raccoons as well as to *Bassariscus,* and therefore belongs in some subdivisional group by itself. This is likewise true of *Nasua,* for, although the morphology and characters of its skull, axial skeleton and limbs are procyonine, it nevertheless departs very decidedly from the true raccoons in not a few of its osteological characters. This is seen in the elongate form of the skull in *Nasua* with its relatively smaller bullæ; the mesial foramen between the anterior palatine foramina; the upturned nasals, but more particularly the great differences to be found in the long bones of its skeleton; their proportional lengths and their characters, as well as the difference in form of the scapula and pelvis. These *constant* differences in the skeleton among *Bassariscus, Procyon* and *Nasua* are supergeneric and must be so considered.

Coming to *Potos,* we not only find the radical difference in the dental armature as compared with all the other genera; but its skull, although exhibiting certain general procyonine characters, is, in its form, entirely different from the skull of *Procyon,* or of *Nasua,* or the bassaris, or of *Bassaricyon.* The skull of a kinkajou is as short as the skull in a domestic cat; the mastoid process is entirely aborted; the paroccipital stands away from the bulla on the same side; tympanics short; frontal sinuses extremely small; and in the mandible the complete coossification of the horizontal rami at the symphysis, with the lower border of the bone concave. There are likewise numerous differences in the axial skeleton which have been fully enumerated above. In short, *Potos,* with its short skull; prehensile tail; different vertebral column; and other departures in its skeleton from the more closely related genera noted above, belongs strictly in a group by itself—that is, the several species do, and, while evidently procyonine in its characters and relationships, it is nevertheless well removed from the more typical raccoons, and the further we study its habits and anatomy, the more evident does this fact become.

In short, this group of mammals constitutes a superfamily Procyonoidea, divisible into two families—the Procyonidæ and the Potosidæ, with the former family divided into three subfamilies, Bassarisinæ, Bassaricyoninæ and Nasuinæ, thus:

Superfamily	Families	Subfamilies
Procyonoidea	Procyonidæ	Bassarisinæ
		Bassaricyoninæ
		Nasuinæ
	Potosidæ	Protosinæ

and this I believe to be their true relationships in nature.

R. W. Shufeldt

Washington, D. C.,
December 24, 1914

The National Academy of Sciences

The sessions of the annual meeting of the academy were held in the Oak Room of the Raleigh Hotel and in the United States National Museum, Washington, D. C., on April 19, 20 and 21, 1915.

Sixty-one members were present, as follows: Abel, Becker, Bell, Boltwood, Britton, Bumstead, Cattell, Chamberlin, Chittenden, Clark (W. B.), Clarke (F. W.), Clarke (J. M.), Conklin, Coulter, Cross, Dall, Davenport, Davis, Day, Donaldson, Fewkes, Frost, Hague, Hale, Harper, Harrison, Hayford, Hillebrand, Holmes, Howell, Jennings, Loeb, Mall, Meltzer, Mendel, Merriam, Michelson, Moore, Morgan, Morley, Nichols (E. L.), Noyes (A. A.), Noyes (W. A.), Osborn (H. F.), Osborne (T. B.), Parker, Pickering, Pirsson, Ransome, Reid, Remsen, Schuchert, Scott, Smith (Erwin F.), Walcott, Webster, Welch, Wheeler, White, Wood (R. W.), Woodward.

The following scientific program was carried out in full:

"Localization of the Hereditary Material in Germ Cells," by Thomas H. Morgan.

Problems of Nutrition and Growth:

"Stimulation of Growth," by Jacques Loeb.

"Specific Chemical Aspects of Growth," by Lafayette B. Mendel.

"Basal Metabolism during the Period of Growth," by Eugene F. Du Bois, medical director, Russell Sage Institute of Pathology (by invitation of the Program Committee).

"Retention in the Circulation of Injected Dextrose in Depancreatized Animals and the Effect of an Intravenous Injection of an Emulsion of Pancreas upon this Retention," by I. S. Kleiner and S. J. Meltzer.

"The Electrical Photometry of Stars," by Joel Stebbins, Draper Medallist.

"A Vortex Hypothesis of Sun Spots," by George E. Hale.

"The Spectroscopic Binary, Mu Orionis," by Edwin B. Frost.

"One-Dimensional Gases and the Experimental Determination of the Law of Reflection for Gas Molecules," by Robert W. Wood.

"The Relations Between Resonance and Absorption Spectra," by Robert W. Wood.

"On the Polarized Fluorescence of Ammonio-Uranyl Chloride," by Edward L. Nichols and H. L. Howes.

"Atomism in Modern Physics," by Robert A. Millikan (by invitation of the Program Committee).

"Problems Associated with the Origin of Coral Reefs, Suggested by a Shaler Memorial Study of the Reefs of Fiji, New Caledonia, Loyalty Islands, New Hebrides, Queensland and the Society Islands, in 1914," by William Morris Davis.

"Inorganic Constituents of Marine Invertebrates," by F. W. Clarke.

"Amphibia and Reptilia of the American Carboniferous," by Roy L. Moodie (introduced by H. F. Osborn).

"Human Races of the Old Stone Age of Europe, the Geologic Time of their Appearance, their Racial and Anatomical Characters," by Henry Fairfield Osborn and J. Howard McGregor.

"On the Fossil Algæ of the Petroleum-yielding Shales of the Green River Formation," by Charles A. Davis, geologist, Bureau of Mines (by invitation of the Program Committee).

"The Forests of Porto Rico," by Nathaniel L. Britton.

"Pictures on Prehistoric Pottery from the Mimbres Valley in New Mexico and their Relation to those of Casas Grandes," by J. Walter Fewkes.

"Inheritance of Temperament," by Charles B. Davenport.

"Inheritance of Huntington's Chorea," by Charles B. Davenport.

"The Fur Seal Herd of the Pribilof Islands," by George H. Parker, official representative of the academy upon the Special Commission appointed by the President of the United States to study and report upon the Alaskan Fur Seals during the summer of 1914.

"The Evolution of the Earth," by Thomas Chrowder Chamberlin, of the University of Chicago, William Ellery Hale lecturer.

The president announced that the preparation of biographical memoirs of deceased members had been assigned as follows:

Bowditch, Henry P.	Cannon, Walter B.
Davidson, George	Existing biography approved.
Gould, B. A.	Comstock, George C.
Mitchell, Henry	Hayford, John F.
Mitchell, Silas Wier	Welch, William H.
Chandler, Seth Carlo	Elkin, William L.
Peirce, Benjamin Osgood.	Hall, E. H.
Holden, Edw. Singleton.	Campbell, W. W.
Hill, George William	Brown, E. W.
Gill, Theodore Nicholas.	Dall, William H.
Minot, Charles Sedgwick.	Donaldson, Henry H.
Billings, John S.	Garrison, Fielding H.

The president announced the death since the autumn meeting of one foreign associate:

Auwers, G. F. J. Arthur, January 24, 1915, elected 1883.

Reports of the President and Treasurer

The reports of the president[1] and treasurer[2] for 1914 as transmitted to the senate of the United States by the president of the academy were presented in their printed form and approved.

Report of the Home Secretary

THE PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES:

Sir: I have the honor to present the annual report of home secretary of the National Academy of Sciences for the year ending April 21, 1915.

The memoir of the National Academy of Sciences, Volume 12, Part 1, and bearing the title, "Monograph of the Bombycine Moths of North America," by A. S. Packard, edited by T. D. A. Cockerell, has been published and distributed to the members, foreign associates, institutions and reference libraries; Volume 12, Part 3, of the *Memoirs*, entitled "The Turquoise," by Joseph E. Pogue, has also been published and distributed to the members; Part 2 of this same volume entitled, "Variations and Ecological Distribution of the Snails of the Genus *Io*," by Charles C. Adams, has received final consideration, and is now waiting to be bound at the Government Printing Office; the memoir forming Volume 13, being "A Catalogue of the Meteorites of North America," by Oliver C. Farrington, only awaits press work and binding before it is issued.

The biographical memoirs of John Wesley Powell, Charles A. Schott and Miers Fisher Longstreth have been published. The publication of the memoir of J. Peter Lesley, by Dr. William M. Davis, has been approved by the committee on publication, and the biography of Henry Morton,

[1] Report of the National Academy of Sciences for the year 1914, pp. 11–56.

[2] *Idem*, pp. 57–65.

by Edward L. Nichols, has been printed and awaits the portrait.

Three members have died since the last annual meeting: Theodore Nicholas Gill, on September 25, 1914, elected in 1873; Charles Sedgwick Minot, on November 19, 1914, elected in 1897, and Henry Lord Wheeler, on October 30, 1914, elected in 1909.

Of our foreign associates, Eduard Suess died on April 26, 1914, elected in 1898; August Weismann, on November 5, 1914, elected in 1913; Hugo Kronecker, on June 6, 1914, elected in 1901; G. F. J. Arthur Auwers, on January 24, 1915, elected in 1883.

There are 134 active members on the membership list, 1 honorary member, and 43 foreign associates.

Arthur L. Day,
Home Secretary

Report of the Directors of the Bache Fund

To the President of the National Academy of Sciences:

Sir: The serious illness of Dr. Charles S. Minot, the chairman of the board of directors of the Bache Fund, made it difficult to carry on the work of the board for several months. His death in November last left a vacancy hard to fill, as he was most conscientious in the performance of his duties. After careful consideration the two remaining members of the board elected Professor Ross G. Harrison the third member and he accepted. In turn the board elected the undersigned chairman.

Since the last annual meeting of the academy the following appropriations have been made:

No. 182, W. C. Kendall, $600. April 30, 1914. Toward the expenses of illustrations in color and incidental expenses in connection with part II. (Salmonidæ), fishes of New England, to be published by the Boston Society of Natural History.

No. 183. C. G. Abbot, $250. June 29, 1914. To complete and test on Mt. Wilson in California an apparatus consisting of a concave cylindric mirror of about 100 sq. ft. surface adapted to heat oil to circulate through a reservoir containing ovens and water pipes, and thereby to utilize solar radiation for cooking and for heating water for domestic purposes.

No. 184. P. W. Bridgman, $500. September 14, 1914. To continue the work on high pressures, especially to investigate the phase changes brought about in various substances by very high pressure.

No. 185. Robert W. Hegner, $160. December 26, 1914. To determine the visible changes that take place during the differentiation of the germ cells in the embryos of hermaphroditic animals, and to discover, if possible, the cause of these changes.

No. 186. J. Voûte. $800. February 9, 1915. For the determination of parallaxes of southern stars by transits. The Bache Fund has heretofore granted $1,000 for this research. It is conducted at the Royal Observatory, Cape of Good Hope, wholly at the expense of Mr. Voûte, except for these grants.

No. 187. H. H. Lane, $500. April 14, 1915. To make a comparative study of the embryos and young of various mammals in order to determine, by physiological experimentation and morphological observations, the correlation between structure and function in the development of the special senses.

Ira Remsen,
Chairman

April, 1915

Report of the Trustees of the Watson Fund

The will of the late James Craig Watson provided "for the promotion of astronomical science," but he expressed the wish that a medal should be given and that tables should be prepared of the motions of all the planets discovered by him. This last wish has now been carried out in a most satisfactory manner by Professor A. O. Leuschner, so that the income which has been used for this purpose during the last fourteen years is now available for the promotion of astronomical science in other directions.

The undersigned accordingly recommend the following votes:

Resolved, That the sum of five hundred dollars from the income of the Watson Fund be appropriated to Professor John A. Miller, director of the Sproul Observatory, for measuring plates already taken for the determination of stellar parallaxes.

Resolved, That the sum of three hundred dollars be appropriated from the income of the Watson Fund to Mr. John E. Mellish, to enable him to undertake observations at the Yerkes Observatory.

E. C. Pickering, *Chairman,*
W. L. Elkin,
Edwin B. Frost

April 2, 1915

Report of the Committee on the Henry Draper Fund

The committee unanimously recommends to the academy that the following grants for research be approved:

Five hundred dollars to Dr. W. W. Campbell, director of the Lick Observatory, for the purchase and construction of spectrographic and other apparatus for use with the Crossley Reflector.

Two hundred and fifty dollars to Dr. S. A. Mitchell, director of the Leander McCormick Observatory, for the purchase of a machine for measuring astronomical photographs.

George E. Hale,
Chairman

Report of the Committee on the J. Lawrence Smith Fund

TO THE NATIONAL ACADEMY OF SCIENCES:

In regard to researches now in progress or lately completed which have received aid from this fund the committee reports as follows:

Grant No. 3. Edmund Otis Hovey, curator in geology and paleontology in the American Museum of Natural History, New York, received in 1910 a grant of $400 in aid of the study of certain meteorites. Metallographic and chemical examinations are in progress. Dr. Hovey is at this time out of the country.

Grant No. 4. Professor C. C. Trowbridge, of the department of physics in Columbia University, received in 1910 a grant of $400 in aid of his study of the luminous trains of meteors. The academy has also made further grants of $250 in 1912, of $250 in 1913, and of $250 in 1914. The important work of collecting, verifying and tabulating records of observations of luminous trains has been diligently pursued. Lately, the collection and preparation for publication of drawings of luminous trains has been undertaken. In accordance with the vote of the academy in 1912, three payments have been made from this grant and it is expected that the fourth and last installment will be required during the current year.

Grant No. 5. Dr. George P. Merrill, curator in the department of geology in the United States National Museum, received a grant of $200 in 1910, and of $200 in 1911, to aid in the study of the occurrence of certain elements suspected to be present in small quantities in some meteorites. This work has been successfully completed, and the final report is ready for submission to the academy; the report contains a tabulation of all available trustworthy analyses of meteorites, and is accompanied by a special paper on the occurrence in meteorites of francolite or some allied phosphatic mineral in place of the apatite of terrestrial rocks.

The cash balance of income now available for grants is $874.87, and the invested income is $1,532.50.

EDWARD W. MORLEY,
Chairman

Professor S. A. Mitchell, University of Virginia, has applied for a grant of $500 to aid in the computation of orbits of meteors. Dr. Charles P. Olivier, president of the American Meteor Society, has computed orbits from some nine thousand observations of meteor paths, and has some thousand observations awaiting reduction. He has published two important papers containing several hundred computed orbits. The committee recommend the grant of $500 to Professor S. A. Mitchell, to aid in computations of orbits of meteors.

EDWARD W. MORLEY,
Chairman

The following motion was presented:

That the Committee on the J. Lawrence Smith Fund recommend that the meteorites remaining from the purchases by Dr. Merrill be deposited by the National Academy of Sciences in the United States National Museum.

Report of the Board of Directors of the Benjamin Apthorp Gould Fund

The income balance of the Gould Fund is now, in cash, four hundred and four dollars and sixty-four cents ($404.64); in readily negotiable securities, four thousand and fifty-seven dollars and fifty cents ($4,057.50), and in an unpaid grant to the *Astronomical Journal*, one thousand dollars ($1,000).

F. R. MOULTON,
E. E. BARNARD

Report of the Directors of the Wolcott Gibbs Fund

The trustees of the Wolcott Gibbs Fund for Chemical Research have the honor to present their annual report to the National Academy of Sciences. Since the last report three grants have been made from the income of the Fund as follows:

III. One hundred dollars to Professor W. J. Hale, Ann Arbor, to pay for assistance in a research on derivatives of 2.3-diacetylpentadiene, voted May 15, 1914.

Professor Hale reports that he has prepared the cyclopentadiopyridazine and the corresponding phenyl compound, and determined their composition. He hopes to finish the research before the summer vacation.

IV. Two hundred dollars to Professor W. D. Haskins, University of Chicago, for making a special potentiometer and galvanometer to study cobaltammines and ternary systems of fused salts. Voted November 25, 1914.

Professor Haskins reports that a beginning has been made on the work in spite of his severe sickness and the fact that the war has prevented him from obtaining part of the apparatus from Germany.

V. A second grant of one hundred dollars to Professor Mary E. Holmes, of Mount Holyoke College, for assistance in her work on the electrolytic determination of cadmium. Voted March 18, 1915.

Professor Holmes reports that she has purchased platinum electrodes of a new form, and with these has studied the deposition of cadmium and copper, so that she is now beginning to study the electrical separation of cadmium from other metals.

The unexpended income of the fund amounted on April first to $111.99.

C. L. JACKSON,
Chairman

Report of the Committee on Solar Research

The committee begs to call the attention of the academy to the publication of Vol. IV. of the *Transactions* of the International Union for Co-operation in Solar Research, which contains the complete proceedings of the last meeting in Bonn, reports of the various committees, resolutions adopted by the Union, and several scientific papers on solar and stellar phenomena.

The four volumes of *Transactions* already published by the Solar Union may be obtained from Messrs. Longmans, Green & Company, Fourth Avenue and 30th Street, New York, at $2.50 per volume.

George E. Hale,
Chairman

Recommendations from the Council

That the following bequest from Mrs. Mary Anna Palmer Draper be accepted.

Extract from the Will of Mrs. Mary Anna Palmer Draper, Page 7, Section 9 (Second Paragraph): "I give and bequeath to the National Academy of Sciences, Smithsonian Institution, Washington, D. C., the sum of twenty-five thousand dollars ($25,000)."

Report of the Editorial Board of the Proceedings

The editorial board of the *Proceedings* reports to the academy that four numbers of the *Proceedings* have now been issued, containing sixty-seven original papers in addition to the report of the autumn meeting, notices of scientific memoirs, and announcements. These numbers have consisted of 258 pages, an average of 64 pages per number and of about four pages per article. The papers are distributed among different sciences as follows: mathematics, 11; astronomy, 11; physics, none; chemistry, 11; geology, 2; paleontology, 1; botany, 4; zoology (including genetics), 12; physiology, 8; pathology, none; anthropology, 5; psychology, 2. It will be noticed that the subjects of physics, of geology and paleontology, and of pathology, have been very inadequately represented; and the editorial board urges members of the academy in these fields to endeavor to remedy this situation.

An edition of 3,000 copies of these four numbers has been printed. Of this edition about 900 are to be sent abroad to the libraries of universities and other active research institutions upon a mailing list prepared with great care by the foreign secretary aided by members of the editorial board. Of this edition 1,200 copies have also been distributed in this country by the home secretary to important libraries and to the thousand persons whose names are starred in Cattell's American Men of Science.

Arthur A. Noyes,
Chairman

Report of the Committee on the Collection of Historical Portraits, Manuscripts and Instruments

To the President and Members of the National Academy of Sciences:

Your committee on the collection of historical portraits, manuscripts and instruments, including instruments purchased at the expense of the trust funds which are no longer needed for the original purpose, begs to report as follows:

That the collection of portraits of the members of the academy has been brought together and arranged alphabetically.

That the foreign secretary has turned over the medal from the Groningen Academy celebrating its four hundredth anniversary.

That the following apparatus was presented by Mrs. Henry Draper and has been deposited in the United States National Museum:

1 slit.
1 spectrum photograph (broken).
1 liquid prism cell.
1 prism with 2-inch faces.
1 bundle—attempts of Henry Draper to rule gratings.
1 speculum metal ruled surface; 2-inch, square.
1 bunsen burner.
2 boxes, 12 photographs each.
1 box, 50 photographs.
1 box, 34 photographs.
1 box, 22 photographs.
1 box, 15 daguerreotypes.
1 box, 7 photographs.
13 Geisler tubes.

Election of Members of the Council

Mr. W. H. Howell and Mr. J. M. Coulter were chosen to succeed Mr. W. T. Councilman and Mr. R. S. Woodward.

Election of New Members

Henry Seely White, mathematician, Vassar College, Poughkeepsie, N. Y.

Charles Greeley Abbot, astrophysicist, Astrophysical Observatory, Smithsonian Institution, Washington, D. C.

Robert Andrews Millikan, physicist, University of Chicago, Chicago, Ill.

Alexander Smith, chemist, Columbia University, New York City.

Samuel Wendell Williston, paleontologist, University of Chicago, Chicago, Ill.

William Ernest Castle, zoologist, Harvard University, Cambridge, Mass.

Frank Rattray Lillie, zoologist, University of Chicago, Chicago, Ill.

Graham Lusk, physiologist, Cornell University Medical College, New York City.

Victor Clarence Vaughan, pathologist, University of Michigan, Ann Arbor, Michigan.

Granville Stanley Hall, psychologist, Clark University, Worcester, Mass.

An amendment to the constitution was adopted which permits the admission of 15 members annually in future.

ARTHUR L. DAY,
Home Secretary

NEW ORLEANS MEETING OF THE AMERICAN CHEMICAL SOCIETY

THE fiftieth meeting of the American Chemical Society was held in New Orleans, Louisiana, March 31 to April 3, 1915. For the most part, the members reached New Orleans during the morning of March 31 and spent some hours in viewing the unique attractions of the city. At 4:30 P.M., two hundred and fifty members and guests boarded a steamer for a trip down the Mississippi River, the usual complimentary smoker being held on the boat. The smoker was one of unusual attractions, the long cabin of the boat being festooned with Spanish moss and laurel and various southern evergreens, making a very attractive scene. The evening was enlivened by music from two orchestras and a vaudeville troupe. The boat returned to New Orleans in time for the council meeting, held at ten o'clock P.M. at the Hotel Grunewald. On Thursday morning, April 1, after addresses of welcome by Hon. Martin Behrman, mayor of New Orleans, and President Robert Sharp of Tulane University, and an appropriate response from President Charles H. Herty of the society, the general meeting was called to order. Professor Alfred Werner, of the University of Zurich, having been duly nominated and having received a majority vote of the council, was elected to honorary membership in the society. The meeting then listened to an address by A. D. Little on "The Industrial Resources and Opportunities of the South." Following this address, the Industrial Division held a public symposium throughout the day, presenting the following papers, all of which, with the exception of the paper by H. A. Huston, have been printed in the April, 1915, issue of the *Journal of Industrial and Engineering Chemistry*.

Contributions of the Chemist to the Wine Industry: Charles S. Ash, consulting chemist.

Contributions of the Chemist to the Copper Industry: J. B. F. Herreshoff, vice-president Nichols Copper Company and consulting engineer General Chemical Company.

Contributions of the Chemist to the Corn Products Industry: E. T. Bedford, president Corn Products Refining Company.

Contributions of the Chemist to the Asphalt Industry: James Lewis Rake, secretary The Barber Asphalt Paving Company.

Contributions of the Chemist to the Cotton-seed Oil Industry: David Wesson, manager of the Technical Department, Southern Cotton Oil Company.

Contributions of the Chemist to the Cement Industry: G. S. Brown, president Alpha Portland Cement Company.

Contributions of the Chemist to the Sugar Industry: W. D. Horne, consulting chemist.

Contributions of the Chemist to the Incandescent Gas Mantle Industry: Sidney Mason, president of the Welsbach Company.

Contributions of the Chemist to the Textile Industry: Franklin W. Hobbs, President Arlington Mills, and Past President American Cotton Manufacturers' Association.

Contributions of the Chemist to the Fertilizer Industry: H. Walker Wallace, Manager General Sales Department, Virginia-Carolina Chemical Company.

Contributions of the Chemist to the Soda Industry: F. R. Hazard, President of the Solvay Process Company.

Contributions of the Chemist to the Leather Industry: William H. Teas, President Marion Extract Company.

Contributions of the Chemist to the Flour Industry: John A. Wesener and George L. Teller, Consulting Chemists.

Contributions of the Chemist to the Brewing Industry: Gaston D. Thevenot, Consulting Chemist.

Contributions of the Chemist to the Preserved Foods Industry: R. I. Bentley, Vice-president and General Manager California Fruit Canners' Association.

Contributions of the Chemist to the Potable Water Industry: Wm. P. Mason, Professor of Chemistry, Rensselaer Polytechnic Institute.

Contributions of the Chemist to the Celluloid and Nitro-cellulose Industry: R. C. Schupphaus, Consulting Chemist.

Contributions of the Chemist to the Glass Industry: A. A. Houghton, Vice-President Corning Glass Works.