tentacles, the adhesive cells, epithelial gland cells, ciliated rosettes, etc., have been retained unchanged. The ciliated rosettes, for example, must be looked upon as vestigial structures, in a form with so little parenchyma and such an extensive gastric canal system as *Cœloplana* possesses. And all the details of structure indicate a highly specialized form rather than a primitive one. *Ctenoplana* would seem to represent a midway stage in which the costæ have been reduced, but not entirely lost. Such a loss of an organ through disuse indicates merely specialization and adaptation to littoral conditions rather than degeneration. Hence Willey's contention that *Ctenoplana* is not 'degenerate' is unnecessary, and his hypothesis that the form is a primitive one, untenable. Dr. J. Arthur Harris spoke of recent experimental work in floral ecology, discussing the relative importance of color and odor in the attraction of insects as shown in the work of Plateau, Andreae and others. Professor Abbott was elected to membership—the first person to be elected to membership in the society—after which the society adjourned until the September meeting.

J. Arthur Harris,
Secretary.

AMERICAN FISHERIES SOCIETY.

The thirty-third annual meeting of the American Fisheries Society was held at Atlantic City, New Jersey, July 26–28. Seventy members, representing 26 states, were in attendance. About 50 new active members were elected, and 6 foreigners were made honorary members. The officers for this meeting were:

President.—Frank N. Clark, Michigan.

Vice-President.—Tarleton H. Bean, New York.

Recording Secretary.—George F. Peabody, Wisconsin.

Corresponding Secretary.—W. de C. Ravenel, Washington, D. C.

Treasurer.—C. W. Willard, Rhode Island.

The sessions were devoted largely to the presentation and discussion of papers, which covered a wide range of subjects. Among the noteworthy papers were the following:

Dr. Tarleton H. Bean: 'The Fish and Game Department of the Universal Exposition at St. Louis.'

Mr. W. E. Meehan: 'A Year's Work of the Fisheries Interest in Pennsylvania.'

Dr. H. F. Moore: 'An Account of Progress in Sponge Culture.'

Mr. Charles G. Atkins: 'The Utilization of Neglected Fishes.'

Dr. F. M. Johnson: 'A Western Charr in an Eastern Home.'

Mr. S. G. Worth: 'The Cultivation of the Striped Bass.'

Mr. John W. Titcomb presented some 'Fishery Reminiscences of South America,' and Dr. H. M. Smith gave a lecture on 'Japan, the Paramount Fishery Nation,' illustrated with lantern slides.

One session was devoted to a very interesting symposium on the black basses and their cultivation; and the carp question incidentally came up on several occasions.

Mr. George F. Peabody paid a feeling tribute to the late Hon. E. E. Bryant, president of the Wisconsin Fish Commission, who died while on his way home from the last meeting of the society at Woods Hole.

Near the close of the session, U. S. Fish Commissioner Bowers was called for and made some felicitous remarks.

Mr. Henry T. Root, president of the Rhode Island Commission of Inland Fisheries, was elected president of the society for the next term, and White Sulphur Springs, West Virginia, was selected as the place of meeting in 1905.

The society has about 450 active members, most of whom are engaged in practical or administrative work in fish culture or fishery protection, but some are biologists whose work brings them into touch with the fishery interests, others are commercial fishermen, and a few are simply anglers.

DISCUSSION AND CORRESPONDENCE.

AREAS IN THE UNITED STATES SUITABLE FOR BEET CULTURE.

To the Editor of Science: In the second part of Professor Armstrong's article, which appeared in Science, August 5, 1904, I note the statement made by him in regard to the preparation of a map showing the probable areas in the United States suitable for beet culture. In this connection it is only just

that reference should be made to the fact that the first map of this character published in the United States was constructed by Dr. Wm. McMurtrie and published in a special report, No. 28, of the U. S. Dept. of Agriculture in 1880. In Dr. McMurtrie's map the area of successful beet culture was indicated by a region contiguous to a line showing a temperature of 70° Fahrenheit during June, July and August and rainfall above two inches for the same months.

The remarkable success which attended the growth of sugar beets in the semi-arid regions of California in the early '80's led me to discard the factor of rainfall and to construct a map based upon temperature conditions alone, during the growing season. Some of the very best areas in the United States, suitable for beet culture are in arid and semi-arid regions. The idea, however, of mapping the beet areas in this country should be credited to Dr. McMurtrie.

H. W. WILEY.

JORDAN ON FOSSIL LABROID AND CHÆTODONT FISHES.

IN a recent paper on Eocene fishes from Monte Bolca, the present writer followed Dr. D. S. Jordan in his excellent 'Review of Labroid Fishes' (*Rept. U. S. Fish Comm.* for 1887 (1891), pp. 559–699) in uniting Cuvier's genus *Crenilabrus* with the earlier described *Symphodus* of Rafinesque. He also adopted the views of Agassiz and most recent authors in referring *Pygæus* to the Chætodonts. Since this paper was published,* the writer has received from President Jordan some valuable notes on the relations of the Eocene forms to existing genera, and as these are of extreme interest to students of both fossil and modern faunæ, advantage is here taken of his permission to make them available for others.

The following extracts may be considered as the most recent and authoritative opinion that has been pronounced upon the affinities of the forms in question.

DEAR DR. EASTMAN:

The following notes are at your disposal for any use you may care to make of them. I should now separate *Crenilabrus* C. & V. as a valid genus from *Symphodus* Raf. (= *Coricus* C. & V.), with which I united it in 1891. *Symphodus* (*scina*) has the general characters of *Crenilabrus*, the serrated preopercle and other features, but it has the snout strongly produced, giving a concave profile, a matter probably worthy of generic distinction. *Crenilabrus* like *Symphodus* has 13 to 15 dorsal spines, and 31 to 33 vertebræ. I do not see how *C. szajnochæ* can be properly placed in it, as these numbers are fairly constant within the same genus. *C. szajnochæ* should form the type of a new genus.

Pygæus appears to be a generalized type, with traits ancestral to the Chætodonts, the Acanthuridæ, and to *Siganus* (*Amphacanthus*). It has the long and strong dorsal spines and the numerous anal spines of *Siganus*, as well as the few soft rays, large vertebræ and the general form of the body. The teeth are apparently much as in *Siganus*, and not brush-like as in the Chætodontidæ. The Siganidæ are scaleless, but in *Pygæus* the scales are small and prickle-like as in the Acanthuridæ and Zanclidæ.

The ventral fins in *Pygæus* seem normal (I., 5), but in *Siganus* the inner ray is also a strong spine, the formula being I., 4, I. In most Chætodonts there are but three anal spines, and no more in any of the Acanthuridæ. *Megaprotodon*, a genus of Chætodonts, has, however, four anal spines, and its form suggests resemblance to *Pygæus*.

Taking the somewhat minute differentiation of families accepted amongst recent fishes, *Pygæus* may be made the type of a family Pygæidæ, allied to *Siganus* on the one hand, and to *Megaprotodon* and *Zanclus* on the other; and, perhaps, related to the common ancestor of all these. * * *

After Gill I use the name '*Teuthis* L.' for *Teuthis hepatus*, for which Linnæus devised the name. This is equivalent to '*Acanthurus*' of most authors. Forskåls's original *Acanthurus* (= *Monoceros*, = *Naseus*) has two hooks on the tail instead of a sharp spine, the ventrals being I., 3, instead of I., 5. *Acanthurus gaudryi* will probably turn out a new genus near *Teuthis*, but not quite the same. In our day *Teuthis* has nine dorsal spines and a movable caudal spine. *A. gaudryi* is nearer the Pacific genus *Zebrasoma*, which has three to five dorsal spines and the soft rays high. * * *

DAVID S. JORDAN.

It should be noted that Agassiz suggested the propriety of dividing *Pygæus* into two groups, *P. bolcanus* being taken as type of the one, and *P. coleanus* of the other. President

* *Bull. Museum Comp. Zool.*, Vol. XLVI., No. 1, June, 1904.