

~~Philadelphia~~

1888

Philadelphia. Academy of Natural
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1888

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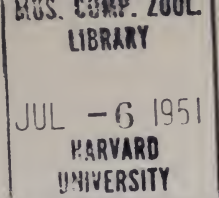
OF

PHILADELPHIA.

ANNUAL REPORTS.

1888.

177



The following annual reports were read and referred to the Publication Committee:—

REPORT OF RECORDING SECRETARY.

In view of the full reports of the Treasurer, the Curators, the Librarian and the various sections of the Academy, the Recording Secretary has, as heretofore, but little to report apart from the statistics of the meetings of the society and the operations of the Publication Committee.

One hundred and sixty-eight pages of the Proceedings for 1887 and two hundred and seventy-two pages of the current volume have been issued and distributed. Provision has been made for twenty plates in illustration of the papers presented for publication during the year. These number thirty-four and are by the following authors:—

Rev. H. C. McCook 3, W. D. Hartman 3, Jos. Leidy 2, D. S. Jordan 2, Harrison Allen 2, Angelo Heilprin, 2, Thomas Meehan 2, Charles Wachsmuth and Frank Springer 2, H. C. Chapman and A. P. Brubacker 2, H. C. Chapman 1, Otto Meyer 1, B. H. Wright 1, A. M. Fielde 1, E. N. S. Ringuenberg 1, E. A. Kelly 1, C. Ochsenius 1, John Ford 1, C. R. Keyes 1, H. F. Osborn 1, H. A. Pilsbry 1, J. E. Ives 1, John Eyerman 1, R. W. Schufeldt 1. One of these has been withdrawn by the author and the others are all in course of publication although two or possibly four will have to be held over until the issue of the first sheets of the volume for 1889.

Eighteen additions have been made to the list of foreign correspondents to whom the issues of the Proceedings are distributed, the number being now four hundred. The domestic exchanges are now sixty-eight, an increase of seven over last year. The subscription list remains the same, so that five hundred and eighty-two copies of the one thousand printed are promptly distributed.

The second part of the ninth volume of the quarto Journal consisting of one hundred and ten pages and five lithographic plates was distributed, after much vexatious delay in the printing office, on the sixth of August. Fifty copies were sent to foreign and twelve copies to domestic exchanges, while thirty-nine copies were supplied to subscribers, making a total distribution of one hundred and one copies of the five hundred printed.

The average attendance at the meetings has been about the same as last year. Communications, which have been interesting and varied, have been made by Messrs Leidy, Heilprin, Lewis, Meehan, Chapman, McCook, Koenig, Dolley, Ryder, Horn, Brooks, Dall, Rothrock, Binder, Willcox, Morris, Wilson, Kelly, Foote, Sharp, Meyer, Woolman, McKean, Robinson, Ford, Brinton, Redfield, U. C. Smith, Ives, Holstein and Le Boutillier.

Eleven members and four correspondents have been elected. The deaths of thirteen members and two correspondents have been announced and two members, Messrs C. L. Kilburn and Rev. Geo. D. Boardman, have resigned.

The vacancy in the Council caused by the death of Mr. S. Fisher Corlies was filled June 26, by the election of Mr. Wm. W. Jefferis.

The following extract from the will of the late Geo. W. Tryon Jr. was read at the meeting of Feb. 14, 1888:—"I give to the Academy of Natural Sciences of Philadelphia my collection of shells now deposited with that society conditioned that they shall not be loaned or removed from the immediate custody of the said Academy and of its Conchological Section." The bequest was accepted on the condition as stated.

A bond of indemnity having been given Feb. 14 to the executors of the estate of the late Mary R. D. Smith, the Academy was placed in possession of the sum of \$1201.49 the proportion of said estate bequeathed to the society by Miss Smith.

The thanks of the Academy were voted to Dr. Charles Schaffer for his gift of \$4939.58, the amount received by him as commissions while acting as executor under the will of the late John Bryden to whose estate, in accordance with the wish of Dr. Schaffer, the gift has been credited.

A like vote of thanks was tendered to Mr. Theodore D. Rand for the gift of \$100.00, the amount received by him for professional services in connection with the same estate.

The Academy having considered a deed of trust executed by Mrs. Emma W. Hayden for the endowment of the Hayden Geological Fund of Two Thousand Five Hundred Dollars, in memory of her husband the late Prof. Ferdinand V. Hayden, the interest of which together with a bronze medal is to be awarded annually for the best publication, exploration, discovery or research in the sciences of geology and paleontology, by a committee to be appointed by the Academy, the said deed of trust was accepted by and ordered to be

executed on behalf of the Academy, May, 1, 1888, and the following resolution for the appointment of the required committee was adopted:—

Resolved—That a committee not exceeding five, to be appointed under the deed of trust of Mrs. Emma W. Hayden, shall first be recommended by the Council of the Academy and shall be selected from the members at large and their names submitted to a vote of the Academy annually, and if said vote of the Academy shall show their election, they shall act as such committee under said deed.

The thanks of the Academy were ordered, November 20, to be conveyed to Mrs. Clara Jessup Bloomfield Moore for her liberal addition of \$5000.00 to the Jessup Fund endowed by her father, the late A. E. Jessup. By subsequent action of the Council the entire amount was ordered to be placed to the credit of that portion of the fund which is appropriated to the assistance of young naturalists.

All of which is respectfully submitted.

EDW. J. NOLAN.

Recording Secretary.

REPORT OF CORRESPONDING SECRETARY.

The duties of the Corresponding Secretary during the past year have been neither important nor onerous.

The correspondence has related mainly to the publications of the Academy, being either acknowledgments from corresponding societies or the usual letters transmitting their publications.

The acknowledgments number sixty by letter and forty-three by card, divided as follows:

By card, American societies 23, Foreign 20.

By letter, American societies 15, Foreign 45.

The letters of transmittal represent thirty-eight bodies, of which but one is American. These, with the latter exception, are very nearly all those continuing their sendings through the International Exchange Agency.

During the past year the duties of the office were kindly performed by the Curator-in-charge for five months in the interval of the Secretary's absence abroad.

An opportunity was afforded of seeing personally the officers in charge of the libraries of some of our corresponding societies, and

of examining the series of our publications on their shelves. The deficiencies which we could probably supply were indicated, as well as those not at our disposition.

All expressed themselves satisfied with the sending of our publications by mail and promised to do the same when the size of their volume permitted.

During the year there have been elected four Correspondents of the Academy all of whom have been promptly notified.

The duty of acknowledging donations to the museum which by the by-laws, devolves on the Corresponding Secretary, has been assumed by the Curator-in-charge. The Corresponding Secretary would again suggest such modification of the laws as will render this legal. The reasons for the change are too obvious to need explanation.

Respectfully submitted,

GEORGE H. HORN, M. D.,

Corresponding Secretary.

REPORT OF THE LIBRARIAN.

The additions to the library recorded since November 30, 1887 amount to 3957, an increase of 577 over those received during the preceding year. They consisted of 659 volumes, 3284 pamphlets parts of periodicals and instalments of continued works and 14 maps.

The accessions have been received from the following sources:—

| | | | |
|---------------------------------|------|----------------------------------|---|
| Societies, | 1619 | Geological Survey of Minnesota, | 4 |
| Editors, | 838 | Ministry of Public Works in | |
| I. V. Williamson Fund, | 952 | France, | 4 |
| Authors, | 203 | Geological Survey of New South | |
| Thomas Meehan, | 47 | Wales, | 3 |
| Geological Survey of Sweden, . | 29 | Geological Survey of Canada, . | 3 |
| Geological Survey of Russia, . | 25 | Mr. Wm. J. Potts, | 3 |
| Wilson Fund, | 23 | Geological Survey of New Jersey, | 3 |
| Australian Museum, | 21 | Executors of the late Dr. Geo. | |
| In Exchange, | 21 | Martin, | 3 |
| Government of Victoria, | 15 | Prof. Angelo Heilprin, | 2 |
| Treasury Department, | 12 | Geological Survey of Kentucky, | 2 |
| Department of Agriculture, . . | 12 | Mrs. L. Fox, | 2 |
| Department of the Interior, . . | 10 | Mr. Charles E. Smith, | 2 |
| Geological Survey of India, . . | 10 | Mr. J. H. Redfield, | 2 |
| Department of State, | 9 | Mrs. Dr. C. Hering, | 2 |
| Hon. Chas. M. Betts, | 7 | South African Museum, | 2 |
| Engineer Department U. S. A., . | 7 | Indian Museum at Calcutta, . . | 1 |

| | | | |
|---|---|---|---|
| Geological Survey of New Zealand, | 7 | Henry C. Gibson, | 1 |
| Geological Survey of Roumania, | 6 | Department of Mines, Nova Scotia, | 1 |
| Geological Survey of Pennsylvania, | 6 | Dr. Benjamin Sharp, | 1 |
| Her Britannic Majesty's Government, | 6 | California State Mining Bureau, | 1 |
| Smithsonian Institution, | 5 | Prince Albert of Monaco, | 1 |
| British Museum, | 5 | United States Coast Survey, | 1 |
| War Department, | 5 | M. Marlet, | 1 |
| University of Aberdeen, | 4 | Boston City Hospital, | 1 |
| Geological Survey of Portugal, | 4 | Dr. Charles Schaffer, | 1 |
| | | East Indian Government, | 1 |
| | | Dr. J. W. Eckfeldt, | 1 |

They were assigned to the several departments of the library as follows:—

| | | | |
|------------------------------------|------|--------------------------|----|
| Journals, | 3034 | Ornithology, | 22 |
| Geology, | 267 | Anthropology, | 21 |
| Botany, | 135 | Encyclopedias, | 9 |
| General Natural History, | 107 | Ichthyology, | 8 |
| Conchology, | 43 | Bibliography, | 8 |
| Mineralogy, | 42 | Languages, | 7 |
| Entomology, | 41 | Helminthology, | 6 |
| Medicine, | 35 | Geography, | 5 |
| Anatomy and Pysiology, | 34 | Mammalogy, | 4 |
| Physical Science, | 32 | Herpetology, | 3 |
| Voyages and Travels, | 30 | Agriculture, | 2 |
| Public Documents, | 28 | Unclassified, | 12 |
| Chemistry, | 22 | | |

The appended list of additions will indicate more specifically the nature of the year's increase.

We have procured from the publishers in Germany the parts lacking in the set of De Martius, *Flora Brasiliensis*, received last year from the Brazilian Government, and the work is now complete as far as issued.

The revision of the catalogue of Journals, commenced last year, has been completed with the exception of the Scandinavian and Russian publications. It is hoped that the entire work may be finished before the end of the year.

With the assistance of Signor Fronani, whose services I have been again enabled to secure, two hundred and thirty-four letters asking for supply of deficiencies, were sent in September to foreign societies. Seventy-four answers have already been received and the increase of accessions over those recorded last year is mainly, if not altogether, due to the liberality of our correspondents in supplying us with the volumes and parts asked for.

The card catalogue, exclusive of periodicals, was completed early in the year and the geographical entries of journals have also been finished. Cross references and title entries of the latter are now in course of preparation. This will complete the catalogue within its

present scope which, it will be remembered, provides for author entries only in the special departments, with a few exceptions such as official geological reports and scientific explorations which are also catalogued under the names of the regions described. It is of the utmost importance that the preparation of a subject catalogue be undertaken as soon as possible, for while most of our readers know their authors, a properly classified index to the broader subdivisions of special departments of the library would result not only in a saving of time but in a more thorough and reliable acquaintance with the work already done. To complete such a catalogue within any reasonable limit of time, the employment of skilled assistance will be absolutely necessary, and, it is to be regretted, the Academy at present is unable to incur this expense. An effort will be made, however, with such clerical aid as the librarian may be able to secure, to go on as far as possible with the work in the time at his disposal during the year. Progress will necessarily be very slow, in consequence of many unavoidable interruptions.

Since the last report 321 volumes have been bound, including 68 volumes of pamphlets, and 45 volumes are now in the hands of the binders.

A careful enumeration of the library was made at the beginning of November. There are, bound and unbound, 30831 volumes at present on the shelves, including 615 bound volumes of pamphlets, The latter embrace 8621 separate titles. To these may be added 1445 volumes in the library of the Entomological Section. Many of these are, however, duplicates of those in the main library. The latter are divided as follows:—

| | VOLUMES PAMPHLETS | | | VOLUMES PAMPHLET | |
|-------------------------|-------------------|------|-----------------------------|------------------|------|
| Journals:— | | | Conchology | 980 | 455 |
| Germany | 3430 | | Ornithology | 737 | 319 |
| France | 2515 | | Bibliography | 584 | |
| Great Britain & Ireland | 2433 | | Mineralogy | 489 | 345 |
| N. America | 1612 | | Physical Science | 454 | 493 |
| Scandinavia & Russia | 1302 | | Anthropology | 376 | 180 |
| Austria | 900 | | Encyclopedias, Dictionaries | 369 | |
| Italy | 625 | | Helminthology | 268 | 263 |
| Switzerland | 459 | | Public Documents | 264 | |
| Belgium | 378 | | Ichthyology | 262 | 174 |
| Asia | 328 | | Agriculture | 252 | 184 |
| Spain and Portugal | 166 | | Mammalogy | 246 | 184 |
| Africa and Australia | 143 | | Medicine | 236 | 645 |
| South America | 100 | | Chemistry | 226 | 227 |
| General Natural History | 2350 | 564 | Geography | 203 | |
| Geology | 2205 | 1097 | Antiquities and Fine Arts | 161 | |
| Botany | 1867 | 768 | Herpetology | 161 | 143 |
| Voyages and Travels | 1532 | 67 | Microscopy | 48 | |
| Entomology | 1114 | 832 | Miscellaneous | 36 | |
| Anatomy and Physiology | 1020 | 781 | | | |
| | | | | 30831 | 8622 |

All of which is respectfully submitted,

EDWARD J. NOLAN,

Librarian.

REPORT OF THE CURATORS.

The Curators present the following statement of the Curator-in-Charge, Prof. Heilprin, as their report for the year 1888:—

The Curator-in-Charge respectfully reports that the collections of the Academy are in good condition, and that their status, as far as classification and arrangement are concerned, has been materially improved during the year. As heretofore, the Academy has profited largely through the work of volunteer specialists, and is hence placed under special obligation to those who have thus generously contributed their time and assistance. To Mr. J. H. Redfield, Conservator of the herbarium, and to Mr. Thomas Meehan, it is almost wholly indebted for the careful work that is being systematically applied toward the expansion and proper distribution of the botanical collections; while to the officers of the Entomological Section and of the American Entomological Society it is placed under obligation for work done in connection with the department of entomology. In the death of Mr. George W. Tryon, Jr., its Conservator in the department of conchology for thirteen years, the Academy has lost one of its truest and most efficient members—one who had for a full quarter of a century given much of his daily time to the interests of the institution. That the department will feel for some time the want of his vast experience, and the absence of his governing influence, there can be no question; but it is hoped that under the special direction of the new conservator, Mr. H. A. Pilsbry, and of the Conchological Section, it will be kept in that commanding position which it has so firmly and justly held.

In the departments other than those here specified the work has been done almost wholly under the direction of the Curator-in-Charge and his assistant, Mr. J. E. Ives. As in preceding years the alcoholics have been completely overhauled, and it is satisfactory to be able to report that there has been practically no loss in this part of the Academy's collections since the preparation of the last annual statement. It is less agreeable to report that during the latter part of the present year several attempts to force the ornithological cases have been made, with the result of robbing the collection of some 200 specimens of South American and Australian birds, mainly representatives of the family *Tanagridæ*. The greater number of these have been recovered, and it now seems that the full loss resolves itself to possibly not more than a half-dozen specimens. A change

in the construction of the locks is urgently needed, and it is recommended that steps looking toward the greater security of the cases be immediately taken. The ornithological collections have largely profited during the year through the labors of Mr. Witmer Stone, who has, amidst other work, very carefully reviewed the extensive and intricate family of the *Tanagridæ*, and determined the greater number of the species that belong to this group. His work shows that the Academy's representation is a very full one, falling, in point of species, but little short of that of the British Museum. A numerical estimate of the entire collection of mounted birds in the Academy shows it to comprise somewhat more than 23,000 specimens; in addition to this there is a collection of some 3000 skins.

The work of systematically cataloguing this vast collection has been begun, but much time must necessarily elapse before such a catalogue can be satisfactorily completed.

The entire museum collection of minerals has been rearranged during the year, the specimens of the different mineral species being distributed strictly according to geographical position. This method, it is believed, will largely facilitate comparative study. The Wm. S. Vaux collection continues to receive the close and valuable superintendence of its special Conservator, Mr. Jacob Binder, through whom it has been brought into a condition of rare completeness. A large proportion of the more commanding specimens which now distinguish the collection have been obtained through purchase on the special selection and recommendation of the Conservator.

In most of the other departments of the museum the work has been mainly of a general character. Mr. Ives, under the direction of the Curator-in-Charge, has very carefully reviewed and redetermined the species of *Ophiuroidea* and *Asteroidea*, and thereby added very materially to the extent of the collection represented. Two new species, a *Pteraster* and a *Coronaster*, were determined.

By a resolution of Council of April it was recommended that a hand-book of the Museum be prepared by the Curator-in-Charge, in conjunction with the members of the Board of Curators. In conformity with this recommendation the Curator-in-Charge has devoted much time toward the preparation of such a hand-book, and it gives him pleasure to report that the same is now almost finished and ready to go to press. It is herewith submitted for approval to the Board of Curators.

The additions to the museum during the year—detailed in the accompanying list of donations—have been both abundant and import-

ant. Through the kindness of Dr. H. C. Chapman the Academy has received a fine selection of marine invertebrates from Bar Harbor, Maine, many species of which had not hitherto been represented in the general collection. The Zoological Society of Philadelphia has also contributed largely in material from their gardens, and thereby filled in many gaps that could not otherwise be readily closed.

The trip to the Bermuda Islands which was planned by the Curator-in-Charge, and toward which the Academy generously contributed its assistance, proved successful beyond anticipation, and has resulted in placing in the Academy's museum a large and important collection of sub-tropical marine forms, the greater number of which are now for the first time represented, and many of which are new to science. The results of the expedition, which are now in course of publication in the Academy's Proceedings, prove what benefits may be derived from zoo-geographical research of this kind, undertaken with only moderate expense, and with no special preparation. The value of this form of scientific research has been indicated in previous reports, and attention is once more directed to the advisability of endowing a moderate zoo-geographical research fund, the interest from which should be expended annually in the exploration of the numerous regions which still await investigation. It is believed that no other method could be suggested which would yield such important scientific results, and at the same time render the Academy a virtual centre of scientific activity in the country.

The Curator-in-Charge again desires to call attention to the absolute need of an extension to the present accommodations; the existing conditions are becoming more serious every year, and render a change, if the efficiency of the institution is not to be lessened, imperative. The collections can no longer be advantageously increased, nor can they be satisfactorily cared for in their restricted quarters. Portions of the library are being gradually encroached upon, and the work-rooms are all filled. The need for a suitable lecture-hall or amphitheatre is pressing, and the same is true of special students' rooms and laboratories. It is earnestly hoped that the generous public of this city, who have so kindly lent their assistance before, will not allow the most important institution of the kind in the country to go in want. The attempts to obtain aid from the State, although often repeated, have thus far proved abortive; but an effort will again be made during the coming session of the Legislature.

Attention is again called to the important question of Sunday opening. The numerous requests for admission into the museum on Sundays clearly speak the public mind, or at any rate, the wish of a large number of the city's inhabitants. The Academy of the Fine Art and the Zoological Society have set an example in the right direction, and there seems to be no reason, beyond an inadequacy of funds to maintain such opening, why our Academy should not follow the lead. Sunday-opening would certainly be a charity to that large body of useful citizens whose daily employment debars them from the advantages which the institution otherwise offers.

During the year specimens for study have been loaned to Prof. R. P. Whitfield, of New York; to Prof's. Osborn and Scott, of Princeton; to Dr. G. Baur, of New Haven; to Dr. George Marx, of Washington; and to Dr. Harrison Allen, of this city.

Respectfully submitted,

ANGELO HEILPRIN,

Curator-in-Charge.

JOSEPH LEIDY,

Ch'n Curators.

REPORT OF THE CURATOR OF THE WILLIAM S. VAUX COLLECTIONS.

The Curator of the William S. Vaux Collections respectfully submits his sixth annual report to the Council of the Academy.

The collections are in good order and condition, the only change made since the report of 1887, being the introduction of one hundred and two specimens purchased within the year and added to the collection. These specimens have been purchased at a cost of \$420.10.

The collections now consist of the following:—

| | |
|---|-------|
| No. of minerals reported 1887, | 6,786 |
| No. of minerals purchased 1888, | 102 |
| | <hr/> |
| Total, | 6,888 |
| Archæological specimens (same as reported in 1887), | 2,940 |

The growth of the collection, since it came into the Academy's possession is as follows:—

| | | |
|------------------------------|-----------|-----|
| Specimens purchased in 1884, | | 60 |
| Specimens purchased in 1885, | | 104 |
| Specimens purchased in 1886, | | 114 |
| Specimens purchased in 1887, | | 156 |
| Specimens purchased in 1888, | | 102 |

Total, 536

The aggregate cost of the 536 specimens has been . \$2506.80

Most worthy of mention among the additions of the year are a fine specimen of Calcite in Malachite, a superb Vanadinite and Wulfenite from Arizona; these specimens, in color and crystallographic form, are the finest ever brought to the city. Other interesting specimens are a single crystal of Gadolenite 6 inches in width by 9 inches in length, said to be the largest crystal ever found; fine large crystals, of Troostite, Tryolite, Erenite, Opal, Turquoise, Thenardite, Trona, Hyalite, Colemanite and others.

A number of species not heretofore represented in the collection have been added.

The visitors to the collection have not been as numerous as in former years; it may be remarked, however, that those who do visit it are persons especially interested in mineralogy or archæology who have made use of it more for the purpose of study than for the gratification of mere curiosity.

Respectfully submitted,

JACOB BINDER,

Curator.

REPORT OF THE BIOLOGICAL AND MICROSCOPICAL SECTION.

During the year thirteen stated meetings were held with an average attendance of ten members.

Four public lectures were given.

The following gentlemen were elected members and contributors.

| | |
|-----------------|----------------------|
| <i>Members.</i> | John T. Pennypacker, |
| " | Lancaster Thomas. |

Contributors. Dr. Xavier Sudduth,
 “ Frank Zentmayer,
 “ Edwd. Baneroff.

Honorary Member. Dr. J. Gibbons Hunt.

The section lost the following by death and resignations.

By death.—Paul P. Keller, Joseph Zentmayer, S. Fisher Corlies.

By resignation.—Members, J. D. Sergeant, Dr. Carl Seiler, Charles F. Banes, John Lambert.

Contributor, Walter Banes.

Communications were made upon the following subjects:—

December 5, 1888. Orthochromatic plates in differentiating details of color in photographing microscopic objects, by Mr. W. H. Walmsley.

December 5, 1888. Some new results in removing embryos from the uterus, by Prof. John Ryder.

December 5, 1888. Upon the fungus *Rhytisma acerina*, by Dr. L. Brewer Hall.

December 5, 1888. Upon the fungus *Badhamia fasciculata*, by Mr. Harold Wingate.

January 16, 1888. Public lecture, by Rev. Dr. H. C. McCook upon spiders and spiderlings.

February 3, 1888. Public lecture, by Prof. W. P. Wilson upon plants that feed on insects.

February 6, 1888. Presentation of a number of slides, by Dr. Isaac Norris Jr.

February 6, 1888. A series of slides illustrating the anatomy of the mouse's head, by Prof. Ryder.

March 5, 1888. Lecture by Professors Wilson and Ryder assisted by Mr. Holman with the projecting microscope, upon Celloidin mounts and the method of making sections of delicate tissues.

April 2, 1888. Upon the sexual habits of the Scale insects by Dr. L. Brewer Hall.

April 2, 1888. *Molluscum contagiosum*, by Dr. M. B. Hartzell.

April 2, 1888. The histology of the Skate with special reference to the formation and growth of the thymus gland and of peculiar sense organs, by Prof. Ryder.

April 2, 1888. Upon some interesting forms of fungi, by Dr. J. B. Brinton.

May 7, 1888. Upon *Enteridium*, by Mr. Harold Wingate.

May 7, 1888. Upon insect fertilization of plants with special reference to the common chickweed and the glands found at the base of the stamens, by Mr. Thomas Meehan.

May 7, 1888. Upon the formation of vessels in the corion and amnion, by Prof. Ryder.

May 21, 1888. Upon the specific differences between *Lampoderma* and *Comatricha*, by Harold Wingate.

April 21, 1888. Upon *Cribraria argillacea* by Dr. George A. Rex.

June 4, 1888. Upon two new species of *Badhamia*, *B. reniformis* and *B. claviceps*.

June 4, 1888. Upon the pollen of *Cyripedium acaule*, by Dr. L. Brewer Hall.

June 18, 1888. Upon the use of the parabolic reflector, by Harold Wingate.

October 1, 1888. Upon the pollen of *Cobea scandens*, by Dr. G. A. Rex.

October 1, 1888. Upon *Bacillus tuberculosis*, by Dr. G. A. Rex.

October 15, 1888. Upon Analine staining, by Prof. Ryder.

October 15, 1888. Upon chicken and hog cholera, by Dr. J. Cheston Morris.

November 5, 1888. Public lecture, by Prof. John Ryder upon the claims of biological research.

November 19, 1888. Upon the methods of teaching topographical histology, by Prof. Ryder.

November 19, 1888. Upon the formation of cartilage and bone, by Prof. Ryder.

The officers of the Section for the ensuing year are:—

| | | | | | |
|---------------------------|---|---|---|---|-----------------------|
| <i>Director</i> , | . | . | . | . | Harold Wingate. |
| <i>Vice Director</i> , | . | . | . | . | John C. Wilson. |
| <i>Recorder</i> , | . | . | . | . | Dr. Robert J. Hess. |
| <i>Corresponding Sec.</i> | . | . | . | . | Dr. Charles Schaffer. |
| <i>Treasurer</i> , | . | . | . | . | Dr. Isaac Norris, Jr. |
| <i>Curator</i> , | . | . | . | . | Chas. P. Perot. |

Very respectfully submitted,

ROBERT. J. HESS, M. D.,
Recorder.

REPORT OF THE CONCHOLOGICAL SECTION.

The Recorder of the Conchological Section respectfully reports that during the year ending Dec. 1st, 1888, the Academy has continued to publish such conchological papers as have been offered.

Two members have been elected. The loss to the section by death has been the severest in its history. On January 21st, 1888, our honored Treasurer, Mr. Wm. L. Mactier, was called from works to reward, and we had hardly turned from paying our last tribute of respect to his memory, when we were again summoned to perform the same service for our beloved Conservator, the eminent Conchologist, George W. Tryon Jr. who died February 5th, 1888, while yet in the prime of life.

At a special meeting of the Section called for the purpose and held February 22nd, 1888, appropriate minutes prepared by the Director were adopted and by direction sent to the families of the deceased.

William Laurence Mactier, a member of the Academy of Natural Sciences of Philadelphia since Jan. 1860, was born in the city of New York, May 28, 1818, and died at his home in this city Jan. 21, 1888.

His father, Henry Mactier, was a native of Scotland, and his mother, a daughter of Augustine Hicks Laurence and Catherine Luquer, was born in New York.

Mr. Mactier had been prepared for admission into the College of New Jersey, intending after completing his general education there to devote himself to the medical profession. But unexpectedly, conclusive reasons forced him to abandon the project, and seek a more speedy route to a livelihood in mercantile affairs—he became a man of business. The extent and character of his preliminary education fostered in him a taste for letters which he cultivated during his leisure so well that the College of New Jersey conferred upon him the honorary degree of Master of Arts.

Mr. Mactier was one of the constituents of the Conchological Section of the Academy; and from the date of its institution, Dec. 26, 1866, was its treasurer. During twenty-two years he discharged all the duties of the office efficiently and promptly.

He served in the Council of the Academy, and was a member of its Committee on Instruction and Lectures.

He contributed \$285 to the building fund, and was a member of the Board of Trustees thereof.

He was a member of the Musical Fund Society of Philadelphia, and read a historical sketch of the institution before the Society Jan. 29, 1885, which was published. He was treasurer of the Society from 1864 to 1880,—sixteen years—and vice-president since 1881.

He was long a member of the Philadelphia Atheneum. At forty-six consecutive annual elections of the Philadelphia and Reading Railroad Company he was one of the judges of the election.

He was active in the Board of Publication of the Presbyterian Church; a Director of the "Mercer Home;" Secretary of the Presbyterian Hospital; a member of the Deacon's Court, and associate superintendent of the Sunday School of the Second Presbyterian Church of Philadelphia.

The position which he held, the work he did, are significant of his friendliness to natural science, of his benevolence and public spirit as well as of the excellence of his character.

Resolved, That in the death of William L. Mactier the Conchological Section of the Academy of Natural Sciences of Philadelphia, has lost an estimable member and efficient treasurer, that, in testimony of appreciation of our loss and as a tribute to his memory, this brief of his virtues be entered upon the record of Proceedings, and that a copy thereof be transmitted to his family by the Recorder.

The Director's extended and appreciative biographical notice of Mr. Tryon is published in the present number of the Proceedings of the Academy.

Our Conservator, Mr. H. A. Pilsbry, reports:—

"The principal additions to the museum consist of suites of Mediterranean shells from Malta and the Balearic Isles received from Messrs B. Tomlin and Alfred Carqana; of Sandwich Is. land shells, a large series from Mr. Baldwin; and new Tasmanian shells from C. E. Beddome. From the family of the late Wm. L. Mactier, a number of interesting forms mostly of well known marine species. A large number of American species have been received, among which may be mentioned alpine land shells from Colorado, Florida marine shells and a series of Texas shells. A full list of the donations are included in the "Additions to the Museum."

The total number of additions made is 46, amounting to 603 trays, 3455 specimens. The collection now contains 192,605 specimens in 51,930 trays. A valuable series of alcoholic specimens has been received from Mr. Bryant Walker, Detroit, Mich. In the museum,

the arrangement of the families *Neritidæ*, *Phasianellidæ* and *Turbinidæ* has been nearly completed."

No changes have been made in the By-Laws of the Section.

The officers of the Section for 1889 are :—

| | | |
|------------------------|-----------|-------------------------|
| <i>Director</i> , | | W. S. W. Ruschenberger. |
| <i>Vice-Director</i> , | | John Ford. |
| <i>Recorder</i> , | | Edward J. Nolan. |
| <i>Treasurer</i> , | | S. Raymond Roberts. |
| <i>Secretary</i> , | | John H. Redfield. |
| <i>Librarian</i> , | | Edward J. Nolan. |
| <i>Conservator</i> , | | Henry A. Pilsbry, |

Respectfully submitted,

S. RAYMOND ROBERTS,

Recorder.

REPORT OF THE BOTANICAL SECTION.

The Vice-Director of the Botanical Section respectfully reports a continued interest on the part of the members. The membership continues about as heretofore, the meetings have been regularly attended, and many facts of great interest brought to the attention of the Section and discussed by the members. The Section is out of debt with a small surplus in its treasury.

The officers elected for the year ensuing are :—

| | | |
|---------------------------------------|-----------|-----------------------------|
| <i>Director</i> , | | Dr. W. S. W. Ruschenberger. |
| <i>Vice-Director</i> , | | Thomas Meehan. |
| <i>Recorder</i> , | | Dr. Charles Schaffer. |
| <i>Cor. Secretary and Treasurer</i> , | | Isaac C. Martindale. |
| <i>Conservator</i> , | | John H. Redfield. |

A most gratifying announcement is the completion of the great task of mounting all the specimens in the herbarium of North American plants as covered by *Gray's Synoptical Flora*. This was commenced in 1878, by the Conservator, Mr. John H. Redfield, assisted at various times by Messrs. F. Lamson Scribner, Isaac Burk and the late Charles F. Parker.

The encouraging growth of the herbarium noted in our former annual reports, still continues. The large number of 1039 species were added to our former list, making 28,306 as the total number of species of vascular plants represented in the herbarium.

The Conservator's report to the Section, giving the details of these additions, is added as a part of this report.

Respectfully submitted,

THOMAS MEEHAN,

Vice-Director.

Conservator's Report for 1888.—The Conservator of the Botanical Section reports that during the year closing Dec. 10th, the additions to the herbarium consist of 2525 species, of which 2296 are vascular plants, and 229 are Lichens, Fungi and Algæ. Of the 2296 species of vascular plants 1040 are believed to be new to our collection, 77 of them being of genera not before represented. 693 species are North America, 1414 are from Tropical America, 171 from the Eastern Continent, and 18 are Australian.

It is gratifying to know that the rate of increase has not declined, and that so large a portion of it is of forms not previously represented.

The most important addition of the past year is the completion of the collections made by Dr. H. H. Rusby in Bolivia and the neighboring regions in 1885 and 1886, consisting of 983 species of which nearly 600 are believed to be new to us. Including the portion of this collection received by us the previous year, the whole consists of 1433 species. These have been contributed by members of the Section, supplemented by the proceeds of duplicate plants sold by its order. Other valuable additions to our representation of the flora of Tropical America are—266 species collected by C. G. Pringle in the Province of Coahuila, Mexico, and 100 species collected in the Mexican Province of Tabasco and presented by Sr. Jose N. Roviroso, from whom we have reason to expect further contributions.

The number of species of vascular plants in the herbarium of the Academy, at the date of the last report, was estimated at . 27,267
to which add the accession of new species of this year . 1,040
giving the estimated present total 28,307
of which 8200 are North American, that is from the region covered by Gray's Synoptical Flora.

In May last was completed the work of mounting the special herbarium of North American plants. This work was begun in 1878, and has been continued from year to year in the intervals of other duties. In this the Conservator received most efficient aid

from the late Charles F. Parker, from F. L. Scribner and more recently from Mr. Isaac Burk.

A complete list of the additions to the herbarium is appended, and will appear in its proper place under the head of "Additions to the Museum."

Respectfully submitted,

JOHN H. REDFIELD,

Conservator.

REPORT OF THE MINERALOGICAL AND GEOLOGICAL SECTION.

The Director of the Mineral and Geological Section of the Academy of Natural Sciences, would respectfully report that meetings of the section have been held nearly every month during the year except the summer months. Some of these have been quite well attended, at others the attendance has been small. On the whole, he regrets to say, the interest has not been as great as in former years, but this has been largely due to absence of active members from causes beyond their control.

The meetings during the latter part of the year have been better attended and more interest has been manifested than in the earlier part, so that the outlook is more favorable.

The following officers were elected to serve during the ensuing year:—

| | | |
|--------------------------------|-----------|-----------------------------|
| <i>Director,</i> | | Theodore D. Rand. |
| <i>Vice-Director,</i> | | Dr. W. S. W. Ruschenberger. |
| <i>Treasurer,</i> | | John Ford, |
| <i>Conservator,</i> | | William W. Jefferis. |
| <i>Recorder and Secretary,</i> | | Dr. Charles Schaffer. |

Respectfully submitted,

THEO. D. RAND,

Director.

REPORT OF THE PROFESSOR OF INVERTEBRATE PALEONTOLOGY.

The Professor of Invertebrate Paleontology respectfully reports that he has during the year delivered a course of lectures on geology

which, as heretofore, has been illustrated or supplemented with practical field demonstrations. He has also delivered in the hall of the Academy, a number of lectures before the Teachers' Institute of this city, and contributed four lectures to the Friday Evening course of the Academy. During the month of July he conducted a class in the exploration of the Bermuda Islands, which had hitherto received but little attention from naturalists. The inquiry extended as well to the zoological as to the geological features of the island group, and has resulted in bringing to the museum a rich store of material, the greater part of which is new to the collections. The details of the exploration, to which reference is also made in the Curator's Report, are being published in the Academy's Proceedings.

The collections in the department of Invertebrate Paleontology remain pretty much as they were last year. A number of additions, but none of any great significance, have been received. Perhaps the most valuable of these is a collection of cretaceous plants from Kansas, obtained from C. H. Sternberg in exchange for certain volumes of the Academy's Proceedings. Mention should also be made of a fine selection of crinoids from the Carboniferous formations of the central United States, generously given, to the Academy by Messrs. Wachsmuth and Springer, of Burlington, Iowa.

The general condition of the collections is good. But here as in almost all other departments of the Academy's Museum, additional accommodations are badly needed.

Respectfully submitted,

ANGELO HEILPRIN,

Professor of Invertebrate Paleontology.

REPORT OF THE PROFESSOR OF ETHNOLOGY AND ARCHÆOLOGY.

During the past year the course of lectures usually delivered by me was omitted owing to my absence from the city.

The collections have received some but not extensive additions in this department. It would be desirable and would benefit this branch of instruction were all the ethnologic objects in the possession of the Academy arranged and classified separately from the other collections, and according to the ethnic method of display. To accomplish this the exclusive use of sufficient space would be needed

to exhibit the objects and allow room to fill the lacunæ in the collection. At present, this does not appear to be within the power of the Academy ; but it seems proper to state that such an arrangement is very desirable so that it may receive consideration in any future extension of the Society's building.

Respectfully submitted,

D. G. BRINTON,

Professor of Ethnology and Archæology.

SUMMARY OF THE REPORT OF WM. C. HENSZEY,
TREASURER,

FOR THE YEAR ENDING NOV. 30, 1888.

DR.

| | |
|--|------------|
| To Balance from last account..... | 2007 56 |
| “ Initiation Fees..... | 110 00 |
| “ Contributions (semi-annual)..... | 1590 57 |
| “ Life Memberships..... | 300 00 |
| “ Popular Lectures..... | 226 75 |
| “ Publication Committee—Sales of Proceedings, Journal, etc..... | 659 30 |
| “ Interest on Investments..... | 2503 65 |
| “ Interest on Money awaiting Investment..... | 889 90 |
| “ State tax on Mortgages..... | 113 10 |
| “ Wilson Fund, toward Salary of Librarian..... | 300 00 |
| “ Rentals from Real Estate..... | 1662 48 |
| “ Sale of Duplicate Books..... | 7 70 |
| “ Miscellaneous..... | 123 57 |
| | <hr/> |
| | \$10494 61 |

CR.

| | |
|--|-----------|
| By Salaries, Janitors, etc..... | 3742 78 |
| “ Printing and Binding Proceedings, etc..... | 1450 79 |
| “ Printing and Stationery..... | 78 28 |
| “ Plates and Engravings..... | 248 00 |
| “ Postage..... | 69 77 |
| “ Gas..... | 102 68 |
| “ Coal..... | 367 50 |
| “ Insurances..... | 55 00 |
| “ State Tax on Mortgage Investments..... | 113 10 |
| “ Taxes and Water Rents..... | 418 25 |
| “ Cards, Trays and Boxes..... | 74 27 |
| “ Municipal Expenses..... | 179 42 |
| “ Repairs and Expenses to Real Estate..... | 216 80 |
| “ Glass and Glassware..... | 102 49 |
| “ Lecture Fees paid to Professors..... | 213 10 |
| “ Specimens..... | 75 00 |
| “ Cases and Drawers..... | 5 00 |
| “ Expenses Publication Committee..... | 150 00 |
| “ Real Estate Title Co., Insurance of Title to 3 Mortgages for \$32000..... | 80 00 |
| “ Miscellaneous..... | 849 72 |
| “ Life Memberships transferred to Investment account.... | 300 00 |
| | <hr/> |
| | 8891 95 |
| Balance..... | <hr/> |
| | \$1602 66 |

I. V. WILLIAMSON LIBRARY FUND.

| | | |
|--|---------|------------------|
| Balance overdrawn last statement..... | | 307 60 |
| Books..... | | 2284 22 |
| Collecting..... | | 84 66 |
| Taxes and Water Rents..... | | 200 55 |
| Repairs to Houses..... | | 214 18 |
| | | <u>\$3091 21</u> |
| Rents Collected..... | 1041 50 | |
| Ground Rents Collected..... | 669 64 | |
| Amount transferred from General Fund (Interest on money awaiting investment)..... | 135 00 | |
| Proportion of repairs refunded..... | 12 04 | |
| | | <u>1858 18</u> |
| Balance overdrawn..... | | \$1233 03 |

THOMAS B. WILSON LIBRARY FUND.

| | | |
|--|--|-----------------|
| Balance overdrawn as per last statement..... | | 57 69 |
| Books..... | | 231 16 |
| Transferred to General Account toward Salary of Librarian..... | | 300 00 |
| | | <u>\$588 85</u> |
| Less Income from Investments..... | | 525 00 |
| Balance overdrawn..... | | \$63 85 |

JESSUP FUND. (For assistance of Students.)

| | | |
|--------------------------------|--------|-----------------|
| Balance last statement..... | 288 01 | |
| Interest from Investments..... | 560 00 | |
| | | <u>848 01</u> |
| Disbursements..... | | 480 00 |
| Balance..... | | <u>\$368 01</u> |

WILLIAM S. VAUX FUND.

| | | |
|--|--------|----------------|
| Balance per last statement..... | 319 29 | |
| Interest from Investments..... | 700 00 | |
| | | <u>1019 29</u> |
| Cash paid Jacob Binder for purchase of Minerals..... | | 400 00 |
| Balance..... | | <u>619 29</u> |

INVESTMENT ACCOUNT.

| | |
|--|----------|
| Balance per last statement..... | 23149 76 |
| Cash received from The Fidelity Insurance and Trust Co. under the will of Mary Rebecca Darby Smith..... | 1201 49 |
| “ received from Dr. Charles Scaffer Executor of the Es- tate John Bryden deceased..... | 4939 58 |
| “ received of Theo. D. Rand to be added to amount received from Dr Schaffer for Bryden Estate..... | 100 00 |
| “ received from Emma W. Hayden (Hayden Memorial.) | 2500 00 |
| “ received from W. N. Johnson for $\frac{1}{15}$ of sale of lot..... | 800 79 |
| “ received from sale of lot to Charles R. Maguire and transferred to Mrs. A. M. Paul cash portion..... | 333 33 |

| | | |
|---|-------------------|-------------------|
| “ received from sale of lot in Manayunk to Edward Haugh..... | 300 00 | |
| “ received from Mrs. Clara J. B. Moore (addition to Jessup Fund)..... | 5000 00 | |
| “ transferred from General Account (3 Life Memberships)..... | 300 00 | |
| | <u> </u> | 38624 95 |
| Of the above amount there has been invested in 3 Mortgages..... | | |
| on city properties..... | | <u>32000 00</u> |
| Balance..... | | <u>\$ 6624 95</u> |

The election of Officers, Councillors and Members of the Finance Committee, to serve during the year 1889, was held, with the following result:—

| | | |
|---|-------|---|
| <i>President,</i> | . . . | Joseph Leidy, M. D. |
| <i>Vice-Presidents,</i> | . . . | Thomas Meehan, Rev. Henry C. McCook, D. D. |
| <i>Recording Secretary,</i> | . . . | Edward J. Nolan, M. D. |
| <i>Corresponding Secretary,</i> | . . . | George H. Horn, M. D. |
| <i>Treasurer,</i> | . . . | William C. Henszey, |
| <i>Librarian,</i> | . . . | Edward J. Nolan, M. D. |
| <i>Curators,</i> | . . . | Joseph Leidy, M. D. Jacob Binder, W. S. W. Ruschenberger, M. D. Angelo Heilprin, |
| <i>Councillors to serve three years</i> | . . . | Edward Potts, Isaac C. Martindale, Theo. D. Rand, J. Bernard Brinton, M. D. |
| <i>Finance Committee,</i> | . . . | Isaac C. Martindale, Aubrey H. Smith, George Y. Shoemaker, William W. Jefferis, Joseph Willcox. |

ELECTIONS DURING 1888.

MEMBERS.

January 31.—Lawrence J. Morris, Steward Culin, Roberts Le Boutillier.

February 28.—Henry A. Pilsbry.

March 27.—Gerritt H. Weaver, John B. Deaver, M. D., Lancaster Thomas.

April 24.—Samuel H. Friend.

June 26.—Benjamin P. Wilson.

August 28.—John Shallcross.

CORRESPONDENTS.

Jnne 26.—John Donnell Smith of Baltimore.

November 27.—Auguste Sallé of Paris, Louis Bedel of Paris, Dr. David Sharp of Wilmington, Eng'd.

ADDITIONS TO THE MUSEUM.

1888.

ARCHÆOLOGY, ETHNOLOGY, ETC.

- Stewart Culin. Chinese medicines.
 G. Y. & W. H. McCracken. A collection of Peruvian mummies, crania, pottery, etc.
 M. Somerville. Celt, from Schleswig-Holstein.
 D. G. Brinton. Human foot-print, Nicaragua.
 J. Willcox. Shell remains from mound, Florida.

MAMMALIA.

- E. A. Kelley. *Spermophilus grammurus*, California; *Thomomys talpoides*, California.
 H. C. Chapman. Cetacean and manatee remains from South Carolina.
 J. E. Ives. *Vesperugo serotinus*, Philadelphia; disarticulated skeleton of cat.
 Zoological Society of Philadelphia. Marmosette (*Hapale adipus*); *Hapale Geofroyi*; aoudad; jaguar; elk; puma.

BIRDS, ETC.

- F. Beamer. Malformed egg of fowl.
 Zoological Society of Philadelphia. *Psittacula*; *Conurus Petyi*; *Penelope cristata*; *Conurus cactorum*; *Eos reticulata*; *Corvus monedula*.

REPTILES AND AMPHIBIANS.

- E. A. Kelley. *Pityophis Sayi*, *Bascanion constrictor*, *Eumeces Skiltonianus*, *Gerrhonotus caruleus*, *Bufo halophilus*, from California.
 J. E. Ives. *Tropidonotus leberis*, Philadelphia.
 F. Reynolds. *Crotalus adamanteus* (skin), Mexico.
 C. W. Hoffmann. Skin of ophidian, Hammonton, N. J.
 Zoological Society of Philadelphia. *Varanus Bengalensis*.

FISHES (Recent and Fossil).

- C. S. Bement. Fossil fish, from Green River, Wyoming.
 E. A. Kelley. *Sebastodes chlorostictus*, San Francisco.

RECENT INVERTEBRATA (excluding Mollusca).

- E. A. Kelley. *Crangon Franciscorum*, California.
 C. P. Perot. Sponge (2 species), *Rhipidogorgia flabellum*, *Oreaster reticularis*, from New Providence.
 J. Leidy. *Cirolana concharum*, *Palæmon palæmoneticola*, *Lepas fascicularis*, Beach Haven, N. J.; *Cirolana concharum*, Atlantic City, N. J. Scorpion, Bridger Station, Wyoming.
 M. Sharp. *Mygale Hentzi*.
 A. M. Fielde. Annelid, Swatow, China.
 J. Ford. *Arbacia punctulata*, Atlantic City, N. J.
 L. Woolman. *Pleurobrachia*, Atlantic City, N. J.
 J. Willcox. *Flustra foliacea*, *Pterogorgia*, from Florida.
 B. Sharp. *Balanus concavus*, Chesapeake Bay.

MOLLUSCA (recent).

- W. D. Hartman. Three new species of *Partula*. Thirty-six photographs of new species of *Partula* and *Achatinella*.
- W. B. Marshall. *Bythinia tentaculata*, from Albany, N. Y.
- John Ford. Types of *Natica Fordiana* Simpson, and *Oliva inflata* var. *ovum-ralli* Ford. Two species of *Helix*, *Natica heros*, *Pyramidella*, etc.
- B. P. Ruggles. Six species of *Sphæriidæ* from Vermont.
- H. A. Pilsbry. Ten species of American *Rissoidæ*. Types of six new species.
- Dr. W. H. Rush. Ten species of marine shells, dredged off Florida.
- Bryant Walker. Fifty-four species of U. S. Limniades. Twenty-seven jars and vials of alcoholic *Limnæidæ*.
- E. W. Roper. Three species of *Sphæriidæ*.
- Miss A. M. Fielde. *Limnæa* from Swatow, China.
- W. L. Mactier. Thirty one species of marine shells.
- Wm. A. Marsh. Two species of fresh-water shells.
- Wm. D. Averell. Three species of *Helix*.
- T. D. A. Cockerell. Fifty-two species of Colorado mollusks.
- Frederick Stearns. Fourteen species of Bahaman shells.
- B. H. Wright. Twenty-three Florida Uniones, including types of his new species.
- Jos. Willcox. Fifty trays of Florida shells.
- S. Raymond Roberts. *Acmaea vulgata* from Ireland.
- F. A. Simpson. Twenty-eight species of Missouri shells.
- Chas. T. Simpson. Six species of Indian Territory shells.
- Henry Hemphill. Ten species of fresh-water univalves.
- Hon. F. E. Spinner. One species of Florida mollusk.
- Prof. Angelo Heilprin. Four species of *Cypræa*.
- B. Tomlin. Thirty seven species of European marine shells.
- H. E. Dore. Three species of Oregon shells.
- John Campbell. *Cypræa*.
- Alfred Carnana. Forty-five species shells from Malta (in exchange).
- C. W. Johnson. Twenty-one species Florida shells.
- J. A. Singley. Fifty-nine trays of Texas shells.
- Wm. Baldwin. Seventy-eight trays of Sandwich Is. land shells.
- C. E. Boddome. Four species of Tasmanian shells.

INVERTEBRATA (Fossil).

- T. H. Aldrich. Twenty-two species from the Eocene of Wood's Bluff, Ala.
- J. Singley. Six species from the Eocene of Texas.
- L. Woolman. Sixty-four trays of Miocene fossils from well boring in Atlantic City, N. J., *Melanopsis Marylandica* from Cape May.
- J. Willcox. Forty-eight trays of Tertiary fossils, from Florida; seventy-five trays of Paleozoic fossils from New York State; *Vasum horridum*, Florida.
- J. S. Salter. *Nautilus*, *Veniella Conradi*, Cretaceous of N. J.
- Chas. Wachsmuth and Frank Springer. Twenty one trays of Carboniferous crinoids, from Kentucky, Alabama and Tennessee.

PLANTS (Recent).

- Mrs. Virginia L. Rowland. Fine specimen (in spirits) of *Cheirostemon platanoides*, (Mexican Hand Plant) with oil painting of flowers and foliage of the same.
- Dr. J. Bernard Brinton. *Carex Grayi*, Brown's Mills, N. J., *Arenaria serpyllifolia*, Millington, Md.; *Dianthus prolifer*, Maryland and *Briosa minor*, Oregon.
- Thomas Meehan. 186 species of plants, mostly exotic species in cultivation and mostly new to the collection.
- Isaac Burk. 84 species of plants collected by him in Florida and New Jersey.

- Prof. Edward L. Greene, University of California. 36 species of new or choice California plants.
- Prof. Thos. C. Porter of Lafayette College, Easton, Pa. 15 species of plants from Pennsylvania and New Jersey.
- Frank Tweedy, of U. S. Geological Survey. *Erigeron Tweedyi* Canby, a new species from Montana.
- Wm. M. Canby. 18 species of European plants, and 10 species from the mountains of North Carolina and Tennessee, including the rare species *Senecio Rugelia* Gr. and *Buckleya distichophylla* Torr.
- Miss Adele Fielde, of Swatow, S. China. *Boehmeria nivea* (L.) Hk. and Arn. with specimens of its fibre and of fabrics woven therefrom; acorns of *Quercus fissa* Camp.
- C. McIntyre. Nut of *Phytalephas macrocarpa*, (Vegetable Ivory).
- Isaac C. Martindale. 32 species of North American and Ballast plants.
- Thomas Meehan and John H. Redfield, supplemented by proceeds of Academy Duplicates:—983 species of plants collected by Dr. H. H. Rusby mostly in Bolivia in 1885 and 1886, a large majority of them being new to the collection.
- J. M. Price through Wm. Hunt. 2 species of Australian *Eucalypti*, and 2 species of Australian *Acacia*, cultivated in California.
- Herbert Aldrich, Springfield, Mass., through Thos. Meehan. 5 species of Arctic Plants, from north-western coast of Arctic America.
- Dr. Geo. A. Rex and Dr. H. Wingate. 20th and 21st Centuries of Ellis and Everhart's North American Fungi.
- Roberts LeBoutillier. *Streptosolen Jamesonii*, Miers, (cult.) a native of New Granada; *Staphylea Colchica* Stev. (cult.) and *Symphytum asperrimum* Sims, (Cult.) natives of Caucasus.
- Miss Frances Whitney. Fasciate form of *Ranunculus bulbosus* L. from Bryn Mawr, Pa.
- Aubrey H. Smith. 25 species of plants from mountains of western North Carolina and New Hampshire, and *Carex miliaris* Mx. from Maine.
- Prof. N. L. Britton, Columbia College, N. Y. *Aesculus arguta* Buckley, Kansas, *Corema alba* L. Portugal; *Hicoria alba* (L.), *Hicoria microcarpa* (Nutt.) and *Hicoria minima* Marsh. from Staten Island, N. Y.
- Wm. H. Dougherty. *Clianthus Dampieri* A. Cunn, native of Australia and *Leonotis Leonurus* L. native of South Africa, both cultivated at Mt. Pleasant, New Jersey.
- John Donnell Smith. Specimens of *Darbya umbellulata* Gr. both pistillate and staminate plants.
- Prof. John H. Barbour, Trinity College, Hartford, Conn. *Mimulus luteus* L., native of California, established in fields, Norfolk, Ct.
- Wittmer Stone. *Oxybaphus nyctagineus* Sweet and *Bromus sterilis* L., introduced at Wayne Junction near Philadelphia; 41 species of vascular plants, 3 of Lichens and 23 of Algae collected by him in Bermuda.
- Miss Van Wyck. Leaf of *Aponogeton fenestralis* Hk, native of Madagascar, from Botanic Garden of Mauritius.
- Mrs. Lewars. *Sarcodes sanguinea* Torr. (Snow-plant) from California.
- Prof. Joseph T. Rothrock. 60 species of plants collected by himself in Manatee Co., Florida, in spring of 1887.
- José N. Roviroso. 100 species of plants from vicinity of San Juan Bautista, province of Tabasco, Mexico, of which 52 are new to the collection,
- John H. Redfield. 266 species of plants collected by C. G. Pringle in province of Coahuila, Mexico in 1887, of which 123 are new to the collection; 191 species collected by himself in New England and 220 species mostly from western states to supply desiderata in the Herbarium.

PLANTS (Fossil).

- L. Woolman. *Sigillaria*, Elkland, Pa.
- H. W. DuBois. Plant remains from the Trias of New Jersey; *Sagenopteris*, Newark, N. J.

MINERALS, ROCKS, ETC.

- W. W. Jefferis. Quartz in Mica; Epidote, Pa.; Garnets, New York City; Phlogopite, Ontario; Moon-stone, Amelia C. H., Va.; Haydenite, Beaumontite, Stilbite, Chabazite, Siderite, from Baltimore; Bucholzite, Philadelphia; Bowenite, R. I.; Phlogopite, Ontario and New York; Rose Tourmaline, Chesterfield, Mass.; Muscovite, Del.; Menaccanite, Parkerville, Pa.; Feldspar, Italy; Roxbury Conglomerate; Granite, Virginia City; Garnets, New York City.
- J. M. Buck. Concretion formed on bolt, Pt. Pleasant, N. J.
Mineralogical Section A. N. S. Azurite and Malachite from Arizona; Bementite, Green Tourmaline, from Franklin, N. J.; Ripidolite, Brewster, N. Y.; Sepiolite, Ontario; Microlite, Amelia Co., Va.
- C. E. Ronaldson. Syenite with nodules, Smedley, Pa.
- S. Tyson. Tysonite, Colorado Springs, Col.
- E. A. Kelley. Trap rocks. Cal.; Argentite, Montana.
- M. Sommerville. Aragonite, Hyacinth, Epidote, Grossularite, Idocrase, and Iceland Spar, from France.
- H. W. DuBois. Artificial pumice; Stylolite, Delaware Water Gap.
- J. E. Ives. Steatite with Dolomite, Lafayette, Pa. Selenite, Siliceous Concretion, from Goat Island, N. Y.
- J. M. Hartman. Hematite, Orinoco River.
- W. H. Gifford. Worn rock, resembling implement.
- J. E. Roberts. Umber, Lancaster Co., Pa.

ADDITIONS TO THE LIBRARY.

1888

- Abbott, Helen C. De S. Comparative chemistry of higher and lower plants. 8vo. T. Aug. and Sept. Philadelphia, 1887. The Author.
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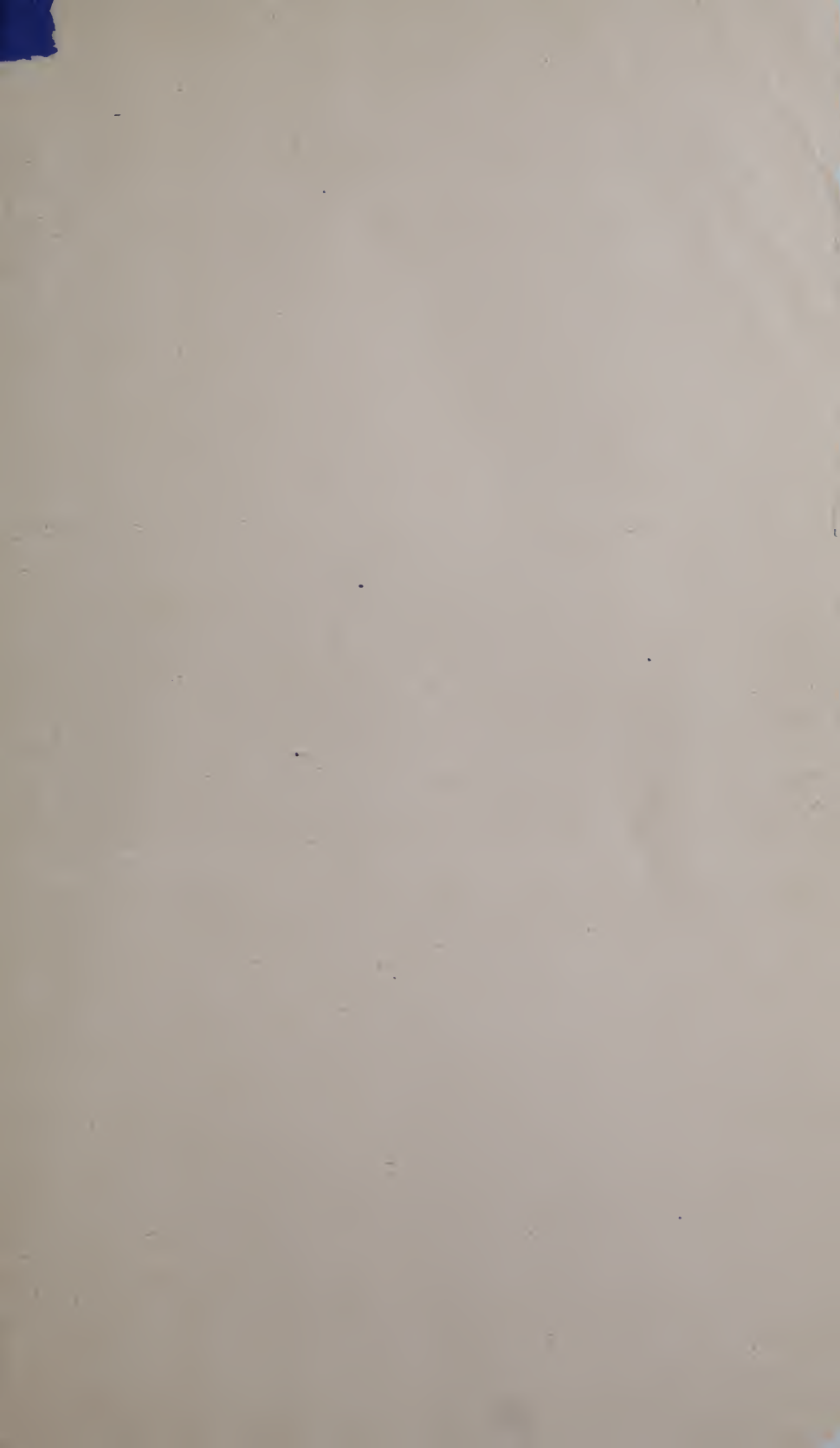
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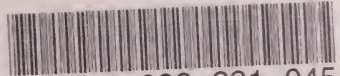
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