542 pages (60 of which are given over to bibliography and two indexes, one for scientific names, one for authors) the book is as condensed as an encyclopedia.

Twelve of the sixteen chapters deal with the distribution of marine shallow water invertebrates, a group hitherto sadly neglected, the last four chapters are given over to the distribution of the deepwater bottom forms and the plankton. In addition there is an excellent account of the history of marine exploration and a short epilogue about isolation and time as factors in the development of new forms.

The author treats in succession the tropical, temperate and polar waters, delimits the larger and smaller geographic areas, discusses the hydrographic conditions and the composition of the fauna, and interprets the available facts. Being himself an experienced taxonomist he has an instinct for selecting only the results of reliable, critical workers, and many groups of animals which are incompletely known or identified by persons who create landbridges promiscuously to suit their own particular need, are completely left out. The value of the *Albatross* expeditions with their wealth of material, worked out by specialists more or less affiliated with the U. S. National Museum, becomes most evident. The important conclusions regarding the relationship of the east Pacific fauna with that of the West Indies are chiefly based upon these detailed *Albatross* monographs of M. J. Rathbun, T. W. Vaughan, A. H. Clark, W. K. Fisher, J. A. Cushman, etc., to mention only a few, and their results are in turn worked in with the innumerable contributions from workers in other parts of the world. Practically every important paper dealing with marine biology is quoted, even the most recent. The book is full of refreshing original theories and new interpretations of older ones, and there is hardly a question in marine biology which the author has not touched upon. The logical arrangement of the material and the detailed indexes makes it an easy matter to find everything one wants to look up. There are very few erroneous statements (it is thus a mere slip of the pen when the author (p. 75) states that the coral genus *Acropora* is absent from the West Indies, as he expressly (p. 36) mentions that it has not been able to migrate from the West Indies to Bermuda.

That the book is written in German should not deter anybody from reading it. The vocabulary used is as simple as possible and the construction of the sentences far from involved. Moreover, the text (which in many places consists of lists of Latin names) is so

interspersed with illustrations, charts of distribution and tables with statistical data, all in the place where they rightly belong, that the meaning in most cases is quite evident. Nevertheless, it is a book which deserves to be translated into English. It takes its place next to Murray and Hjort's "The Depths of the Ocean" as one of the indispensable classics.

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SPECIAL ARTICLES

BLOOD CALCIUM IN RELATION TO ANTERIOR PITUITARY AND SEX HORMONES[1]

I

IN this study initial effort was directed to an examination of the evidence for the production by the anterior pituitary (A.P.) of a special "parathyrotropic" hormone—a hormone alleged to stimulate the parathyroids to an increased production of parathormone, which in turn is known to augment the calcium of the blood. As a contribution to this problem it was found that another, and earlier recognized, A.P. hormone is capable of increasing the serum calcium. Later, when it was further found that certain sex hormones induce marked augmentation of the serum calcium in normal, castrate, hypophysectomized or thyroidectomized animals of both sexes, equal or greater interest attached to a development of this aspect of the subject.

II

Since the existence of an A.P. "parathyrotropic" hormone is in question it was essential to examine the serum calcium-raising capacity of those A.P. hormones whose actual existence is not in question. Though this examination could not be made entirely complete the chief result, as obtained on individuals injected for six or more days, were as follows: Prolactin has no power to raise the serum calcium of normal, castrate, hypophysectomized or thyroidectomized pigeons (20 tests, 9.9 mgm per 100 cc: 10.1 mgm control) in either the fasting or non-fasting condition, nor in similar fasting rats (21 tests; 10.2 mgm; 10.1 mgm); prolactin can *decrease* this calcium (even in a shorter period than is considered here) in laying female birds. Cortin, liberated by adrenals—perhaps under the influence of prolactin—is similarly without power to increase the calcium level of such fasting pigeons (23 tests; 9.3 mgm: 9.2 mgm) and hypophysectomized rats (4 tests, 10.2 mgm: 10.0 mgm). A unique Antuitrin G preparation of the growth hormone was wholly without effect on the calcium level of three hypophysectomized pigeons; this particular preparation was shown by our assays to contain much prolactin and some thyrotropic, but to be practically free of follicle-stimulating hormone (F.S.H.). The thyrotropic hormone can not be separately tested, since such preparations invariably have been found admixed with F.S.H. Mixtures of these two hormones gave an increase of 7 per cent. (21 tests); but gonad-stimulating hormone free from thyrotropic—as found in mare serum—gave an average increase of 16 per cent. in similar hypophysectomized pigeons (14 tests) when not fasted. Larger increases are shown by normal adult females.

These results indicate that the long-recognized gonad-stimulating hormone is able—after rather prolonged and adequate dosage—to augment the blood calcium of pigeons. Before a different or a special "parathyrotropic" hormone (based on capacity to increase the calcium of the blood) can be recognized as an entity it is therefore obligatory to exclude either the presence or at least the action (indirect or secondary) of the gonad-stimulator (on sex hormone production; see below). If a second gonad-stimulating hormone, *i.e.*, a "luteinizing" hormone alone capable of stimulating sex hormone production, actually exists —and if mare serum and our own F.S.H.+ preparations from A.P. tissue all contain it—we have no evidence that would select the one or the other of those gonadotropes as the agent mobilizing calcium in these cases. We do not now know whether this gonad stimulator acts independently of, or through, the parathyroids. The possibility remains that the pituitary gland possesses another factor, or a combination of factors, which (through the parathyroids and like parathormone) augments the serum calcium more quickly than does gonadotropic hormone.

Previous work presents a confused picture. Dixon[2] injected rats with an A.P. extract (method not given) sufficient to luteinize their ovaries, found no effect on the serum calcium and suggested the gonad-stimulating hormone is not the one concerned with calcium metabolism.

III

The work of Riddle and Reinhart[3] first showed that the cyclic activity of the ovary is closely concurrent with a very great increase in the serum calcium. Their work, done on pigeons—still the animal superbly suited to this study—was later extended by many investigators to fowl, fish and toads; but in none of that work was it possible to conclude or show that the increase

[1] Aided by a grant from the Carnegie Corporation of New York. Preliminary report.

[2] F. F. Dixon, *Biochem. Jour.*, 27: 410, 1933.

[3] O. Riddle and W. H. Reinhart, *Amer. Jour. Physiol.*, 76: 660, 1926.