

bars are present as in other fishes, extending from the ec-ethmoid cartilages to the otic capsules. The first indication of the coming transformation is the thinning out and disappearance of the left supra-orbital in its middle region just above the eye. Sections give evidence of the pressure exerted, since the eyeball is indented where it touches the supra-orbital. For a short time there are two regions of degeneration, one progressing toward the ec-ethmoid and the other toward the otic capsule. By the time the supra-orbital bar is resorbed the fish is at least 5 mm. long. The left eye begins to pass around to the right side of the animal through the gap prepared for it. This part of the process is comparatively rapid. After the eye shows evidence of elevation it may take the fish three or four days to assume the adult position. Nishikawa, a Japanese observer, described the passage of the eye in 24 hours in one case. Fishes of 15 mm. in length are all transformed and many take the adult position at the length of 9 mm. The twisting from left to right is greatest in the plane of the eyes, being about 120° . The brain case shows little asymmetry. The left nasal pit is raised about 30° and the anterior part of the ethmoid not much more. The mass of the ethmoid is twisted so that the left ec-ethmoid points directly up and the right down— 90° from their first position. The dorsal fin, after the passage of the eye, extends forward as far as the middle of the eye.

Bothus, the sand dab, lies on its right side, whereas *P. americanus* lies on its left. But by merely transposing the terms, using *right* supra-orbital instead of left, the description just given for *P. americanus* will hold in general for *Bothus*. The dorsal fin extends to the nose ultimately in this species. The sand dab is more symmetrical than is *P. americanus*. This is correlated with its greater free-swimming habit. The

flounder and the sole cling most closely to the bottom and are the most distorted.

The Cardiac Gland of the Mammalian Stomach with Remarks on the Evolution of the Stomach of the Artiodactyla: R. R. BENSLEY.
(Read by title.)

CHAS. B. DAVENPORT,
Secretary.

ANNUAL MEETING OF THE NEW YORK
ACADEMY OF SCIENCES.

THE Annual Meeting of the New York Academy of Sciences was held at 12 West 31st Street on Monday, February 25th, under the presidency of Professor Robert S. Woodward, of Columbia University. The meeting opened with the annual reports of the officers for the year just closed. The Corresponding Secretary reported that the Academy had on its list 41 Honorary Members and 206 Corresponding Members, and that five members had been lost by death during the past year. The report of the Recording Secretary was as follows:

During the last Academy year the business of the Academy has progressed in the customary paths. The several sections have held their usual meetings, with ordinarily the same attendance as in former years. The Council has held the meetings prescribed by the by-laws, and has accomplished several important objects. On the whole, however, the year can not be called a year of progress. The accomplishments of the year leading to increased efficiency in the Academy work are first, the establishment of a series of publication rules that will make the future work of the Editor, and the cost of publication much less than formerly; secondly, the vote to establish a budget for the next fiscal year, within the limits of which each officer will be required to work; thirdly, the hiring of the rooms of the Chemists' Club for the meetings of the next year, at a greatly reduced rental, with accommodations equal to those which

we now enjoy; and finally, a vote to send the *Annals* and *Memoirs* only to those members of the Academy signifying their desire to receive them. The publications of the Academy have been unfortunately delayed during the last year, owing to no fault of the Editor, but the current volume will be very shortly completed and issued. Owing to the expense of the current volume the amount of publication possible by the Academy during the next year will be seriously reduced, unless a publication fund can be established.

The report of the Treasurer showed the following receipts and expenditures for the year:

RECEIPTS.	
Balance as per last report.	\$2,239.11
Mortgage paid off, <i>a/c</i> Permanent Fund.	\$1,202.75
Mortgage paid off, <i>a/c</i> Audubon Fund.	1,797.25
	3,000.00
Income, Permanent Fund.	426.38
Income, Audubon Fund.	99.04
Income, Publication Fund.	90.00
Life Membership Fees.	200.00
Initiation Fees.	75.00
Annual Dues, 1897.	\$ 10.00
1898.	30.00
1899.	170.00
1900.	2,395.00
1901.	50.00
	2,655.00
	\$8,784.53
DISBURSEMENTS.	
Cost of Publications, \$2,499.72..	
Less Sales.	30.06..\$2,469.66
Cost of Publication (paid by Audubon Fund)	\$309.72
Rent of Rooms.	510.00
Seventh Annual Reception.	329.68
Dues to Scientific Alliance.	32.58
Lectures.	20.00
Expenses of Recording Secretary.	291.44
Expenses of Librarian.	363.95
Expenses of Treasurer.	41.93
General Expenses.	78.37
	4,447.33
Balance on hand.	\$4,337.20

The Librarian then presented the following report:

The work of the library during the past year has been mainly directed toward keep-

ing the accessions catalogued and in order. This, it is believed, has been successfully carried out. The current numbers of the more prominent periodicals are placed upon accessible shelves and upon the completion of any volume, are arranged permanently with their respective sets. In this connection it is desirable to call attention to the crying need of binding many of the accessions of late years. Hundreds of volumes are stored in their pamphlet form and much injury and loss is the result. During the last year the Librarian was able to have some sixty volumes bound, but financial stringency has prevented any considerable work in this direction.

By arrangement with the authorities of the New York Botanical Garden, the bulk of the botanical portion of the library, which since the removal to Schermerhorn hall at Columbia University, had been stored in boxes, has now been deposited in the Library of the Garden at Bronx Park, and is thus more available than heretofore to general reference.

The Librarian takes pleasure in reporting a gift to the Academy from Professor D. S. Martin of about a hundred volumes of miscellaneous scientific interest.

The statistics of the Library are at this date approximately as follows:

Volumes (bound and unbound) at Columbia University	9,000
Pamphlets, at Columbia University.	2,000
Volumes and pamphlets, at Botanical Garden.	350

Thanks to the activity of Messrs. Van Ingen and White, assisted by Mr. Graham, the files of the Academy's publications have been brought from a state of chaos to one of order, the exchange list has been revised, and the business of correspondence and exchanges is now carried on with promptness and regularity.

The Librarian takes this opportunity to call the attention of the Academy to the

absolute necessity of considering the disposition of the library in the immediate future. We have practically reached the limit of accommodations in the library room, and the department of exchanges is housed in the Gallery of the Museum of Fossil Plants and Vertebrates, in Schermerhorn Hall of Columbia University, solely by courtesy of the Department of Geology, and it has already exceeded the space which that department can conveniently spare. Radical measures must be adopted in the near future or the library must close its doors.

Following the reports of officers was the election of the honorary members listed below :

Charles Vernon Boys, 66 Victoria St., S. W., London, England.

Emil Fischer, Professor of Chemistry, University of Berlin, Germany.

William Ramsay, Professor of Chemistry, University College, London, England.

James Geikie, Professor of Geology, University of Edinburgh, Scotland.

The Academy also voted to elect the following resident members to be fellows :

Dr. Henry E. Crampton, Dr. J. G. Curtis, Dr. C. A. Herter, Professor Graham Lusk, Professor Charles Lane Poor, Mr. C. A. Post, Dr. E. L. Thorndike, Dr. R. S. Woodworth. "Fellows are limited to one hundred in number, and are chosen from among the resident members in virtue of scientific attainments or services."

Tellers were then appointed, and the officers for the ensuing year were elected by ballot as follows :

President, Robert S. Woodward.

1st Vice-President, Nathaniel L. Britton.

2d Vice-President, J. McKeen Cattell.

Corresponding Secretary, Harold Jacoby.

Recording Secretary, Richard E. Dodge.

Treasurer, Charles F. Cox.

Librarian, Livingston Farrand.

Councilors, Franz Boas, Charles H. Judd, Charles A. Doremus, M. I. Pupin, Frederic S. Lee, L. M. Underwood.

Curators, Harrison G. Dyar, George F. Kunz, Alexis A. Julien, Louis H. Laudy, E. G. Love.

Finance Committee, John H. Hinton, C. A. Post, Cornelius Van Brunt.

Following this routine business President Woodward delivered his annual address, entitled 'Observation and Experiment,' which will shortly be printed in this JOURNAL. After a vote of thanks to the President for his address, proposed by ex-President Henry F. Osborn, the meeting adjourned.

RICHARD E. DODGE,
Recording Secretary.

RECENT PROGRESS IN GEODESY.*

So much has been published during the past year in regard to recent events in the world of geodesy that there is apparently little to be said upon this occasion. But a bird's-eye or general view of a subject has its own special interest and value even to those who are familiar with the details.

It is not necessary to review the recent progress in geodesy in foreign countries, since such a review was presented in January before the Society in the form of a report upon the International Geodetic Association Conference of 1900, by Mr. Isaac Winston, the delegate on the part of the United States to that conference, and this report is in print.†

The principal geodetic enterprise now on foot in the United States is the measurement of a great arc along the 98th meridian from the Rio Grande to the Canadian border. Work upon this arc was commenced in 1896. The present state of the undertaking is that the reconnaissance is complete from northern Nebraska to the Rio Grande; that the triangulation, that is, the measurement of the horizontal and vertical angles, is complete from latitude $42\frac{1}{2}^{\circ}$ in northern

* Read before the Philosophical Society of Washington, February 16, 1901.

† See SCIENCE, January 25, 1901, pp. 129-133. A more complete report upon the conference is published in *Revue générale des sciences*, Nov. 15, 1900, pp. 1175-1183; Nov. 30, 1900, pp. 1224-1233.