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PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY

HELD AT PHILADELPHIA

FOR

PROMOTING USEFUL KNOWLEDGE

VOL. VI.

JANUARY 1854 TO DECEMBER 1858

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PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. VI.

JANUARY—JUNE, 1854.

No. 51.

Stated Meeting, January 6.

Present, twelve members.

DR. FRANKLIN BACHE, President, in the Chair.

The judges of the annual election for officers of the Society, held this day, report the result as follows:—

President.

Franklin Bache, M.D.

Vice Presidents.

A. Dallas Bache, L.L.D.

Hon. John K. Kane,

Robley Dunglison, M.D.

Secretaries.

John F. Frazer,

Charles B. Trego,

E. Otis Kendall,

Frederick Fraley.

Counsellors for Three Years.

Clement C. Biddle,

George M. Justice,

Frederick Fraley,

Henry Reed.

Curators.

Franklin Peale,

John C. Cresson,

M. Fisher Longstreth.

Treasurer.

Charles B. Trego.

A letter was read from Charles D. Arfwedson, dated Stockholm, 18th Nov. 1853, acknowledging the receipt of notice of his election as a member of the Society.

The following donations were received:—

FOR THE LIBRARY.

Memorias de la Real Academia de la Historia: Tomo VIII. Madrid, 1852. 4to.—*From the Royal Academy of History, Madrid.*

Memorial Historico Español: coleccion de Documentos, Opusculos y Antigüedades, que publica la Real Academia de la Historia. Tomos I. II. III. IV. Madrid, 1851, 1852. 8vo.—*From the same.*

Coleccion de Fueros y Cartas-Pueblas de España: por la Real Academia de la Historia. Catalogo. Madrid, 1852. 8vo.—*From the same.*

Historia General y Natural de las Indias, Islas y Tierra—firme del Mar Oceano: por el Capitan Gonzalo Fernandez Oviedo y Valdes, &c. Publica la Real Academia de la Historia:—Cotejada con el codice original, enriquecida con las enmiendas y adiciones del Autor, é ilustrada con la vida y el juicio de las obras del mismo, por D. José Amador de los Rios, &c. &c. Tomos I. II. Madrid, 1851. 4to.—*From the same.*

Opusculos legales del Rey Don Alfonso el sabio, publicados y cotejados con varios codices antiguos: por la Real Academia de la Historia. Tomos I. II. Madrid, 1836. 8vo.—*From the same.*

Diccionario Geográfico-Historico de España;—por la Real Academia de la Historia. Seccion II. Comprende la Rioja ó toda la provincia de Logroño y algunos pueblos de la de Burgos. Su autor Don A. C. de Govantes. Madrid, 1846. 4to.—*From the same.*

España Sagrada, continuada por la Real Academia de la Historia. Tomo XLVII. Tratado LXXXV. De la Santa Iglesia de Lerida, en su estado moderno. Su autor el Dr. Don Pedro Sainz de Baranda, Presbitero, &c. &c. Madrid, 1850. 4to.—*From the same.*

Disertacion sobre la Historia de la Nautica, y de las Ciencias Matematicas que han contribuido a sus progresos entre los Españoles. Obra póstuma del Excmo. Señor Don Martin Fernandez Navarrete:—la publica la Real Academia de la Historia. Madrid, 1846. 8vo.—*From the same.*

Elogio Historico del Excmo. Señor Don Antonio de Escano, Teni-

ente General de la Marina, &c. &c. por Don Francisco de Paula Quadrado y de Roó, Academica de numero, &c. &c. Le publica la misma Real Academia. Madrid, 1852. 8vo.—*From the same.*

Memoria Historico—Critica sobre el gran Disco de Theodosio, encontrado en Almendralejo, leida a la Real Academia de la Historia, por su Anticuuario Don Antonio Delgado, en la junta ordinaria de 9 de Setiembre, de 1848. Madrid, 1849. 8vo.—*From the same.*

Viage literario a las Iglesias de España: su Autor Don Jaime Villanueva, Presbitero, &c. Tomos XI—XXII. Publicada por la misma Academia. Madrid, 1850—1—2. 8vo.—*From the same.*

Discursos leidos a la Academia de la Historia, por su Director el Excmo. Señor Don Martin Fernandez de Navarrete, 24 Nov. 1837; 27 Nov. 1840; 15 Dec. 1843;—y por su Director el Excmo. Señor Don Marcial Antonio Lopez, 27 Nov. 1846; 30 Nov. 1849. Madrid. 8vo.—*From the same.*

Dialogues and a small portion of the New Testament in the English, Arabic, Haussa and Bornu languages. London, 1853. 8vo.—*From the British Government.*

Grammar of the Bornu or Kanuri language, with Dialogues, Translations, and Vocabulary. By Edwin Morris. London, 1853. 8vo.—*From the same.*

Quarterly Journal of the Geological Society. Vol. IX. Part 4. No. 36. Nov. 1853. London. 8vo.—*From the Society.*

Considerations upon the Nature and Tendency of Free Institutions. By Frederick Grimke. Cincinnati, 1848. 8vo.—*From the Author.*

The American Journal of Science and Arts. Second Series. Vol. XVII. No. 49. January, 1854. New Haven. 8vo.—*From the Editors.*

Statistique Générale de la Belgique. Exposé de la situation de la Royaume. (Période Decennale de 1841—1850.) Publié par le Ministre de l'Intérieur. Bruxelles, 1852. Fol.—*From Dr. Robley Dunglison.*

Statistique de la Belgique. Population. Mouvement de l'Etat Civil pendant l'année 1845. Publié par le Ministre de l'Intérieur. Bruxelles, Oct. 1846. Fol.—*From the same.*

On motion of Dr. Dunglison, Judge Kane was requested to prepare an obituary notice of the late Judge Hopkinson.

Prof. Frazer announced the death of Prof. Edward H. Courtenay, a member of this Society, of the University of Virginia, and formerly of the University of Pennsylvania,—who died Dec. 20, 1853: And,

On motion of Dr. Dunglison, Prof. A. Dallas Bache was requested to prepare an obituary notice of Prof. Courtenay.

Stated Meeting, January 20.

Judge KANE, Vice-President, in the Chair.

Present, twenty-eight members.

A communication addressed to the Society, and signed A. Balbo, was read and referred to the Secretaries to take order on the subject.

The following donations were announced:—

FOR THE LIBRARY.

- Mémoires de l'Académie Impériale des Sciences de St. Petersburg:
VI. Série. Sciences Mathématiques, Physiques et Naturelles.
Tome VII. Première Partie. Sci. Math. et Phys. Tome V. 5 et
6 livraison. St. Petersburg. 4to.—*From the Academy.*
- Quarterly Journal of the Chemical Society. Vol. VI. No. 3. Oct.
1853. London. 8vo.—*From the Society.*
- The African Repository. Vol. XXIX. No. 12. Dec. 1853. Wash-
ington. 8vo.—*From the Am. Colonization Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXVII. No. 1.
Jan. 1854. Philadelphia. 8vo.—*From the Institute.*
- The American Journal of the Medical Sciences. No. LIII. New Se-
ries. Jan. 1854. Philadelphia. 8vo.—*From Dr. Isaac Hays,
Editor.*
- The Medical News and Library. Vol. XII. No. 133. Jan. 1854.
Philadelphia. 8vo.—*From Blanchard & Lea.*
- A Biographical Notice of Daniel Drake, M.D., of Cincinnati, pre-
pared by appointment of the College of Physicians of Philadel-
phia. By Charles D. Meigs, M.D. Vice-President of the College.
Read at the meeting, July, 1853. Philadelphia. 8vo.—*From
the Author.*

Report of the Auditor General on the Finances of the Commonwealth of Pennsylvania, for the year ending Nov. 30, 1853. Harrisburg. 8vo.—*From M. W. Baldwin, Esq.*

Report of the Superintendent of Common Schools of the Commonwealth of Pennsylvania, for the school year ending June 6, 1853. Harrisburg. 8vo.—*From the same.*

The Plough, the Loom and the Anvil. Vol. VII. No. 1. Jan. 1854. New York. 8vo.—*From the Editors.*

Dr. F. Bache announced the decease of Thomas G. Mower, M.D., U. S. A., a member of this Society, who died at New York, on the 7th ultimo, aged 62.

Dr. La Roche announced the death of Nathaniel A. Ware, a member of the Society.

Judge Kane informed the Society that intelligence had been received from the American Arctic Exploring Expedition, as late as to the end of July, at which time all was prosperous with them. He mentioned the fact that the astronomer attached to the party had detected an error of a full degree of longitude in the position of the coast of Greenland, as laid down in Graah's chart, and recorded by other observers.

About the first of August the party intended to divide near the coast:—one division to proceed with provisions for forty days, and with a boat which could be transported by land, to as remote a point as possible, where they would leave a depot of provisions to which they might return in the spring.

Mr. Trego was re-elected Librarian for the ensuing year.

The usual Standing Committees were appointed as follows:

Finance—Mr. Wagner, Mr. Justice, Mr. Fraley.

Hall—Judge Kane, Mr. F. Peale, Mr. Justice.

Library—Dr. Hays, Mr. Geo. Campbell, Mr. Ord.

Publication—Mr. Trego, Dr. Elwyn, Prof. Frazer.

The Secretaries reported that they had appointed Mr. Trego as Reporter of the Society for the ensuing year.

The Society then proceeded to ballot for candidates for membership.

The list of surviving members of the Society was read:—the number on the list on the first of January, 1854, was 362;—of whom 261 are resident in the United States, and 101 in foreign countries.

All other business having been concluded, the ballot boxes were opened by the presiding officer, and the following named gentlemen were declared to be duly elected members of the Society:

EDWARD STANLEY, F.R.S. of London.
 JAMES PAGET, F.R.S. do.
 SIR JOHN F. W. HERSCHELL, do.
 DR. E. BROWN SEQUARD, of Paris.
 JOHN H. B. LATROBE, of Baltimore.
 CAPT. MONTGOMERY C. MEIGS, U. S. A., Washington.
 BENJAMIN HALLOWELL, of Alexandria, Va.
 GEORGE HARDING, of Philadelphia.
 FRANCIS WEST, M.D. do.
 FREDERICK A. GENTH, Ph. D. of Philadelphia.
 COL. GEORGE A. M'CALL, do.
 SAMUEL M. FELTON, do.
 SAMUEL D. GROSS, M.D. of Louisville, Ken.
 DR. CHARLES RENARD, of Moscow.
 C. A. DOHRN, of Stettin.
 REV. WM. BACON STEVENS, D.D. of Philadelphia.

Stated Meeting, February 3.

Present, sixteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Mr. Felton, Dr. West and Col. M'Call, recently elected members, were presented and took their seats.

Letters were read:—

From John H. B. Latrobe, dated Baltimore, Jan. 22, 1854; from Benjamin Hallowell, dated Alexandria, Va., Jan. 23, 1854; from Capt. M. C. Meigs, dated Washington, 27th Jan. 1854; from Dr. Francis West, and from George Harding, dated Philadelphia, Jan. 30, 1854,—severally acknowledging the receipt of notice of their election as members of the Society.

From A. Balbo, inviting the members of the Society to be

present at a lecture to be delivered by him on Monday afternoon next, at 4 o'clock.

The following donations were announced:—

FOR THE LIBRARY.

- Astronomical Observations made at the Radcliffe Observatory, Oxford, in the year 1849: By Manuel J. Johnson, M.A. Radcliffe Observer. Vol. X. Oxford, 1851. 8vo.—*From the Radcliffe Trustees.*
- Proceedings of the Academy of Natural Sciences of Philadelphia: Vol. VI. No. 12. Nov. Dec. 1853. Philadelphia. 8vo.—*From the Academy.*
- Documentary History of the State of New York; arranged under the direction of the Hon. Christopher Morgan, Secretary of State: By E. B. O'Callaghan, M.D. Vols. III. IV. Albany, 1850. 4to.—*From the State of New York.*
- Documents relative to the Colonial History of the State of New York: procured in Holland, England and France, by John Romeyn Brodhead, Esq. Agent, &c. Vol. III. Albany, 1853. 4to.—*From the same.*
- Catalogues of the Maps and Surveys in the Offices of the Secretary of State, of the State Engineer and Surveyor, and in the New York State Library. Albany, 1851. 8vo.—*From the same.*
- Exploration of the Valley of the Amazon, made under the direction of the Navy Department, by William Lewis Herndon and Lardner Gibbon, Lieutenants U. S. N. Part I. by Lieut. Herndon. With a volume of Maps. Washington, 1853. 8vo.—*From the Hon. James Cooper, U. S. Senate.*
- Characteristics of some New Reptiles in the Museum of the Smithsonian Institution. By Spencer F. Baird and Charles Girard. (Proc. Acad. Nat. Sci. Oct. 1852:) and
- Descriptions of New Species of Reptiles collected by the U. S. Exploring Expedition under the command of Capt. Charles Wilkes, U. S. N. Part 2. By Charles Girard. 8vo.—*From the Authors.*
- Illustrations of the Birds of California, Texas, Oregon, British and Russian America: By John Cassin. Parts 2, 3. Philadelphia, 1853. 8vo.—*From the Author.*
- A Discourse commemorative of the late William E. Horner, M.D. Professor of Anatomy:—delivered before the Faculty and Students of the University of Pennsylvania, Oct. 10, 1853. By Sam-

uel Jackson, M.D. Prof. Inst. Med. &c. Philadelphia. 8vo.—
From Dr. George B. Wood.

Introductory Lecture to the Course on the Theory and Practice of
Medicine in the University of Pennsylvania; delivered Oct. 14,
1853. By George B. Wood, M.D. Philadelphia. 8vo.—*From
the Author.*

Bulletin de la Société de Géographie. IV. Série. Tome V. Paris,
1853. 8vo.—*From the Society.*

Report of Capt. M. C. Meigs, with surveys, plans, and estimates for
supplying the cities of Washington and Georgetown with wa-
ter. Washington, Feb. 22, 1853, and

Letters and Reports on the Capitol Extension and Washington Aque-
duct, in charge of Capt. M. C. Meigs, U. S. A. Washington,
1853. 8vo.—*From the Author.*

Pneumonia: its supposed Connection, pathological and etiological,
with Autumnal Fevers:—including an Inquiry into the Existence
and Morbid Agency of Malaria. By René La Roche, M.D. Mem.
Am. Phil. Soc. &c. &c. Philadelphia, 1854. 8vo.—*From the
Author.*

Mr. Fraley announced the death of Dr. Robert M. Bird, a
member of the Society, who died Jan. 23, 1854, in the 48th
year of his age.

The committee appointed to consider and report upon a plan
for the better accommodation and more convenient arrange-
ment of the Society's library, made a report and offered the
following resolutions:

1. *Resolved*, That a committee be authorized to cause such altera-
tions to be made in the rooms and book-cases, as may be needed for
the disposition of the library.

2. *Resolved*, That the same committee be authorized to take
measures for the better warming of the Society's apartments.

Whereupon, after consideration and discussion, the said re-
solutions were adopted,—and Mr. Trego, Judge Kane and Mr.
Franklin Peale were appointed as a committee under the reso-
lutions.

Prof. Frazer directed the attention of the Society to the re-
cent and contemplated changes in the British coinage and
currency, and adverted to the great commercial and other con-

veniences which would result from a uniformity of weight, fineness and value between the coins of this country and those of Great Britain. He concluded by moving the appointment of a committee to memorialize the government of the United States on the subject, and to report to the Society.

The motion was agreed to, and Prof. Frazer, Prof. J. H. Alexander, Prof. A. D. Bache, Mr. Robert Patterson and Mr. Trego, were appointed the committee.

The Committee of Publication reported the completion of Vol. X. of the *Transactions* of the Society, by the recent publication of Part 3 of that volume, of which a copy was laid on the table.

Mr. Trego, as reporter, presented No. 50 of the Society's *Proceedings*, just published, which completes the fifth volume.

Stated Meeting, February 17.

Present, twelve members.

JUDGE KANE, Vice-President, in the Chair.

Letters were read:—

From the Central Commission of Statistics of Belgium, dated Bruxelles, 20th July, 1850, and from the Etat Major of the Corps of Mining Engineers of Russia, dated St. Petersburg, 30th October, 1852,—both accompanying donations to the Society:—

From the Historical Society of Pennsylvania, dated Philadelphia, Feb. 7, 1854; and from the Academy of Natural Sciences of Philadelphia, dated Feb. 8, 1854, returning thanks for Vol. X. Part 3, of the *Transactions* of this Society:—

From the New Jersey Historical Society, dated Newark, Feb. 14, 1854, acknowledging the receipt of the Society's *Transactions*, Vol. X. Part 3, and of No. 50 of the *Proceedings*:—

From the Rev. Wm. Bacon Stevens, dated Philadelphia, Feb. 6, 1854,—from Frederick A. Genth, dated Philadelphia, Feb. 11, 1854,—and from Dr. Samuel D. Gross, dated Louis-

ville, Feb. 13, 1854,—severally acknowledging the receipt of notice of their election as members of the Society: and—

From the Hon. John P. Kennedy, dated Baltimore, Feb. 11, 1854, acknowledging the receipt of the diploma or certificate of his election as a member.

The following donations were announced:—

FOR THE LIBRARY.

Annales de l'Observatoire Physique Central de Russie: publiées par ordre de S. M. l'Empéreur Nicolas I. sous les auspices de M. le Comte Wronctchenko, Ministre des Finances, &c.—par A. T. Kupffer, Directeur de l'Observatoire Physique Central. Année 1849. Nos. 1, 2, 3. St. Petersbourg, 1852. 4to.—*From the Etat Major of the Corps of Mining Engineers of Russia.*

Compte Rendu Annuel, adressé à S. Exc. M. de Brock, Secrétaire d'Etat, &c. par le Directeur de l'Observatoire Physique Central, A. T. Kupffer. Année, 1851. St. Petersbourg, 1852. 4to.—*From the same.*

Flora Batava, of Afbeelding en Beschrijving van Nederlandsche Gewassen. Aflevering 173, 174: en Tytel en Register Elfde Deel. Amsterdam. 4to.—*From H. M. the King of Holland.*

Proceedings of the American Antiquarian Society, in Boston, April 27, 1853:—in Worcester, Oct. 24, 1853. Worcester. 8vo.—*From the Society.*

Origin and Causes of Democracy in America:—A discourse by George W. Burnap;—delivered in Baltimore, before the Maryland Historical Society, on its Eighteenth Anniversary Celebration, Dec. 20, 1853. Baltimore. 8vo.—*From the Maryland Historical Society.*

The African Repository: Vol. XXX. No. 1. January, 1854. Washington. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute. Third Series. Vol. XXVII. No. 2. February, 1854. Philadelphia. 8vo.—*From the Institute.*

Quarterly Journal of the Chemical Society. Vol. VI. No. XXIV. January 1, 1854. London. 8vo.—*From the Society.*

Statistique de la Belgique. Population. Mouvement de l'Etat Civil pendant les années 1846, 1847, 1848. Publié par le Ministre de l'Intérieur. Bruxelles, 1849. 3 vols. Fol.—*From the Central Commission of Statistics, Belgium.*

Statistique de la Belgique. Population. Recensement Général. (15

Octobre, 1846.) Publié par le Ministre de l'Intérieur. Bruxelles, Feb. 1849.—*From the same.*

Annual Report of the State Treasurer of Pennsylvania, on the Finances of the State, for the fiscal year ending Nov. 30, 1853. Harrisburg. 8vo.—*From M. W. Baldwin, Esq.*

Annual Report of the Board of Canal Commissioners of Pennsylvania, with the accompanying documents, for the fiscal year ending Nov. 30, 1853. Harrisburg. 8vo.—*From George H. Hart, Esq.*

Report of the Pennsylvania Hospital for the Insane, for the year 1853. By Thomas S. Kirkbride, M.D. Physician to the Institution. Philadelphia. 8vo.—*From the Author.*

The Medical News and Library. Vol. XII. No. 134. February, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Plough, the Loom and the Anvil. Vol. VII. No. 2. February, 1854. New York. 8vo.—*From the Editors.*

The True Idea of the University and its relation to a Complete System of Public Instruction:—An Address before the Association of the Alumni of the University of the City of New York, June 28, 1852: by C. S. Henry, D.D.—and

The Indebtedness of the City of New York to its University:—An Address to the Alumni of the University of the City of New York, at their Twenty-first Anniversary, 28th June, 1853: by Prof. J. W. Draper, M.D. New York. 8vo.—*Donor unknown.*

Mémoire sur les Volcans de l'Auvergne: par M. Rozet, Capitaine d'État Major. (Présenté à l'Académie des Sciences, le 3 Avril, 1843.) 4to.—*From Prof. J. F. Frazer.*

Sai an Sinsin, sive Liber Metempsychosis veterum Ægyptiorum: e duabus papyris funebribus Hieraticis signis exaratis: nunc primum edidit Latine vertit notas adjecit Henricus Brugsch, Doct. Phil. &c. &c. Berolini, 1851. 4to.—*From the same.*

Voyages from Holland to America, A. D. 1632 to 1644. By David Peterson De Vries. Translated from the Dutch, by Henry C. Murphy. New York, 1853. 8vo.—*From James Lenox, Esq.*

On motion of Mr. Fraley, Dr. Ruschenberger was requested to prepare an obituary notice of the late Dr. Robert M. Bird.

Judge Kane, pursuant to former appointments, presented and read obituary notices of Judge Hopkinson, Thomas Gilpin, and John Price Wetherill, late members of the Society.

Joseph Hopkinson. The family name of our late Vice-president is intimately associated with the political and forensic history of the United States. His grandfather, his father and himself, were in succession the judges of admiralty in Pennsylvania, each distinguished in his day. The father was a member of the Congress of 1776, signed the declaration of Independence, and contributed by his personal influence and by the sportive sarcasm of his pen to its successful vindication. The son also was led astray, for a while, from the walks of his profession by the seduccments of political life, and held an important and honoured place in the House of Representatives of the United States, with Webster and Clay and Calhoun and Lowndes for his associates and competitors in debate.

His reputation was national, as were all his aims and wishes and thoughts; and his life truly written out would be a chapter rather than an episode in the history of his country.

He came early to the bar, with talents to achieve the highest honours of his profession, and with that other indispensable element of success, just poverty enough to make him willing to exert them. His course to eminence was rapid. His vindication of Dr. Rush from the calumnies of Cobbett, his reclamation of damages at the suit of Pat Lyon, and his defence of Judge Chase before the Court of Impeachment, are among the trophies of our Philadelphia bar. He entered Congress I think in 1816; but after serving for a term or two, retired from the gladiations of politics and law to a farm near Bordentown, New Jersey.

It is the dream of every lawyer this *country life*. There is something about the excitements of our daily professional contest, its alternations of disaster and success, each in its turn unlooked for, dependent on contingencies that may sometimes be calculated but are not often to be controlled, which, like the adventurous experience of the storm-ried mariner, makes a man long for the fancied repose of a farm. But the "*mox reficit rates*" applies in the two vocations alike; in a very few years Mr. Hopkinson came back to the bar. At the close of Mr. J. Q. Adams's administration, he was appointed the United States Judge for the Eastern District of Pennsylvania, and he retained that office till his death. While holding it he took part in the convention that framed the constitution of this State, and was one of the wise minority which opposed many of its present features.

He had refined tastes, was fond of paintings and statuary, and presided for many years over the Academy of Fine Arts. He wrote poetry too, as gentlemen used to do fifty years ago, and perhaps as

they do now: the words of Hail Columbia are from him. A poor player had announced for his benefit night that the President would be welcomed at the theatre with a patriotic ode; and his poet disappointed him at the last moment. Hopkinson found a Hessian march in his *flute-book*, and made the verses to suit it before going to bed.

His style of writing was pure manly English, admitting very little ornament for ornament's sake, but graceful and flowing. As a speaker, he was terse and studiously simple, but rich with illustration when the occasion called for it, and racy with wit. He was seldom elaborate in preparing an argument; or if he was, he took pains to rub out the traces of elaboration, as an Indian covers his track among the leaves. His mind was acute, suggestive, intense sometimes, prompt in its conclusions, and little anxious to review them. Yet he was patient on the bench, and could hear or seem to hear all sorts and qualities of forensic contestation as meekly as eloquence or logic:—sometimes indeed, when the sophism was quite too audacious, I have known him to kill it off with a spark of wit; but he generally bore it like a philosopher. He had wonderful powers of conversation, was playful, full of anecdote, happy in repartee,—a good listener withal, not only witty himself, but the cause wherefore wit was in other men.

He became a member of the American Philosophical Society, in 1815, and was chosen to be a Vice-president in 1831. He died on the 15th of January, 1842, at the age of 71.

I should be glad to spread out some of my reminiscences of Judge Hopkinson, for I knew him well; he was my professional instructor almost forty years ago, and we were friends as long as he lived. But the brevity, which the spirit of our rules enjoins, allows me only to trace this hasty sketch of his character upon our records.

Thomas Gilpin. I hoped, when the Society did me the honour of requesting me to notice Mr. Gilpin's death upon our records, that I should have the aid of my friend, his nephew, in collecting the material for my work. The continued absence of Mr. H. D. Gilpin in Europe has prevented this, and I must be excused therefore for making a more brief memorial than the services and personal worth of our late fellow member might rightfully claim.

Mr. Gilpin was of ancient family among the old Quakers of Pennsylvania, and connected by descent with still older and equally honoured families in England. When I first knew him, a great many years ago, he was residing on the Brandywine, an extensive manufacturer of paper, busily engaged in devising improvements in his art. The machine paper made on a wire wove cylinder, though not I be-

lieve, his invention, was first introduced to notice in this country under his auspices. His works were at that time among the curiosities of that busy and beautiful region, and the grounds about them more picturesque and tastefully ordered than any I have seen since. He afterwards removed to Philadelphia, and continued here till he died.

He was an ingenious, public spirited, and useful man, fond of science, well read in it, and sometimes a contributor of his observations and thoughts for the different scientific journals. I have before me "An essay on Organic Remains as connected with an ancient Tropical Region of the Earth," which he addressed to this Society in 1843; and which was published soon after. Besides this, I remember a plan of his for bringing about a representation of the minorities in our political systems, which he explained and enforced in a pamphlet soon after. It was the first matured scheme of the sort, that gained public attention among us; but it involved objections of detail, which prevented its finding general favour. The principle it sought to illustrate has however been recognised in some of the later enactments of our legislature. In 1848, he made a collection of all the documents, that were connected with the imprisonment of his father and others of the same sect by the revolutionary authorities of 1776. It is interesting, as showing the perilous energy with which those almost self constituted tribunals, executed their patriotic functions against all who were suspected of favouring the crown, and as showing also the calm and placid, but galling pertinacity, with which men disciplined in the school of conscience can oppose without resisting, and suffer without submitting. The protests and representations and petitions and appeals of the prisoners make up a volume.

A more extended inquiry than I am able to make would probably bring to view others of his writings. His mind was active, and his range of thought embraced many subjects. He was a member of our Society from the year 1814 till 3d March, 1853, when he died at the age of 77.

John Price Wetherill. During the war of the Revolution, a number of the Society of Friends, the parent society of Pennsylvania, were so far led away by patriotic fervour as to bear arms in the cause of the colonies. They lost their heritage, of course; but retaining most of the conscientious peculiarities of the sect, they formed a new community, which, as time and change narrowed its boundaries, became more and more sedulous to keep their outline well defined. Among the last of these, of the second or third generation of "free Quakers," was our friend the late curator, the grandson of a revolutionary

minister and soldier, tracing back an honoured ancestry from before the settlement of Penn. He was a Quaker to the very last, without a particle of schismatic bitterness, but pertinacious in his adherence to his patrimonial faith and forms.

He occupied a very large space in this community of ours, and held many positions of trust. He was a contented man, who had persuaded Price Wetherill to be the executor of his will, or the guardian of his children. He had the confidence of all classes. When a bank had just been proclaimed insolvent, and in spite of the police, an excited crowd of small creditors was threatening violence at the counter, a promise from him that "he would see into the matter" made every thing quiet. He was fairly borne down by public offices. He was an indefatigable Guardian of the Poor, a Manager of the Girard estates, chairman of the Watering Committee of Philadelphia for a great many years, and latterly the President of our Select Council.

He was a scientific manufacturing chemist; a theorising, but also a practical agriculturist; a thorough and successful business man; yet a zealous politician, public spirited beyond any one of his place and time, liberal to profusion for the relief of want, the encouragement of toil, the advancement of science; his whole life devoted to all he believed to be good; and his death that of a humble, almost timorous, but hopeful Christian.

He had some eccentricities; but they were none of them repulsive; he was careless of his personal appearance, and took pride in leading with his own hands the operations of his laboratory and his farm. Still, he liked the society of the eminent and refined, and had many warm friends among the political leaders of the country. He was a vice-president in the Academy of Natural Sciences, and a member of the Wistar Club.

His hospitality was without stint, and embraced almost all classes in its range. His charities were still more diffusive; those, who have ministered to the poor and suffering during the inclemencies of this winter, have found out how large and pervading were his benefactions, and how carefully screened from the public eye. I myself know more than one thriving and happy household, that can refer back its comforts and its hope to his well devised and equally well masked bounty.

This is about all that need be said of our friend. He performed his part in life well; and it was a laborious and responsible one; and he carried with him to the grave the regrets of many poor, and the esteem of all the worthy.

Elected a member American Philosophical Society, 20th April, 1827. Elected a curator American Philosophical Society, January, 1828. Died at Philadelphia, 24th July, 1853, aged 59 years.

The minutes of the Board of Officers and Council at their last meeting were read by the clerk.

The committee appointed at last meeting, on the subject of equalizing the coinage of this country and of Great Britain, reported a memorial to the Congress of the United States on that subject,—which, after consideration and debate, was re-committed to the committee, to report at a future meeting of the Society.

Dr. Boardman, on behalf of James Lenox, Esq., of New York, presented for the Library of the Society a translation of the “Voyages of De Vries from Holland to America, A. D. 1632 to 1644,” and made some remarks upon the rarity of the original work and the value of the donation:—

Whereupon—on motion of Prof. Frazer, the Secretary was directed to communicate the thanks of the Society to Mr. Lenox for his valuable gift.

On motion of Judge Kane, (Dr. Dunglison having taken the chair), the Address delivered to the Society by its President, on the 16th of December last, was referred to the Board of Officers and Council.

The subject of re-engraving the seal of the Society, which has become much worn by long use, was also referred to the Officers and Council.

Stated Meeting, March 3.

Present, ten members.

The President and Vice-Presidents being absent, Mr. Justice was called to the Chair.

Mr. George Harding, a recently elected member, was introduced and took his seat.

Letters were read:—

From the Trustees of the New York State Library, dated

Albany, Feb. 15, 1854; from the Connecticut Historical Society, dated Hartford, Feb. 15, 1854; and from the Lyceum of Natural History, dated New York, Feb. 21, 1854; respectively acknowledging the receipt of No. 50 of the Proceedings of this Society, and returning thanks for the same: and—

From the Royal Zoological Society at Amsterdam, dated Nov. 1853, accompanying a donation for the library of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Bijdragen tot de Dierkunde: uitgegeven door het Genootschap Natura Artis Magistra, te Amsterdam. Aflevering 1, 2, 3, 4, 5. Amsterdam, 1848–1852. 4to.—*From the Zoological Society at Amsterdam.*

Astronomical Observations made at the Radcliffe Observatory, in the year 1851. By Manuel J. Johnson, M.A. Radcliffe Observer. Vol. XII. Oxford, 1853. 8vo.—*From the Radcliffe Trustees.*

American Journal of Science and Arts: Vol. XVII. No. 50. March, 1854. New Haven, 8vo.—*From Profs. Silliman and Dana, Editors.*

Nineteenth Annual Report of the Board of Directors of the Young Men's Library Association of Cincinnati. Jan. 3, 1854. Cincinnati. 8vo.—*From the Association.*

Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1853. Philadelphia. 8vo.—*From the Directors.*

Twenty-sixth Annual Report of the Board of Managers of the House of Refuge. Philadelphia, 1854. 8vo.—*From J. J. Barclay, Esq.*

Battle of Lake Erie: A Discourse delivered before the Rhode Island Historical Society, Feb. 16, 1852, by Usher Parsons: and

Oration on the occasion of celebrating the Fortieth Anniversary of the Battle of Lake Erie: delivered Sept. 10, 1853, in Newport, R. I., by George H. Calvert. Providence, 1854. 8vo.—*From Dr. G. Emerson.*

Returns of the several Banks and Savings Institutions of Pennsylvania, communicated by the Auditor General to the Legislature, 1854. Harrisburg. 8vo.—*From M. W. Baldwin, Esq.*

The Seventh Census:—Report of Jos. C. G. Kennedy, late Superin-

tendent of the Census, for Dec. 1, 1852;—to which is appended the Report for Dec. 1, 1851. Washington, 1853. 8vo.—*From the Author.*

The Medical News and Library: Vol. XII. No. 135. March, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

Astronomical Journal: Vol. III. No. 19. Feb. 17, 1854. Cambridge, Mass. 8vo.—*From Dr. B. A. Gould, jr., Editor.*

The committee appointed at a former meeting, relative to the equalization of coinage between this country and Great Britain, reported the following Memorial to Congress, on this subject,—which, on motion, was adopted by the Society, and ordered to be signed by the proper officers and forwarded for presentation to Congress.

To the Senate and House of Representatives of the United States of America, in Congress assembled.

The Memorial of the American Philosophical Society held at Philadelphia for promoting useful knowledge, respectfully shows:

That, at the present moment, there is a favourable opportunity for effecting a result of great public interest and convenience; by establishing a Coinage which shall be identical in weight, fineness and value, for the two great Commercial Nations which use the same English tongue.

It is understood that the Government of Great Britain is about to adopt, wholly or in part, a decimal correlation of the coins issued by its authority, like that which has been for a long time used in the United States; and it can be readily perceived that but slight modifications in the relative unitary weights and values are required, respectively, to bring the coinage in the two countries to the identity already mentioned.

When this shall have been accomplished, inasmuch as the Weights and Linear Measures are already and have ever been the same for both nations, the Measures of Capacity will alone be discrepant, and as the standards of this sort for the United States may be considered as virtually the same with those accepted in Great Britain anterior to 1825 (the difference being only in the temperatures to which observations are reduced) there is reason to hope that a suitable occasion may hereafter occur to remove the discrepancy in this respect also.

The undoubted convenience of a decimal computation makes its

extension to the entire Weight and Measure System, both here and in Great Britain, highly desirable; but such extension is not contemplated in the present prayer of your Memorialists, which limits itself to what is easily practicable and is in the direct line of farther improvement.

In view of what has been said, then, and of the great convenience that citizens of the two countries will find when the coins of each pass in the other with the same facility as ours now do, between the different and distant States of this Union;—of the great economy of time and labour that Commerce will experience in thus getting rid of tedious calculations of conversions and exchanges,—and of the great, though silent and unpretending help that will be given to the civilization of the human race in this concession to uniformity by two great nations whose common language is already spoken over half the globe:—Your Memorialists respectfully pray that your Honourable Bodies will give to this subject a wise and favourable consideration;—and by joint resolution, or otherwise, will authorize the President of the United States to enter into such correspondence with the Government of Great Britain as may secure, in a reasonable time, a proper uniformity of Coinage, in the mode that may be found most discreet and convenient.

And your Memorialists will ever pray, &c.

Stated Meeting, March 17.

Dr. FRANKLIN BACHE, President, in the Chair.

Present, fourteen members.

Letters were read:—

From James Paget, dated 24 Henrietta Street, Cavendish Square, London, Feb. 15, 1854, acknowledging the receipt of notice of his election as a member of the Society: and—

From the Royal Academy of Sciences at Amsterdam, dated Nov. 2, 1853, returning thanks for Vol. X. Part 2, of the Transactions, and for No. 48 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

- Monthly Notices of the Royal Astronomical Society: Vol. XIV. No. 3. Jan. 13, 1854. London. Svo.—*From the Society.*
- Journal of the Franklin Institute: Vol. XXVII. No. 3. March, 1854. Philadelphia. Svo.—*From the Institute.*
- The African Repository: Vol. XXX. No. 2. Feb. 1854. Washington. Svo.—*From the American Colonization Society.*
- Proceedings of the Academy of Natural Sciences of Philadelphia: Vol. VII. No. 1. Jan. Feb. 1854. Philadelphia. Svo.—*From the Academy.*
- Additional Notes of a Discussion of Tidal Observations, made in connection with the Coast Survey at Cat Island, Louisiana. By Prof. A. D. Bache, Superintendent U. S. Coast Survey. (Am. Jour. Sci. and Arts. Vol. XIV.) New Haven, 1853.—*From the Author.*
- Professor Dunglison's Charge to the Graduates of Jefferson Medical College, of Philadelphia, March 11, 1854: with a list of the Graduates. Philadelphia. Svo.—*From the Author.*
- Eight Pamphlets, consisting of Reports, &c. illustrative of the Statistics of Population, Education, Prisons, Insanity, Insurance, &c. in Massachusetts. Svo.—*From Dr. Edward Jarvis.*

Dr. Franklin Bache announced the decease of Gotthelf Fisher, of Moscow, a member of this Society, who died Oct. 18, 1853, aged 83.

Judge Kane called the attention of the members to the intended visit to Europe of Dr. Dunglison, one of the Vice-Presidents of the Society,—and moved the following minute and resolution, which were read, considered and adopted:

It having been announced that Dr. Robley Dunglison, a Vice-President of this Society, is about to visit Europe with the purpose of making himself familiar with the Scientific and Literary Institutions of Great Britain and the nations of the Continent;—it was

Resolved, That Dr. Dunglison be requested to communicate, on behalf of the Society, with such of its foreign correspondents as he may have occasion to visit;—and that the Secretary be instructed to invite for him such aid as may conduce to the attainment of the object he has in view.

Stated Meeting, April 7.

Present, nine members.

DR. FRANKLIN BACHE, President, in the Chair.

Letters were read:—

From the Corporation of Harvard College, dated Cambridge, Feb. 13, 1854, returning acknowledgments for Part 3, Vol. X: of the Transactions,—and for No. 50 of the Proceedings of the Society:—

From the Librarian of the Boston Society of Natural History, dated Boston, March 27, 1854, returning thanks for sundry Parts of the Transactions and Nos. of the Proceedings, which were wanting to complete the series in the library of that Society: and—

From the Secretary of l'Ecole des Mines, dated Paris, 30th Nov. 1853, accompanying a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Annales des Mines. V. Série. Tome IV. 4 livraison de 1853. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Proceedings of the Boston Society of Natural History. Nos. 20, 21, Jan. Feb. 1854. Boston. 8vo.—*From the Society.*

Researches upon Nemerteans and Planarians. By Charles Girard. I. Embryonic Development of Planocera Elliptica. Philadelphia, 1854. 4to.—*From the Author.*

American Journal of the Medical Sciences. No. LIV. New Series. April, 1854. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*

The Medical News and Library. Vol. XII. No. 136. April, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

Report of the Auditor General on the Finances of the Commonwealth of Pennsylvania, for the year ending Nov. 30, 1853. Harrisburg. 8vo.—*From M. W. Baldwin, Esq.*

Astronomical Journal. Vol. III. Nos. 20, 21. March 16, April 3, 1854. Cambridge. 4to.—*From Dr. B. A. Gould, jr. Editor.*

The Plough, the Loom and the Anvil. Vol. VII. No. 3. March, 1854. New York. 8vo.—*From the Editors.*

Annual Review: History of St. Louis, Commercial Statistics, Improvements of the year, and Account of the leading Manufactures, &c. Jan. 1854. St. Louis. 8vo.—*Donor unknown.*

Mr. Fraley announced the recent death of Sir James Wylie, of St. Petersburg, a member of this Society, aged 85 years.

In connection with this announcement, Dr. F. Bache mentioned to the Society that on his late visit to Europe he called upon Sir James Wylie, in St. Petersburg, and in conversation with Sir James, on the events of his long and active life, that gentleman referred to a brief account of the principal incidents in his public and official career as a military surgeon in the Russian service, written by himself; of which paper he kindly permitted Dr. Bache to take a copy. This paper was read to the Society.

Judge Kane referred to the unusual number of icebergs in the Atlantic during the last few months, as reported by recent navigators. He infers, from this, that the spring of 1853, in the Arctic regions, was more mild, or the Arctic waters more open than usual,—this floating ice coming from Baffin's bay;—and considers that from this apparent indication of the season in the northern regions, we have reason to suppose that Dr. Kane may have made more progress in his Arctic explorations than could have been done in an ordinary season.

The Judge illustrated his remarks by reference to a recent chart of the Arctic regions, with regard to the geographical and physical features of the coast in that portion of the globe.

Stated Meeting, April 21.

Present, thirteen members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From the Royal Academy of Sciences at Stockholm, dated Nov. 1, 1853; from the Central Physical Observatory of Russia, dated St. Petersburg, Dec. 13, 1853; from the Royal Geographical Society of London, dated 3 Waterloo Place, Dec.

13, 1853; returning thanks for Vol. X. Part 2, of the Transactions:—

From the Imperial Academy of Sciences at Vienna, dated 24th Nov. 1853, acknowledging the receipt of Transactions, Vol. X. Part 2, and Proceedings Nos. 47, 48.

From the Royal Institution, London, dated Albemarle Street, Sept. 1, 1853; from the Geological Society, dated Somerset House, Nov. 3, 1853; from the Royal Geographical Society, dated 11th January, 1854, returning thanks for No. 48 of the Proceedings:—

From the American Academy of Arts and Sciences, dated Boston, 15th April, 1854, returning acknowledgments for Transactions. Vol. X. part 3, and Proceedings Nos. 49, 50:—

From the Corporation of Harvard College, dated Cambridge, March 27, 1854, acknowledging the receipt of Vol. X. Part 1, of the Transactions:—

From the Imperial Society of Naturalists of Moscow, dated 13th Sept. 1853; from the Imperial Academy of Sciences at Vienna, dated 10th Nov. 1853; from the Imperial Geological Institute, dated Vienna, 21st Nov. 1853; from the Royal Academy of Sciences at Stockholm, dated 23d Nov. 1853; from the Baron J. Von Hammer Purgstall, dated Vienna, 29th Dec. 1853; from the Royal Institution, dated Albemarle Street, London, Dec. 12, 1853; from the Royal Danish Society of Sciences, dated Copenhagen, 21st Dec. 1853; from Dr. N. B. Shurtleff, dated Boston, 15th April, 1854; severally announcing or accompanying donations for the library of the Society: and—

From the Rev. Eleazar Williams, dated Philadelphia, April 18, 1854, in relation to a manuscript Grammar of the Iroquois language, placed in the hands of Mr. Du Ponceau in the year 1838, with a view to its publication by the Society.

The following donations were announced:—

FOR THE LIBRARY.

Jahrbuch der Kaiserlich—Königlichen Geologischen Reichsanstalt. 1853. IV. Jahrgang. No. 2. April, Mai, Juni. Wien. 4to.—

From the Imperial Geological Institute, Vienna.

Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Phil. Hist. Classe, Band X. 5 Heft: Band XI. 1, 2 Heft.—Math.

- Nat. Classe, Band XI. 1, 2 Hefi. Wien. 8vo.—*From the Imperial Academy of Sciences, Vienna.*
- Kongl. Vetenskaps—Akademiens Handlingar, för år 1851.
- Ofversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Årg. 9, 1852.
- Berättelse om Framstegen i Vertebrerade Djurens Naturalhistoria och Ethnografien under åren 1845–1850. Afgifven till Kongl. Vet. Akad. af Carl J. Sundevall, 1853.
- Register öfver de till Kongl. Vetenskaps—Akad. af J. E. Wikström afgifna Års—Berättelser i Botanik för Åren 1820 till och med 1838, af N. J. Anderson. Stockholm. 8vo.—*From the Royal Academy of Sciences, Stockholm.*
- Det Kongelige Danske Videnskabernes Selskabs Skrifter. Femte Række. Naturvidenskabelig og Mathematisk Afdeling. III. Bind. Kiöbenhavn, 1853. 4to.—*From the Royal Danish Society of Sciences.*
- Tables du Soleil, exécutées d'après les ordres de la Société Royale des Sciences de Copenhague: par MM. P. A. Hanson et C. F. R. Olufsen. Copenhague, 1853. 4to.—*From the same.*
- Annales de l'Observatoire Physique Central de Russie: publiées par ordre de Sa Majesté l'Empereur Nicolas I. Par. A. T. Kupffer, Directeur de l'Observatoire Physique Central. Année 1850. Nos. 1, 2. St. Petersburg, 1853. 4to.—*From the Observatory.*
- Compte—Rendu Annuel, adressé à S. Exc. M. de Brock, Minister des Finances, par le Directeur de l'Observatoire Physique Central, A. T. Kupffer. Année 1852. St. Petersburg, 1853. 4to.—*From the same.*
- Bulletin de la Société Impériale des Naturalistes de Moscou. Année 1852. Moscow, 1853. 8vo.—*From the Society.*
- Journal of the Royal Geographical Society. Vol. XXIII. And General Index to the second ten volumes of the Journal. London, 1853. 8vo.—*From the Society.*
- Notices of the Meetings of the Members of the Royal Institution of Great Britain. Part III. Nov. 1852—July, 1853. And List of the Members, Officers, &c. of the Institution, with the Report of the Visitors for the year 1852. London, 1853. 8vo.—*From the Institution.*
- Transactions of the Royal Society of Edinburgh: Vol. XX. Part 4. Edinburgh, 1852–3. 4to.
- Proceedings of the Royal Society of Edinburgh: Session 1852–3. Vol. III. No. 43. Edinburgh. 8vo.—*From the Society.*

- Astronomical Observations made by the Rev. Thomas Catton, B.D. of St. John's College, Cambridge. Reduced and printed under the superintendence of George Biddell Airy, Esq. Astronomer Royal. London, 1853. 8vo.—*From the Royal Society.*
- Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1852. Leeds, 1853. 8vo.—*From the Society.*
- Thirty-third Report of the Council of the Leeds Philosophical and Literary Society, at the close of the Session 1852-3. Leeds. 8vo.—*From the Society.*
- Almanaque Nautico para el año 1855, calculado de orden de S. M. en el Observatorio de Marina de la ciudad de San Fernando. San Fernando, 1853. 8vo.—*From the Observatory.*
- Journal of the Academy of Natural Sciences of Philadelphia. New Series. Vol. II. Part 4. Philadelphia, 1854. 4to.—*From the Academy.*
- Proceedings of the New Jersey Historical Society. Vol. VII. No. 2. 1854.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXVII. No. 4. April, 1854. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXX. Nos. 3, 4. March, April, 1854. Washington. 8vo.—*From the American Colonization Society.*
- Das Arabische Hohe Lied der Liebe, in text und übersetzung zum ersten male herausgegeben, von Hammer Purgstall. Wien. 1854. 8vo.—*From Baron Von Hammer Purgstall.*
- Records of the Governor and Company of Massachusetts Bay in New England. Printed by order of the Legislature. Edited by N. B. Shurtleff, M.D.—*From N. B. Shurtleff, M.D.*
- Eleventh Report to the Legislature of Massachusetts, relating to the Registry and Returns of Births, Marriages and Deaths in the Commonwealth, for the year ending Dec. 31, 1853. By E. M. Wright, Secretary of the Commonwealth. Boston, 1853. 8vo.—*From the same.*
- Rules and Regulations of the Public Library of the City of Boston. Adopted Nov. 8, 1853. Boston. 8vo.—*From the same.*
- Archimedes and Franklin: A Lecture introductory to a Course on the Application of Science to Art, delivered before the Massachusetts Charitable Mechanics' Association, Nov. 29, 1853. By Robert C. Winthrop. Boston. 8vo.—*From the same.*
- Electric Science: its History, Phenomena and Applications. By F. C. Bakewell. London, 1853. 8vo.—*From Dr. L. Turnbull.*

On motion of Mr. Fraley, the Librarian was authorized and directed to return to the Rev. Eleazar Williams, the manuscript copy of a Grammar of the Iroquois language, referred to in his letter read this evening, which manuscript was received by the Society, as stated in the letter, and was ordered to be published in the Transactions of the Historical and Literary Committee; but as the publications of that Committee have been suspended, the order has not yet been carried out.

Mr. Fraley announced the death of William Strickland, a member of this Society, who died at Nashville, Tennessee, on the sixth of the present month:—

And, on motion, Judge Kane was requested to prepare an obituary notice of the deceased member.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

The Committee on the preparation of enlarged accommodations for the library reported progress.

At the request of Professor Reed, he was excused from the preparation of an obituary notice of the late Professor James G. Thomson.

All other business having been concluded, the ballot boxes were opened, and the following named gentlemen were declared by the presiding officer to be duly elected members of the Society:—

BENJAMIN GERHARD, of Philadelphia.

ELIAS DURAND, do.

WILLIAM V. KEATING, M.D. do.

JOSHUA I. COHEN, M.D. of Baltimore.

LORD MAHON, of England.

JAMES LENOX, of New York.

ELI K. PRICE, of Philadelphia.

CONSTANT GILLOU, do.

Stated Meeting, May 5.

Present, seventeen members.

Dr. FRANKLIN BACHE, President, in the Chair.

Dr. William V. Keating and Mr. Elias Durand, recently elected members, were introduced and took their seats.

Letters were read:—

From James Lenox, dated New York, April 24, 1854; from Joshua I. Cohen, dated Baltimore, April 24, 1854; from Eli K. Price, dated Senate, April 24, 1854; from Elias Durand, dated Philadelphia, April 26, 1854; severally acknowledging the receipt of notice of their election as members of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Information concerning the History, Condition and Prospects of the Indian Tribes of the United States: Collected and prepared under the direction of the Bureau of Indian Affairs, per Act of Congress of March 3, 1847; by Henry R. Schoolcraft, L.L.D. Published by authority of Congress. Part IV. Philadelphia, 1854. 4to.—
From the Commissioner of Indian Affairs.

Proceedings of the American Academy of Arts and Sciences. Vol. II. from p. 233 to end: Vol. III. p. 1 to 40. Boston. 8vo.—
From the Academy.

Proceedings of the Boston Society of Natural History. Nos. 23, 24. March, April, 1854. Boston. 8vo.—*From the Society.*

Annals of the Lyceum of Natural History of New York. Vol. VI. Nos. 2-4. April, 1854. New York. 8vo.—*From the Lyceum.*

The American Journal of Science and Arts. Vol. XVII. No. 51. May, 1854. New Haven. 8vo.—*From the Editors.*

The Medical News and Library. Vol. XII. No. 137. May, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

Seventh Annual Report of the Regents of the University of the State of New York, on the Condition of the State Cabinet of Natural History, and the Historical and Antiquarian Collection annexed thereto. Made to the Senate, Jan. 18, 1854. Albany. 8vo.—
From the Regents.

Report on the Utility of a uniform System in Measures, Weights, Fineness and Decimal Accounts, for the Standard Coinage of Commercial Nations. By J. H. Gibbon, M.D. of the U. S. Branch Mint, North Carolina. Charleston, 1854. 8vo.—*From the Author.*

The Duty of Columbia College to the Community, and its right to exclude Unitarians from its Professorships of Physical Science, considered by one of its Trustees. New York, 1854. 8vo.—*—Donor unknown.*

The Plough, the Loom and the Anvil. Vol. VI. No. 10. April, 1854. New York. 8vo.—*From the Editors.*

Judge Kane, pursuant to appointment, read an obituary notice of the late William Strickland, a member of the Society.

William Strickland. It is at best a melancholy office, that which I have undertaken, to trace the obituary memorial of an old and intimate friend. It calls back passages in my own life, that might willingly if not wisely be forgotten, hopes and apprehensions that we shared or sympathised in together, hopes, some of them realized happily in later years; some of them, hopes as well as apprehensions, realized to our sorrow. It brings round me the genial names we both used to delight in, Biddle, and Chapman, and Dewees, and Hopkinson, and I had almost added Patterson; of the whole group I am the only survivor. It is fitting that I should indite the farewell notice of Strickland; he would have done as much for me.

My association with him dates back to the year 1819. It began the very day he laid the foundation stone of the Bank of the United States; he came up from the work to welcome me after my marriage.

Before that time his life had been one of checkered fortunes. His father was a carpenter, a skilful artisan, for Latrobe the great architect of his day confided to him the execution of many of his plans, an honest man withal, for he never speculated, and yet died poor. His son William, a boy in the draughting room, attracted Latrobe's favour by the quickness of his eye and the facility of his pencil, as as well as by his joyous and grateful temperament. Latrobe took the charge of his education as an engineer and architect; disciplining his taste to the severe harmonies of Grecian art, that exquisite art, which he himself commemorated so perfectly in the Minerva Polias outline of the Bank of Pennsylvania, and his pupil afterwards in the portico of the Parthenon.

I scarcely know how Strickland began his early professional career. He drew the plans for the first Masonic hall that stood in Chesnut street, before he was of age; and some years afterwards devised a cunning little specimen of *bijou* architecture for the Swedenborgian Church. But there was very little for an architect or an engineer to do in Philadelphia, or indeed anywhere else about the country, when he left his master's studio. His father had died; and he was fairly adrift upon the world.

He set himself to work as a sort of artist in general; drew patterns for plasterers and carpenters, and models for machinists and patentees, aquatinted fanciful likenesses of victorious commodores and other notorieties for the shop windows, painted scenes for the theatres, (excellent ones they were,) now and then tried his hand at a street view in oil, (I have one of these, a noble perspective of old Christ Church and Second street: he sold it for two hams, ten dollars, and a box of segars, and bought it back ten years afterwards for three hundred dollars,) levelled a house plot, or computed a water power, or surveyed a field or a farm when the lines were too complex for the every day workers in mensuration; and then or in the mean while, artist like, married a wife, giving his only five dollar bill to the clergyman.

He was trying on his uniform jacket as a volunteer, the night before he was to set out for camp: it was in the fall of 1814, and all who had nothing else to do, and a good many besides, were marching off to keep away the British; when an accident brought him into more public view.

The older part of the town had turned out to make fortifications, those strange looking earth-works that many of us remember at all the road crossings, and some of which promise to remain there like Indian mounds to puzzle the coming generation of antiquaries. Dr. Patterson had been elected one of our virtuoso engineers, and he be-thought him of Strickland as another. Of course there was no difficulty in getting his commission from the committee of safety: old general Bloomfield added a furlough to relieve him from camp duty: and before six o'clock the next morning Strickland had mounted the blue cockade, and was teaching all sorts of patriotic people to toss sods to the music of a fife.

I have heard him refer much of his professional success to this trivial incident. It happened that some of our influential citizens were struck by the efficiency he manifested in his extempore office. He thought they over-valued it; though he complained for a while that,

like some heroes of more sanguinary fields, he had harvested more fame than abiding emolument. He was in truth an ill-trained economist, and having "but little here below, had not that little long." But when the Bank of the United States was incorporated a few years later, the influence of the same gentlemen secured his appointment as the architect of the new building. And from this time, so admirably exact were his estimates and so vigorous his supervision of the works under his charge, that he was the architect of Philadelphia. He constructed the Mint, the Exchange, the Naval Asylum, our two Theatres, the Mechanics and the Philadelphia Banks, the House of Employment for the Poor in Blockley; in a word, all the buildings of note in and about the city.

While so engaged, he was called upon to direct extensive and difficult works as an engineer. He made in 1824 a reconnoissance for the Chesapeake and Delaware Canal; and projected one of the routes across the Peninsula: I was a director of the Canal Company at the time; and I never doubted, and there are few who doubt now, that it was the best route proposed. He was the first engineer in the service of Pennsylvania after our improvement system took a definite form, and afterwards the engineer of the eastern division of the Philadelphia and Baltimore Rail Road. He planned and executed the Delaware Break-water. He visited England as the representative of a society which was formed by a few spirited gentlemen to advance the industrial progress of the state, and made a folio series of reports, which the Society published in a liberally illustrated volume.

An anecdote occurs to me in connection with this volume, that shows the clearness of his foresight, but that exemplifies also the timorousness with which a striking truth finds general acceptance. He had witnessed the great experiment of the first locomotives, the Novelty and the Rocket, on the Liverpool and Manchester Rail Road; and in closing his report upon their performance, he prophecied that rail roads were destined to supersede canals. I was the proof reader of his book for the time; and when I was about to remit this passage to the printer, the Society's committee, and I think the Society itself, remonstrated strenuously against so perilous a committal on the part of a gentleman, whose opinions might be confounded with their own. In the end, I rewrote the closing paragraphs of the report at their instance, and so saved Strickland from declaring in advance what a large part of the world knows now to be true.

After many years of success in Philadelphia, he was invited to make the plan for the State Capitol of Tennessee, and subsequently

to direct its construction. It was his last great work. He died at Nashville on the 6th of April, 1854, a few weeks after completing it. The winter before his death, the Legislature of the State appropriated a crypt beneath the building as his future cenotaph; and his remains sleep there. The Capitol itself is his monument.

The characteristics of Mr. Strickland's mind were directness and simplicity. There was nothing complicated or equivocal about him. A stranger could read him like a book. He had quick powers of accurate observation. He saw every thing that was about him, and saw it truly. As he walked in the country, he marked every angle of the road, every change of level, every running stream, every tree taller than the rest. After spending the day with a friend, he could tell you the arrangements of his rooms, the number of windows in each, the height of every ceiling almost to an inch, and every accidental crack in the walls. He could labour out his professional estimates with singular minuteness and truth; but he was impatient of the process, and relied very often, and very successfully, on what seemed guess work to others, but was really with him the rapid and almost unconscious application of some well tested formula.

He was equally quick as a draughtsman: the scene-painters said he always worked with a pound brush. He made an engineering reconnoissance in less time than any man I ever saw, and could trace the line for a canal or rail road almost as soon.

Of course, he had sometimes the faults of over haste, and perhaps did not give to small appointments that measured attention that best conciliates custom. He saw the direct bearings of a question so clearly at once, that he made too little account of the collateral or remote; and though he could review his first impressions with candour in deference to the judgment of his friends, he rarely did so without their prompting.

He was not deeply studied: yet he had read and remembered the books of his profession. Like his favourite author, as described by Ben. Jonson, he had small Latin and less Greek; but he knew something of them, read French easily, and could manage a scrap of Italian when it encountered him. He was very fond of the old English poets, the humourous ones especially: he knew Shakspeare by heart, and would recite page after page of Hudibras. He had an apt wit of his own, sportive and kind spirited, that never meant to give offence, but that found utterance sometimes when it might have been discreetly silent. He was fond of merry company, and was the king of good fellows when occasion suited; at the anniversary suppers, which our

Society used to indulge in—alas, many years ago—no man was happier or made more enjoyment for the rest. He had a warm heart, direct and gallant purposes, little aptitude of disguise, too little indeed for promiscuous communion with the world.

His educated taste in matters of art became more and more severe as he grew older, till he seemed to value decoration too little. Yet he understood the beauty of flowing lines, and I have sometimes thought he purposely risked the harsh and rectangular style, lest he should be seduced by a native fondness for the ornate. But I need not criticise his works; they designate the marble æra in our Philadelphia architecture, that one which has given place to the sand stone and cast iron.

No doubt, there are features in some of his buildings, not many, I think, that a just censure may condemn. It might be uncharitable to blame him even for all of these. An architect like a lawyer, does not make the cause that engages his services. He does the best he can with it as it comes to him, and is lucky if he is not called on to defend or at least palliate by his silence faults that belong to others. He has to satisfy the wants of his employer; to disguise incongruities which no art can reconcile, to modify his designs after he has begun to execute them, in deference to the uncertain judgment of a changing committee of supervisions, to cheapen this moulding, or leave a combination undeveloped, because funds are growing scarce: and after all; it may be, that the building as it stands before us for our criticism is devoted to uses the architect never dreamt of, that his airy quadrangle has become a smoking refinery, or his deep groined arches are hid above a canvass ceiling. No man need satirise the architectural eccentricities in some of the buildings that bear Strickland's name with more unsparing wit than he used to do himself.

He became a member of the American Philosophical Society in 1820, and was about 65 years old when he died.

Dr. Boyé exhibited a small apparatus to show certain vibrations caused by heat.

It consists of a very thin compound bar or spring of platinum and silver, such as is used in the construction of Breguet's Thermometers, placed in a vertical position. When the flame of a spirit lamp is placed in close proximity to the silver side of the spring, it is thrown into rapid vibrations. These vibrations were first noticed by Mr. Wygandt, of this city. Dr. Boyé thought there was nothing new in

the principle, still the vibrations were curious, and as interesting as any other of the many vibrations produced by heat or galvanism.

The vibrations are caused by the alternate actions of the heat of the lamp, bending the bar away from its influence, and of the consequent rapid cooling, which straightens it, throwing it back again within the former influence, this vibrating motion being assisted by the elasticity of the bar. Its approach to a red-hot bar or ball of iron produces the same effect. The vibrations do not take place when the platinum side of the spring is turned towards the source of heat, or when the action on the silver side is made perfectly uniform, as by bringing it under the influence of a thick red-hot iron bar bent in the shape of the curve, which it assumes by the heat received from it, or if heated by a very steady column of hot air striking, as before, against its silver side, but placed in such a position that the bending of it does not throw it out of the influence of the heating current.

Judge Kane made a verbal report from the committee appointed in February last, upon the subject of providing more extended and convenient accommodations for the Library of the Society, and moved that an appropriation of \$2000 be placed at the disposal of the committee, and that they be authorized to expend such amount, not exceeding that sum, as may be necessary for the object of their appointment:—Which motion was agreed to and the appropriation made by the Society.

Stated Meeting, May 19.

Present, nine members.

Dr. FRANKLIN BACHE, President, in the Chair.

A letter was read from the Corresponding Secretary of the Wisconsin Historical Society, dated Madison, Wisconsin, May 10, 1854, soliciting an exchange of publications with this Society.

The following donations were announced:—

FOR THE LIBRARY.

Quarterly Journal of the Chemical Society. No. XXV. Vol. VII. 1.
April, 1854. London. 8vo.—*From the Society.*

- Pennsylvania Archives: Selected and arranged from Original Documents in the Office of the Secretary of the Commonwealth, conformably to Acts of the General Assembly. Feb. 15, 1851, and March 1, 1852: by Samuel Hazard. 7 vols. From 1664 to 1779. (4 copies.) Philadelphia, 1852. Svo.—*From the State of Pennsylvania.*
- Colonial Records: Minutes of the Supreme Executive Council of Pennsylvania, from its organization to the termination of the Revolution. Published by the State. Vols. XII. to XVI. inclusive. 1779 to 1790. (4 copies.) Harrisburg, 1853. Svo.—*From the same.*
- Boston Journal of Natural History, containing Papers and Communications read before the Boston Society of Natural History. Vol. VI. No. 3. Boston, 1853. Svo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. No. 22. Feb. 1854. Boston. Svo.—*From the same.*
- Proceedings of the American Academy of Arts and Sciences. Vol. III. p. 1 to 104. Boston. Svo.—*From the Academy.*
- Journal of the Franklin Institute. 3d Series. Vol. XXVII. No. 5. May, 1854. Philadelphia. Svo.—*From the Institute.*
- Sixty-seventh Annual Report of the Regents of the University of the State of New York, transmitted to the Legislature, March 1, 1854. Albany. Svo.—*From the Board of Regents.*
- Verhandelingen uitgegeven door de Commissie belast met het vervaardigen eener Geologische Beschrijving en Kaart van Nederland. Eerste Deel. Haarlem, 1853. 4to.—*From the Government of the Netherlands.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 2. March, April, 1854. Philadelphia. Svo.—*From the Academy.*
- Discourse in Commemoration of the Founding of the Academy of Natural Sciences of Philadelphia. By William Parker Foulke. Delivered March 20, 1854, in the Hall of the University of Pennsylvania. Philadelphia. Svo.—*From the same.*
- Descriptions of New Fluvial Shells of the United States. By John G. Anthony, of Cincinnati, Ohio. (Ann. Lyc. Nat. Hist. N. Y. April, 1854.)—*From the Author.*
- The Plough, the Loom and the Anvil. Vol. VII. No. 11. May, 1854. New York. Svo.—*From the Editor.*

On motion, it was ordered that the Wisconsin Historical Society be placed upon the list of Corresponding Societies.

The Minutes of the Board of Officers and Council at their late meeting were read.

Judge Kane asked to be excused from longer service as a member of the Committee on the Hall: when, on motion, his request was granted, and Mr. Fraley was appointed in his place.

On motion of Judge Kane, it was resolved that, in the opinion of the Society, the Committee on the Hall are authorized to make leases of such portions of the Society's premises as are not occupied by the Society, at their discretion.

On motion of Prof. Frazer, a committee was appointed to observe the expected Solar Eclipse, on the 26th inst.—And the following named gentlemen were placed on the committee: Prof. Frazer, Prof. Kendall, Mr. Longstreth, Mr. Justice, Mr. T. Wagner, Prof. S. Alexander, of Princeton; Prof. A. D. Bache, Dr. B. A. Gould, jr., Prof. Kirkwood, Prof. O. M. Mitchell.

It was then, on motion of Judge Kane, resolved that the Chairman of the above named Committee be authorized to add to the number of its members, and that a majority of the resident members shall be a quorum of the Committee.

Stated Meeting, June 16.

Present, nine members.

DR. FRANKLIN BACHE, President, in the Chair.

Letters were read:—

From Lord Mahon, dated Grosvenor Place, May 24, 1854, acknowledging the receipt of notice of his election as a member of this Society:—

From the Royal Saxon Society of Sciences, dated Leipsic, Feb. 27 and March 4, 1854; from Dr. G. A. Jahn, dated Leipsic April 8, 1854; from the Imperial Academy of Sciences at Vienna, dated January 18 and 28, 1854; from the Prince Ja-

blonowski Society, dated Leipsic, Jan. 13, 1854; from the Royal Bavarian Society of Sciences, dated Munich, March 12, 1854; from the Royal Geological Society of Cornwall, dated Penzance, April 5, 1854; from John H. B. Latrobe, dated Baltimore, June 8, 1854; severally accompanying donations for the library: and—

From the Wisconsin Historical Society, dated Madison, Wisc. June 9, 1854, in relation to an exchange of publications with the Society.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der Philologisch—Historischen Classe der Königlich Sächsischen Gesellschaft der Wissenschaften. Band I. Leipzig, 1850. 4to.—*From the Royal Saxon Society of Sciences.*

Berichte über die Verhandlungen der Phil. Hist. Classe der Königlich Sächsischen Gesellschaft: 1846–1853. 8vo.—*From the same.*

Berichte über die Verhandlungen der Math. Physische Classe, 1853. II. 8vo.—*From the same.*

Zur Geschichte der Englischen Volkswirtschaftslehre, von W. Roscher, mit Nachtrage.

Eberhard Windeck, von Johann Gustav Droysen.

Zwei Verzeichnisse Kaiser Karls V. Lande, seine und seiner grossen einkünfte und anderes betreffend von J. G. Droysen.

Volusii Maeciani distributio partium: von Theodor Mommsen.

Polemii Silvii Laterculus, herausgegeben von Theo. Mommsen.

Entwicklung der Negativen und Ungraden Potenzen, &c. P. A. Hansen.

Ueber einige allgemeine Reihenentwickelungen und deren Anwendung auf die Elliptischen Funktionen: O. Schönmilch.

Ueber die Bestimmung der Massen und der Trägheitsmomente symmetrischer rotationskörper von ungleichförmiger dichtigkeit. O. Schönmilch.—*From the same.*

Astronomische Untersuchungen über die Wichtigeren Finsternisse welche von der Schriftstellern des Classischen Alterthums erwähnt werden. Preisschrift von Dr. Julius Zech. Leipzig, 1853. 8vo.—*From the Prince Jablonowski Society, at Leipsic.*

Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Math. Nat. Classe, Band XI. 3, 4 Heft, Oct. Nov. 1853.—Phil.

- Hist. Classe, Band XI. 3 Heft. Oct. 1853. Wien. 8vo.—*From the Imperial Academy of Sciences, Vienna.*
- Bulletin der Königlichen Akademie der Wissenschaften. Nos. 1–52. 1853. München. 4to.—*From the Royal Bavarian Academy of Sciences.*
- Gelehrte Anzeigen: herausgegeben von Mitgliedern der Königl. Bayer. Akad. der Wissenschaften. Band 36, 37. München, 1853. 4to.—*From the same.*
- Afrika vor den Entdeckungen der Portugiesen: von Dr. Fr. Kunstmann.
- Ueber die Bewegung der Bevölkerung im Königreiche Bayern: von Dr. Fr. P. W. von Hermann.
- Rede zur Vorfeier des hohen Geburtsfestes Sr. Maj. des Königes Maximilian II. von Bayern, Nov. 26, 1853: von Fr. von Thiersch, &c.
- Wegweiser für die Besucher des K. Botanischen Gartens in München, &c. von Dr. C. Fr. Ph. v. Martius.—*From the same.*
- Die Astronomie und die Astronomen seit dem Jahre 1845: Im Lichte und Schatten unserer Zeit betrachtet von einem Astronomen. Leipzig, 1854. 8vo.—*From Dr. G. A. Jahn.*
- Graphische Darstellung der Magnetischen Deklination zu Marburg. (Lithograph.) 1848–1852. Folio.—*From Dr. Gerling.*
- Monthly Notices of the Royal Astronomical Society. Vol. XIV. No. 6. April 12, 1854. London. 8vo.—*From the Society.*
- Thirty-eighth and Thirty-ninth Annual Reports of the Council and Curators of the Royal Geological Society of Cornwall, with Papers and Notices read to the Society. Penzance, 1851–2. 8vo.—*From the Society.*
- Astronomical Observations made under the direction of M. F. Maury, Lieut. U. S. Navy, during the year 1847, at the National Observatory, Washington. Vol. III. Published by authority of the Secretary of the Navy. Washington, 1853. 8vo.—*From the Observatory.*
- Annual Report of the Trustees of the State Library of the State of New York, transmitted to the Legislature, March 10, 1854. Albany. 8vo.—*From the Trustees.*
- Journal of the Franklin Institute. Third Series. Vol. XXVII. No. 6. June, 1854. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXX. Nos. 5, 6. May, June, 1854. Washington. 8vo.—*From the Am. Colonization Society.*
- Proceedings of the Third Convention of American Instructors of the

Deaf and Dumb, held at the Institution for the Deaf and Dumb, Columbus, Ohio, August 10, 11, 12, 1853. Columbus. 8vo.—*From the Rev. W. W. Turner.*

Report in relation to the Construction of a Light House on the New South Shoal off Nantucket. By Major Hartman Bache, U. S. Top. Engineers. Washington, April, 1853. 8vo.—*From the Author.*

African Colonization. By John H. B. Latrobe. Baltimore, 1851-3. 8vo.—*From the Author.*

The Astronomical Journal. Nos. 70, 71. (Vol. III. Nos. 22, 23.) Cambridge, May, 1854. 4to.—*From Dr. B. A. Gould, jr. Editor.*

The Medical News and Library. Vol. XII. No. 138. June, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Plough, the Loom and the Anvil. Vol. VI. No. 12. June, 1854. New York. 8vo.—*From the Editor.*

Prof. Frazer, from the Committee appointed at last meeting to observe the Solar Eclipse of the 26th ultimo, made a report embodying the results of observations made at various places in and near Philadelphia, as follows:

The committee appointed to observe the eclipse of the sun on 26th May, 1854, report that observations were made by Mr. Fisher Longstreth, at the observatory attached to the Friends' Central School in Cherry street; by Mr. T. Wagner and Mr. Riggs, at the observatory of the former gentleman; by Mr. Justice and Mr. Trego, at the State House; and by Profs. Kendall and Frazer at the Franklin Institute.

Mr. Longstreth's observations were made with a $3\frac{1}{2}$ feet telescope, and red screen; owing to the heat, the object glass was reduced from 3 inches to 1 inch aperture.

Mr. Wagner used a refracting telescope by Jones (London), 5 feet focal length; object glass $3\frac{7}{8}$ inches, by Tully, reduced by a cap about one-half; power, 100; screen, dark red.

Mr. Riggs used a telescope by Utzschneider & Fraunhofer, with a red screen; power about 30.

Mr. Justice observed with the Dollond telescope belonging to the Society; power about 85; screen glass dark smoky green, giving an apparently colourless image of the sun; and a small glass by Merz, power about 30.

Mr. Trego used a glass by Blunt, power about 24; screen glass smoke colour.

Prof. Kendall (the instruments of the High School being dismantled) used the Plösel telescope belonging to the Society.

Prof. Frazer used the Dollond telescope belonging to the University; $3\frac{3}{4}$ inches object glass; 5 feet focus; screen glasses of various shades of red; generally a very dark red preferred.

The following table gives the observed times of contact by the various observers.

	Longstreth.	Wagner.	Riggs.	Kendall.
First contact,	4 10 53	4 10 50.5	4 10 54.5	
Last contact,	6 33 33	6 33 48	6 33 47.5	6 33 58.8
	Frazer.	Paine's Calculation.	Beans, Norrilstown.	Jackson. Darby.
First contact,		4 10 31.8	4 10 02	4 10 07
Last contact,	6 33 59.3	6 34 06.9	6 33 11	6 33 11

The observatory of Mr. Longstreth at the Friends' School House in Cherry street, is in lat. $39^{\circ} 57' 16''$, long. $5h. 00m. 39s. W.$, being 400 feet east of the State House, and about 1800 feet north of it. Mr. Wagner's observatory is in the same latitude as the State House, $39^{\circ} 56' 59''$, and in longitude about 0.77 sec. west of the old High School observatory: thus making $7m. 32.86$ east of Washington.

Mr. Bean's observatory at Norristown is in lat. $40^{\circ} 07' N.$ and long. $7'.75$ east.

Mr. Jackson's observatory at the Sharon Female Seminary near Darby, is in latitude $39^{\circ} 54' 14'' N.$, longitude $5h. 1m. 6s.$ west from Greenwich.

The observations were made with a nine feet equatorial, by Merz and Mahler, of Munich; power used, 65.

The meteorological phenomena are submitted as recorded by the different observers; they are not comparable, for want of determination of the error of the instruments.

The results of Prof. Frazer alone are reduced—the height of the barometer to that of the standard of the Smithsonian Institution (Ernst 5); the thermometers to that of a standard thermometer made and compared at the Kew observatory, England.

Observations by Mr. Longstreth.

Height of barometer at $2h. 20m.$ = 30.01 in. therm. att. 76° Fah.

„ „ $7h.$ = 30.04 „ „ 73° „

Mason's hygrometer exposed to the sun.

	Dry Bulb.	Wet Bulb.	Thermometer in Shade.	
4h. 25m.	86° Fah.	63.5° Fah.	2h. 20m.	78° Fah.
4h. 45m.	83°	63°	5h. 30m.	70.5°
5h. 15m.	77°	61°	6h. 30m.	72°
5h. 30m.	75°	59.5°	7h.	69°
5h. 50m.	78°	62°		
6h. 30m.	80°	62.5°		

Observations by Messrs. Justice and Trego.

Thermometer in Sun.					
4h. 30m.	Therm.	84.5° Fah.	5h. 40m.	Therm.	74° Fah.
4h. 40m.		82°	5h. 50m.		78°
4h. 50m.		83°	6h.		78.5°
5h.		80°	6h. 15m.		80°
5h. 10m.		76.5°	6h. 30m.		79°
5h. 20m.		73°			

Observations by Professors Kendall and Frazer.

Barometer, an Aneroid, compared before and afterwards with standard barometer (Brunner, 122). Observations reduced to the Smithsonian standard barometer (Ernst. 5).

Thermometer in shade—a fine chemical thermometer made in Paris.

Thermometer in sun—a flat-bulb thermometer made at Berlin.

The observations are reduced by direct observation to the Kew standard thermometer, No. 104, belonging to the University.

h.	m.	Barometer.	Therm. in Shade.	Therm. in Sun.
2	48	29.91 *	76.2	83.5
4	13	29.91	77	82.1
4	30	29.91	76.1	79.4
4	42	29.91	76.1	79.4
4	50	29.91	76.1	78.9
4	53	29.91	75.65	78.4
5	02	29.91	75.2	76.3
5	14	29.9	73.7	73
5	24	29.91	73.7	73
5	33	29.91	71.9	71.75†
5	44	29.9	71	71.75
5	58	29.9	71.3	73
6	08	29.9	71.3	72.25
6	34	29.91	70.75	72

* The attached thermometer scarcely varying perceptibly.

† This was a minimum, the thermometer being watched continuously until 5.44, when it again began to rise.

The physical phenomena noted were generally of a negative character. The sun was entirely free from spots, and the atmosphere, although not perfectly clear, was cloudless, and allowed good definition of the limbs of the sun and moon. There was a strong wind from the N. W. blowing in gusts, but not enough to interfere materially with the observations. Towards the close of the eclipse, the nearness of the sun to the horizon, and the irregular refraction of the atmosphere, caused considerable undulation in the limbs, but not enough to interfere with close determination of egress. No distortion of the cusps of the sun was seen by any of the observers, though such phenomena were carefully looked for. Profs. Frazer and Kendall saw very distinctly the bright line of light bordering the limb of the moon, during the whole of the eclipse, and satisfied themselves by changing the screen glasses and otherwise varying the observations, that it was real, and not a mere effect of contrast. Prof. Frazer could get no evidence of polarization in the light from the cusps, and the border above spoken of was too narrow to allow the effect to be separated from that of the illuminated disc of the sun.

Mr. Justice formed the spectrum by a prism, and found the breadth of the violet part to be greatly increased during the progress of the eclipse, diminishing again as the eclipse passed off. The irregular prominences on the moon's limb were seen by most or all of the observers.

Mr. Beans, at Norristown, observed the position of the magnetic needle at intervals of half an hour, from 2 till 6½ o'clock, P. M., but saw no marked disturbance thereof during that time; at most not exceeding 2 or 3 minutes of a degree, which happened at 2½ and 3, P. M.

The Treasurer made a verbal report in relation to the leasing of the lower rooms of the Society's Hall.

On motion of Prof. Frazer, it was ordered that the Wisconsin Historical Society be furnished with a copy of the Transactions of this Society from the commencement of the New Series.

PROCEEDINGS
OF THE
AMERICAN PHILOSOPHICAL SOCIETY.

VOL. VI. JULY—DECEMBER, 1854. No. 52.

Stated Meeting, July 21.

Present, nine members.

Dr. FRANKLIN BACHE, President, in the Chair.

Mr. Constant Guillou, a recently elected member, was presented and took his seat.

A letter was read from the Connecticut Historical Society, dated Hartford, June 17, 1854, accompanying a donation for the library:—and one from the Academy of Natural Sciences, of Philadelphia, dated July 18, 1854, returning thanks for No. 51 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Smithsonian Contributions to Knowledge. Vol. VI. Washington, 1854. 4to.—*From the Smithsonian Institution.*

History of Ancient Woodbury, Connecticut, from the first Indian Deed in 1659, to 1854, including the present towns of Washington, Southbury, Bethlem, Roxbury, and a part of Oxford and Middlebury. By William Cothren. Waterbury, Conn. 1854. 8vo.—*From the Connecticut Historical Society.*

Minutes of the Supreme Executive Council of Pennsylvania, from its organization to the termination of the Revolution. Published by the State. Vol. XI. 1776 to 1779. Harrisburg, 1852. 8vo.—*From the State of Pennsylvania.*

Proceedings of the American Antiquarian Society, in Boston, April 26, 1854. Boston. 8vo.—*From the Society.*

Proceedings of the Boston Society of Natural History: No. 26. April, 1854. Boston. 8vo.—*From the Society.*

- First Annual Report on the Geological Survey of the State of Wisconsin. By Edward Daniels. Madison, Wis. 1854. 8vo.—*From the Wisconsin Historical Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXVIII. No. 1. July, 1854. Philadelphia. 8vo.—*From the Institute.*
- The African Repository: Vol. XXX. No. 7. July, 1854. Washington. 8vo.—*From the American Colonization Society.*
- Proceedings of the Royal Irish Academy. Vol. V. Dublin, 1853. 8vo.—*From the Academy.*
- American Journal of Science and Arts. Second Series. Vol. XVIII. No. 52. July, 1854. New Haven. 8vo.—*From Professors Silliman and Dana, Editors.*
- Minutes of the Philadelphia Society for the Promotion of Agriculture, from its institution in February, 1785, to March, 1810. Philadelphia, 1854. 8vo.—*From Dr. A. L. Elwyn.*
- American Journal of the Medical Sciences. No. LV. New Series. July, 1854. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XII. No. 139. July, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Report on the Geology of the Coast Mountains and part of the Sierra Nevada, embracing their Industrial Resources in Agriculture and Mining. By Dr. John B. Trask. 1854. 8vo.—*From the Author.*
- Illustrations of the Birds of California, Texas, Oregon, British and Russian America. By John Cassin. Nos. 4, 5. Philadelphia, 1853. 8vo.—*From the Author.*

The Society proceeded to the stated business of the meeting, the balloting for candidates for membership.

A new nomination was read.

Mr. Trego, reporter of the Society, laid on the table No. 51 of the *Proceedings*, recently published.

All other business having been concluded, the ballot boxes were opened, and the following named gentlemen were declared by the presiding officer to be duly elected members of the Society:

JAMES D. DANA, of New Haven.

WOLCOTT GIBBS, of New York.

JAMES HALL, of Albany.

Stated Meeting, August 18.

Present, eight members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From Prof. Wolcott Gibbs, dated New York, July 28, 1854, and from Prof. James D. Dana, dated New Haven, July 30, 1854, acknowledging the receipt of notice of their election as members of the Society:—

From the Royal Society of London, dated Somerset House, Feb. 24, 1854, returning thanks for Part 2, Vol. X. of the Transactions, and for No. 48 of the Proceedings of this Society:—

From the Connecticut Historical Society, dated Hartford, July 21, 1854;—from the Trustees of the State Library of New York, dated Albany, July 22, 1854;—from the New Jersey Historical Society, dated Newark, July 26, 1854;—from the American Antiquarian Society, dated Worcester, Mass., Aug. 8, 1854;—from the Historical Society of Pennsylvania, dated Philadelphia, August 9, 1854,—severally communicating thanks for No. 51 of the Society's Proceedings:—

From the Society of the Museum of Natural History of Strasburg, dated January 2, 1854;—from the Secretary of l'Ecole des Mines, dated Paris, Feb. 14, 1854;—from the Imperial Geological Institute at Vienna, dated March 19, 1854,—each announcing donations for the library of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Memoires de la Société du Muséum d'Histoire Naturelle de Strasbourg. Tomes I. II. III. IV. Strasbourg, 1833. 1853. 4to.—

From the Society.

Annales des Mines. V. Série. Tome IV. 5 livraison de 1853.

Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Public Documents of the United States, as follows:

Executive Documents, 2d Session of 32d Congress, 1852, '53, 11 vols.

Senate Documents, Special Session, 1853, 1 vol.

Do. do. 2d Session of 32d Congress, 1852, '53, 11 vols.

Do. Miscellaneous, ,, ,, ,, ,, 1 vol.

Senate Reports, ,, ,, ,, ,, 1 vol.

„ Journal, ,, ,, ,, ,, 1 vol.

House Journal, ,, ,, ,, ,, 1 vol.

„ Miscellaneous, ,, ,, ,, ,, 1 vol.

„ Reports, ,, ,, ,, ,, 1 vol.

„ List of Private Claims, 1st to 31st Congress, Vol I. A to Gn.

Maps of Andrews' Report, 2 copies.

Statistics of U. S. Seventh Census, 1850.—*From the Department of State, Washington.*

Proceedings of the Academy of Natural Sciences of Philadelphia.

Vol. VII. No. 3. Philadelphia, 1854. 8vo.—*From the Academy.*

The African Repository: Vol. XXX. No. 8. August, 1854. Washington. 8vo.—*From the American Colonization Society.*

Annual Report of the President of the Maryland Historical Society, and List of its Members. Baltimore, 1854. 8vo.—*From the Society.*

Catalogue of the Manuscripts, Maps, Medals, Coins, Statuary, Portraits and Pictures, and an Account of the Library of the Maryland Historical Society, made in 1854: by Lewis Mayer, Assistant Librarian. Baltimore. 8vo.—*From the same.*

Report of the Trustees of the Free Public Library of the City of New Bedford, for the year 1853-4. New Bedford. 8vo.—*From the Trustees.*

Journal of the Franklin Institute. Third Series. Vol. XXVIII.

No. 2. August, 1854. Philadelphia. 8vo.—*From the Institute.*

Philosophical Transactions of the Royal Society of London, for the year 1853. Vol. 143. Part 3. London, 1853. 4to. List of Fellows of the Royal Society.

Proceedings of the Royal Society. Vol. VI. No. 99-101. London. 8vo.

Address of the Right Hon. the Earl of Rosse, &c. &c., President of the Royal Society, at the Anniversary Meeting, November 30, 1853. 8vo.—*From the Society.*

On Signor Carlo Matteucci's Letter to H. Bence Jones, M. D., F. R. S., &c. By Emil Du Bois Reymond, Mem. Acad. Sci. Berlin and Vienna. London. 8vo.—*From the same.*

Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt.

1853. IV Jahrgang, No. 3. Jul. Aug. Sept. Wien. 4to.—
From the Imperial Royal Geological Institute, Vienna.

Report of the Hon. James Meacham, of the Special Committee of the Board of Regents of the Smithsonian Institution, on the Distribution of the Income of the Smithsonian Fund, &c. Washington, 1854. 8vo.—*From Hon. D. Stuart, M. C.*

Notes on the Gulf Stream: by A. D. Bache, Superintendent U. S. Coast Survey. (Revised to 1854.)—*From the Author.*

The Astronomical Journal. Vol. III. No. 24. Vol. IV. Nos. 1, 2. Cambridge. 4to.—*From Dr. B. A. Gould, Jr., Editor.*

The Medical News and Library. Vol. XII. No. 140. Aug. 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Plough, the Loom and the Anvil. Vol. VII. No. 1. July, 1854. New York. 8vo.—*From Myron Finch, Esq., Editor.*

Dr. Bache announced the decease of William M'Ilvaine, a member of the Society, who died on the 9th inst., aged 68:—

And, on motion, Mr. George Ord was requested to prepare an obituary notice of the deceased member.

Judge Kane, from the committee appointed some time since to provide better accommodations for the Society's library, made a verbal report in reference to that subject, and gave reasons for the apparent delay of the committee:—Whereupon, it was, on motion, resolved, That the committee have discretionary power to suspend action, as in their judgment shall be deemed expedient.

The Society of the Museum of Natural History, of Strasburg, was ordered to be placed on the list of corresponding Societies.

Stated Meeting, September 15.

Present, fourteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Mr. Benjamin Gerhard, a recently elected member, was introduced and took his seat.

Letters were read:—

From the Literary Society of Funen, dated Odense, 3d April, 1853, announcing a donation for the Society's library:—

From the Corporation of Harvard College, dated Cambridge, July 22, 1854, returning acknowledgment for No. 51 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Bulletin de la Société de Géographie. IV. Série. Tome VI. Paris, 1853. 8vo.—*From the Society.*

Aktstykker til Nordens Historie i Grevefeidens Tid. Af Danske og fremmede Archiver. Samlede og udgivne af Fyens Stifts Literære Selskab. I. Samling, 1, 2, 3 Hefte. Odense, 1850–52.—*From the Literary Society of Funen.*

Quarterly Journal of the Chemical Society. Vol. VII. No. 2. July, 1854. London. 8vo.—*From the Society.*

The African Repository. Vol. XXX. No. 9. Sept. 1854. Washington. 8vo.—*From the American Colonization Society.*

Prodrome de la Classification des Reptiles Ophiidiens. Par M. Dumeril. (Mem. Acad. Sci. Tome XXIII. Nov. 1852.) Paris. 4to.—*From the Author.*

The Florist and Horticultural Journal: a Monthly Magazine of Horticulture, Agriculture, Botany, Agricultural Chemistry, Entomology, &c. H. C. Hanson, Editor. Vol. III. Nos. 1, 2, 3, 4, 5. Philadelphia. 8vo.—*From the Editor.*

The Dispensatory of the United States of America. By George B. Wood, M. D., &c. &c., and Franklin Bache, M. D., &c. &c. Tenth Edition, carefully revised. Philadelphia, 1854. 8vo.—*From Dr. F. Bache.*

The Medical News and Library. Vol. XII. No. 141. Sept. 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Plough, the Loom and the Anvil. Vol. VII. No. 2. Aug. 1854. New York. 8vo.—*From the Editor.*

The Cape Verde and Hatteras Hurricane of Aug. and Sept. 1853, with a Hurricane Chart, and Notices of various Storms in the Atlantic and Pacific Oceans north of the Equator. By W. C. Redfield. (Am. Jour. Sci. and Arts, Vol. XVIII. 1854.) New Haven. 8vo.—*From the Author.*

American Journal of Science and Arts. Second Series. Vol. XVIII. No. 53. Sept. 1854. New Haven. 8vo.—*From Professors Silliman & Dana, Editors.*

Dr. F. Bache announced the decease of Dr. Robert M. Patterson, formerly President of this Society, who died on the 5th instant, in the 68th year of his age :

Whereupon, on motion, Judge Kane was requested to prepare an obituary notice of the deceased, with a view to its publication as a preface to the Transactions of the Society.

Dr. Boyé exhibited, for the inspection of the members, a stereoscopic daguerreotype of a family group, taken by Mr. Mayall, of London, which he considers as indicating great perfection in this art, particularly in the colouring.

Dr. Duglison laid before the Society some specimens of printing, recently brought by him from Vienna, executed in the "K. K. Hof und Staatsdruckerei," in that city. They consist of copies from impressions in lead of laces, leaves, mosses, &c., presenting an exact resemblance of the original ;— an improvement in art which promises to be useful in imitating botanical and other specimens, as well as in preparing copies for the use of the blind, of various subjects which they may admirably study by the touch of copies prepared in this manner.

Judge Kane mentioned that he had lately received a communication from England, containing information from which it appears unlikely that the American Exploring Expedition, under the command of Dr. Kane, will be able to return to this country as soon as was originally expected. The severity of the season and the closeness of the ice succeeding the open season of 1853, will, it is considered probable, detain them in the Arctic regions for another year.

Stated Meeting, October 6.

Present, twenty members.

Dr. FRANKLIN BACHE, President, in the Chair.

Letters were read:—

From the Secretary of l'École des Mines, dated Paris, 13th May, 1854, accompanying a donation for the library:—

From the Lyceum of Natural History, dated New York, September 15, 1854, acknowledging the receipt of No. 51 of the Proceedings of this Society:—

From Dr. W. S. W. Ruschenberger, dated Philadelphia, September 29, 1854, accompanying a lithographic portrait of the late Dr. Robert M. Bird, presented to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Denkschrift über die Orientalische Pest in sanitätspolizeilicher Beziehung; nebst einer Beilage über den Typhus ikterodes, das sogenannte gelbe Fieber: von Dr. Johann Baptist von Weissbrod, &c. &c. München, 1853. 4to.—*From the Author.*

Denkschrift über die Asiatische Cholera, in sanitätspolizeilicher Beziehung; nebst einer Anhang aphoristischer Bemerkungen über die Epidemie vom Jahre 1836 in München: von Dr. J. B. von Weissbrod, &c. &c. München, 1852. 4to.—*From the same.*

Einige methodologische Worte über Theorie und Praktik der Geburtshilfe, gesprochen von Dr. von Weissbrod, Professor, &c. München, 1853. 8vo.—*From the same.*

Leucocythemia, or White Cell Blood, in relation to the Physiology and Pathology of the Lymphatic Glandular System. By John Hughes Bennett, M. D., F. R. S. E., &c. &c. Edinburgh, 1852. 8vo.—*From the Author.*

Annales des Mines. V. Serie. Tome IV. 6 livraison de 1853. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Proceedings of the Boston Society of Natural History. July, 1854. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences, of Philadelphia. Vol. VII. No. 4. Philadelphia, 1854. 8vo.—*From the Academy.*

Report of the Commissioner of Patents, for the year 1853. Part I. Arts and Manufactures. Washington, 1854. 8vo.—*From the Commissioner of Patents.*

American Journal of the Medical Sciences. No. LVI. New Series. October, 1854. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*

The Medical News and Library. Vol. XII. No. 142. Oct. 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

Astronomical Journal. Vol. IV. No. 3. Sept. 19, 1854. Cambridge. 4to.—*From Dr. B. A. Gould, Jr., Editor.*

The Plough, the Loom and the Anvil. Vol. VII. No. 3. Sept. 1854.
New York. 8vo.—*From the Editor.*

Lithographic Portrait of the late Dr. R. M. Bird.—*From Dr. Ruschenberger.*

Several members appointed at former meetings to prepare obituary notices were discharged from the duty assigned them.

Mr. Justice mentioned a singular instance of deprivation of the senses of taste and smell, resulting from an accidental injury to the head.

About nine months since, a person of his acquaintance was thrown from his carriage while riding. In his fall, his head first came in contact with the ground, producing a concussion of the brain. The injury appeared to have been received behind, but above the ear. He was laid on his bed in a state of total insensibility, and so remained for nearly a month, about which time he revived, and to his surprise found that he had entirely lost both the senses of taste and smell. In this situation he still remains, and it is now equally indifferent to him what he partakes of as food, so far as regards all taste;—Cayenne pepper or saw-dust, as he expressed it, being alike tasteless. But, as a compensation for this loss, he enjoys a constant sensation of a most delightful character, which he can only compare to the most delicious cordial flowing through his mouth. This continues night and day, and is particularly perceptible when his lips are apart and he inhales the air through his mouth. The only intermission to this pleasurable sensation is while he is partaking of his food.

Judge Kane introduced Mr. Weld, Assistant Secretary of the Royal Society of London.

Mr. Justice offered his resignation as a member of the Committee on the Hall, which was, on motion, accepted.

Stated Meeting, October 20.

Present, seventeen members.

JUDGE KANE, Vice-President, in the Chair.

Letters were read:—

From the Batavian Society of Arts and Sciences, dated

Batavia, 30th October, 1852, announcing a donation for the library:—

From the Royal Belgian Academy of Sciences, dated Brussels, 12th October, 1853, acknowledging the receipt of Part 2, Vol. X. of the Transactions, and No. 48 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel XXIV. Batavia, 1852. 4to.—*From the Batavian Society of Arts and Sciences.*

Bibliothecæ Societatis Artium Scientiarumque quæ Bataviæ floret:—
Catalogus systematicus. Curante P. Bleeker, Anno 1846. Editio altera, curante J. Munnich. Batavia, 1853. 8vo.—*From the same.*

Flora Batava, of Afbeelding en Beschrijving van Nederlandsche Gewassen. Aflevering 147–151, 159, 175. Amsterdam. 4to.—*From the Government of Holland.*

Mémoires de l'Académie Royale des Sciences, des Lettres et des Beaux Arts de Belgique. Tome XXVII. Bruxelles, 1853. 4to.—*From the Academy.*

Bulletins de l'Académie Royale de Belgique. Tome XIX. Partie 3. Tome XX. Parties 1, 2, 3. Tome XXI. Partie 1: et Annexe aux Bulletins, 1853, 1854. Bruxelles. 8vo.—*From the same.*

Mémoires Couronnés et Mémoires des Savants Etrangers, publiés par l'Académie Royale des Sciences, &c., de Belgique. Tome XXV. 1851–1853. Bruxelles. 4to.

Idem: Collection in 8vo. Tomes V. VI. Bruxelles, 1853.—*From the same.*

Annuaire de l'Académie Royale de Belgique, 1853, 1854. Années XIX. XX. Bruxelles. 8vo.—*From the same.*

Annales de l'Observatoire Royal de Bruxelles, par A. Quetelet, Directeur. Tome X. Bruxelles, 1854. 4to.—*From M. Quetelet.*

Annuaire de l'Observatoire Royal de Bruxelles, par A. Quetelet, Directeur. 1854. XXI. Année. Bruxelles. 8vo.—*From the same.*

Almanach Seculaire de l'Observatoire Royal de Bruxelles, par le Directeur A. Quetelet. Bruxelles. 8vo.—*From the same.*

Observations des Phénomènes Périodiques. Bruxelles. 4to.

Rapport adressé à M. le Ministre de l'Intérieur, sur l'état et les travaux de l'Observatoire Royal, pendant l'année 1853, par le Directeur A. Quetelet.

Sur la déclinaison, l'inclinaison et la force de l'aiguille magnétique à Bruxelles, et sur les variations de ces trois élémens depuis quelques années:—

Sur les Aurores Boréales, et sur l'inclinaison magnétique à Bruxelles:—

Sur l'Electricité des nuages orageux:—Par A. Quetelet. Bruxelles. 8vo.—*From the same.*

Méthode pour déterminer simultanément la latitude, la longitude, l'heure et l'azimut, par des passages observés dans deux verticaux: par J. C. Houzeau, Ancien aide à l'observatoire de Bruxelles. (Mem. Cour. tome XXV.)—*From the Author.*

On the Constants of Nature. Class Mammalia: by Ch. Babbage. Bruxelles. 4to.—*From the Royal Belgian Academy.*

Report of the Special Committee of the Board of Regents of the Smithsonian Institution, on the Distribution of the Income of the Smithsonian Fund, &c. Washington, 1854. 8vo.—*From the Smithsonian Institution.*

Journal of the Franklin Institute. Third Series. Vol. XXVIII. No. 4. October, 1854. Philadelphia. 8vo.—*From the Institute.*

African Repository. Vol. XXX. No. 10. October, 1854. Washington. 8vo.—*From the American Colonization Society.*

Report of the Superintendent of the United States Coast Survey, showing the progress of the Survey during the year 1852. Washington, 1853. 8vo.—*From A. D. Bache, Superintendent U. S. Coast Survey.*

The Elements of Intellectual Philosophy; by Francis Wayland, President of Brown University, &c., &c. Boston, 1854. 8vo.—*From the Author.*

Die Galvanische Kette, mathematisch bearbeitet, von Dr. G. S. Ohm. Berlin, 1827. 8vo.—*From Prof. J. F. Frazer.*

The Scientific Stair Builder: by Robert Riddell. Illustrated with forty plates.—*From the Author.*

Mathematics Simplified and made Attractive; or the Laws of Motion Explained: by Thomas Fisher. (Revised copy.) Philadelphia, 1854. 8vo.—*From the Author.*

Astronomical Journal. Vol. IV. No. 4. October 7, 1854. Cambridge. 4to.—*From B. A. Gould, Jr., Editor.*

The Plough, the Loom and the Anvil. Vol. VII. No. 4. October, 1854.—*From the Editor.*

The Society proceeded to the stated business of the meeting, the balloting for candidates for membership.

All other business being concluded, the ballot box was examined by the presiding officer, and WILLIAM PARKER FOULKE, of Philadelphia, was declared to be duly elected a member of the Society.

Stated Meeting, November 13.

Present, sixteen members.

Dr. FRANKLIN BACHE, President, in the Chair.

William Parker Foulke, a recently elected member, was introduced and took his seat.

Letters were read:—

From C. A. Dohrn, dated Stettin, 6th October, 1854, acknowledging the receipt of notice of his election as a member of the Society:—

From the Holland Society of Sciences, dated Haarlem, July, 1854, announcing a donation for the library, and returning thanks for Part 2, Vol. X. of the Transactions of this Society:—

From the Society of Antiquaries, dated Somerset House, London, 26th June, 1854, and from the Cambridge Philosophical Society, dated Cambridge, February, 1854,—both announcing donations for the library:—

From the Association for the Promotion of Horticulture in Prussia, dated Berlin, 25th September, 1854, announcing a donation for the library, and proposing an exchange of publications with this Society:—

From a Committee of the New York Historical Society, dated September 12, 1854, inviting attendance, on the part of this Society, at the celebration of their semi-centennial anniversary on the 20th November, 1854:—

From Lieut. M. F. Maury, dated National Observatory, Washington, Oct. 21, 1854, announcing the discovery there of a new asteroid, by Mr. James Ferguson, Assistant Astronomer,

at 11 P. M., on the 2d of September last. The name *Euphrosyne* has been given to this asteroid by its discoverer. Its approximate ephemeris with the last observations accompany the letter.

The following donations were announced:—

FOR THE LIBRARY.

- Proceedings of the Royal Society of London. Vol. VII. Nos. 1, 2. London, 1854. 8vo.—*From the Society.*
- Proceedings of the Society of Antiquaries of London. Vol. III. Nos. 37–40; with List of Members, April 23, 1854. London. 8vo.—*From the Society.*
- Archæologia; or Miscellaneous Tracts Relating to Antiquity: published by the Society of Antiquaries of London. Vol. XXXV. Part 2. London, 1854. 4to.—*From the Society.*
- Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. XVI. Part 1. London, 1854. 8vo.—*From the Society.*
- A Descriptive Catalogue of the Historical Manuscripts in the Arabic and Persian Languages, preserved in the Library of the Asiatic Society: by W. H. Morley, M. R. A. S. London, 1854. 8vo.—*From the same.*
- Essay on the Architecture of the Hindús: by Rám Ráz, native Judge and Magistrate at Bangalore, cor. mem. Asiatic Society. With 48 plates. London, 1834. 4to.—*From the same.*
- Transactions of the Cambridge Philosophical Society. Vol. IX. Part 3. Cambridge, 1853. 4to.—*From the Society.*
- Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. Tweede Verzameling. Tiende Deel. Haarlem, 1854. 4to.—*From the Holland Society of Sciences.*
- The American Journal of Science and Arts. Second Series. Vol. XVIII. No. 54. November, 1854. New Haven. 8vo.—*From Professors Silliman & Dana, Editors.*
- Catalogue of my English Library: collected and described by Henry Stevens, Literary Agent in London, of the Smithsonian Institution. London, 1853. 8vo.—*From the Author.*
- On the Construction, Organization and General Arrangements of Hospitals for the Insane: by Thomas S. Kirkbride, M. D., Phys. Penn. Hosp. Insane. Philadelphia, 1854. 8vo.—*From the Author.*

On the Blind, and Institutions for the Blind in Europe. A Letter to the President of the Board of Managers of the Pennsylvania Institution for the Blind: by Robley Dunglison, M. D., Chairman of the Committee of Instruction. Philadelphia, 1854. 8vo.—*From the Author.*

The Florist and Horticultural Journal. Vol. III. Nos. 6–9. Philadelphia, 1854. 8vo.—*From H. C. Hanson, Editor.*

Dr. Charles D. Meigs, pursuant to appointment at a former meeting, read an obituary notice of the late Dr. Daniel Drake, of Cincinnati, a deceased member of the Society.

Prof. Frazer announced the decease of Professor Henry Reed, a member of this Society, aged 46, who perished by the loss of the steamer Arctic, on the 27th September last, on his return to this country from a visit to Europe. Prof. Frazer, in connection with this announcement, spoke of the estimable character and of the eminent literary and professorial merits of the deceased.

On motion of Dr. Harris, Prof. Frazer was requested to prepare an obituary notice of Professor Reed.

Mr. Franklin Peale announced the death of Jacob G. Morris, a member of this Society, aged 54, who was among the passengers lost with the Arctic steamer on the 27th September last.

On motion of Prof. Frazer, Dr. Caspar Morris was appointed to prepare an obituary notice of Mr. Morris.

On motion of Dr. Dunglison, Prof. Budge, of Bonn, the editor of “*Verhandlungen des Naturhistorischen Vereins der Preussischen Rheinland und Westphalens,*” was directed to be entered on the list of correspondents.

Mr. Trego was appointed a member of the Committee on the Hall of the Society, in the place of Mr. Justice, resigned.

The librarian was authorized to lend to Prof. Alexander, of Baltimore, a vocabulary or spelling-book of the Delaware Indian language, by the Rev. Dr. Zeisberger.

On motion of Prof. Frazer, the invitation from the New York Historical Society to attend the celebration of their semi-centennial anniversary was accepted, and the President was appointed to represent this Society in person, or by the nomination of a representative.

Stated Meeting, November 17.

Present, eight members.

Dr. DUNGLISON, Vice-President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society. Vol. XIV.

No. 9. Supplemental. London. 8vo.—*From the Society.*

Report on the Iron and Coal of Pennsylvania: by Dr. C. M. Wetherill. 4to.

Description of an Apparatus for Organic Analysis by Illuminating Gas;—and on the use of Gas in Experimental Laboratories: by Dr. C. M. Wetherill. Philadelphia, 1854. 8vo.

Examination of the Gas of the Philadelphia Gas Works.—Description of an Apparatus for Broiling by Gas-heat: by Dr. C. M. Wetherill. Philadelphia. 8vo.—*From the Author.*

Recollections of Europe in 1854: Professor Robley Dunglison's Introductory Lecture, delivered in the Jefferson Medical College, October 9, 1854. Philadelphia. 8vo.—*From the Author.*

The Medical News and Library. Vol. XII. No. 143. November, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

Astronomical Journal. Vol. IV. No. 5. Nov. 10, 1854. Cambridge. 4to.—*From the Editor.*

The African Repository. Vol. XXX. No. 11. November, 1854. Washington. 8vo.—*From the American Colonization Society.*

Prof. Kendall asked to be excused from the task of preparing a notice of the scientific labours of the astronomers Bessel and Schumacher, to which he was some time since appointed;—and, on motion of Prof. Frazer, he was excused.

Judge Kane called the attention of the Society to the intended course and probably present condition of the American Exploring Expedition to the Arctic regions. The failure of the expedition to return at the expected time has excited anxiety with regard to their safety, and renders it desirable that some effort should be made to trace their steps and acquire intelligence concerning their welfare.

Dr. Franklin Bache, President of the Society, reported that being unable to attend the celebration of the semi-centennial anniversary of the New York Historical Society, to be held on the 20th instant, he had appointed Judge Kane, one of the Vice-Presidents, as a representative.

On motion of Prof. Frazer, a committee consisting of Prof. Frazer, Judge Kane and Mr. Trego, was appointed to prepare and submit to the Society a memorial to Congress, requesting that an expedition may be sent to the Arctic seas with a view of obtaining intelligence concerning the American exploring party now in that portion of the globe. The committee is also authorized to correspond with other Societies in relation to the subject.

Stated Meeting, December 1.

Present, twenty members.

Dr. FRANKLIN BACHE, President, in the Chair.

Letters were read:—

From the Imperial Academy of Sciences at Vienna, dated 28th October, 1853;—from the Royal Danish Society of Sciences, dated Copenhagen, 27th April, 1854;—from the Royal Society of Sciences at Göttingen, dated 2d July, 1854,—acknowledging the reception of Transactions and Proceedings of this Society:—

From the Imperial Academy at Vienna, dated April 3, and July 18, 1854;—from the Natural History Association of Rhenish Prussia and Westphalia, dated Bonn, 25th August, 1854;—from the Royal Danish Society of Sciences, dated Copenhagen, 27th March, 1854,—severally announcing the transmission of donations for the library:—

From the Royal Bavarian Academy of Sciences, dated Munich, 30th July, 1854, accompanying a donation, and requesting to be supplied with some missing numbers of the Society's Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Phil. Hist. Classe, Band XI. 4, 5 Heft. Band XII. 1–4 Heft, und Register zu den ersten X. Bänden. Math. Nat. Classe, Band XI. 5 Heft. Band XII. 1–4 Heft.

Tafeln zu dem Vortrage der Polygraphische Apparat der K. K. Hof- und Staatsdruckerei zu Wien: von dem wirklichen Mitgliede Alois Auer, Director der genannten Anstalt. Wien, 1853–4. 8vo.—*From the Imperial Academy of Sciences, Vienna.*

Jahrbuch der Kaiserlich—Königlichen Geologischen Reichsanstalt. IV. Jahrgang, 1853, No. 4. V. Jahrgang, 1854, No. 1. Wien. 8vo.—*From the Imperial Geological Institute.*

Gelehrte Anzeigen, herausgegeben von Mitgliedern der K. Bayerischen Akademie der Wissenschaften. Band XXXVIII. Jan. Juni, 1854. München. 4to.—*From the Royal Bavarian Academy of Sciences.*

Ueber das Klima von München: Festrede von Prof. Karl Kuhn, 1854. 4to.

Annalen der Königlichen Sternwarte bei München: von Dr. J. Lamont. VI. Band. 8vo.

Magnetische Ortsbestimmungen an verschiedenen Puncten des Königreichs Bayern, und an einigen auswärtigen Stationen: von Dr. J. Lamont. I. Theil.—*From the same.*

Verhandlungen des Vereins zur Beförderung des Gartenbaues in den Königlich Preussischen Staaten. Neue Reihe. Erster Jahrgang, 1853. Berlin. 8vo.—*From the Association for the Promotion of Horticulture in Prussia.*

Verhandlungen des Naturhistorischen Vereines der Preussischen Rheinlande und Westphalens. Jahrgang IX. X. XI. 1852–54. Herausgegeben von Prof. Dr. Budge, Secretair des Vereins. Bonn. 8vo.—*From the Natural History Association of Rhenish Prussia and Westphalia.*

Nachrichten von der Georg-Augusts-Universität und der Königl. Gesellschaft zu Göttingen. Vom Jahre 1853. No. 1–17. Göttingen. 8vo.—*From the Royal Society of Sciences at Göttingen.*

Auffindung von Quecksilber in den Lüneburgischen Diluvial Formation: von J. Fr. L. Hausmann. Göttingen. 8vo.—*From the Author.*

- Oversigt over det Kgl. Danske Videnskabernes Selskabs Forhandlinger og dets Medlemmers Arbejder i Aaret 1853. Kiøbenhavn. 8vo.—*From the Royal Danish Society of Sciences.*
- Reclamation contre “la generation alternante et la digenèse,”—communication faite à l’Académie de Bruxelles, par le Prof. P. J. von Beneden. Par J. J. Sm. Steenstrup, Prof. Zool. Univ. Copenhague. Copenhague, 1854. 8vo.—*From the Author.*
- Theorie der Sonnenfinsternisse, der Durchgänge der unteren Planeten vor der Sonne und der Sternbedeckungen für einen gegebenen Ort der Erde: von Dr. J. A. Grunert. Wien, 1854. 8vo.—*From the Author.*
- Archives de Physiologie de Therapeutique et de Hygiène: sous la direction de M. Bouchardat, Prof. de Hygiene, &c. No. 1. Jan. 1854. Mémoire sur la Digitaline et la Digitale: par E. Homolle et T. A. Quevenne. Paris. 8vo.—*Donor unknown.*
- Regulations of the Royal Observatory, Greenwich:—and Report of the Astronomer Royal to the Board of Visitors, June 3, 1854. London. 4to.—*From the Observatory.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VIII. No. 5. Philadelphia, 1854. 8vo.—*From the Academy.*
- An Address in Commemoration of Sears Cook Walker, delivered before the American Association for the Advancement of Science, April 29, 1854, by B. A. Gould, Jr. Cambridge. 8vo.—*From the Author.*
- Official Army Register for 1854: published by order of the Secretary of War, January 1, 1854. Washington. 8vo.—*From Major Hartman Bache.*
- The Plough, the Loom and the Anvil. Vol. VIII. No. 5. Nov. 1854. New York. 8vo.—*From the Editor.*
- Journal of the Franklin Institute. Third Series. Vol. XXVIII. No. 5. Nov. 1854. Philadelphia. 1854.—*From the Institute.*

Judge Kane, pursuant to appointment at a former meeting, read an obituary notice of the late Dr. Robert M. Patterson.

Dr. Robert Maskell Patterson, was born in the City of Philadelphia on the 23d of March, 1787. His father was Doctor Robert Patterson, at that time professor of mathematics in the University of Pennsylvania, and afterwards distinguished as the director of the United States’ Mint, and as President of this Society. His mother was of the Ewing

family of New Jersey, a lady of admirable intelligence and great benignity of character.

Dr. Patterson was an inmate of the University almost from his cradle. He received his first lessons in its preparatory school; and passing upwards through the several collegiate courses he graduated as a bachelor of arts in 1804, and as a doctor of medicine a few years later.

From the University he went to Paris, and pursued his professional studies for a while in its celebrated hospitals. But the French capital was then, as it has been since, the favoured hemisphere of the more liberal as well as the more exact sciences; Haüy, Vauquelin, Legendre, Poisson, were in the zenith. Under their guidance, and sharing their friendship, Dr. Patterson found himself attracted irresistibly to the pursuit of natural philosophy, chemistry, and the higher mathematics; and these became from that time the study and occupation of his life. After spending nearly three years in France, he crossed the channel in 1811, and completed his education as a chemist, under the instructions of Sir Humphry Davy at London. He returned to the United States in the following year.

His reputation had preceded him. In a few months after his arrival in Philadelphia, he found himself professor of natural philosophy in the medical department of the University of Pennsylvania, and professor of the same branch with chemistry and mathematics in the faculty of arts; and to these, in the spring of 1814, was added the dignity of Vice Provost.

He retained these several positions till the year 1828, when he was persuaded to transfer his usefulness and fame to the University of Virginia,—that noble institution, the latest representative of the great mind that founded it.* No selection of a professor was ever more fruitful of benefits to a University, or growth of honour to its inmate. Mr. Madison, and the other distinguished men who were associated with him in the Board of Visitors, gave Dr. Patterson their unreserved confidence, and cherished with him the most intimate relations of personal regard.

But his affections looked back upon his native city; and in 1835 he accepted the appointment of Director of the United States' Mint, which once more brought him among us. From this period, until

* "Here lies buried Thomas Jefferson, author of the Declaration of American Independence, and of the statute of Virginia for religious freedom, and father of the University of Virginia."—*Mr. Jefferson's own inscription for his tomb. Tucker's Life, 2d Vol. p. 497.*

his declining health admonished him, some three years ago, to seek relief from the toils of office, he continued to fill that eminent station,—eminent, as the appropriate, and long the appropriated reward of scientific labours.*

Dr. Patterson was elected a member of the American Philosophical Society in 1809, when he had just attained the age of twenty-two,—the youngest man ever admitted among us. In 1813, he became one of the Secretaries: in 1825, a Vice-President; and in 1849, he succeeded Dr. Chapman as President. He died on the 5th of September, 1854.

Dr. Patterson's character was altogether equable and simple; and on that account, it is a difficult one to delineate: its features were too graceful and harmonious to admit of any exaggeration.

His talents were of the highest order, and they had been cultivated with much assiduity, and under the best auspices. His affections were diffusive, but discriminating and ardent. His energies, so far as they did not regard either his own advancement or his fame, were active and fearless. Yet they were tempered perhaps by a too modest estimate of his power: for he was modest to a fault; and his friends had reason to complain more than once, that he yielded precedence when he should have claimed it.

His mind was beautifully moulded of congenial elements. I have never known a man of more prompt or truer perceptions. And then, his ideas seemed to combine themselves without effort in the clearest and most beautiful analysis of the topic under argumentation. He never spoke, for he never thought, without disciplined though rapidly ordered method. Still, he was rarely impulsive. He was best contented when he could gather his thoughts in council around him; for he had in a wonderful degree that excellent talent, the power of concentrating his whole mind upon a single point.

Among the men of his circle, in conversation or at the desk, his powers of language were unequalled. He was perspicuous, exact, elegant. He repeated nothing in a different phrase, for his first was the best. He would explain a theory, or describe a process, or balance an argument; and all would understand and acquiesce.

He was of course an instructor of the highest grade. His lectures were models. They traced for you the ripple-marks of by-gone theories; but he belonged himself to the era of progress, and

* The elder Dr. Patterson held it for nearly 20 years; David Rittenhouse had held it before him: and the corresponding office has been filled in England by Newton and Sir John Herschel.

he taught the science of the day in all its freshness. It was thorough teaching too, addressed to the mind as well as the eye. His experiments were refined and certain,—not too numerous, and without any thing of the showman's display;—one, always the most interesting and conclusive; two, perhaps, if there had been in former years, and might still linger, some controversy about the hypothesis;—and he passed on, without renewing his argument. He had the faculty, so rare and so desirable, of feeling whether he was understood,—to speak more truly, of feeling *that he was so*.

Dr. Duglison, who was for many years his associate in the University of Virginia, writes to me: “As a lecturer on science, Dr. Patterson was one of the most successful I have ever heard. Clear and eloquent, without being gaudy or ostentatious,—simple, as every lecturer on science ought to be,—with his various experiments always well arranged beforehand, and certain to effect the elucidation he proposed,—he led his hearers on from the elementary to the abstruse with progressively increasing interest.”

He did not write a great deal, and has wronged his memory by not publishing what he wrote. Here and there, an essay or a report or a lecture or a review,—sometimes, as when we called upon him at our centenary celebration, an avowed and formal discourse;—and for the rest, Dr. Patterson was labouring throughout his life to advance the researches or to register the success of some more ambitious votary of science. One of his pupils,* himself among the most felicitous instructors of our period, tells me that from Dr. Patterson he received his best and most effective lessons in the art of teaching. Whatever was the branch, he says, or the immediate topic, I found him thoroughly *read up*, his thoughts marshalled and lucid, his opinions formed, and his disposition frank and even anxious to make all his knowledge available to the objects I had in view.

In the different organizations, that make up for Philadelphia her proudest characteristic, Dr. Patterson was always a leading man. Our own Society, the Academy of Natural Science, the Franklin Institute, the Institution for the Blind, the Musical Fund Society, the several corporations of the church he belonged to,—in all of these, his death has left a melancholy vacancy.

In the recesses of social intercourse,—in those quiet, joyous, instructive meetings, the little group of FIVE, which it was my privilege to share with Bethune and Dallas Bache and Duglison,—I can-

* Professor Frazer.

not speak of Patterson as we knew him there, the gladsome, appreciative, cordial man, whom all of us loved. But we were not alone in this. I never heard him, says Doctor Bethune, speak one harsh word of a fellow-being: and I may venture to add, I never heard one fellow-being speak a harsh word against him. He was indeed full of charity. He had seen a good deal of the world, and moved freely in its circles of thought and action, and was not perhaps without some experience of its ingratitude;—Who can hope to be?—Yet it would have tasked him to remember an injury, and he was as sensitive to kindness as a child.

I have said nothing of his official life. It was full of large responsibilities, admirably sustained. He went into it, not without some reluctance, for it was alien to many of his habits,—yet with pride, because it invited him to deepen the footprints of his father. He resigned it, after passing unscathed through the purgatory of several political conflicts, and their alternating denunciations of triumph, with the honest regrets of every ingenuous and gallant adversary.

In conclusion, let it be permitted me to say, that though I knew Dr. Patterson better than I knew any man else, and better probably than any body else can have known him, I ought not to have ventured upon the office of preparing this sketch. He was too closely my friend: I loved him too much: his death has made too painful a severance of the ties that bound me to the world of men. I have felt in every line I have traced, that I had to guard against the promptings of my heart. No one that knew him at all will think that I have praised him.

“His saltem accumulem donis, et fungar inani
Munere.”

Mr. Fraley announced the decease of Mr. Thomas P. Cope, a member of this Society, who died on the 22d of last month, in the 87th year of his age:—And, on motion of Mr. Fraley, Job R. Tyson, Esq., was requested to prepare an obituary notice of Mr. Cope.

The Treasurer read his annual report, which was referred to the Committee of Finance.

The Committee of Publication made their annual report.

The Committee appointed at last meeting on the subject of the American Arctic Expedition, presented a draft of a memorial to Congress on that subject, which, on motion, was adopted

by the Society, and ordered to be signed by the proper officers and transmitted to Congress.

Stated Meeting, December 15.

Present, twenty-one members.

Dr. FRANKLIN BACHE, President, in the Chair.

Letters were read:—

From the Royal Academy of Sciences at Amsterdam, dated 7th September, 1854,—and from the Royal Academy of Sciences at Berlin, dated 9th September, 1854,—on transmitting donations for the library:—

From the Horticultural Society of London, dated Regent street, November 7, 1854;—from the Royal Academy of Sciences at Berlin, dated 9th September, 1854;—from the Librarian of the Royal Library at Berlin, dated 14th November, 1854,—returning thanks for donations from this Society:—

From W. Vrolik, Secretary of the Royal Academy of Sciences at Amsterdam, dated 7th September, 1854, requesting to be furnished with the volumes of the Old Series of the Society's Transactions:—

From W. H. de Vriese to Dr. Dunglison, dated Leyden, 13th October, 1854, proposing to send to the Society various works, of which he is the author.

The following donations were announced:—

FOR THE LIBRARY.

Bulletin de la Société de Géographie. IV Série. Tome VII. Paris. 1854. 8vo.—*From the Society.*

Annales des Mines. V. Série. Tome V. Livraisons 1, 2 de 1854. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Verhandelingen der Koninklijke Akademie van Wetenschappen. Eerste Deel. 4to.

Verslagen en Mededeelingen der Akademie van Wetenschappen. Eerste Deel. 1, 2, 3 Stuk; Tweede Deel, 1, 2 Stuk. Amster-

dam. 1853—4. 8vo.—*From the Royal Academy of Sciences, Amsterdam.*

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin, aus dem Jahre 1853. Berlin. 4to.

Monatsbericht der Königl. Preuss. Akademie der Wissenschaften zu Berlin. August—December, 1853. January—July, 1854. Berlin, 1854.—*From the Royal Academy of Sciences at Berlin.*

Quarterly Journal of the Chemical Society. Vol. VII. No. 3. Oct. 1854. London. 8vo.—*From the Society.*

The Medical News and Library. Vol. XII. No. 144. December, 1854. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Florist and Horticultural Journal. Vol. III. Nos. 10, 11. Philadelphia, 1854.—*From H. C. Hanson, Editor.*

The Astronomical Journal. Vol. VI. No. 6. December 5, 1854. Cambridge. 4to.—*From Dr. B. A. Gould, Jr., Editor.*

The African Repository. Vol. XXX. No. 12. December, 1854. Washington. 8vo.—*From the American Colonization Society.*

The Plough, the Loom and the Anvil. Vol. VII. No. 6. December, 1854. New York. 8vo.—*From Myron Finch, Editor.*

Mr. Fraley announced the decease of William H. Dillingham, a member of this Society, who died on the 11th instant, in the 65th year of his age:—

And, on motion of Mr. Fraley, Dr. William Darlington, of West Chester, was requested to prepare an obituary notice of Mr. Dillingham.

The Committee of Finance reported that they had examined the accounts of the Treasurer for the fiscal year ending on the first of the present month, and found them to be correct.

The Committee recommended the following appropriations for the several purposes named;—which appropriations were ordered by the Society:—

For Publications,	\$100
„ Journals,	50
„ Hall,	500
„ Binding,	50
„ General Account,	1,200
	\$2,200

The President delivered his Annual Address on the pro-

gress, condition and general affairs of the Society,—with suggestions relative to the measures which, in his opinion, will conduce to the future improvement and efficiency of its scientific and business operations.

He remarked that since the delivery of his discourse in December last, the Society has pursued its usual quiet and useful career. The number of members on the first of January, 1854, was 362, of whom 261 are resident in the United States, and 101 in foreign countries. Since that time 21 resident and 7 foreign members have been elected, and in the same time the decease of 10 resident and 2 foreign members has been announced. According to a classification made by him of the resident members, as supposed to prefer the cultivation of science and the arts, literature, or natural history,—it appears that we have 158 scientific men and artists, 83 literary men, and 20 naturalists. He mentioned, as a source of regret, that our members of the literary class, comprising, for the most part, gentlemen of the legal and clerical professions, have seldom favoured us with any communications, as if they considered the object of the Society to be exclusively the cultivation of science.

The foreign members reported as deceased during the year, are Gotthelf Fischer von Waldheim, of Moscow, and Sir James Wylie, of St. Petersburg. Both these gentlemen were visited by the President during his tour in Europe, in the summer of 1853, and he bore testimony as to the cordiality with which he was received by them as a representative of the Society;—briefly commenting on the life and character of each.

He then proceeded to notice the resident members who have died within the year, and alluded particularly to Dr. Robert M. Patterson, late President of the Society, and also to the melancholy disaster which befel the steamer Arctic, in September last, by which the Society was deprived of two of its members, Mr. Jacob G. Morris and Prof. Henry Reed. He suggested that the consideration whether any means can be devised to prevent the increasing liability to danger from collisions at sea, might appropriately engage the attention of this Society, expressly established for the promotion of useful knowledge.

After some remarks in relation to the obituary notices of deceased members, he spoke of the improvement of the Society's library, and of the necessity for more extended accommodations for so numerous and valuable a collection of books and documents;—referring also

to the arrangement of the Franklin manuscript papers, now in progress.

The satisfactory condition of the financial affairs of the Society was next noticed, and suggestions made with regard to certain subjects connected therewith.

He next remarked that it was formerly the usage of members of this Society occasionally to dine together, for the purpose of social intercourse and of promoting mutual good feelings;—and suggested the propriety of establishing, as an anniversary occasion, the birthday of Franklin, the founder and first President of the Society, and of celebrating it by an annual dinner.

The President closed his discourse with observations relative to his being about to retire from the position of presiding officer, and with assurances of the deep interest which he has ever felt and will continue to feel in the prosperity of the Society.

On motion of Dr. Duglison, the address was referred to the Board of Officers and Council.

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. VI.

JANUARY—APRIL, 1855.

No. 53.

Stated Meeting, January 5.

Present, twelve members.

Judge KANE, Vice-President, in the Chair.

The report of the judges and clerks of the election held this day for officers of the Society was read, from which it appeared that the following named gentlemen had been elected:—

President.

Alexander Dallas Bache.

Vice Presidents.

John K. Kane,
Robley Dunglison,
John F. Frazer.

Secretaries.

Charles B. Trego,
E. Otis Kendall,
Frederick Fraley,
John L. Le Conte.

Members of the Council, for Three Years.

Thomas Biddle,
Isaac Lea,
Alfred L. Elwyn,
John Bell.

For Two Years, in place of Henry Reed, deceased.

George Tucker.

For One Year, in place of Jacob G. Morris, deceased.

Robert Bridges.

Curators.

Franklin Peale,
John C. Cresson,
M. Fisher Longstreth.

Treasurer.

Charles B. Trego.

Letters were read:—

From the Geological Society of London, dated Somerset House, Nov. 2, 1854, returning thanks for Vol. X. Part 3, of the Transactions, and Nos. 49, 50, of the Proceedings of this Society: and—

From A. D. Bache, Superintendent of the United States Coast Survey, dated Washington, Oct. 10, 1854, accompanying a donation for the Library.

The following donations were announced:—

FOR THE LIBRARY.

Quarterly Journal of the Geological Society. No. 40, Vol. X. Part 4. London, Nov. 1854. 8vo.—*From the Society.*

Rapports présentés au Conseil Général de l'Asile des Aveugles de Lausanne, par le Comité, le Medecin et le Directeur de cet établissement, pour les années, 1850, 1851, 1852.

Rapport du Comité de l'Asile des Aveugles de Lausanne, pour l'année 1853, présenté au Conseil Général de cet établissement. Lausanne. 8vo.—*From the Committee of the Blind of Lausanne.*

American Journal of Science and Arts. Second Series. Vol. XIX. No. 55. January, 1855. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*

Proceedings of the Boston Society of Natural History. Vol. V. Nos. 2, 3, 4, 5. Oct. Nov. 1854. Boston. 8vo.—*From the Society.*

Documents relative to the Colonial History of the State of New York: edited by E. B. O'Callaghan, M.D. Vol. IV. Albany, 1854. 4to.—*From the Trustees of N. Y. State Library.*

United States Coast Survey Maps, as follows: General Chart of the Coast from Gay Head to Cape Henlopen.—Wellfleet Harbour, Massachusetts.—Mouth of Connecticut River.—San Diego Bay, California.—Bay of Monterey, California.—Alden's Reconnaissance Chart, Western Coast, from San Diego to San Francisco, California.—Santa Barbara, California.—Reconnaissance from

Gray's Harbour to Admiralty Inlet, Washington Territory.—Shoalwater Bay, Washington Territory.—False Dungeness Harbour, Washington Territory.—Cape Flattery and Nee-ah Harbour, Washington Territory.—*From A. D. Bache, Superintendent U. S. C. S.*

Genealogy of Warren, with some Historical Sketches: by John C. Warren, M.D. Boston, 1854. 4to.—*From the Author.*

The Florist and Horticultural Journal. Vol. III. No. 12. Philadelphia, 1854. Svo.—*From H. C. Hanson, Editor.*

A Geological Reconnaissance of the Arkansas River: by Prof. J. A. Warder, of Cincinnati, O. Cleveland, 1854. 4to.—*From the Author.*

Mr. Charles J. Ingersoll, pursuant to appointment, read an obituary notice of the late Joseph Bonaparte, a member of the Society.

I was not aware, till lately apprised of it, that the American Philosophical Society appointed me, ten years ago, on the death, in July, 1844, of our late fellow member, Joseph Bonaparte, to deliver the obituary notice of him. No neglect on my part is the cause of the omission since. And, as often providentially results from inaction, and even ignorance, in this short-sighted world, where the wisest cannot see far before them, gratuitous favourable influences now enshrine the deceased which did not exist when he departed this life.

In 1844, when Joseph Bonaparte died, obituary truth regarding him would have been coldly received by probably many of this Society, and by an incredulous number of our countrymen throughout the United States. His immense brother, as another of our fellow members, La Fayette, designated the Emperor, whom, though his debtor for liberty and life, he felt it his duty to dethrone, was then still deemed by nearly all Englishmen, many Americans, and some Frenchmen, a monster, and Joseph one of his worst instruments.

But the late popular elevation of their nephew to be emperor of the French, the close international union since accomplished between France and England, the enlightenment of their pacific intimacy, the emulation of their warlike alliance, the literature and science of both war and peace, in short, the providential progress of events and rectification of public sentiment, have advanced, by half a century or more, the clear historical light breaking on the acts and characters of the Bonapartes. The great mother country, from which ours takes

most of its impressions, once unanimously abominating and reviling, has turned to admiring and applauding the hero and his family, long blasted by almost universal European dread of a conqueror, of whom abhorrence only changed to unmerciful contumely, when Europe's master, reduced to be their captive, was chained to an African rock and tortured to death. In our imitative country, counteraction of his hatred has become so strong, that the American press now flashes with even extravagant vindication of the not long since monster in Anglo-American apprehension.

Though time, the greatest of innovators, was gradually rectifying these prejudices; still, but for the revolutions, wars, alliances, and revulsions which have nearly clarified public sentiment, no one now would be patiently suffered to assert that all the much abused and adulated eight Bonapartes, five men and three women, extraordinary offspring of an excellent mother and respectable father, were every one of them endowed with uncommon talents, and no one of them degraded by a depraved or malignant nature. Lucien, a fine scholar, poet, and ardent republican, pertinaciously rejected, and at last actually fled beyond the sea from a throne, rather than surrender the humble wife of his affection. Louis, with fine literary acquirements and performances, religious, strictly conscientious, and nobly independent, after reluctantly submitting to the crown imposed on him, indignantly cast it away, rather than subject his adopted country to the sway of his imperious brother. Joseph and Jerome, the only two who submitted to be kings, invariably administered justice with mercy, and promoted liberal principles with beneficial reforms. Eliza and Caroline displayed on thrones masculine abilities for government. Pauline, declining principalities, proved herself a most affectionate wife and sister. Napoleon's step-children, brought up in his family, Eugene Beauharnais, as Viceroy of Italy, was a prudent and acceptable ruler; as commander of armies, a brave, faithful, and incorruptible lieutenant of his imperial constituent. His brilliant sister, historically known as Queen Hortensia, shone among the brightest female ornaments of her time, whose lyrical poetry is now chanted with enthusiasm in the capitals of France, England, Italy, Greece, and Turkey. Few born royal have done more honour to diadems than these extraordinary upstarts.

Far, however, from designing to present the family of Bonapartes in one mere strain of eulogy, to hide or gloss their faults, I own their infirmities—though much exaggerated by malevolent dread and eloquent vituperation. Of their amiable and affectionate dispositions,

Joseph was an attractive type. Few families so numerous, even in private life, none so prodigiously elevated and then terribly reversed, can be mentioned truer to patriotism, to probity and humanity, throughout trying vicissitudes, much fonder of each other in adversity than prosperity, always free from shocking offences or paltry vices. Judging by the unerring developments of posthumous truth, none are more certain of the applause of impartial history and the approval of posterity.

That their mighty earthly creator was worse for prosperity, and impatient of adversity, may be part of his history. But that, take him for all in all, his memory is dear to the unsophisticated peasantry, the simple hearted millions of France, has been lately attested by the votes of eight millions of those made democratic landlords by the revolution of which Napoleon was truly the child and the champion. Poor and uneducated owners of small estates, of which they are as tenacious as opulent nobles of their great domains, like our American farmers and planters, conservative upholders of law, and order, and property, controlling suburban mobs, metropolitan clubs, and a centralized executive, they saved not only France but nearly all Europe from the anarchy with which it was threatened by those mis-called republicans, who, mocking but perverting liberty, revived and aggravated despotism. The wisest statesmen now acknowledge that the god of these peasants' idolatry was a man of superhuman wisdom, whose politics are become proverbial, like those of Aristotle and Cicero. The tremendous struggle he anticipated is raging between Western and Eastern Europe, proving his vast providence by his own weather-beaten overthrow in a Titan effort, which Great Britain is now straining every nerve to atone for by renewing it, for the subjugation of the same overreaching Asiatic empire.

Napoleon, though not our topic, was so constantly and closely united with Joseph, throughout their combined career, from school-boys till they parted dethroned Emperor and King, one for England, the other for America, that their rise, culmination, decline, and fall were always together. To appreciate Joseph justly, we must, therefore, understand his intimate connection with a younger brother, whose prodigious conquests gilded the iron ascendancy, of which, while always submissive, the elder constantly strove to check its excesses and temper its violence. The eldest was the mildest of the Bonapartes; just and tenacious, but considerate and forbearing; living ever affectionately with a large, multiplied, and mixed family of Bonapartes and Beauharnais, Corsicans, French, Americans, and

Austrians, Republicans and Royalists. When domestic were distorted to national difficulties, Joseph was the invariable mediator of conciliation with democratic Lucien, intractable Louis, hostile Prince Bernadotte, disloyal King Murat. If France, invaded by all Europe in arms, needed the Emperor abroad to fight, Joseph was the infallible regent at home, proof against all assaults, temptations, and seductions. Before the Empire, the great works of amity were his, the treaties with Austria, with the Pope, the United States, and England. On all occasions, during both the republic and empire, whether ambassador, king, or regent, his predilections for peace were manifested, while in many great battles he displayed the intrepid composure of a valiant general. During the four years of his reign on a bed of roses in Naples, and the five under a crown of thorns in Spain, he was, as Lamarque, an eye witness most competent to judge, testified, a philosopher on a throne.

Many biographical and historical works describe him, from which it would be easy to cull and arrange his full length portrait. But within the last twelve months ten volumes of unexampled testimony, published as the political and military Memoirs of King Joseph, so much facilitate the task to which this Society has appointed me, concerning our late fellow member, that little more is necessary than voucher of that singular and unquestionable demonstration that, whether in private or public life, military commissary, member of provincial or national assemblies, ambassador, colonel, general, king on more than one throne, or fugitive from sanguinary proscription, for more than a quarter of a century, serenely and wisely philosophizing on the banks of the Delaware in this neighbourhood, in the cabinet, the field, the drawing-room, or family circle, Joseph Bonaparte was continually and invariably an honest, humane, brave, wise, virtuous, and thorough gentleman, incapable of meanness or wickedness.

Concealed in various hiding-places till, at length, clandestinely transported from Leghorn to Philadelphia, seven trunks of these precious documents were here deposited in a place of safety till the appointed time for their posthumous publication in Europe. Hundreds of letters written by Napoleon and Joseph to each other, and between them and many others, brothers, sisters, lovers, husbands, ministers, generals, monarchs, poets, and philosophers, are thrown before this malignant, invidious, and censorious world, without the suppression or alteration of one single word, no matter whom they expose, from the Emperor to the lowest person. From the days when Napoleon and Joseph were struggling with poverty to when they were over-

loaded with regal treasures, without ever a cent misappropriated or coveted, perfectly confidential, unreservedly free, exhibiting the writers naked and bare to mankind, whatever they thought, hoped, designed, did, how they loved, hated, rose, reigned, fell, fled, and were to the last devoted to each other—the realities of their very beings are monumentally laid bare in print, more durable than brass or marble.

The censorious may condemn Joseph's evacuation as King of Madrid, and as Lieutenant-general of Paris, his almost inexplicable submission to his brother, and perhaps detect other defects in his character. But that no one ever lived so long through such incredible changes without fault or mistake, we may cite the last of the French legitimate kings for a remarkable averment. After his banishment, on his way abroad, admiring the fine appearance of the ship Charles Carrol, freighted to take him and his family from France to England, King Charles the Tenth, smiling, said, "This is a fine vessel, is it not, captain? Are we not doing as well in our marine?" "I do not think," M. d'Urville made answer, "that we have, sire, in our merchant marine, a vessel so well rigged, so well found, and so thoroughly equipped." "The Americans are doing well," the king added. "Yes, sire, in sixty or eighty years more they will be able to dispute with the English the sceptre of the seas." "It is to us, though," said the king, "they owe all that." "Yes, sire, to your majesty's brother, to King Louis the Sixteenth. They have not forgotten it." The king remained pensive, and then resumed: "*It was a fault, a very great fault* on the part of Louis the Sixteenth. *But who has not committed some in his life?*"

In that royal moral reflection Joseph Bonaparte coincided that to be faultless is not human; but, even as King Joseph, he uniformly and cordially recognised, as great blessings for mankind, those principles of freedom and reform from inveterate abuses which King Charles the Tenth deplored as fruits of the American revolution, unfortunately encouraged by France. This country, in its original and genuine free developments, had no more earnest, judicious, or confirmed advocate. Far from deeming Louis the Sixteenth's espousal of the American revolution a great fault, or its offshoot, the French revolution, a great misfortune, the Bonapartes, deploring Louis Sixteenth's fate, and abhorring bloodthirsty Jacobinism, were necessarily Americanized by their French position, strengthened in Joseph, especially, by long residence here, profoundly and dispassionately mastering our institutions and policy. Liberal but conservative, cherishing freedom,

deprecating licentiousness, such patriarchs of the American Philosophical Society as Franklin and Jefferson were not more sincerely attached to liberty, equality, rational progress, and predominant peace. Of this, the first and last volumes of King Joseph's Memoirs, in particular, are delightful and indubitable testimonials, as might be shown by large extracts, if the President of this Society had not admonished me that brevity is indispensable to its obituaries.

Stated Meeting, January 19.

Present, fourteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

A letter was read from the Royal Saxon Society of Sciences, dated Leipsic, Oct. 30, 1854, returning thanks for Vol. X. of the Transactions of this Society.

The following donations were announced:—

FOR THE LIBRARY.

- Flora Batava, of Afbeelding en Beschrijving van Nederlandsche Gewassen: Aflevering 176. Amsterdam. 4to.—*From the Government of Holland.*
- Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 1. London. 8vo.—*From the Society.*
- Reports and Charts of the Cruise of the U. S. Brig Dolphin, made under the direction of the Navy Department, by Lieut. S. P. Lee, U. S. N. 2 Vols. Washington. 8vo.—*From the National Observatory, Washington.*
- Proceedings of the American Antiquarian Society, in Worcester, Oct. 23, 1854. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. 3d Series. Vol. XXIX. No. 1. Jan. 1855. Philadelphia. 8vo.—*From the Institute.*
- African Repository. Vol. XXXI. No. 1. Jan. 1855. Washington. 8vo.—*From the Am. Colonization Society.*
- American Journal of the Medical Sciences. New Series. No. LVII. Jan. 1855. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XIII. No. 145. Jan. 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Astronomical Journal. Vol. IV. No. 7. Cambridge, Jan. 5, 1855. 4to.—*From Dr. B. A. Gould, jr., Editor.*

The Princely Pleasures at the Courte at Kenelworth, in the yeare 1575. London, 1576. Reprinted, 1821. 8vo.—*From Prof. J. F. Frazer.*

The Plough, the Loo'n and the Anvil. Vol. VII. No. 7. Jan. 1855. New York. 8vo.—*From the Editor.*

Dr. B. H. Coates, pursuant to appointment at a former meeting, read an obituary notice of Dr. Charles Caldwell, a deceased member of the Society, of which the following is an abstract.

Charles Caldwell was born about 1772, in Caswell, then a part of Orange county, North Carolina.

There exists abundant and uncontradicted evidence that he very soon gave proof of a superior understanding. He studied perseveringly, both at school and at home; and made very rapid progress. From eleven to fourteen he studied Latin and some Greek; retaining the high estimation which had been conceded to him by his fellow scholars. At fourteen, he states, that he was thought not likely to improve further by a continuance at any school then extant in North Carolina; and, before the end of his fifteenth year, he was called upon to discharge the office of conducting academies for the instruction of others. In this there exists copious evidence that he met with brilliant success. In the meanwhile he made use of the assistance of a neighbouring clergyman, to prosecute a short mathematical and physical course.

His preference, in the choice of a permanent profession, was for law or for the army; and a commission was offered him. His father was now deceased; but had always entertained a strong dislike to his son's adoption of either of these two modes of life; and Mr. Caldwell, in consequence of this, determined to apply himself to medicine. In the spring of 1791, he entered the office of Dr. Harris, of Salisbury, North Carolina; and, in the autumn of 1792, repaired to Philadelphia.

Here he devoted himself, with great industry, to study, and to attendance on lectures, and on the Pennsylvania Hospital. During the great epidemic of yellow fever, in 1793, he had and used great opportunities for observation in that terrible disease; and formed or founded some of the convictions for which he became afterwards conspicuous.

He passed examinations in medicine in 1794, his name is inserted in the list of graduates in 1795, but did not take out his diploma till 1796; a delay which arose from pecuniary losses. His thesis is theoretical; and develops some of the opinions of Dr. Rush.

His career, as an author, opened with his translation of Blumenbach's Physiology, in 1794; and continued for sixty years!

In the autumn of 1794, finding his health materially injured by his application, Dr. Caldwell became a surgeon in the army raised to suppress the Whiskey Insurrection. This, as is well known, was happily, and in consonance with the anxious wishes of President Washington, terminated without bloodshed. The march through the forest completely restored our young fellow member to his health; and, in 1796, he commenced practice in Philadelphia.

In 1797, the yellow fever of that year first broke out in the vicinity of Dr. Caldwell's residence. Many physicians, it is notorious, fled from their posts before the formidable pestilence; but Dr. Caldwell remained, and was soon deeply immersed in business.

A vehement controversy arose on the questions whether the disease were contagious, and whether it were of foreign or domestic origin. The effects of these two controversies, after a lapse of near sixty years, have by no means ceased to be felt among our citizens. Numerous pens were occupied with assaults, often violent, upon that eminent teacher, Dr. Rush; and these were by no means restrained from his practice as a therapist. Dr. Caldwell, early in 1797, adopted and earnestly defended a belief in the domestic origin of the fever; and much of his very animated discussions is to be found in the newspapers. The therapeutics of Dr. Rush met with his warm and earnest support; as he alleges that he found them the most successful in practice. It is well known that Dr. Rush, though an early believer in the domestic origin of the disease, was at first persuaded that it was contagious. In this he was opposed by Dr. Physick; who, however, took part in no public controversies, but confined the expression of his opinions to friends and intimates, and sometimes replied to inquirers in monosyllables, attending closely, at the same time, to his labours as a practitioner. Dr. Rush, as is familiar to tradition and to reading, subsequently changed his mind in relation to the existence of such a contagion; but Dr. Caldwell preceded him by a considerable interval; and, at one time, the last named physician was singly associated, among all his intimates, with Dr. Physick.

At length, Dr. Caldwell was himself stricken down with the pestilence; and was recovered, after an illness of three weeks, by the skill

and care of Drs. Physick and Rush, and by the indefatigable attentions of his friend and fellow student, Dr. Samuel Cooper, of Delaware. In the course of the two subsequent epidemics, of 1801 and 1803, he describes himself as having been, what has been so often denied to exist, an example of repeated attacks in the same individual. Through the fatal and terrific visitation of 1798, and through those of 1799 and 1805, he passed uninjured.

In 1798, was founded the first Academy of Medicine. The long and ardent discussions in which the members of this body engaged, are well recollected by readers and survivors. The Academy, though short-lived, endured sufficiently long to publish a large amount of matter against the contagious character of yellow fever.

Between 1805 and 1807, Dr. Caldwell delivered the first course of clinical lectures in the medical department of the Philadelphia Almshouse, now the Blockley Hospital. Besides large contributions to the medical journals, he was the author of various eulogiums and other addresses. In the winter of 1810-11, he prepared and read a series of lectures on Medical Jurisprudence, simultaneously with that by Dr. Stringham, in New York; these forming the two first courses ever delivered in this country. Dr. Caldwell's course was several times repeated.

Between 1800 and 1811 he prepared a very large amount of manuscript, chiefly lectures and controversial matter; the total amount of writing which he has left behind him being estimated by a female connection at thirty thousand pages. During this period, too, his literary correspondence became large.

In 1815, the Physical Faculty of the University of Pennsylvania was created; and Dr. Caldwell was made Professor of Geology and the Philosophy of Natural History. He delivered three courses.

Soon after this period, Dr. Caldwell was invited to take part in the establishment of three new medical schools, in New York, Philadelphia and Baltimore. These he declined; but, in 1819, accepted an invitation to unite in the formation of Transylvania University, at Lexington, Kentucky; and to occupy the professorship of the Institutes of Medicine. To these tasks he devoted himself with all ardour; and to the extent of making much personal sacrifice. "It is not too much to affirm," says Dr. L. P. Yandell, "that he was the father of the Western School of Medicine." Dr. Caldwell's exertions mainly contributed to obtain, from the Legislature of Kentucky, the requisite funds to procure a library and apparatus; and he himself visited Eu-

rope to watch the proper expenditure. The character of the institution became high, the connection influential, and the class large.

During the creation of a new school, at Louisville, in the same State, and the transfer of legislative patronage to it, Dr. Caldwell relates, in his MS., that he resisted the change till he became convinced that it was inevitable, and then added his activity to the new institution. This was from love of science and mankind, and from the duty of patriotism, as a good citizen submits to an already accomplished revolution. Even here, too, he is pronounced by competent authority, to have become entitled, by effective labour and personal influence, to be considered also a founder. His services were eminently great and active during the first few years; and he was far from intermitting his literary toils. He continued to support those heavy burdens till 1849; when, at 77 years of age, he resigned his professorship. During this period, the influence of the new school slowly and steadily increased; and the numbers of the class reached four hundred.

During the last years of his life, our fellow-member continued in the enjoyment of uninterrupted health, an erect attitude, and the perfect use of his faculties. The termination of his earthly existence occurred, in an almost entire freedom from suffering and disease, on the 9th of July, 1853.

Dr. Caldwell was twice married. In 1799, he was united to Eliza, daughter of Thomas Leaming, Esq., of Philadelphia. By this lady, he has left one son, Dr. Thomas Leaming Caldwell, of Louisville, Kentucky. His second matrimonial connection was with Mrs. Barton, the youngest daughter of the late honourable William Warner, of the State of Delaware, and related to several eminent citizens of that commonwealth. This union was without offspring.

He received several compliments from the European learned, but was careless of his diplomas; and a list cannot be made out. His election to the American Philosophical Society took place October 21, 1796.

Dr. C. M. Wetherill presented, for publication in the Transactions, a paper "On Adipocire," which was referred to a Committee consisting of Dr. F. Bache, Prof. Frazer, and Dr. Bridges.

Mr. Trego was re-elected Librarian of the Society.

The Standing Committees for the year were appointed, as follows:

Finance, Messrs. Wagner, Justice and Fraley.

Hall, „ Peale, Fraley, Trego.

Library, „ Hays, Campbell, Ord.

Publication, „ Trego, Elwyn, Frazer.

The list of surviving members of the Society was read:— the number on the first of January, 1855, was 377; of whom are resident in the United States 271, and in foreign countries 106.

The Society then proceeded to ballot for candidates for membership.

The Secretaries reported that they had agreed that Mr. Trego should be Reporter of the Society for the ensuing year.

A communication was read, dated January 13, 1855, signed Robert Newell, chairman of a sub-committee of the Committee on City Property, of the Select and Common Councils of the City of Philadelphia, on the subject of a sale to the City of the Society's Hall, or its exchange for other property belonging to the City Corporation:

Which was referred to a Committee consisting of Mr. Fraley, Mr. Trego, and Mr. Justice.

All other business having been concluded, the ballot-boxes were opened by the presiding officer, and the following named gentlemen declared to be duly elected members of the Society:

SPENCER F. BAIRD, of Washington City.

C. FR. PH. VON MARTIUS, of Munich.

WILLIAM HAIDINGER, of Vienna.

V. REGNAULT, of Paris.

Stated Meeting, February 2.

Present, ten members.

JUDGE KANE, Vice-President, in the Chair.

Letters were read:—

From the Zoological Society of London, dated Oct. 23, 1854; from the Society of Antiquaries, dated London, Nov. 17, 1854; from the Royal Asiatic Society, dated Nov. 18, 1854; from the Royal Society of Sciences at Amsterdam, dated Dec. 5, 1854;—severally acknowledging the receipt of Transactions and Proceedings of this Society:—

From the Trustees of the State Library of New York, dated Albany, Jan. 27, 1855,—and from the Connecticut Historical Society, dated Hartford, Jan. 30, 1855, returning thanks for No. 52 of the Proceedings:—

From Prof. Zantedeschi, of Padua, dated Dec. 7, 1854, accompanying a donation of some of his works for the Society's library.

From Prof. A. D. Bache, dated Capitol Hill, Washington, Jan. 21, 1855, acknowledging the receipt of notice of his election as President of the Society: and—

From Prof. S. F. Baird, dated Washington, Jan. 22, 1855, acknowledging the receipt of notice of his election as a member.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Royal Society of London. Vol. VII. Nos. 5, 6.

June 15, 1854. London. 8vo.—*From the Society.*

Astronomical and Magnetical and Meteorological Observations, made at the Royal Observatory, Greenwich, in the year 1852, under the direction of George Biddell Airy, Esq., M.A., Astronomer Royal. London, 1854. 4to.

Description of the Transit Circle of the Royal Observatory, Greenwich. 4to.

Regulations of the Royal Observatory, Greenwich. 4to.

- Report of the Astronomer Royal to the Board of Visitors of the Royal Observatory, Greenwich, June 3, 1854. 4to.—*From the same.*
- Memoirs of the Royal Astronomical Society. Vol. XXII., being the quarto half volume for the Session 1852–1853. London, 1854. 4to.
- Monthly Notices of the Royal Astronomical Society. Vol. XIII. London. 8vo.—*From the Society.*
- Report of the Twenty-third Meeting of the British Association for the Advancement of Science: held at Hull, in September, 1853. London, 1854. 8vo.—*From the Association.*
- Notices of the Meetings of the Members of the Royal Institution of Great Britain. Part IV. Nov. 1853—July 1854: with List of the Members, Officers, &c., of the Institution,—and
- Report of the Visitors for the year 1853. London. 8vo.—*From the Institution.*
- Astronomical Observations made at the Radcliffe Observatory, in the year 1852. By Manuel J. Johnson, M.A. Vol. XIII. Oxford, 1854. 8vo.—*From the Radcliffe Trustees.*
- Address at the Anniversary Meeting of the Royal Geographical Society, May 22, 1854, by the Right Hon. the Earl of Ellesmere, K. G. D. C. L., &c., President. London. 8vo.—*From the Society.*
- On some of the Results obtained at the British Colonial Magnetic Observatories: by Col. Edward Sabine, R. A. V. P. R. S., General Secretary. 1854.—*From the Author.*
- History of an Expedition against Fort Du Quesne, in 1755, under Major General Edward Braddock: Edited from the Original Manuscripts, by Winthrop Sargent, M.A., Mem. Hist. Soc. Pennsylvania. Published by the Historical Society of Pennsylvania. Philadelphia, 1855. 8vo.—*From the Hist. Society of Pennsylvania.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 6. Philadelphia. 8vo.—*From the Academy.*
- Proceedings of the Boston Society of Natural History. Vol. V. No. 6. Dec. 1854. Boston. 8vo.—*From the Society.*
- Medical News and Library. Vol. XIII. No. 146. February, 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*
- African Slave Trade in Jamaica, and Comparative Treatment of Slaves. Read before the Maryland Historical Society, October, 1854. 8vo.

A Sketch of the Life of Benjamin Banneker,—from Notes taken in 1836. Read by J. Saurin Norris, before the Maryland Historical Society, Oct. 5, 1854. 8vo.—*From the Maryland Hist. Socie'y.*

International Coinage for Great Britain and the United States: a Note inscribed to the Hon. James A. Pearce,—by J. H. Alexander, Esq. Baltimore, 1855. 8vo.—*From the Author.*

Proceedings of the New Jersey Historical Society. Vol. VII. No. 3. 1854. Newark. 8vo.—*From the Society.*

Nota intorno ad una scaricatore elettrico-telegrafico; del M. E. Francesco Zantedeschi.—Apparecchio per l'elettricità dinamica che si sviluppa nelle chimiche reazioni: nota di Francesco Zantedeschi.—Delle correnti elettriche simultanee che passano in direzioni opposte sul medesimo filo: esperienze di Zantedeschi.—Sur le principe electrostatique de Palagi et ses expériences: lettre de M. le Prof. Zantedeschi de Padoue à M. Quetelet.—Dei Fenomeni dell'Endosmoscopio capillare analoghi ai Fenomeni del movimento ascendente della linfa nei vegetabile: di Zantedeschi. 4to and 8vo.—*From the Author.*

The Florist and Horticultural Journal. Vol. IV. No. 1. Philadelphia, 1855. 8vo.—*From H. C. Hanson, Editor.*

Report of the Sanitary Committee of New Orleans on the Epidemic Yellow Fever of 1853. Published by authority of the City Council of New Orleans. New Orleans, 1854. 8vo.—*From Dr. E. H. Barton.*

The Committee appointed at last meeting on Dr. Wetherill's paper on *Adipocire*, reported in favour of its publication in the Transactions of the Society, which was ordered accordingly.

Mr. Trego announced the death of Petty Vaughan, of London, a member of the Society, who died July 30, 1854, aged 66.

Judge Kane announced, for the information of the Society, that the expedition to the Polar seas, for the relief of Dr. Kane and his party, which had been solicited by this and other Societies of the United States, had been authorized by Congress, and would set out on its mission at an early day in the coming summer.

He further remarked, that he had received a chart from Lady Franklin, which included the lands discovered by Com.

Dehaven and the American expedition under his command. Some difficulty had been before experienced in obtaining this concession, owing to a claim of priority of discovery by a party of British navigators; but the final investigation of the British authorities and men of science had resulted in the acknowledgment of the priority of the American discoveries, and the adoption of the names given to the discovered land by Com. Dehaven.

Mr. Fraley, from the Committee appointed at last meeting on the subject of a sale or exchange of the Society's Hall, reported that a conference had been held with a sub-committee of the City Councils in relation to the matter; but that no result beyond a mere interchange of opinions had been arrived at. No definite powers being possessed by either of the Committees, the meeting was considered as merely preliminary to further conference:—

Whereupon, Dr. Harris having taken the chair, Judge Kane offered the following resolution, which was read, considered and adopted:—

Resolved, That, in the opinion of this meeting, it would be proper to make sale, to the City of Philadelphia, of the property now held by the Society on Independence Square, provided the same can be made on such terms as will secure to the Society adequate accommodations without impairing its income or otherwise interfering with its interests;—and, that the Committee appointed at the last stated meeting be continued, with authority to negotiate with the City of Philadelphia or any Committee appointed by its authority.

Mr. Trego, reporter of the Society, announced the publication of No. 52 of the Proceedings, and laid a copy thereof upon the table.

Stated Meeting, February 16.

Present, thirteen members.

Prof. A. D. BACHE, President, in the Chair.

Letters were read:—

From the Geological Commission of the Netherlands, dated Haarlem, Oct. 20, 1854,—and from Samuel H. Congar, dated

Hall of the New Jersey Historical Society, Feb. 1, 1855, announcing donations for the library:—

From the Society of Antiquaries of Scotland, dated Edinburgh, Jan. 16, 1855, returning thanks for Part 3, Vol. X. of the Transactions,—and from the Antiquarian Society, dated Worcester, Massachusetts, Feb. 3, 1855, acknowledging the receipt of No. 52 of the Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Verhandelingen der Commissie belast met het vervaardigen eener Geologischen Beschrijving en Kaart van Nederlands. Tweede Deel. Haarlem, 1854. 4to.—*From the Government of Holland.*

Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. Tweede Verzameling. iv. Deel, 1848. xi. Deel, i. Stuk, 1854. Haarlem. 4to.—*From the Holland Society of Sciences at Haarlem.*

History of Mason and Dixon's Line, contained in an Address delivered by John H. B. Latrobe, of Maryland, before the Historical Society of Pennsylvania, Nov. 8, 1854. Philadelphia, 1855. 8vo.—*From the Author.*

Historical Discourses relating to the First Presbyterian Church in Newark:—originally delivered to the Congregation of that Church during the month of January, 1851. By Jonathan F. Stearns, D.D., Pastor of the Church. Newark, 1853. 8vo.—*From Samuel H. Congar, Esq.*

Shaffner's Telegraph Companion, devoted to the Science and Art of the Morse American Telegraph. By Tal. P. Shaffner, Esq., Secretary of the American Telegraph Confederation, New York City. Vol. II. No. 1. New York, 1855. 8vo.—*From an Anonymous Donor.*

Biographical Notice of Charles Caldwell, M.D., read before the American Philosophical Society, by appointment, January 19, 1855.

By B. H. Coates, M.D. Philadelphia. 8vo.—*From the Author.*

Report of the Board of Managers of the Mine Hill and Schuylkill Haven Rail Road Company, at their Annual Meeting, Jan. 8, 1855. Philadelphia. 8vo.—*From John C. Cresson, Esq.*

A Consideration of the Plans proposed for the Improvement of the Ohio River. By Herman Haupt, Civil Engineer. Philadelphia, 1855. 8vo.—*From James J. Barclay, Esq.*

- Sense and Sound, as they reciprocally form any sign of Mind. By John Gaskell, author of "the Philosophy of Numeration." Philadelphia, 1854. 8vo.—*From the same.*
- The Astronomical Journal. Vol. IV. No. 8. Jan. 31, 1855. Cambridge. 4to.—*From Dr. B. A. Gould, jr., Editor.*
- The Florist and Horticultural Journal. Vol. IV. No. 2. Philadelphia, 1855. 8vo.—*From H. C. Hanson, Editor.*
- Quarterly Journal of the Chemical Society. Vol. VII. No. 4. Jan. 1, 1855. London. 8vo.—*From the Society.*
- Journal of the Franklin Institute. 3d Series. Vol. XXIX. No. 2. Feb. 1855. Philadelphia. 8vo.—*From the Institute.*
- Progress of the United States in Population and Wealth, for Sixty Years, 1790 to 1850. By George Tucker. New York. 8vo.—*From the Author.*

Prof. Frazer, pursuant to appointment, at a former meeting, read an obituary notice of the late Professor Henry Reed, a member of this Society.

Henry Reed, the subject of our notice, was born 11th of July, 1808. He was a grandson of Gen. Joseph Reed, of revolutionary memory, the first executive officer of the State of Pennsylvania; the brother of his mother also distinguished himself by zeal and courage during the second war against Great Britain. The family is of English descent, and many of the best qualities which characterize the Englishman were hereditary in our late friend.

Mr. Reed received the rudiments of his education at the best schools in our city: entered the Sophomore Class of the Department of Arts of the University of Pennsylvania in 1822, and after passing with great credit to himself through the usual routine of studies, graduated with distinguished honours in 1825, in his 17th year. During his schoolboy days he was remarkable for his indifference to the athletic games in which his comrades delighted, and for the serious interest with which he devoted himself to his studies. Even at this early age he paid great attention to the cultivation of a correct style of writing, so that his scholastic exercises were marked by an elegance and grace very unusual among our young men: and the simplicity and force of his language, combined with logical method and great powers of analysis, gave him at college high standing as a student; while his modest and serious demeanour, and his devotion to learning, insured to him the affectionate interest of his professors.

On leaving the University he selected the law as his profession,

and entered as a student the office of the Hon. John Sergeant, who had married his mother's sister, on the 3d of April, 1826, and was admitted to practice 7th September, 1829. But the excitement and bustle of the life of an active lawyer were little suited to his retiring and reflective habits; and in 1831, then in his 23d year, he gladly accepted the position of assistant Professor in the Department of Arts of the University of Pennsylvania, tendered him by the Trustees; and on 8th November of the same year he succeeded the Rev. Edward Rutledge as assistant Professor of Moral Philosophy in the same faculty. The task he undertook was a difficult one; the manners and abilities of his predecessor had endeared him to the students; and Mr. Reed was himself too susceptible to the influence of such a character, not to feel the responsibility which he assumed in consenting to replace him. His success, however, was from the first complete; and in February, 1835, the Trustees of the University elected him to the Professorship of Rhetoric and English Literature, which at their previous meeting they had created in his favour. From this time until his death, during a period of almost twenty years, Mr. Reed devoted himself, earnestly and unremittingly; tasking to the utmost all the powers of body and mind, to the advancement of the interests and the increase of the usefulness of the institution which he loved as an alumnus, and to which he gave honour as a Professor. The depth of his learning, and his success as an instructor, won for him the confidence of the Trustees and of the community; while he endeared himself to the students by the gentleness and dignity of his manner, and the affectionate interest which he always manifested in their welfare.

The assiduous labours to which he devoted himself, joined to the cares and anxieties inseparable from the condition of an ardent disposition compelled to seek in its influence over others, the means of satisfying its own sense of right, gradually undermined his health, which reposed on a constitution not naturally strong; and after a tedious and almost fatal illness, finding his duties and anxieties still too great for his slowly returning health, he resolved, under the advice of his physician, to spend the vacation of 1854 in travelling; to gratify the many warm friends which he had made for himself abroad and visit that country dear to him as the home of his ancestors, and as the birth place of the literature which he so loved. He sailed for England in May, and after a visit short indeed, but full of the most gratifying and pleasing incidents, the delights of which drowned his unpleasant recollections, and reinvigorated his mental and physical

energies; he, in an unfortunate hour, placed himself for the purpose of returning, on board the steamer Arctic, and lost his life in the awful catastrophe which overwhelmed that ill fated vessel on the 27th of September: when last seen, he was sitting with his sister-in-law, who had accompanied him on his tour, in the ante-room of the cabin, sad but calm; sad, for his mind turned to his home, and pictured to him the sufferings of those who were then preparing a joyous welcome for him; calm, for his hopes both for himself and them were long since anchored in that land towards which his fate now called him. It was not in his nature to struggle for life amid the crowd of miserable men whom fear was driving to forgetfulness of their duties; nor to pass to the reward which he had assured for himself, indifferent to the sufferings of those who so dearly loved him; sad but calm, he died as he had lived, illustrating the lofty principles of christianity which had always been his guide and reliance.

Mr. Reed's physical constitution was naturally not strong, but by care and abstemious habits he preserved his health until near the close of his life, so as to admit of the most sedulous attention to his duties; his temperament was ardent, his attachments strong, and his natural disposition probably impulsive and passionate; the prevailing sense of duty, however, which formed the basis of his character, had led him early in life to struggle with and subdue whatever in his nature did not harmonize with the lofty standard which he had set up for himself, and while he preserved his native warmth in his love of his friends, and zeal for their service, he had acquired a self-control which rendered him a courteous and liberal opponent to those from whom he might differ in opinion.

It may be doubted whether any man was ever better suited by his tastes and talents for his profession, than was Mr. Reed for the department of usefulness which he selected for himself. The characteristic of his intellect was its admirable power of analysis, while his inclinations disposed him to habits of study and retirement. Thus, whatever he did, was done after thorough investigation and deep reflection; and his results showed a fulness and clearness not otherwise to be attained. The difficulties of the student were anticipated and removed before they had time to operate to the discouragement of his exertions; his emulation was excited by the new views which were suggestively offered to him; while the unaffected dignity of demeanour, tempered by gentleness and constant and affectionate interest in their welfare, gave him an extraordinary influence over their minds, and insured their attention to his studies better than could have been done

by the sternest system of discipline. We cannot wonder, then, that Mr. Reed was so universally esteemed and beloved by his pupils; and that among the number of excellent men who before him and with him, sat in the Faculty of Arts, and whose loss the University has had to deplore, he stands pre-eminent in the affections of its graduates.

As a literary man, the tastes of Mr. Reed were essentially imbued with the deep religious feeling which was the predominant element of his mind. Hence the tone of earnestness and directness which characterized his own style, and which he so loved to find in others; hence his admiration for every thing that was pure in its spirit or lofty in its aspirations; and his aversion to all that was sensuous and demoralizing, no matter how brilliant might be its diction, or how captivating its rhetoric; hence his enthusiasm for Coleridge and his sympathy with Wordsworth; hence also the peculiar attractiveness of his writings in which a graceful and powerful simplicity of language is used to convey the earnest sentiments of one who had trained himself to think purely and profoundly.

His faith in his religion was a conviction beyond all mere logical demonstration; it was as clear as his belief in his own existence, and gained nothing from the support of external evidences. His ideas of duty were lofty and rigid, and his indignation warm against every thing which proceeded from a low standard of morality. Yet no one knew better to confine his virtues within their appropriate provinces; and while he felt deeply, and warmly advocated his own peculiar views, no one conceded more fully to others the right of individual opinion; while no inducement would tempt him to do wrong or to abstain from that which was right, no one yielded a readier or more graceful obedience to the sometimes annoying and often frivolous requisites of social life.

Although Mr. Reed read and thought much, he wrote but little, and during his life he published nothing of importance except the editions of Wordsworth's Poems and Lord Mahon's History; both of which testify to his ability and conscientiousness in the performance of his duties, while the former illustrates besides, his sympathy with the poet and his delicate perception of all that is excellent and beautiful in his writings. Mr. Reed's manuscript of his lectures is, however, fortunately preserved, and will, by the care of his brother, enable scholars more fully to appreciate that depth of pure learning, which during his life was known only to his friends and pupils.

In the intercourse of ordinary life, Mr. Reed's manner indicated

the peculiarities of his mind. He was generally reserved and serious, yet neither indifferent nor severe; unbending easily and gracefully when harmless gaiety was reasonable, yet always with an innate unaffected dignity; always polite, yet so far removed from affectation or obsequiousness, that no one could be blind to the motives which, loftier than fear of offence or desire of praise, ruled his conduct: in no way, perhaps, has Mr. Reed more benefited the community in which his whole life was spent, than by the example which he has set them, how a proper conception of the principles of Christianity begets the virtues and the adornments of a gentleman.

But when we have looked upon Mr. Reed as a teacher, as a scholar, and as a gentleman, we have yet but an imperfect knowledge of his character; the true life of Mr. Reed was with his family; to them he always felt was his chief duty; with them was always his greatest pleasure. There, in the company of those he transcendently loved; with those who sustained and bettered him by their sympathies, all inducements to goodness around him, and all temptations to evil shut out with his house door; there he found the quintessence and the reward of his life. But into this holy ground we cannot follow him; let us confine ourselves to the attempt to express how valuable and how dear he was to us.

In 1834, he married Miss Elizabeth Bronson, a grand-daughter of the late Bishop White, who, together with three children, survive him.

He was elected to the American Philosophical Society, January 19, 1838, and chosen as a member of its council, January 3, 1851.

Mr. Trego read an obituary notice of Wm. H. Dillingham, Esq., a deceased member, prepared at the request of the Society, by Dr. William Darlington.

The subject of this notice presented, in his life, one of those striking and exemplary instances, in which the descendants of the pilgrim fathers of New England—under their admirable system of educational training, and by their persevering energies—are so often enabled to elevate themselves to a distinguished position among their contemporaries; and when their course is run, to leave their

“Foot-prints on the sands of time.”

The immigrant Puritans, and the earlier posterity of those who landed on the Plymouth rock, were indeed a peculiar people. The history of our race furnishes no parallel to their character and career.

Sternly moral, and devoutly religious; animated, moreover, by an indomitable spirit of enterprise, and endowed with a keen perception, and thorough appreciation, of the inalienable rights of man, they were singularly fitted for their destined mission:—namely, the repudiation of tyranny, and the founding of a great democratic republic in this western hemisphere. All their undertakings were signalized by a rare combination of the most fervent piety and the shrewdest worldly wisdom. They practically illustrated the significant maxim—derived from the fatherland, in the stirring times of “The Commonwealth”—to *trust in the Lord, and keep their powder dry*.

From this remarkable and hopeful stock, sprang our lamented fellow-member, the course and incidents of whose life it is here proposed very briefly to sketch; and whose sterling worth we are all fain to commemorate. The limits, deemed appropriate to this occasion, will admit of little more than a chronological list of dates, events, and employments.

William H. Dillingham, son of Nathan and Rebecca [Fessenden] Dillingham, was born in the town of Lee, in Western Massachusetts, on the 3d of August, 1791. His education, preparatory to a collegiate course, was acquired at Lenox Academy, in the vicinity of his birth-place. At the age of 15 years, he entered the Sophomore Class in Williams College, where he continued a year and a half. The circumstances of his family, however, rendered it expedient to withdraw him from college before his course was completed: but his *alma mater* subsequently—viz. in 1815—conferred on him the honorary degree of A. M.

In the year 1808, he came to Philadelphia, and commenced the study of law under the auspices of the late Charles Chauncey, Esq., a gentleman who was ever his generous friend and faithful counsellor; and for whom, to his latest hour, he cherished the most profound veneration, and grateful regard.

In 1811, Mr. Dillingham was admitted to the bar; and thereupon settled himself, for some time, in this city of Penn, as a practitioner of the law.

With a taste finely cultivated, and a decided predilection for literary and scientific pursuits, he was always ready to aid in establishing and fostering institutions which promised to enhance the intellectual and moral character of the community. Accordingly, we learn that in 1813, he was one of “half a dozen young men of Philadelphia,” who “came together and arranged a plan for the establishment of reading rooms.” From this slender beginning—and the con-

tinued "valuable services" of our friend, co-operating with other public-spirited citizens—has resulted the noble institution, which is at once an ornament and a benefaction to our metropolis, under the name of the *Athenæum*.

In the autumn of 1814, when a Vandal horde—in a predatory incursion to the capitol—had burnt our Senate house, mutilated the classic memorials erected in honour of the gallant dead, destroyed the national library, and were menacing with like operations every accessible city in our land, the flower of the Philadelphia youth, emulous of their revolutionary sires, promptly rallied in defence of our altars and firesides; and there, in the patriot ranks, we find our friend Dillingham, musket in hand, doing duty as a private soldier in one of the companies of Washington Guards. Being honourably discharged at the close of the campaign, he returned to his office, and to the practice of his profession.

He continued in the city until 1817, when he removed to West Chester, the seat of justice in Chester County, Pennsylvania; where, by his diligence, fidelity, and legal ability, he rapidly advanced toward the head of the bar, among competitors distinguished for talents and professional acumen. He was especially remarked for that exemplary trait in a barrister, of being always well prepared, and ready for trial—so far as depended on himself—when his cause was called on.

In 1821, he received the appointment of prosecuting attorney for the county; which office he held until the close of the year 1823.

In the month of May, 1823, he married Christiana, daughter of Joseph H. Brinton, Esq. of Chester County; and thus became identified in feeling and interest with the people among whom he resided. He co-operated cordially in all measures propounded for the public benefit; and was a liberal supporter of all their institutions—religious, educational, literary, and scientific. His professional abilities becoming generally understood, his services were consequently, put in requisition in nearly every important case within the sphere of his practice. He was employed as solicitor of the Bank of Chester County for upwards of 15 years; was one of the founders, and a principal manager, of the Chester County Athenæum; was a Trustee of the West Chester Academy for 17 years; and a munificent member of the Chester County Cabinet of Natural Science, for nearly 20 years.

In 1837, he was elected to the State Legislature, where he was

both active and eloquent in the great cause of education, and in the support of scientific institutions.

In the autumn of 1841—after a residence of nearly a quarter of a century in West Chester—Mr. Dillingham returned to Philadelphia, where he passed the residue of his days: but, in retiring from Chester County, he by no means ceased to be interested in the concerns of that venerable bailiwick. In all the movements of her people, designed to elevate the pursuits of agriculture, and to promote a taste for the refinements of horticulture, he manifested a lively interest. When, in 1847, the Chester County Horticultural Society were projecting their spacious hall—the *second* edifice, dedicated expressly to Flora and Pomona, in these United States—Mr. Dillingham cheered them on, in their generous purpose, by a remarkably able, learned, and persuasive address, which convinced them that in the vocabulary of a people embarked in such an enterprise, in such a region, there should be no such word as fail.

It might be supposed, that by merging himself in our vast and growing metropolis, after so long an absence, he would be lost to public view: but not so. His qualifications were justly appreciated, and his services speedily secured by various and important establishments; such as the direction of the Public Schools—the Institution for the Blind—for the Deaf and Dumb—the Schuylkill Navigation, &c.

In July, 1843, he was elected a member of this Society; and justified the choice, by his zeal for its prosperity, and his anxiety that it should continue worthy of the great names associated with its early history.

In the latter years of his life, Mr. Dillingham gradually withdrew from the active duties of his profession, though he served as counsel for the Bank of Pennsylvania, from 1846 until 1852; when the feeble state of his health, induced by a slight paralytic affection, caused him to resign. His infirmities continued to increase, attended with great nervous excitability—though still retaining his mental faculties, and his literary predilections, in their wonted activity—until the 11th of December, 1854, when he suddenly departed this life. The writer of this has a letter from him, dated December 8, and received after his decease, in which—remarkably enough he refers with peculiar interest, to the “proceedings of the American Philosophical Society,” and invites attention to “those graphic and very interesting sketches of character, in the number for January and June last.”

Although the published and avowed productions of his pen are not

voluminous, our friend was a frequent contributor of elegant and judicious essays to the leading journals of the times. He was also the author of several highly finished performances, in the character of orations and reviews. Of these, it is sufficient to mention his addresses before the Chester County Cabinet of Natural Science—the Alumni of Williams College—the Chester County Horticultural Society—the Society of the Sons of New England in Philadelphia—and his glowing tribute to the memory of Peter Collinson. His researches, in procuring authentic materials for his discourses, were indefatigable; his literary taste was refined almost to fastidiousness; and hence his style is terse, chaste, and polished. It may be safely predicated of him, as a writer—*nihil tetigit quod non ornavit*.

The minutes of the Board of Officers and Council of the Society at their late meeting were read.

Mr. Peale made a communication on the subject of Coinage, embracing a variety of facts and observations, particularly in relation to the processes of preparing and reproducing dies for monetary and medalic purposes; and, in connection therewith, exhibited electrotype and other copies of coins and medals.

He said, that the observations he was about to offer to the attention of the Society were selected from his notes, upon numismatic operations, and were the result of many years of experience, and had been used, at various times, and on various occasions, whilst an officer of the government, in the department to which they refer.

He further observed, that the enthusiasm which had always been an impelling principle whilst endeavouring to fulfil his duties, might have made him overvalue the matter, and that in now asking the attention of the Society, he was committing a similar error; in which case he could ask the indulgence due, and so often granted, under like circumstances.

It cannot be doubted, that the coinage of a country, of high rank in the scale of nations, should bear evidence on its face, in the first place, of the condition and progress both of the fine, and mechanic arts, within its borders; and to insure, in the second place, the greatest degree of security against fraudulent imitations, or counterfeiting, which desirable object can best be secured by the employment of the highest grade of artistic talent in the design of the device, and its execution throughout, to the finished coin as issued from the mint.

A brief notice of die-sinking, and the reproduction of dies for

coinage, will be appropriate before proceeding further with the subject.

In the advance of the mechanic arts, in modern times, great facilities have been devised therein. The arts of medal engraving and die-sinking have largely participated; rapid and exact mechanical means now take the place of the laborious and imperfect ones which formerly embarrassed this important art. I will endeavour to exemplify them as briefly as possible.

The artist or designer models in a plastic material, such as wax or clay, a medallion portrait, or other device in relief, of sufficient size to permit freedom of handling, and facile study of effect; from this model a cast can be taken in plaster of Paris, or it may be electrotyped in copper. From the mould thus obtained, copies can be cast in hard metal, bronze or iron, which may be further retouched or finished, at the will of the artist.

The model, prepared as above, is placed in the portrait lathe, for which we are indebted to the French. By means of mandrils, revolving in equal periods of time, upon one of which the model is placed, and on the other the material for the copy or reduction, in front of which mandrils a *bar* is made to traverse, carrying a *tracer*, which passes over the face of the model, touching, in succession, every part of the model in a spiral line from centre to circumference, or vice versa, a *tool* on the same bar, opposite the mandril bearing the material, necessarily obeys the same motions, and is thus made to cut a fac simile of the model, the construction of the whole being such as to admit of any proportionate relation in size. By means of this lathe, rapid and exact reductions are made in steel, with an infinitely decreased amount of labour, and having the great advantage, as far as coining purposes are concerned, of retaining faithful proportionate relations in the different denominations of pieces bearing the same device. The lettering of legends is usually put in at this stage of proceeding by hand, as well as minor and detached parts.

This, in general but concise terms, is the mode of operating, when a new device is to be executed for a medal or coin; but at this point an important distinction exists, and we must separate, by a very marked division, the two branches of the art, that of medal-striking and the coining of money. In the former, repeated blows upon a disc of metal, with intervening annealings, enable a device, of any degree of elevation, to be brought up, as it is technically termed, whilst in the latter we are restricted to a single blow, or action of the coining press, upon the prepared disc or "blank," and hence the ne-

cessity of such judicious care and skill in the device and engraving as shall give the strongest effect to the coin, with the least degree of elevation; a most desirable object, when it is known that each pair of dies is required to strike off pieces, numbering from 50 to 200 thousand, with as little injury to the face as possible, as any difference in appearance of coin from the wear of the dies is to be deprecated.

Remarks of importance, in relation to the character of the device, will be introduced in a subsequent part of this communication.

The foregoing relates principally to the execution of new devices, and it is hoped are sufficiently explicit to show the vast saving of labour derived from the process in comparison to the old plans of operating, in prosecuting which, the engraver was obliged to dig out the solid metal by slow and laborious means, taking impressions of parts as he progressed in plastic material, and consuming long periods of time, according to the elaboration, or magnitude of the device.

Equal, if not superior facilities, have been applied to the preparation of the dies for coinage of money; the process in its most improved condition, was learned in the mint of Paris, and introduced by myself into the mint of the United States, about the year 1836. It is the transfer from an original die, by pressure on a softened steel punch or "hub," as it is technically called, a fac simile in relief, which *hub*, after hardening, is used to strike in soft steel properly prepared, the impressions which, after turning off the superfluous metal, hardening, and tempering, and other preparations, form the ordinary coining dies.

By the above described process, dies in indefinite and almost unlimited numbers, can be made complete, with the devices, legends and ornaments in perfect similitude, whilst, by the ancient process, they were separate operations, by hand, and, of course, no two could be made exactly alike, requiring skilful die-sinkers to approximate to such a condition, if at all possible, whereas the present process needs only the manipulation of skillful mechanics.

Were it not for the facilities, of which the above is a condensed notice, the four or five hundred pair of dies, now required for the service of the mint of the United States and its branches, could not be furnished without a very large and expensive engraving establishment.

When new devices are required, the best talent and highest grade of skill, within the command of the government, should be employed at any cost for its execution in the most perfect style. And, further, I do not hesitate to say, that if artistic talents and skill of sufficient

eminence cannot be found in this country, to place our coin in the highest rank of the coin issues of the civilized world, we should look for and employ its aid wherever it can be found.

The above views are sustained by the usages of the mints of France and England. In the former the original dies or matrices are procured by competition (concurrence), judged and selected by commissioners appointed for the purpose; and, in the latter, since the late reform, by competent artists selected for the purpose.

Coining dies, it is evident to all acquainted with the subject, as above described, can be procured by the services of mechanics of good ordinary skill; and it is not necessary that they should be die-sinkers by profession.

It will not, I hope, be deemed irrelevant to introduce a few remarks on the mechanical relations and exigencies by which the devices of coins are controlled, and which have a most important bearing on the style and execution of them.

It has already been said, and now repeated, that the coiner is limited by the nature of the service, to a single blow of the press in striking pieces of money; it is important, therefore, that the design of the device should be so disposed as to give the strongest effect with the least degree of elevation, not only for the purpose of giving the utmost degree of legibility to the impressions on the coins, and thus prepare them to retain their distinctness, during circulation, to the longest period of time, but also to save the dies as much as possible, under the severe usage to which they are subjected.

Force and strength of expression in a coin are best attained by a judicious outline in strong relief, whilst the general relief is kept as much subdued as possible. In fact, the centre of the device should not rise above a plane of which the outline forms the boundary. On the contrary, if a device on coin rises in the middle it compels a reduction of the outline to faintness, producing a weak and unsatisfactory effect, is hard to strike, is soon obscured by abrasion, and entirely deprives the coiner of the opportunity of polishing the *table* or plain part of the dies, and back ground of the coin, the first being the usual technical term, a grave fault very often observed in what, if otherwise executed, would be works of high artistic excellence. The type of the species of relief alluded to, is found in the frieze of the Parthenon, where strong shadows from a bold outline, give the effect of depth by means well understood by the ancients, and of comparatively easy execution.

The obverse of a coin should bear the strongest device, being the

most important side, the reverse must be subsidiary, its bearings should therefore be simple, such as broad letters, a shield, wreath or other ornament in low relief, so that the force of the impression may be concentrated on the obverse. By this disposition the best effect is given to the most important side of the coin.

The United States Mint labours under a disadvantage in this respect, the most of our pieces having devices on both sides, of equal depths, in consequence of which the force of the blow, and the necessary metal to supply the impression, is distributed between the two sides, thus making both weak, and losing the effect of a more judicious disposition.

After long experience, observation and reflection on this subject, I am decidedly of opinion that the *obverse* of all coins should present the device of a *head or profile*, whether it be a "composition emblematic of Liberty," or a portrait. The likeness of our glorious Pater Patriæ, Washington, might justly be considered the embodiment of Republican liberty—or the classic head of high art, with the admitted exquisite beauty of the Greek school, are alike applicable. I do not desire to give a decided opinion relative to either, but I say the obverse should be thus engraved because, in the first place, the highest grade of artistic talent and excellence is required for its conception and execution, much more elevated than that required for the usual armorial or inanimate delineations; and, secondly, because its effect, when well and suitably executed for coining purposes, is better adapted to the mechanical exigencies which control the operation. The reverse should, as I believe, be plain and legibly lettered, with the denomination of the piece, in the middle of the field, surrounded by a wreath of rich composition, in low relief, with the usual legend around the border. The design of the wreath might contain the products of the North, West and South, the wheat, corn and cotton of our wide spread domain.

The disadvantages of the full-length figure of our silver coins, or any other full-length figure, are these. The minute size of the head, hands, limbs and other portions, debars the artist from the ability to give the expression and finish that a high grade of art, under other circumstances, permits, and when executed, however well, interposes difficulty in transferring the impression to the coin.

The various views, above presented, are sustained, and appear to have had their influence, by the best and most recent coinages of Europe.

I have only to fear that I have not brought them in relief (to use an appropriate figure), with the force to which, as I respectfully conceive, they are entitled.

Stated Meeting, March 2.

Present, fifteen members.

Prof. FRAZER, Vice-President, in the Chair.

A letter was read from the Corporation of Harvard College, dated Cambridge, Jan. 26, 1855, returning thanks for No. 52 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Rough Notes of an Exploration for an Inter-Oceanic Canal Route, by way of the rivers Atrato and San Juan, in New Granada, South America. By John C. Trautwine, Civil Engineer. Philadelphia, 1854. 8vo.—*From the Author.*

Official Army Register for 1855. Published by order of the Secretary of War. Washington, Jan. 1, 1855. 8vo.—*From Major H. Bache.*

Report of the Pennsylvania Hospital for the Insane, for the year 1854. By Thomas S. Kirkbride, M.D., Physician to the Institution. Philadelphia. 8vo.—*From the Author.*

Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1854. Philadelphia. 8vo.—*From James J. Barclay, Esq.*

The Plough, the Loom and the Anvil. Vol. VII. No. 8. Feb. 1855. New York. 8vo.—*From the Editor.*

The Astronomical Journal. Vol. IV. No. 9. Feb. 21, 1855. Cambridge. 4to.—*From the Editor.*

American Journal of Science and Arts. Vol. XIX. No. 56. March, 1855. New Haven. 8vo.—*From the Editor.*

Eighth Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures and Condition of the Institution up to Jan. 1, 1854,—and the Proceedings of the Board up to July 8, 1854. Washington. 8vo.—*From Prof. J. F. Frazer.*

Mr. Ord, pursuant to appointment at a former meeting, read an obituary notice of William M'Ilvaine, a deceased member of the Society.

William M'Ilvaine, son of Dr. William M'Ilvaine, a respectable physician of Bristol, Pennsylvania, was born in the said town on the 2d of May, 1786. His maternal grandfather was Chief Justice Shippen, a name conspicuous in the annals of our commonwealth.

Mr. M'Ilvaine's predilection for learning was manifested at an early age; his parents therefore determined to have him prepared for a collegiate education. To this end he was placed under the care of the Reverend Dr. Staughton, in the Burlington Academy, New Jersey. On his matriculation in the college of Princeton, it was ascertained that extraordinary exertions, on his part, were necessary, in order to keep pace with students, of the same class, older than himself. Hence his unremitting perseverance enabled him to reach the desirable period of graduation, and to obtain the bachelorship, at the age of sixteen: an unequivocal evidence of industry and mental powers but rarely exhibited, even in our most favoured seminaries.

On quitting his *alma mater*, the choice of a calling became the subject of deliberation; and it was finally resolved, that, of the liberal professions, jurisprudence was the most eligible, as presenting the widest field for social distinction, and as best adapted to the bias of his mind. An arrangement was accordingly made with a distinguished jurist of Philadelphia, for supervision in his preliminary studies. But the result of his emulous incitement at college became manifest in a weakness of his visual organs, which tended to a deprivation of sight. Hence, under medical advisement, he was restricted, for several months, to a darkened chamber; where, deprived of intercommunication with society abroad, his chief solace was derived from the assiduities of his sisters; who had the satisfaction of beholding him at length restored to his wonted health and vigour.

It was now deemed expedient to relinquish the study of the law; and the pursuits of commerce being resolved upon, Mr. M'Ilvaine, in 1806, was admitted into the counting house of a merchant of Philadelphia.

After a novitiate of some twelve months, a voyage to Canton in China was projected; and Mr. M'Ilvaine, conjointly with an acquaintance, embarked, at the port of Philadelphia, in the capacity of supercargo. On the fulfilment of this eastern adventure, he proceeded to the north of Europe, where, for six years, he was occupied

in superintending the affairs of a respectable mercantile establishment of our city. This was an eventful period in the history of the United States; as the war, which took place with Great Britain, occasioned extraordinary embarrassments in the commercial relations of the citizens of the former with foreign countries. Mr. M'Ilvaine's duties were very arduous; but he acquitted himself in a manner not only satisfactory to his employers, but he was also enabled to render efficient aid to several of his countrymen, who had become involved in difficulties similar to his own.

In April, 1826, Mr. M'Ilvaine was elected a member of this Society. The same year he was appointed chief cashier of the Bank of the United States; and he entered, with alacrity, upon the performance of his multifarious duties. This responsible office, we are assured, was not of his seeking; it was tendered to him, by the President of the Institution, in a manner the best calculated to assure his consent: a trust for which he was competent, but which subsequent events convinced him, after due deliberation, it was advisable to relinquish. In the year 1832, he resigned the office of cashier; and profiting by the lessons of experience, he resolved thenceforward to devote himself to pursuits which were more congenial to one of his taste and temperament.

In 1838, Mr. M'Ilvaine, accompanied with his confidential friend, Mr. Clement C. Biddle, crossed the Atlantic once more, with the intention of making an extensive tour in Europe. Disembarking at Liverpool, they proceeded to Ireland. The British Association for the Advancement of Science holding, in August, its eighth general meeting, at Newcastle upon Tyne, thither our travellers went; and they had the satisfaction of intercourse with some of those eminent philosophers that this association annually draws together. From Newcastle they journeyed into Scotland; and when in the highlands, Mr. M'Ilvaine and his companion separated; the former directing his course to the Hebrides, chiefly with the intention of beholding that basaltic curiosity, Fingal's Cave, in the Island of Staffa. After some pleasant rambles in England, he crossed the channel to France. While in Paris, which offers so many inducements for varied occupation, a cutaneous affection, in his lower extremities, having become aggravated by excessive exercise, he was induced to submit to empirical remedies, which not only confined him to his chamber for many weeks, but which were attended with symptoms that gave no hope for permanent relief, under injudicious treatment. In the persuasion of the imprudence of extending his travels, under existing cir-

cumstances, he promptly resolved to forego his intention of visiting Italy, and to return to the United States. Embarking at Havre in the spring of 1839, he reached in safety his home; where the attentions of domestic kindred were found to be more efficacious than the skill of the physician.

Mr. McIlvaine, possessing an estate in Burlington, New Jersey, his summer residence was in that agreeable retreat; but he was accustomed to sojourn, during winter, in our capital, as affording greater incentives to social intercourse, or literary and scientific investigation. His health being now re-established, and being uncontrolled by any settled occupation, he appropriated his leisure hours to those pursuits which were most congenial to his disposition, and consequently most conducive to his happiness. Judging from external appearances, his friends flattered themselves with the hope, that the life of one whom they so highly esteemed was destined to be prolonged for many years to come. But this expectation proved to be illusive; for in the morning of the eighth of August, 1854, finding himself suddenly ill, he was prevailed with to retire to his chamber. While a physician was noting the symptoms of his disease, paralysis became manifest; this, in the following morning, was succeeded by apoplexy, the precursor of death, which shortly ensued. He was interred in the cemetery of St. Mary's Church, in the town of Burlington.

Mr. McIlvaine's scholastic studies having been strictly classical, he was sedulous in his endeavours for improvement in those branches of knowledge which are essential to good breeding. With English literature, in general, he was conversant; but he occasionally superadded investigations of a scientific character, as offering an ampler scope for intellectual exertion. The defects in chronological tables, which are sanctioned in colleges, having excited his attention, he was induced thereby to investigate the cause. The result of his labours appears in a "Memoir explanatory of a New Perpetual Calendar, Civil and Ecclesiastical, Julian and Gregorian." This Memoir was read to the American Philosophical Society on the 15th of August, 1845. A supplement was read on the 18th of December, 1846; and an appendix on the 15th of July, 1847. The whole appears in the tenth volume, new series, of our Society's transactions.

For the advancement of the science of geology, which, of late, has happily invited so much of the regard of the public, and which is so closely connected with the permanent prosperity of our country, he felt a lively interest; encouraged, probably, by his friendly relations

with individuals eminent for their researches in this master branch of the natural sciences.

With the doctrines of the leading political economists he was also familiar; and, being uninfluenced by any motives of personal interest, he was at liberty to entertain those enlarged views of trade, commerce, and productive labour, which best comport with national prosperity.

Mr. McIlvaine was well enabled to draw from the fund of his disciplined intellect, matter which might have been deemed deserving of more than transient notice; but his modesty induced him to slightly estimate the value of his own acquisitions. He, however, occasionally contributed to the journals short essays on popular topics. But these ephemeral productions were so little regarded by him, that he showed no solicitude to perpetuate their remembrance, by an avowal of authorship. Unlike many, he shrunk from notoriety; humbly content to enjoy, among a select circle of friends, those pleasures which spring from the intercourse of polite and cultivated minds. The regret of these friends, at the loss of their respected associate, is not a little soothed by the reflection, that, as his course through life was highly exemplary, so, in its termination, he was exempted from those sufferings which usually accompany the exit of humanity: he expired without a struggle or a groan.

Prof. Frazer offered the following minute and resolutions, which were read, considered and adopted:

The Society having been informed that an attempt has been made to induce Congress to alter the Act establishing in the City of Washington, the Smithsonian Institution for the increase and diffusion of knowledge among men, in such a manner as to divert the whole or a large portion of the funds from the objects to which they have been applied by the Regents, to the formation of a public library;—and believing that such a change would be very detrimental to the usefulness of the Institution:—

Be it, therefore, resolved, That, in the opinion of this Society, the present organization of the Smithsonian Institution is a proper and judicious one,—and the funds at the disposal of the Regents appear to have been prudently and fruitfully expended for the increase and diffusion of knowledge among men.

Resolved, That, in the opinion of this Society, the withdrawal of any part of the funds now employed in encouraging new researches,

and in publishing their results, would render the Institution less efficient for the fulfilment of the trusts under which it was founded,—and that the advantages accruing from the formation of a public library would in no wise compensate the loss thus incurred.

It was further ordered that a copy of the foregoing resolutions be attested by the Secretary of the Society, and forwarded to the Secretary of the Smithsonian Institution.

Stated Meeting, March 16.

Present, twelve members.

Prof. FRAZER, Vice-President, in the Chair.

A letter was read from Joseph Henry, Secretary of the Smithsonian Institution, dated Washington, March 8, 1855, returning thanks, on behalf of the Board of Regents, for the expression of approbation on the part of this Society, of the course they have pursued, as indicated by the resolutions adopted by the Society at last meeting.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society. Vol. XV. No.

3. Jan. 12, 1855. London. 8vo.—*From the Society.*

An Essay to prove the Contagious Character of Malignant Cholera, with brief Instructions for its Prevention and Cure. By Bernard M. Byrne, M.D., Surgeon U. S. Army. Philadelphia, 1855. 8vo.—*From the Author.*

Eighteenth, Nineteenth and Twentieth Annual Reports of the Trustees of the Philadelphia Gas Works, to the Select and Common Councils of the City of Philadelphia, 1853, 1854, 1855:—with two Pamphlets containing the Proceedings in the Supreme Court of Pennsylvania, for the Eastern District, July Term, 1854, in relation to the Philadelphia Gas Works. Philadelphia. 8vo.—*From John C. Cresson, Esq.*

Rectification of Mr. T. A. Conrad's "Synopsis of the Family of Naiades of North America;" published in the Proceedings of the

- Academy of Natural Sciences of Philadelphia, February, 1853.
By Isaac Lea. Philadelphia, 1854. 8vo.—*From the Author.*
- Report of the State Librarian to the Legislature of Pennsylvania,
with a Catalogue of Books for the year 1854. Harrisburg. 8vo.—
From Rev. W. R. De Witt, State Librarian.
- The Medical News and Library. Vol. XIII. No. 147. March, 1855.
Philadelphia. 8vo.—*From Blanchard & Lea.*
- Semi-Centennial Celebration: Fiftieth Anniversary of the Founding
of the New York Historical Society. Monday, Nov. 20, 1854.
New York. 8vo.—*From the Society.*
- Seventh Annual Report of the President and Directors to the Stock-
holders of the Ohio and Pennsylvania Rail Road Company.
Pittsburg, Jan. 1855.—*From S. W. Roberts, Chief Engineer.*

Mr. Peale made a communication, in continuation of his remarks at a former meeting, on the subject of Coinage and metallic currency.

At this particular period, which may be considered an epoch in the monetary affairs of our country, it is very desirable that some fixed principle should be adopted in the coinage, with reference to the proportionate number of pieces of different denominations, if any such principle exists. At all events there can be no impropriety in endeavouring to throw such light as we possess into what is now an obscure atmosphere, in the hope that a ray may fall upon a path that will lead us towards our destination; which is, without doubt, that of supplying a currency of solid precious metals, the only safe basis of financial prosperity.

Congress has wisely, at its last session, done away the folly that previously existed, of a double legal-tender, at fixed ratios of gold and silver, by demonetizing the latter, except to the limited extent of five dollars: thus rendering the first the currency of the country, and adapting the latter, protected by a moderate seniorage, to its true object and destination, as the change and means of payment for all the small transactions of ordinary life.

Our country has now, there is little doubt, an abundance of gold, both in coin, bars, and other forms of bullion, for all desirable purposes of a solid basis, including that of a legitimate metallic currency, and the supply is still on the increase. Silver seems to present no difficulty, as to a supply for the lesser purposes, already noticed, al-

though no special means have yet been taken to add to it, but which can be done readily when the necessity shall arise.

Before proceeding with the immediate subject under consideration, a few words will be devoted to the coinage of small gold pieces.

Peculiar circumstances, whose influence has been powerful, but, it is hoped, transient, have made it necessary to coin large quantities of gold dollars.

A dispassionate view of this coin and its history will, in a candid and just spirit, be appreciated.

It is not a recent invention. Historical records, and our cabinets, show that pieces of approximate value, have been issued by almost all governments at some period of their career, and that they are now almost entirely abandoned. The reasons are obvious, but may be briefly stated.

The piece is too small for convenient handling and inspection in proportion to its value.

It is too liable and easy of counterfeit imitation in consequence of its light weight and diminutive size; and too difficult of detection, when even indifferently counterfeited, because not appreciable by the *sensible tests* (feeling of weight, the sight, &c.), and, finally, it will be unnecessary, when a sufficient supply of *silver change* shall be spread abroad among the community.

The quarter eagle, on the contrary, is of sufficient value and size to authorize sufficient care in its reception and payment; it is entirely appreciable by the sensible tests, and admits of easy detection when fraudulent attempts have been made at imitation or alteration.

The half and quarter eagle have their places in our monetary system, for certain natural reasons, which may be illustrated thus. It is easy and simple to divide and add, by halving and doubling, &c.; hence the hold that the Spanish currency of reals has upon our affections (to say nothing of the habit of its use), whereas a decimal system, such as our money of account and currency, requires *some* education.

The *pons asinorum* being once passed, however, in the use of a decimal system, its advantages and facilities are without bounds. Why, or how, we should tolerate, for one hour, the stupid and false nomenclature of shillings and sixpences, so common in some parts of the Union, is past comprehension or explanation, and will not be attempted.

The quarter eagle, and the three dollar gold-pieces, authorized by the late law, are incongruous, being too nearly of the same value to

The half cent, although a legalized coin, need not be included in this Table, because rarely used in money of account, and but few are struck for occasional purposes only.

The following Table gives the result of the above proportions:—

	No. of pieces.	Value.	Ratio per ct.
Half dollars,	2,000	\$1000	18.5
Quarter dollars. Two to one half dollar,	4,000	1000	18.5
Dimes. Two and one half to one quarter dollar,	8,000	800	14.9
Half Dimes. Two to one dime, and one for each quarter of a dollar,	20,000	1000	18.5
Three cents. One, and two cents, for a half dime,	30,000	600	11.1
Cents. Three for one 3 cent piece, and two for each half dime,	100,000	1000	18.5

The proportions exhibited in the Table above are the exact equivalent values of the smaller to the larger pieces; but as some portion is usually retained in payment for purchases, it is evident that an indefinite excess of fractional pieces would exist. It is also certain, that the operations of trade will draw some denominations of coin to one geographical point, and thus deprive another of its due proportion. This condition of the circulation will be counteracted, in all probability, by the fact that the larger pieces of coin are those which are usually *hoarded*, and are thereby withdrawn from circulation, no doubt to a large extent, and thus adding to the excess of the smaller denominations.

Some change will be developed in their proportionate ratios, by the loss and destruction of the pieces of the smallest denominations, in consequence of their size and small value. Time and the demands of commerce or trade will show when and to what extent this contingency will require to be met, which can be done by occasional coinages in excess of the particular pieces in demand.

The operations of the silversmiths will be checked to an indefinite extent in their depredations upon our coin, by the seniorage, but it is to be feared that the present premium on silver is too high to render it as effectual as is to be desired. If a further augmentation takes place, of equal value, our law and our operations will be alike in vain.

The following Table exhibits the coinage at the Mint of the United States, Philadelphia, since the passage of the laws creating the three cent pieces, and the seniorage upon the silver coin.

Denominations.	No. of pieces.	Value.	Ratio.
Half dollars,	3,004,008	\$1,502,004	20.1
Quarter dollars,	14,942,020	3,735,505	48.7
Dimes,	8,500,010	850,001	11.1
Half dimes,	8,250,020	412,501	5.4
Three cents,	35,510,900	1,065,327	14.0
Cents,	5,701,300	57,013	0.7
Total,	75,988,258	\$7,662,351	100.0

From the invaluable book of Messrs. Eckfeldt and Dubois, the following comparative Tables have been abstracted. In illustration of the subject, they present at a glance the result of the mint operations of five of the great nations of Europe, during long periods of time.

England, 24 years.

Denominations.	No. of pieces.	Value.	Ratio.
Crowns,	1,849,905	£ 462,476	4.1
Half crowns,	31,438,434	3,929,804	35.3
Shillings,	101,645,280	5,082,264	45.7
Sixpences,	58,324,595	1,458,115	13.1
Fourpences,	10,371,058	172,850	1.6
3, 2 and one pennies (not calculated),		2,190	
		£ 11,105,509	99.8

France, 37 years.

Denominations.	No. of pieces.	Value.	Ratio.
Five francs,	645,209,090	Francs, 3,231,045,450	96.3
Two francs,	28,528,804	57,057,608	1.7
One franc,	50,359,424	50,359,424	1.5
Half franc,	45,068,176	22,534,088	0.6
Quarter franc,	14,461,928	3,615,482	0.1
		3,364,612,052	100.2

Spain, 20 years.

Denominations.	No. of pieces.	Value.	Ratio.
Dollars,	580,183	580,183	28.5
Half dollars,	119,036	59,518	2.9
Pistareens,		1,348,926	66.3
Half pistareens,		36,785	1.8
Reals,		7,472	0.3
		2,032,884	99.8

Prussia, 20 years.

Denominations.	No. of pieces.	Value.	Ratio.
Two thalers,	975,045	Thalers, 1,950,090	5.
Thalers,	28,303,346	28,303,346	72.
$\frac{1}{2}$ thaler,	29,124,630	4,854,105	12.1
Billon pieces,		3,147,152	8.
Copper,		752,273	1.9
		<hr/>	<hr/>
		39,006,966	99.

Austria, 15 years.

Denominations.	No. of pieces.	Value.	Ratio.
Rix dollars (2 florins),	13,594,857	Florins, 27,189,714	10.4
Half dollars or florins (none.)			
Twenty kreutzer pieces,	101,163,998	50,581,999	19.3
Ten kreutzer,	3,998,600	974,650	0.4
Five kreutzer,	5,973,424	746,678	0.3
Three kreutzer,	14,799,070	1,109,931	0.4
Copper (26 years),		180,918,286	69.1
		<hr/>	<hr/>
		261,521,258	99.9

The following is a statement of the amount paid to customers at the mint, since the commencement of the coinage under the new law, creating a seniorage on the silver currency, with the denominations and ratio per cent. on the value, up to January 1, 1854.

Half dollar,	\$ 1,593,854	Ratio per ct.	25.1
Quarter dollar,	3,609,955		56.8
Dime,	704,601		11.1
Half dime,	372,951		6.
Cents for the year,	66,411		1.
	<hr/>		<hr/>
	\$6,347,772		100.

As an enormous amount of 3 cent pieces was coined and issued immediately antecedent to the above issue, and as the mint has been occupied for years upon copper, it may be supposed that the demands for these coins have been supplied.

A new ratio, including the whole of the 3 cents, and 5 years of the copper coinage, will give the following result.

Half dollars,	\$1,593,854	Rates, 20.8
Quarter dollars,	3,609,955	47.2
Dimes,	704,601	9.2
Half dimes,	372,951	4.8
3 cents. The whole 2 years,	1,065,327	14.0
1 cent. Five years,	303,217	4.0
	<hr/>	<hr/>
	\$7,649,905	100.

The following Table embraces the whole coinage, under the new laws, to December 31, 1853.

Dollar,	\$46,110	Ratio per ct. 0.5
Half dollar,	1,766,354	20.4
Quarter dollar,	3,813,555	44.1
Dime,	1,217,301	14.1
Half dime,	667,251	7.6
Three cent (total),	1,065,327	12.3
Cent (one year),	66,411	0.8
Half cent,	648	.0
	<hr/>	<hr/>
	\$8,642,957	99.8

The above Tables appear to support, as satisfactorily as could be expected, the theory advanced in previous parts of this paper. The discrepancies are noted, and accounted for as follows:

The half dollars have been in demand, and coined slightly in excess, because there are a considerable number of Spanish American quarters in circulation.

The quarter dollars have been likewise coined in excess, because an immense number of the old Spanish American reals ($12\frac{1}{2}$ cent pieces) are still in circulation; and thus causing a less or reduced demand for dimes.

The half dimes fall very far short of the theoretic proportion, because large numbers of the Spanish half reals ($6\frac{1}{4}$ cent pieces) are still in circulation, and, also, because the 3 cent pieces are considerably in excess, and thus serving instead of the half dime.

The largest deficiency is in the cent coinage. This is to be expected, because this coinage has been continued through a long series of years, and the yearly coinage may be only sufficient to maintain the necessary supply or stock in circulation.

The results which have been thus far developed by this examination, appear to support the theory; at least there does not appear to be any discrepancy in the demands at the paying counter of the mint, with the theory, that is not accounted for by the existence of foreign

coin of small denominations now in circulation; which it is difficult to withdraw because they pass by tale for much more than their intrinsic value—a practical seniorage, from which there is no benefit to any body, and much embarrassment in the phraseology of our money, especially to foreigners.

Stated Meeting, April 6.

Present, twelve members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Don P. de Angelis, dated Montevideo, Dec. 1, 1854, and from Dr. N. B. Shurtleff, dated Boston, March 14, 1855, announcing donations for the library: and—

From the Royal Academy of Sciences, at Turin, dated Nov. 24, 1854, returning thanks for Transactions and Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Boston Society of Natural History. Vol. V. No.

7, 8, 9. Feb. March, 1855. Boston. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia.

Vol. VIII. No. 7. Philadelphia. 8vo.—*From the Academy.*

The African Repository. Vol. XIII. No. 3. March, 1855. Washington. 8vo.—*From the American Colonization Society.*

Journal of the Franklin Institute. 3d Series. Vol. XXIX. No. 3.

March, 1855. Philadelphia. 8vo.—*From the Institute.*

Records of the Governor and Company of Massachusetts Bay in

New England. Printed by order of the Legislature. Edited by N.

B. Shurtleff, M.D., &c. &c. Vol. III. 1644—1657. Vol. IV. Part

1. 1650—1660. Boston, 1854. 4to.—*From the Editor.*

Twelfth Report to the Legislature of Massachusetts, relating to the

Registry and Returns of Births, Marriages and Deaths in the

Commonwealth, for the year ending Dec. 31, 1853. By Ephraim

N. Wright, Secretary of the Commonwealth. Boston, 1854.

8vo.—*From N. B. Shurtleff, M.D.*

Twenty-second Annual Report of the Managers of the Pennsylvania

Institution for the Instruction of the Blind; together with Dr.

- Dunglison's Letter on the Blind and Institutions for the Blind in Europe. Philadelphia, 1855. 8vo.—*From Dr. Dunglison.*
- The Eye in Health and Disease; with an account of the Optometer for the adaptation of Glasses for impaired, aged or defective sight; being the substance of Lectures delivered at the Central London Ophthalmic Hospital. By Alfred Smeec, F.R.S., Surgeon to the Bank of England, &c. &c. London, 1854. 8vo.—*From the Author.*
- De la Navigation de l'Amazone; reponse à un mémoire de M. Maury, Officier de la Marine des Etats Unis:—par M. de Angelis. Montevideo, 1855. 8vo.—*From the Author.*
- Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. Achtste Deel. Haarlem, 1853. 4to.—*From the Holland Society of Sciences at Haarlem.*
- The Astronomical Journal. Vol. IV. No. 10. Cambridge, March 23, 1855. 4to.—*From Dr. B. A. Gould, jr., Editor.*
- Report of the Select Committee of the Senate of Pennsylvania, in relation to the progress and present condition of the State Geological Survey. Harrisburg, 1855. 8vo.—*From Eli K. Price, Esq.*
- Speech of Eli K. Price, Esq., on the bill entitled "An Act relating to Corporations and to Estates held for Corporate, Religious and Charitable uses," in the Senate of Pennsylvania, March 21, 1855. Harrisburg. 8vo.—*From the Author.*
- Catalogue of the Miscellaneous Library of E. D. Ingraham, Esq., sold March, 1855, by M. Thomas & Sons. Philadelphia. 8vo.—*From M. Thomas & Sons.*
- The Florist and Horticultural Journal. Vol. IV. No. 3. Philadelphia. 8vo.—*From H. C. Hanson, Editor.*
- The Plough, the Loom and the Anvil. Vol. VII. No. 9. March, 1855. New York. 8vo.—*From Myron Finch, Editor.*
- The American Journal of the Medical Sciences. No. LVIII. New Series. April, 1855. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- Documentos, relativos a la Mision del Honorable Sr. Don Tomas Hood, Agente Especial del Gobierno de S. M. B. cerca del Gobierno de Buenos-Aires, encargado de las relaciones exteriores de la Confederacion Argentina. Buenos-Aires, 1846. 4to. — *From Don P. de Angelis.*
- Descripcion de la Nueva Provincia de Otuquis en Bolivia. Por Mauricio Bach, Secretario del misma provincia. Buenos-Aires, 1843. 4to.—*From the same.*

Historical Sketch of Pepys' Island, in the South Pacific Ocean, from the work on the Rio de la Plata: by P. de Angelis. Buenos-Aires, 1842. 8vo.—*From the Author.*

Mr. J. R. Tyson, pursuant to appointment at a former meeting, read an obituary notice of William Peter, Esq., a deceased member of the Society.

William Peter was born on the 22d March, 1788, at a country place, called *Harlyn*, the seat of his forefathers in Cornwall, England. He was educated at Christ Church, Oxford, where he graduated as Bachelor of Arts in 1807, and became Master of Arts in 1809. He studied law and was called to the bar by the Society of Lincoln's Inn, on the 28th May, 1813.

Mr. Peter seems not to have been long engaged in the courts, as a legal practitioner, but succeeding to the paternal estates upon the death of his father in 1821, he devoted his time between literary and domestic pleasures, and the discharge of those duties which devolved upon him as deputy warden and deputy lieutenant of the county.

Upon the death of his father-in-law in 1825, he removed to his wife's place, called Chiverton, in the same county, where he continued to reside for eight years. Here he acted for several years as a county magistrate, chairman of the Quarter Sessions of Cornwall, and chairman of several political bodies known as reform associations.

In 1832, after the reform act had enlarged the constituency, he was elected to Parliament for Bodmin. This reform he contributed to effect by unprecedented exertions in Cornwall. The opposition he met with was commensurate with the magnitude of the interests involved in the contest. Such was the inequality of representation under the borough system which Mr. Peter aided so much to destroy, that Cornwall alone returned only *two members less to Parliament than the whole of Scotland*. He was the life and soul, the mind, tongue and pen of the reform party in that county against a host of talent, rank and wealth, arrayed against him. Owing to the ardour and impetuosity of his character which admitted of no compromises with his opponents, he became as much the mark of the tories as he was the idol of the whigs. His popularity was such, that though the election for the borough was contested by three candidates and all of liberal politics, Mr. Peter was returned, without expense to himself, by a large majority.

After the dissolution of Parliament in 1835, Mr. Peter did not again appear in public life. He withdrew to the continent, where he held

for some time, a consular appointment. He improved the opportunity which his foreign residence afforded him of forming intimacies with some of the most distinguished scholars and men of learning in the countries he visited. In 1840, he was appointed Her Britannic Majesty's Consul for Pennsylvania, and came to Philadelphia, where he spent the residue of his life. He soon found here many congenial friends, whose society he liked, and to whom his highly social spirit, kind heart, and acquaintance with books and men, rendered him always acceptable. He was received into membership of this Society, on the sixteenth day of April, 1841.

He died on Sunday afternoon, 6th day of February, 1853, in the 64th year of his age.

Mr. Peter's taste, was eminently literary. His classical education was good, and he was especially fond of Greek literature. In the quiet country life which he led for some years in England, he had full opportunity for the indulgence of this passion. He had read much, especially of history and poetry. In several of the modern languages, he had attained great proficiency, being well acquainted with German, French, and Italian. But all his acquisitions of this kind were through the eye. His vocal organs did not enable him to speak either of these tongues, and he had no ear to understand them when pronounced. Yet his attainments were thorough, he had mastered their idiomatic niceties, and was conversant with their leading writers. In the early part of his life, he wrote various essays, chiefly, it is believed, on political questions. Several of these pamphlets have from time to time fallen in my way; but being on temporary and local topics, they need not be referred to here; one, I remember, was a highly ingenious and plausible argument in favour of the *viva voce* system of public suffrage, over that by ballot. There is no doubt, that the nobility and gentry of England prefer that mode of giving expression to popular preference: but it may be doubted whether the open vote is best for those in the lower walks of life, whose social and pecuniary condition places them in a state of dependency upon the higher classes. He published in England, an edition of the works of Sir Samuel Romilly, to which he prefixed a very interesting account of his life. This undertaking was a labour of love; for he manifests in his sketch, as he always discovered in his conversation, the highest appreciation of the virtues, learning and abilities of the subject of his memoir. The biography justly places Romilly where his career entitles him to stand—among the purest and most illustrious of England's worthies.

Mr. Peter translated from the Italian, *Manzoni's Fifth of May*, and various fugitive verses, some of which have superior poetical merit. In the same manner he published with his translation of *Schiller's William Tell*, sundry smaller pieces, most of them also from the German. This dramatic poem, in celebration of the great deliverer of Switzerland, he translated in Lucerne, in 1837. In the year 1839, appeared another volume containing poetical translations of Schiller's *Marie Stuart* and *the Battle with the Dragon*. He added to the edition which he published in this city, several miscellaneous original pieces of rare excellence and beauty. His *Maid of Orleans* was translated in Philadelphia, and in this volume also, are contained some of his best original verses. The *Maid of Orleans* is generally regarded as the most polished and felicitous of his versions from Schiller.

To these various works he added a volume of considerable size, entitled, "Specimens of the Poets and Poetry of Greece and Rome." It was first published at Philadelphia, in 1847. This production has been pronounced in England, to be "the most thorough and satisfactory popular summary of ancient poetry, ever made in the English language."

A translation followed of Æschylus's *Agamemnon* from the Greek, which he published in this city, in 1852. It has the merit of being literal, but scholars, I think, do not generally accord to it a very near approximation to the spirit of the original. In the brief notice contained of Mr. Peter in the Gentleman's Magazine for April, 1853, it is mentioned that he translated *Prometheus* from the same author. This, I believe, is a mistake. Mr. Peter tells us, in his preface to *Agamemnon*, that ever since his classic days at Oxford, he had been "possessed with an earnest longing to translate the Prometheus and the Agamemnon of Æschylus;" but that, like the slothful man in scripture, he had always some "lion in his way," until his arrival in America, when he set about the undertaking in good earnest, and had been able to finish only a portion of his task. The other and more attractive division of his long deferred labour, was postponed till death prevented the execution of his projects and intentions.

Mr. Peter was devoted to poetry. He intensely admired Milton, and, I believe, he could repeat from memory, the most of *Paradise Lost*. As some evidence of his relish of good poetry and his fondness for rendering it into English, I may mention, that he translated the *Leonore of Bürger* in the train of cars, on a journey to Washington. He told me, that in reading it, he was so delighted with the imagina-

tive wildness of the story, and the beauty and spirit of its execution, that he was able to fix in his mind, while on the way, the appropriate English dress of each of the more difficult or delicate passages, and, that he had nothing to do, on his return, but to commit the whole to paper. His own versification is surpassingly happy in its poetical diction, and its sprightly, easy and elegant flow.

But, Mr. Peter was not merely well read in the ancient and modern poets. He was well acquainted with general history, with English politics and the genealogy of the English peerage. He belonged to the whig school, and regarded republicanism as the dream of visionary folly. He was well acquainted with the English arguments in favour of free trade, but he could not see that though its doctrine might be applicable to England, it might *not* be suited to the situation of a country, whose capacity and resources were undeveloped by the expenditure of capital, and whose policy was *not* to depress their labourers into starvelings.

But with many virtues and excellent companionable qualities, he saw all subjects through only certain particular interests and one particular country.

The ascendancy of the aristocratic element in the British Constitution, might be endangered by the success of republicanism, the official predominance of the peerage and gentry might be undermined by the destruction of the *viva voce* system of voting, and whatever losses a new country may incur, English commerce and English manufactures must flourish under the auspices of *free trade*.

Dr. Dunglison announced the decease of the Rev. William Bengo Collyer, of London, a member of this Society.

Prof. Kendall announced the death of Prof. C. F. Gauss, of Gottingen, a member of this Society, who died Feb. 23, 1855, aged 77.

Mr. Peale exhibited a model of a fire-escape, consisting of a ladder of cord, with wooden steps, and so arranged that these steps can be attached to one another by their ends, and extended as a long pole or rod, equal to the aggregate length of the steps or rounds. The apparatus is provided with iron hooks, by means of which it may be suspended. It is not claimed as a new invention, a similar contrivance having been known many years ago.

The Committee appointed to confer with a Committee of

the City Councils, relative to a sale or exchange of the Society's Hall, reported progress.

The following resolution was offered by Mr. Foulke, which was read, considered and adopted:

Resolved, That a Committee of five be appointed, whose duty it shall be to consider the expediency of a memorial (and if expedient to prepare the draft of one) to the Legislature of the Commonwealth, containing such representations as they shall deem expedient for procuring the publication, in sections, on a large scale, of the general map of the geology of the State; and also the deposit, in the Department of State, of the materials procured during the geological survey of the State for said map, and for the reports of the State Geologist;—and that the said Committee make report at the next stated meeting of the Society.

The Committee appointed under this resolution consists of Mr. Foulke, Mr. Trego, Prof. Frazer, Dr. Le Conte and Dr. Franklin Bache.

Stated Meeting, April 20.

Present, eighteen members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From E. Brown Sequard, dated New York, April 10, 1855, acknowledging the receipt of notice of his election as a member of this Society:—

From the Geographical Society, dated Paris, Oct. 30, 1854, returning thanks for the Transactions of this Society. Vol. X. Part 3.

From the Boston Society of Natural History, dated April 12, 1855, acknowledging the receipt of Nos. 49–51 of the Proceedings: and—

From the Imperial Society of Sciences, Agriculture and the Arts, of Lille, without date, announcing a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Bulletin de la Société Zoologique d'Acclimation; fondée le 10 Février, 1854. No. 1. Mars, 1854. Paris. 8vo.—*From Col. J. J. Abert, U. S. Army.*

Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 4. April, 1855. London. 8vo.—*From the Society.*

The African Repository. Vol. XXXI. No. 4. April, 1855. Washington. 8vo.—*From the Am. Colonization Society.*

Journal of the Franklin Institute. Third Series. Vol. XXIX. No. 4. April, 1855. Philadelphia. 8vo.—*From the Institute.*

Report of the Twenty-fourth Exhibition of American Manufactures held in Philadelphia, from Nov. 14 to Dec. 2, 1854, by the Franklin Institute:—with a Catalogue of the Articles deposited;—and the Address delivered at the close of the Exhibition, by Thomas Balch, Esq. Philadelphia, 1855. 8vo.—*From the same.*

The Medical News and Library. Vol. XIII. No. 148. April, 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*

On Adipocire and its Formation. By Charles M. Wetherill, Ph. D.M.D. (From Trans. Am. Phil. Soc. Read Jan. 19, 1855.) Philadelphia. 4to.—*From the Author.*

Trübner's Bibliographical Guide to American Literature; being a classified List of Books in all departments of Literature and Science, published in the United States of America during the last forty years:—with an Introduction, Notes, &c. London, 1855. 8vo.—*From N. Trübner & Co.*

Annual Reports of the Director of the U. S. Mint, Jan. 27, 1854, and Jan. 30, 1855. Washington. 8vo.—*From J. R. Snowden, Esq., Director.*

A letter was read from Mr. Robert Patterson, dated Locust street, April 20, 1855, transmitting, as a donation to the Society, on the part of his mother, a portrait of her deceased husband, Dr. Robert M. Patterson, late President of the Society:—

Whereupon, on motion of Mr. Fraley, it was unanimously resolved that the Secretary be directed to communicate the thanks of the Society to Mrs. Patterson for her valuable donation.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

It being represented to the Society that Mr. Trübner, a London bookseller, has intimated a desire to purchase some copies of Du Ponceau's *Essay on Chinese Writing*, published by the Society in 1838,—it was resolved that the sale of said books be referred to the Librarian, with power to act.

Mr. Foulke, from the Committee appointed at last meeting on the subject of memorializing the Legislature in reference to the publication of the report of the Geological Survey of Pennsylvania,—made report to the Society that a meeting of the Committee had been held; but that nothing was agreed upon:—And the question being taken upon granting the Committee leave to sit again, leave was not granted, and the subject came up for the consideration of the Society:—

Whereupon, a draft of a memorial to the Legislature was presented by Mr. Foulke; and after discussion it was resolved that it is inexpedient for the Society to memorialize the Legislature upon the subject at present.

All other business having been concluded, the ballot-boxes were opened by the presiding officer, and the following named gentlemen were declared to be duly elected members of the Society:—

SAMUEL POWEL, of Newport, R. I.

ELISHA J. LEWIS, of Philadelphia.

REV. EBENEZER P. ROGERS, of Philadelphia.

P R O C E E D I N G S
OF THE
A M E R I C A N P H I L O S O P H I C A L S O C I E T Y.

VOL. VI. MAY—DECEMBER, 1855. No. 54.

Stated Meeting, May 4.

Present, twelve members.

Judge KANE, Vice-President, in the Chair.

The Rev. Dr. E. P. Rogers, a recently elected member, was introduced and took his seat.

Letters were read:—

From the Rev. E. P. Rogers, dated Philadelphia, April 23,—and from Samuel Powel, dated Newport, R. I. April 25, 1855, acknowledging the receipt of notice of their election as members of the Society:—

From the Royal Society of Edinburgh, dated Dec. 12, 1854, returning thanks for Vol. X. Part 3, of the Transactions, and for No. 50 of the Proceedings of this Society: and—

From the Boston Society of Natural History, dated April 12, 1855, returning acknowledgments for sundry Parts of the Transactions and Nos. of the Proceedings, which were wanting to complete the series in their library.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Royal Society of Edinburgh. Vol. XXI. Part 1, for the session 1853-4. 4to.

Proceedings of the Royal Society of Edinburgh. Vol. III. No. 44. 1853-4. 8vo.—*From the Society.*

Report of the Superintendent of the U. S. Coast Survey, showing the progress of the Survey during the year 1853. Washington. 8vo.—*From A. D. Bache, Sup. U. S. C. S.*

Navy Register of the United States, for the year 1855. Washington. 8vo.—*From Major Hartman Bache.*

Telegrafo a correnti dirette successive e derivate contemporane per la doppia simultanea corrispondenza sopra un solo filo comunicante colla terra. Del Professore Zantedeschi.

Telegrafo elettro-magnetico delle stazioni e delle locomotive delle strade ferrate: di Zantedeschi. Padua, 1855. 4to.—*From Prof. Zantedeschi.*

Annual Report of the Geological Survey of the State of Wisconsin. By James G. Percival. Madison, Wis. 1855. 8vo.—*From the Wisconsin Historical Society.*

The Florist and Horticultural Journal. Vol. IV. No. 4. Philadelphia, 1855. 8vo.—*From H. C. Hanson, Editor.*

The Medical News and Library. Vol. XIII. No. 149. May, 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Astronomical Journal. Vol. IV. No. 11. April 24, 1855. Cambridge. 4to.—*From Dr. B. A. Gould, jr. Editor.*

The Committee appointed to confer with a Committee of the City Councils, in relation to a sale or exchange of the Society's Hall, reported progress, and were continued, with exemption from the duty of reporting at every stated meeting.

The Secretary reported that previous to the last meeting he had furnished Prof. Frazer, one of the Vice-Presidents of the Society, with a letter of introduction to Societies and individuals in Europe, in correspondence with this Society: but that the subject was inadvertently omitted to be mentioned at the meeting:—whereupon, it was ordered that the following minute be entered as of the last stated meeting:—

“The Society being informed that Prof. John F. Frazer, one of the Vice-Presidents, is about to depart on a visit to Europe, the action of the Secretary in furnishing him with an official letter of introduction to the learned Societies and individuals abroad, who are in correspondence with this Society, is hereby approved and confirmed.”

Stated Meeting, May 18.

Present, ten members.

JUDGE KANE, Vice-President, in the Chair.

Letters were read:—

From the Imperial Academy of Sciences at Vienna, dated Dec. 27, 1854;—from the Royal Society of London, dated Jan. 25, 1855; and—from the Linnean Society, dated London, Nov. 10, 1854—returning thanks for Vol. X. Part 3, of the Transactions, and Nos. 49, 50 of the Proceedings of this Society:—

From the Batavian Society of Experimental Sciences at Rotterdam, dated Dec. 13, 1854, acknowledging the receipt of the Transactions, Vol. X. Part 3, and of No. 49 of the Proceedings.

From the Bavarian Royal Academy of Sciences, dated Munich, Dec. 20, 1854, returning acknowledgments for Vol. X. Part 3, of the Transactions, and Nos. 49, 50, of the Proceedings,—and also announcing a donation for the Library of the Society: and—

From the Etat Major of the Corps of Mining Engineers of Russia, dated St. Petersburg, May 1, 1854; and—from the Ethnological Society of London, dated Jan. 1, 1855, accompanying donations for the Library.

A letter was also read from the Royal Society of Sciences at Göttingen, as follows:—

To the American Philosophical Society, at Philadelphia:—

On the night of February 23, at one o'clock, *Charles Frederick Gauss* closed, in the 78th year of his age, his renowned earthly career. Since the year 1802, the Royal Society of Sciences has with pride called him its own, and is now plunged in the deepest grief by the great and irreparable loss of its honoured oldest member and former director.

The universal respect and admiration enjoyed by this great mathematician, astronomer and physicist, warrant a kind participation with the Society in their just sorrow.

This notice is very respectfully communicated, in the name of the Royal Society of Sciences, by the Secretary.

HAUSMANN.

Göttingen, 26th Feb. 1855.

The following donations were announced:—

FOR THE LIBRARY.

- Annales de l'Observatoire Physique Central de Russie, publiées par ordre de sa Majesté l'Empereur Nicolas I. sous les auspices de S. Exc. M. de Brock, Ministre des Finances, &c. Par A. T. Kupffer, Directeur de l'Observatoire. Année 1851. Nos. 1, 2. St. Petersburg, 1853. 4to.—*From the Corps of Mining Engineers of Russia.*
- Abhandlungen der Mathematisch Physikalischen Classe der Königl. Bayerischen Akademie der Wissenschaften. Band VII. Abth. 2. München, 1854. 4to.—*From the Royal Bavarian Academy of Sciences.*
- Jahrbuch der K. K. Geologische Reichsanstalt. V. Jahrgang, 1854. No. 3. Jul. Aug. Sept. Wien. 8vo.—*From the Imperial Geological Institute, Vienna.*
- Philosophical Transactions of the Royal Society of London, for the year 1854. Vol. 144. Parts 1, 2. London. 4to.
- Proceedings of the Royal Society of London. Vol. VI. No. 102. Vol. VII. Nos. 7, 8, 9, 10:—With the Address of the Rt. Hon. the Earl of Rosse, &c. &c. President: delivered at the Anniversary Meeting of the Royal Society, on Thursday, Nov. 30, 1854. London. 8vo.—*From the Society.*
- Astronomical and Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the year 1853, under the direction of George Biddell Airy, Esq. M.A. Astronomer Royal. London. 4to.—*From the same.*
- Catalogue of Stars near the Ecliptic, observed at Markree during the years 1852, 3, 4, and whose places are supposed to be hitherto unpublished. Vol. III. Containing 15,018 stars. Dublin, 1854. 8vo.—*From the same.*
- Journal of the Ethnological Society of London. Vol. III. London, 1854. 8vo.—*From the Society.*
- A Manual of Ethnological Inquiry: being a series of Questions concerning the Human Race,—prepared by a sub-committee of the British Association for the Advancement of Science, appointed in

- 1851, and adapted for the use of Travellers and others, in studying the varieties of Man. London, 1852. 8vo.—*From the same.*
- Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 5. March 9, 1855. London. 8vo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. Vol. V. No. 11. Boston, 1855. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXIX. No. 5. May, 1855. Philadelphia. 8vo.—*From the Institute.*
- The American Journal of Science and Arts. Second Series. Vol. XIX. No. 57. May, 1855. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*
- Martin Behaim, the German Astronomer and Cosmographer of the times of Columbus:—being the Tenth Annual Discourse before the Maryland Historical Society, Jan. 25, 1855. By John G. Morris, D.D. Baltimore. 8vo.—*From the Maryland Historical Society.*
- Nineteenth Report of the Executive Committee of the Young Men's Association of the City of Buffalo: Also Record of the Proceedings of the Association. Buffalo, 1855. 8vo.—*From the Association.*
- Beobachtungen und Wahrnehmungen welche bei der totalen Sonnenfinsterniss am 28 Juli, 1851, gemacht worden sind. Von Dr. Busch, Director der Königl. Sternwarte zu Königsberg, &c. 1852. 8vo.
- Beobachtungen der totalen Sonnenfinsterniss am 28 Juli, 1851, und Bestimmung der geographischen Lage des Leuchthurms zu Rixhöft, von Busch und Fearnley. Herausgegeben von Dr. A. L. Busch, Director der Königl. Universitäts Sternwarte in Königsberg. 1854. Folio.—*From the same.*
- Fossil Foot-marks in the Red Sandstone of Pottsville, Pennsylvania. By Isaac Lea, Vice-President of the Academy of Natural Sciences of Philadelphia, &c. &c. Philadelphia, 1855. Large Folio.—*From the Author.*
- The African Repository. Vol. XXXI. No. 5. May, 1855. Washington. 8vo.—*From the American Colonization Society.*
- Journal of the Academy of Natural Sciences of Philadelphia. New Series. Vol. III. Part 1. Philadelphia, 1855. 4to.—*From the Academy.*

Dr. Coates read extracts from a letter received by him from Dr. L. P. Yandell, Professor of the Institutes of Medicine in

the University of Louisville, Kentucky, relative to some statements in the obituary notice of Dr. Caldwell, read before the Society in January last, and published in pamphlet form. In this pamphlet, in speaking of Dr. Caldwell's connection with the University, and of its medical class, it is said, "Its numbers reached four hundred. After he left it, these advantages underwent a slow but visible and progressive decline." Dr. Yandell shows that the diminution in the number of students is mainly to be attributed to the establishment of other medical schools in Louisville and Nashville, after Dr. Caldwell left the University.

The minutes of the Board of Officers and Council at their last meeting were read. In accordance with the recommendation of the Board, it was agreed that an amendment to the laws of the Society be proposed, as follows:—In Chap. I. Art. 10, add the words "and pay their admission fee," after the word "laws," in the third line of the article.

The recommendation of the Board with regard to giving notice concerning the Magellanic Premium, was adopted, as follows: "That the Secretaries be authorized to publish so much of the conditions of the Premium as they may think proper, once a year in the American Journal of Science and Arts,—the Journal of the Franklin Institute,—and in the Proceedings of this Society."

So much of the report of the Board as relates to the application of the fund advanced by the city to the Society, in aid of astronomical observations, was referred to a committee of three members, to be appointed by the presiding officer and announced at next meeting.

So much of the report of the Board as relates to re-engraving the seal of the Society, was referred to a committee to consider and report upon a proper device for a new seal, should a change of device be deemed expedient. The Committee consists of Dr. Franklin Bache, Mr. Fraley and Mr. Peale.

Stated Meeting, June 15.

Present, sixteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From C. F. P. von Martius, dated Munich, May 18, 1855, acknowledging the receipt of notice of his election as a member of the Society:—

From the Society of Arts and Sciences, of Batavia, dated June, 1854; from the Imperial Academy of Sciences at Vienna, dated 18th and 27th November, 1854; from the Baron von Hammer Purgstall, dated Vienna, April 5, 1855; from Dr. W. H. Vriese, dated Leyden, Nov. 4, 1854; and from Dr. N. B. Shurtleff, dated Boston, June 4, 1855,—severally announcing donations for the Library:—

From the Imperial Geological Institute at Vienna, dated Oct. 22, 1854, returning thanks for Vol. X. Parts 1, 2, 3, of the Transactions, and Nos. 40 to 50 of the Proceedings of this Society: and—

From the New Jersey Historical Society, dated Newark, May 8, 1855; from the American Antiquarian Society, dated Worcester, Mass. June 9, 1855; and from the Rhode Island Historical Society, dated Providence, June 11, 1855,—respectively communicating thanks for No. 53 of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Sitzungsberichte der K. Akademie der Wissenschaften: Math. Nat. Classe, Band XII. 5 Heft; Band XIII. 1, 2 Heft.—Phil. Hist. Classe, Band XII. 5 Heft; Band XIII. 1, 2 Heft. Wien. 1854. 8vo.

Register zu den ersten X. Bänden der Sitzungsberichte der Math. Nat. Classe der K. Akad. der Wissenschaften. Wien. 8vo.

Geognostische, Karte der Umgebungen von Krems und vom Manhardsberge:—von Joh. Czjzek. 1849.—*From the Imperial Academy of Sciences, Vienna.*

Jahrbuch der K. K. Geologischen Reichsanstalt. V. Jahrgang. No.

2. 1854. Wien. 8vo.—*From the Imp. Geological Institute, Vienna.*

Programm des Groszherzogl. Lyceums zu Freiburg im Breisgau, 1854:—Aristarchos über die Grossen und Entfernungen der Sonne und des Mondes; übersetzt und erläutert von A. Nokk. Freiburg. 8vo.

Verzeichniss von Doubletten der Universitätsbibliothek zu Freiburg im Breisgau. 1853.

Antrittsrede gehalten am 4 März. 1854, an der Albert Ludwigs-Universität zu Freiburg: von Prof. Dr. Joh. Alzog. 8vo.—*From the University, Freiburg.*

Transactions of the Linnean Society of London. Vol. XXI. Part 3. 4to.

Proceedings of the Linnean Society. Nos. 52 to 58, 1853-4: with List of the Society, and Address of Thomas Bell, Esq. the President, May 24, 1854. London. 8vo.—*From the Society.*

Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel XXV. Batavia, 1853. 4to.

Tijdschrift voor Indische Taal-Land-en Volkenkunde, uitgegeven door het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel I. II. Batavia, 1853-4. 8vo.—*From the Batavian Society of Arts and Sciences.*

Documents relative to the Colonial History of the State of New York;—procured in Holland, England and France, by John Romeyn Brodhead, Esq. Agent. Edited by E. B. O'Callaghan, M.D. Vol. V. Albany, 1855. 4to.—*From the Trustees of N. Y. State Library.*

Transactions of the Albany Institute. Vol. III. and IV. Part 1. Albany, 1855. 8vo.—*From the Institute.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 8. Philadelphia. 8vo.—*From the Academy.*

A Discourse delivered before the Rhode Island Historical Society, Feb. 6, 1855, on the Life and Times of John Howland, late President of the Society. By Edward B. Hall, D.D. Providence. 8vo.—*From the Society.*

Proceedings of the Boston Society of Natural History. Vol. V. 10, 12. Apr. May, 1855. Boston. 8vo.—*From the Society.*

First Annual Report and Collections of the State Historical Society of Wisconsin, for the year 1854. Madison, Wis. 8vo.

Report on the Iron of Dodge and Washington counties, State of Wis-

- consin. By James G. Percival, State Geologist. Milwaukee. 8vo.—*From the Wisconsin Historical Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXIX. No. 6. June, 1855. Philadelphia. 8vo.—*From the Institute.*
- Proceedings of the American Academy of Arts and Sciences. Vol. III. p. 105 to 184. Boston. 8vo.—*From the Academy.*
- Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 6. April 13, 1825. London. 8vo.—*From the Society.*
- Ueber die Arabische Geographie von Spanien. Dec. 1854. 8vo.
- Ueber die Arabische Wörter im Spanischen. Nov. 1854. 8vo.
- Das Kamel. Wien, 1854. 4to. Vom der Freiherrn Hammer Purgstall.—*From the Author.*
- Monographie des Marattiacées. Par W. H. De Vriese et P. Harting. Leide, 1853. 4to.
- De Kamferboom van Sumatra. Door W. H. De Vriese, &c. &c. Leiden, 1851. 4to.—*From the Author.*
- Ueber die Proximitäten der Bahnen der Planeten und Kometen: von J. A. Grunert, Prof. zu Greifswald. Nov. 1854. 8vo.—*From the Author.*
- A Treatise on Pneumatics: being the Physics of Gases, including Vapors, &c. By Martin H. Boyé, M.D. A.M., &c. &c. Philadelphia, 1855. 8vo.—*From the Author.*
- Records of the Governor and Company of the Massachusetts Bay, in New England. Printed by order of the Legislature. Edited by Nathaniel B. Shurtleff, M.D. Mem. Hist. Soc. Mass., &c. Vol. IV. Part 2. 1661–1674. Vol. V. 1674–1686. Boston, 1854. 4to.
- Catalogus Universitatis Harvardianæ. MDCCCLIV. Cantab. 8vo.
- Catalogue of the Public Library of the City of Boston, 1854: and City Documents relating thereto. 1855. 8vo.
- Rules of the School Committee and Regulations of the Public Schools of the City of Boston. 1855. 8vo.
- Proceedings of the Massachusetts Historical Society. April 12, 1855. 8vo.—*From Dr. N. B. Shurtleff.*
- The Astronomical Journal. Vol. IV. No. 12. Cambridge, May 26, 1855. 8vo.—*From Dr. B. A. Gould, jr. Editor.*

Mr. Trego announced the decease of Mr. George Campbell, a member of the Society, who died on the 11th inst. in the 73d year of his age.

Judge Kane informed the Society that in consequence of the

action of Congress at their last session, an expedition consisting of two vessels, one of which is propelled by steam, had sailed from New York, on the 4th of the present month, to the Polar regions in search of the party of Dr. Kane. The course proposed is through Baffin's bay, and up Smith's sound to the ice-barrier, where one vessel may be left, while the other proceeds through accidental openings as far as practicable, when the search will be prosecuted by means of sledges. The expedition took out with them a monument of marble, furnished by the liberality of Mr. Grinnell, of New York—with an appropriate epitaph, by Lady Franklin, to the lost explorers of Sir John Franklin's party.

The amendment to the laws of the Society, proposed at last meeting, was adopted as follows: In Chap. I. Art. 10, add the words "and pay their admission fee," after the word "laws," in the third line of the Article: making the amended clause to read as follows: "Members elect, residing within ten miles of the Hall, shall lose the right of membership unless they subscribe the laws *and pay their admission fee*, within one year after their election.

The Committee appointed on the subject of re-engraving the seal of the Society reported progress.

Mr. Fraley, Dr. Dunglison and Mr. Trego were announced as a Committee on the application of the fund advanced by the City to the Society, in aid of astronomical observations.

Mr. Trego, as reporter to the Society, laid on the table No. 53 of the Proceedings, recently published.

Stated Meeting, July 20.

Present, thirteen members.

JUDGE KANE, Vice-President, in the Chair.

Dr. E. J. Lewis, a recently elected member, was introduced and took his seat.

Letters were read:—

From Mr. Edward Stanley, dated London, Brook street,

Grosvenor Square, June 2, 1854; and from E. J. Lewis, dated Philadelphia, July 16, 1855, acknowledging the receipt of notice of their election as members of the Society:—

From the Imperial Royal Institute of Science, Letters and Arts, dated Venice, May 16, 1855, soliciting an exchange of publications with this Society:—

From the Upper Lusatian Society of Sciences, and from Dr. Th. Neumann, dated Görlitz, Dec. 3, 1854; from the Royal Saxon Society of Sciences, dated Leipsic, April 20, 1855; from the Imperial Academy of Sciences, at Vienna, dated May 1, 1855; from the Royal Bavarian Academy of Sciences, dated Munich, May 8, 1855; and from the Department of State, dated Washington, July 6, 1855,—severally announcing donations for the library:—

From the Royal Society of Sciences at Upsal, dated Dec. 14, 1854, returning thanks for Parts 2, 3, Vol. X. of the Transactions, and Nos. 48–50 of the Proceedings of this Society:—

From the Royal Society of Sciences at Göttingen, dated March 15, 1855, communicating thanks for Vol. X. Part 3 of the Transactions, and Nos. 49, 50 of the Proceedings: and—

From the Connecticut Historical Society, dated Hartford, June 9, 1855; from the Corporation of Harvard College, Cambridge, of the same day; from the Historical Society of Pennsylvania, dated Philadelphia, June 15, 1855; from the Trustees of the New York State Library, dated Albany, June 16, 1855; and from the Boston Society of Natural History, dated Boston, June 22, 1855,—severally acknowledging the receipt of No. 53 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Royal Irish Academy. Vol. XXII. Part 5. Dublin, 1855. 4to.

Proceedings of the Royal Irish Academy, for 1853–4. Vol. VI. Part 1. 8vo.

Instructions for making Meteorological and Tidal Observations: prepared by the Council of the Royal Irish Academy. Dublin, 1850. 8vo.— *From the Academy.*

- Verzeichnis Oberlausitzischer Urkunden. Band I. Vom Jahre 965 bis 1490. Band II. 1490–1803. Görlitz. 4to.
- Die Bibliothek der Oberlausitzischen Gesellschaft der Wissenschaften. Görlitz. 1819. 4to.
- Scriptores Rerum Lusaticarum. Sammlung Ober-und Nieder-lausitzischer Geschichtschreiber. Herausgegeben von der Oberlausitzischen Gesellschaft der Wissenschaften. Band I. II. III. Görlitz. 1837–1852. 8vo.
- Neues Lausisches Magazin: im Auftrage der Oberlausitzischen Gesellschaft der Wissenschaften, besorgt durch deren Sekretair. Band XXII.–XXXI. Görlitz. 1846–1854. 8vo.
- Geschichte der Oberlausitzischen Gesellschaft der Wissenschaften in den ersten 50 Jahren. Ein Jubelschrift zur dritten Säkularfeier derselben am 16 Aug. 1854. Von C. G. Th. Neumann, Sekretair, &c. Görlitz. 8vo.—*From the Upper Lusatian Society of Sciences.*
- Nachrichten von der Georg-Augusts-Universität und der Königl. Gesellschaft der Wissenschaften zu Göttingen. Vom Jahre, 1854. Nos. 1–17. Göttingen. 8vo.—*From the Royal Society of Sciences at Göttingen.*
- The African Repository. Vol. XXXI. No. 6. June, 1855. Washington. 8vo.—*From the Am. Colonization Society.*
- Sixty-eighth Annual Report of the Regents of the University of the State of New York;—made to the Legislature March 1, 1855. Albany. 8vo.
- Eighth Annual Report of the Regents of the University of the State of New York, on the Condition of the State Cabinet of Natural History, and of the Historical and Antiquarian Collection annexed thereto:—Made to the Senate, Jan. 15, 1855. Albany. 8vo.—*From the Regents.*
- Annual Report of the Trustees of the State Library of the State of New York: transmitted to the Legislature, March 1, 1855. Albany. 8vo.—*From the Trustees.*
- Almanaque Nautico para el año 1856, calculado de orden de S. M. en el Observatorio de Marina de la Ciudad de San Fernando. S. Fernando, 1854. 8vo.—*From the Marine Observatory of San Fernando.*
- Proceedings of the American Antiquarian Society, in Boston, April 25, 1855. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXX. No. 1. July, 1855. Philadelphia. 8vo.—*From the Institute.*

- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 9. Philadelphia. 8vo.—*From the Academy.*
- Third Annual Report of the Trustees of the Free Public Library of New Bedford, March 31, 1855. New Bedford. 8vo.—*From the Trustees.*
- Transactions of the State Agricultural Society, for the year 1854; with Reports of the County Societies for the same year. Hartford. 8vo.
- Thirty-first Annual Report of the Officers of the Retreat for the Insane, at Hartford, Connecticut, April, 1855. Hartford. 8vo.
- Thirty-ninth Annual Report of the Directors of the American Asylum at Hartford, for the Education and Instruction of the Deaf and Dumb: Presented to the Asylum, May 12, 1855. Hartford. 8vo.
- History of the Church in Newington:—its Doctrines,—its Ministers,—its Experience,—presented in the Discourse delivered on Tuesday, Jan. 16, 1855, by J. Brace, D.D. on his relinquishment of active service at the close of half a century from his ordination in that place. Hartford. 8vo.—*From the Connecticut Historical Society.*
- Sitzungsberichte der K. Akademie der Wissenschaften. Phil. Hist. Classe, Band XIII. 3 Heft: XIV. 1, 2 Heft: XV. 1 Heft.—Math. Nat. Classe, Band XIV. 1, 2, 3 Heft: XV. 1, 2 Heft.—Almanach der Akademie, V. Jahrgang, 1855. Wien. 8vo.—*From the Imperial Academy of Sciences at Vienna.*
- Gelehrte Anzeigen: herausgegeben von Mitgliedern der K. Bayerischen Akademie der Wissenschaften. Band XXXIX. München, 1854. 4to.
- Almanach der Akademie, für das Jahr 1855. 8vo.
- Denkrede auf die Akademiker Dr. Thaddeus Siber und Dr. Geo. Simon Ohm: von Dr. Lamont, March 28, 1855. 4to.
- Annalen der Königlichen Sternwarte bei München, VII. Band: herausgegeben von Dr. J. Lamont, Conservator der Sternwarte, &c. &c. München, 1854. 8vo.—*From the Royal Bavarian Academy of Sciences.*
- Berichte über die Verhandlungen der K. Sächsischen Gesellschaft der Wissenschaften zu Leipzig. Phil. Hist. Classe, 1854, I.—VI. 1855, I. II.
- Die Stadtrechte der Lateinischen Gemeinden Salpensa und Malaca, in der Provinz Baetica. Von Theodor Mommsen. Leipzig. 1855.

Gedächtnissrede auf seine Majestät Friedrich August, König von Sachsen,—gehalten von E. v. Wietersheim, in der öffentlichen Sitzung der K. Sächs. Gesellschaft, Oct. 27, 1854. Leipzig. 8vo.—*From the Royal Saxon Society of Sciences.*

Schriften der in St. Petersburg gestifteten Russisch—Kaiserlichen Gesellschaft für die gesammte Mineralogie. Band I. Abth. 1, 2. St. Petersburg, 1842. 8vo.

Verhandlungen der Kaiserlich-Russischen Mineralogischen Gesellschaft zu St. Petersburg. Jahr. 1842—1846. St. Petersburg. 8vo.—*From the Smithsonian Institution, on behalf of the Imperial Mineralogical Society of St. Petersburg.*

Theorie der Sonnenfinsternisse, der durchgänge der unteren Planeten vor der Sonne, und der Sternbedeckungen für die Erde überhaupt: von J. A. Grunert, Cor. Mitgl. der K. Akad. in Wien. 1855. 4to.—*From the Author.*

Senate Journal, 1st Session, 33d Congress, 1853—4. 1 vol.

„ Reports, „ „ 2 „

„ Documents, „ „ 13 „

„ Miscellaneous, „ „ 1 „

House Journal, „ „ 1 „

„ Miscellaneous Documents, „ 1 „

„ Reports of Committees, „ 3 „

Executive Documents, „ 19 „

Maps accompanying Message, „ 1 „

Senate Journal, 2d Session, 33d Congress, 1854, 5, 1 „

House Journal, „ „ 1 „

From the Department of State, Washington City.

Notes on the Meteorology of Ireland, deduced from the Observations made in the year 1851, under the direction of the Royal Irish Academy. By Humphrey Lloyd, D.D. &c. Dublin, 1854. 4to.

On the Induction of Soft Iron, as applied to the determination of the changes of the Earth's Magnetic Force. Nov. 11, 1850.—On the Cyclone of Nov. 19. Dec. 9, 1850.—On the Influence of the Moon upon the position of the freely suspended Horizontal Magnet. Feb. 28, 1853.—On the Magnetic Influence of the Moon. Dec. 12, 1853. By the Rev. Humphrey Lloyd, D.D. &c. (Proc. R. I. A.)—*From the Author.*

The American Journal of Science and Arts. Second Series. Vol. XX. No. 58. July, 1855. New Haven. 8vo.—*From Profs. Siliman & Dana, Editors.*

- Report of the Cochituate Water-Board to the City Council of Boston, for 1854. Boston. 8vo.—*From Prof. E. N. Horsford.*
- The American Journal of the Medical Sciences. No. LIX. July, 1855. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XIII. No. 151. July, 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Chemical Examination of the Bakers' Bread of Philadelphia. By C. M. Wetherill, Ph. D. M.D. Philadelphia, 1855. 8vo.—*From the Author.*
- The Florist and Horticultural Journal. Vol. IV. No. 5. Philadelphia, 1855. 8vo.—*From H. C. Hanson, Editor.*
- The Plough, the Loom and the Anvil. Vol. VII. Nos. 10, 11, 12. Apr. May, June, 1855. New York. 8vo.—*From Myron Finch, Editor.*
- Plantæ Heermannianæ. Descriptions of New Plants collected in South California, by Dr. A. L. Heerman: with remarks on other Plants heretofore described and belonging to the same collection. By E. Durand and Theo. C. Hilgard, M.D. 4to.
- Plantæ Prattenianæ Californicæ. An enumeration of a collection of California Plants, made in the vicinity of Nevada, by Henry Pratten, Esq. of New Harmony:—with critical notices and descriptions of such of them as are new or yet unpublished in America. By Elias Durand. 4to.—*From E. Durand.*

Dr. Dunglison announced the decease of Dr. J. G. Flügel, U. S. Consul at Leipsic, a member of this Society, in the 67th year of his age.

The I. R. Institute of Science, Letters and Arts, at Venice,—the Upper Lusatian Society of Sciences at Görlitz,—and the Imperial Russian Mineralogical Society at St. Petersburg, were ordered to be placed on the list of Corresponding Societies.

Dr. Bache inquired whether any of the members present had observed phenomena connected with the earthquake recently felt in the city of Baltimore and in its vicinity.

The Society next proceeded to the stated business of the meeting, the balloting for candidates for membership.

A communication was read from J. C. Van Dyke, Esq. U. S. Attorney for the Eastern District of Pennsylvania, inquiring as to the terms on which the Society will dispose of their Hall to the Government of the United States, for the purpose of

holding the Courts therein:—which communication was referred to the Committee appointed in January last, to negotiate with the City Councils in relation to a sale or exchange of the Society's Hall. The Committee is instructed to report at the next stated meeting.

All other business having been concluded, the ballot boxes were opened, and the following named gentleman was declared to be duly elected a member of the Society.

ROBERT E. ROGERS, M.D. of Philadelphia.

Stated Meeting, August 17.

Present, six members.

The President and Vice-Presidents being absent, Mr. JUSTICE was called to the chair.

The following donations were announced:—

FOR THE LIBRARY.

- Plantæ Javanicæ Rariores, descriptæ iconibusque illustratæ, quas in Insula Java, annis 1802–1818 legit et investigavit Tho. Horsfield, M.D. E siccis descriptiones et characteres plurimarum elaboravit Joannes J. Bennett:—Observationes structuram et affinitates præsertim respicientes passim adjecit Robertus Brown. London, 1838–1852. Fol.—*From Dr. Thomas Horsfield.*
- A Catalogue of Birds in the Museum of the Hon. East India Company. Vol. I. London, 1854. 8vo.—*From the Hon. Directors of the East India Company.*
- Annales des Mines. V. Séric. Tome VI. 3 livraison de 1854. Paris. 8vo.—*From the Engineers of l'École des Mines.*
- Quarterly Journal of the Chemical Society. Vol. VII. No. 30. July, 1855. London. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXX. No. 2. Aug. 1855. Philadelphia. 8vo.—*From the Institute.*
- An Examination of Prof. Agassiz's Sketch of the Natural Provinces of the Animal World, and their relation to the different Types of Man,—with a Tableau accompanying the Sketch. By John Bachman, D.D. Charleston, 1855. 8vo.—*From the Author.*

- A Treatise on Plane and Spherical Trigonometry. By William Chauvenet, A.M. Prof. Math. U. S. Navy, &c. &c. Philadelphia, 1854. 8vo.—*From the Author.*
- Geological Map of Wisconsin. By J. A. Lapham. New York, 1855.—*From the Author.*
- Astronomical Journal. Vol. IV. No. 13. July 26, 1855. Cambridge. 4to.—*From Dr. B. A. Gould, jr. Editor.*
- The Medical News and Library. Vol. XIII. No. 152. Aug. 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*
- The African Repository. Vol. XXXI. No. 8. Aug. 1855. Washington. 8vo.—*From the Am. Colonization Society.*

The minutes of the Board of Officers and Council at their late meeting were read.

The Committee to which was referred the communication of the U. S. District Attorney in relation to a sale of the Society's Hall to the Government of the United States, made a report, recommending such sale, on certain conditions, with such stipulations as may be deemed necessary for the proper security and interest of the Society :—

Whereupon, it was moved by Dr. Harris, that the above mentioned Committee be authorized and empowered to negotiate terms and make a sale of the Hall of the Society, on conditions mentioned in the motion:—which motion, after full discussion and consideration, was, upon a call of the yeas and nays, unanimously agreed to.

A communication was read from Dr. Caspar Morris, asking for the loan of two coins in the cabinet of the Society, for the purpose of having copies taken thereof:—Whereupon, it was ordered that Dr. Morris have permission to use the coins which he desires, subject to the usual guaranty for safe return within a reasonable time.

Stated Meeting, September 21.

Present, twenty-four members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Dr. Robert E. Rogers, dated Boston, Aug. 31, 1855, acknowledging the receipt of notice of his election as a member of the Society:—

From the Imperial Society of Naturalists of Moscow, dated 24th July, 1855, announcing that the said Society will celebrate the fiftieth anniversary of its existence, by a formal and extraordinary session on the 23d of December next: and—

From the Proprietors of the Bowditch Library, dated Boston, Sept. 15, 1855, returning thanks for Nos. 47 to 53, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Report of the Commissioner of Patents, for the year 1854. *Arts and Manufactures*. Vols. 1, 2. Washington. 8vo.—*From the U. S. Patent Office*.

Smithsonian Contributions to Knowledge. Vol. VII. Washington, 1855. 4to.—*From the Smithsonian Institution*.

Proceedings of the Boston Society of Natural History. Vol. V. No. 13. July, 1855. Boston, 8vo.—*From the Society*.

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 10. Philadelphia. 8vo.—*From the Academy*.

Journal of the Franklin Institute. 3d Series. Vol. XXX. No. 3. Sept. 1855. Philadelphia. 8vo.—*From the Institute*.

Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 8. June, 1855. London. 8vo.—*From the Society*.

African Repository. Vol. XXXI. No. 9. Sept. 1855. Washington. 8vo.—*From the Am. Colonization Society*.

Revue de Paris: Feb. 1, to July 1, 1855. Paris. 8vo.—*From M. Hector Bossange*.

American Journal of Science and Arts. 2d Series. Vol. XX. No. 59. Sept. 1855. New Haven. 8vo.—*From the Editors*.

- The Medical News and Library. Vol. XIII. No. 153. Sept. 1855. Philadelphia. 8vo.—*From Messrs. Blanchard & Lea.*
- Astronomical Journal. Vol. IV. Nos. 14, 15. Sept. 5, 19, 1855. Cambridge. 4to.—*From the Editor.*
- Official Army Register, corrected, to August 1, 1855. Washington. 8vo.
- Rifle and Light Infantry Tactics; for the Exercise and Manœuvres of Troops when acting as Light Infantry or Riflemen: prepared under the direction of the War Department, by Brevet Lt. Col. W. J. Hardee, U. S. Army. 2 vols. Philadelphia. 12mo.—*From Major Hartman Bache.*
- On the Resolution of Numerical Equations. By A. Vallas, Art. and Philos. Doct. &c. New York, 1855. 8vo.—*Donor unknown.*
- Description of a New Mollusk from the Red Sandstone near Pottsville, Pennsylvania. By Isaac Lea. (Proc. Acad. Nat. Sci. May, 1855.) 8vo.—*From the Author.*
- Remarks on the Penal System of Pennsylvania, particularly with reference to County Prisons. By William Parker Foulke, of Philadelphia. Philadelphia, 1855. 8vo.—*From J. J. Barclay, Esq.*
- Prize Essays on Juvenile Delinquency. Published under the direction of the Board of Managers of the House of Refuge. Philadelphia, 1855. 8vo.—*From the same.*
- Historical Sketches of the Formation and Founders of the Philadelphia Hose Company: being the first Hose Company instituted in the City of Philadelphia, Dec. 15, 1803:—with a list of the Members. Philadelphia, 1854. 8vo.—*From Richard Vaux, Esq.*
- The Florist and Horticultural Journal. Vol. IV. No. 6, 7. Philadelphia, 1855. 8vo.—*From the Editor.*

Dr. Franklin Bache announced the decease of Col. C. C. Biddle, a member of the Society, who died August 20, 1855, in the 70th year of his age:—Whereupon, Mr. Ord was, on motion, requested to prepare an obituary notice of the deceased member.

Mr. Du Bois laid upon the table specimens of the metal *aluminum*, accompanied by the following communication.

Messrs. Eckfeldt and Du Bois, Assayers of the Mint, offer for the examination of the Society, two specimens of “the new French silver,” or *aluminum*; one of which is in lump, and the other rolled

out; also lumps of silver and lead, of nearly equal bulk, for the sake of showing the relative colour and weight.

While this is not strictly a new metal (having been discovered by Wöhler in 1828), its production by a new process, and upon a comparatively large scale, by M. Deville, and the developement of its remarkable properties, have given it, in France, all the *éclat* of a fresh discovery. Although it has been exhibited *in ingots*, at the Academy of Sciences, it is still held at a price little less than that of pure gold; but the chemists of Europe, who take the liveliest interest in this subject, expect to cheapen the process of manufacturing the metal from its earthy oxide (alumina), by the agency of galvanism.

We are engaged in investigating its behaviour in the acids, and in the fire, and in other circumstances, and will probably make a more extended notice, at a future meeting of the Society.

Meanwhile, it must certainly excite the interest of any one, accustomed to consider *heaviness*, or high specific gravity, as an invaluable characteristic of metals, to take hold of a metal, just coming into the market, which is only one-fourth as heavy as standard silver. Its specific gravity is reported at 2.6; we find this specimen to be 2.7; but it is said there is an admixture of about five per cent. of iron, which is as pure as it has yet been obtained, by the new process.

Dr. Farnum informs us that it is already in use for making fine balances, for which purpose, as well as for small weights, it must prove invaluable. No doubt it will also be in request for other branches of art, if the price can be brought down, as some anticipate, to 50 cents a pound; or even to 50 cents an ounce, which is a more reasonable expectation. Every bed or bank of clay, whether the potter's or brickmaker's, is a mine of aluminum in which there is present from ten to twenty per cent. of the metal; but the abundance of the ore is met by the difficulty and expense of its extraction.

So very desirable is it to have a light substitute for the copper *cent*, in currency, that it has occurred to us as possible, or probable, that eventually this substitute will be found in aluminum, pure or alloyed. This probability is the principal incentive to our own investigations.

Should the market price ever come down to 50 cents an ounce troy (for example), a coin of aluminum, about as large as our dime (that is, in *bulk*, not in weight), could be afforded for one cent. Its extreme lightness would make it convenient to carry about, and would prevent its being confounded with silver money.

The following preamble and resolution were offered by Mr. Fraley:—

Whereas, a motion was unanimously agreed to at the last stated meeting of the Society, by which the Committee appointed on the 19th of January last, on the subject of a sale or exchange of the Society's Hall, were "authorized and empowered to negotiate terms and make a sale of the Hall on certain conditions, with such stipulations and agreements as they may deem necessary and proper for the due security and interest of the Society :"—

Be it therefore resolved, by this meeting (in compliance with the laws of the Society, Chapter IX. Article 3), that the action of the Society, at its last meeting, with regard to a sale of the Hall, is hereby approved and confirmed.

Which preamble and resolution were read, considered and unanimously adopted on the call of the *yeas* and *nays* of the members present.

On motion, the librarian was authorized to purchase a copy of Scott's new map of the consolidated city of Philadelphia, for the use of the Society.

The librarian reported that the coins lent to Dr. Caspar Morris, in pursuance of an order adopted at the last meeting, had been safely returned to the Cabinet of the Society.

Stated Meeting, October 5.

Present, fifteen members.

Prof. FRAZER, Vice-President, in the Chair.

Dr. Robert E. Rogers, a recently elected member, was introduced, and took his seat.

A letter was read from M. Michel Chevalier, dated Paris, Aug. 9, 1855, accompanying a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the American Academy of Arts and Sciences. Vol. III. No. 14. Boston, 1855. *From the Academy.*

Della Elettricità degli Stami e Pistilli delle Piante, esplorato all'atto della fecondazione; e di una nova Classificazione della linfe o succhi vegetabili, fondata sul numero e sulla direzione delle correnti elettriche longitudinali e trasversali:—Memorie del Ab. Francesco Cav. Zantedeschi, &c. &c. Padova, 1853. 4to.

Nuovi Esperimenti riguardanti l'Origine della Elettricità Atmosferica, e dell' Induzione elettro-statica dei Conduttori solidi isolati:—di Zantedeschi: Memoria estratta dell' Ateneo Italiano. Anno I. 15 Settembre, 1854. Venezia. 4to.

Delle Dottrine di Giambattista Venturi intorno ai colori accidentali od immaginari: relazione ed osservazione del Prof. Francesco Zantedeschi, Membro effettivo dell' I. R. Istituto. Venezia, 1855. 4to.

Memoria sul simultaneo passaggio delle correnti elettriche opposte ai circuiti metallici chiusi ed isolati dalla terra, e delle loro differenze coi circuiti misti delle linee aereo-telluriche, in relazione alla telegrafia elettrica: del M. E. Francesco Zantedeschi. Venezia, 1855. 8vo.—*From the Author.*

Cours d'Economie Politique, fait au Collège de France, par Michel Chevalier, Membre de l'Institut. Premier Volume. Seconde Edition, refondue et considérablement augmentée. Réunion de tous les discours d'ouverture. Leçons. Paris, 1855. 8vo.—*From the Author.*

Communication of the Board of Directors of the Panama Rail Road Company to the Stockholders: together with the Report of the Chief Engineer to the Directors, &c. New York, 1855. 8vo.—*From G. M. Totten.*

The Florist and Horticultural Journal. Vol. IV. No. 8. Philadelphia, 1855. 8vo.—*From H. C. Hanson, Editor.*

Dr. Dunglison called the attention of the Society to an article in the London Quarterly Review, of January last, on the subject of fires occurring in buildings from the action of the heating apparatus, where portions of the wood-work having been long subject to desiccation from the influence of hot air or hot water-pipes, have been at last actually set on fire by the heat thus communicated. The Doctor referred to instances of probable conflagration from this cause, and hoped the subject would receive further attention.

Dr. Bridges mentioned the case of a steam-boat which was

set on fire by the mere heat of steam acting upon a wooden casing around a steam-chest, which had been for some time subjected to heat communicated from the steam within.

Dr. R. E. Rogers and Prof. Frazer made some remarks on the subject, and urged the necessity of caution in the construction of heating apparatus in buildings.

The Committee on the sale of the Hall reported progress.

The Secretary was directed to answer the letter read at last meeting from the Imperial Society of Naturalists of Moscow.

Stated Meeting, October 19.

Present, twenty-eight members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From the Royal Society of Sciences at Stockholm, dated Oct. 23, 1854, and May 31, 1855;—from the Royal Danish Society of Sciences, dated Copenhagen, May 8, 1855;—from the Royal Saxon Society of Sciences, dated Leipzig, May 18, 1855;—from the Royal Geographical Society, 15, Whitehall Place, June 2, 1855;—from the Society of Antiquaries, dated Somerset House, London, July 25, 1855;—from the Ethnological Society, dated 23 Newman street, Oxford street, July 25, 1855,—severally announcing donations for the library:—

From the Royal Lombardy Institute of Science, Letters and Arts, dated Milan, June 22, 1854, acknowledging the receipt of Vol. X. Part 2, of the Transactions, and of the Proceedings to No. 48,—and also announcing a donation for the library:—From the Royal Geographical Society of London, dated 15 Whitehall Place, Nov. 14, 1854, acknowledging the receipt of No. 47 of the Proceedings: and—

From the Royal Danish Society of Sciences, dated Copenhagen, June, 1855, returning thanks for Vol. X. Part 3, of the Transactions, and for Nos. 49, 50 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

- Memorie della Reale Accademia delle Scienze di Torino. Serie Seconda. Tomo XIV. Torino, 1854. 4to.—*From the Academy.*
- Giornale dell' I. R. Istituto Lombardo di Scienze, Lettere ed Arti, e Biblioteca Italiana. Nuova Serie. Fascicoli XIX.—XXXVI. Milano, 1852–5. 4to.
- Memorie dell' I. R. Istituto Lombardo. Vol. IV. Milano, 1854. 4to.—*From the Royal Lombardy Institute.*
- Kongl. Vetenskaps-Akademiens Handlingar, för år 1852, 1853. I. Ofversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, 1853, 1854.
- Årsberättelser om Botaniska Arbeten och Upptäckter, för Åren 1845–50, till K. V. A. af Joh. Em. Wikström.
- Berättelse om Framstegen i Fysik under år 1851, afgifven till Kongl. V. A. af E. Edlund.
- Berättelse om Framstegen i Insekternas, Myriapodernas och Arachnidernas Natural-historia, för 1851 och 1852, till K. V. A.—af C. H. Boheman. Stockholm. 8vo.—*From the Royal Academy of Sciences, Stockholm.*
- Oversigt over det Kgl. Danske Videnskabernes Selskabs Förhandlingar, og dets Medlemmers Arbejder i Aaret 1854; af Selskabets Secretair, G. Forschhammer, &c. Kiøbenhavn. 8vo.—*From the Royal Danish Society of Sciences.*
- Bulletin de la Société de Géographie. IV. Série. Tome VIII. Paris, 1854. 8vo.—*From the Geographical Society, Paris.*
- Annales des Mines. V. Série. Tome V. 3 livr. de 1854. Tome VI. 4 livr. de 1854. Paris, 8vo.—*From the Engineers of l'Ecole des Mines.*
- Berichte über die Verhandlungen der Königl. Sächsischen Gesellschaft der Wissenschaften zu Leipzig. Math. Phys. Classe, 1853, III.—1854. I. II.
- Die Theorie des Aequatorials; P. A. Hansen.
- Ueber die Rationalität der Tangenten-Verhältnisse Tautozonaler Krystallflächen; C. F. Naumann.
- Die Theorie der Kreisverwandtschaft in rein geometrischer darstellung; A. F. Möbius. Leipzig, 1855.—*From the Royal Saxon Society of Sciences.*
- Compte-Rendu Annuel adressé à S. Exc. M. de Brock, Ministre des Finances, par le Directeur de l'Observatoire Physique Central,

- A. T. Kupffer. Année 1853. St. Petersburg, 1854. 4to.—*From the Author.*
- Archæologia : or Miscellaneous Tracts relating to Antiquity, published by the Society of Antiquaries of London. Vol. XXXVI. 1855. 4to.
- Proceedings of the Society of Antiquaries, of London. Vol. III. Nos. 41, 42 : with list of the Fellows, April 23, 1855. London. 8vo.—*From the Society.*
- Memoirs of the Royal Astronomical Society. Vol. XXIII. being the quarto half-volume for the session 1853-4. London. 4to.
- Monthly Notices of the Royal Astronomical Society. Vol. XIV. Nov. 1853, to June, 1854. London. 8vo.—*From the Society.*
- Journal of the Royal Geographical Society. Vol. XXIV. London, 1854. 8vo.—*From the Society.*
- Journal of the Ethnological Society of London. Vol. II. 1850 :—with the Address of Richard Cull, Esq. Hon. Secretary, May 25, 1855. London. 8vo.—*From the Society.*
- Proceedings of the Royal Society of London. Vol. VII. Nos. 11, 12, 13. London. 8vo.
- Astronomical and Meteorological Observations made at the Radcliffe Observatory in the year 1853, under the superintendence of Manuel J. Johnson, M.A. Radcliffe Observer. Vol. XIV. Oxford, 1855. 8vo.—*From the Radcliffe Trustees.*
- Magnetical and Meteorological Observations at Lake Athabasca and Fort Simpson, by Capt. J. H. Lefroy, R.A.—And at Fort Confidence, in Great Bear Lake, by Sir John Richardson, C.B. M.D. London, 1855. 8vo.—*From Colonel Sabine.*
- Archives du Muséum d'Histoire Naturelle, publiées par les Professeurs-Administrateurs de cet établissement. Tome VII. livraisons 3, 4. Tome VIII. livraisons 1, 2. Paris, 1855. 4to.—*From the Museum.*
- Proceedings of the American Association for the Advancement of Science. *Eighth Meeting*, held at Washington, D. C. May, 1854. Cambridge, 1855. 8vo.—*From the Association.*
- Proceedings of the Boston Society of Natural History. Vol. V. No. 14. Sept. 1855. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. 3d Series. Vol. XXX. No. 4. Oct. 1855. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXI. No. 10. Oct. 1855. Washington. 8vo.—*From the American Colonization Society.*

The American Journal of the Medical Sciences. No. LX. New Series. Oct. 1855. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*

Medical News and Library. Vol. XIII. No. 154. Oct. 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*

Tide Tables for the principal Sea Ports of the United States: by A. D. Bache, Superintendent of the U. S. Coast Survey. New York, 1855. 8vo. — *From the Author.*

Messrs. Eckfeldt and Du Bois presented a communication as supplementary to their paper on *aluminum*, read at a former meeting.

A few prefatory words might properly be expended upon the *name* of this metal, which is variously written *aluminum*, and *aluminium*. By the analogy of nomenclature, in which we have *soda* and *sodium*,—*potassa* and *potassium*, it would seem proper to join to *alumina*, *aluminium*. This title is accordingly used by some eminent writers on chemistry; but the great majority write *aluminum*; and if this metal is destined to come into common use, it is very desirable to drop any syllables that can be dispensed with, to make the word easy of pronunciation, and to prevent barbarous misnomers. It is hardly to be believed, that the mass of uneducated persons will take the trouble to say *aluminium*.

Passing to more important points, we have subjected our small samples of this metal to such tests and treatment as would indicate, in some degree, the position which it is entitled to, amongst the metals, and the practical uses to which it may be applied. This work, it is true, has been done already, but the reported results being somewhat confused and conflicting, we have thought it proper to add something to the testimony.

In cool nitric acid, of the strength of 32° Beaumè, there is no action upon aluminum. In the same solvent, standard silver would be attacked immediately, though moderately.—The same acid being brought up to such a heat as to give off vapour, the action upon aluminum commences, and, after a considerable time, solution would be effected.—But this is not the proper solvent of the metal.

In strong sulphuric acid, with or without heat, there is no action; but by adding water, the solution is complete. Here there is a remarkable likeness to iron and zinc; and as remarkable an antagonism to silver.

In muriatic or hydrochloric acid, of ordinary strength, with or without heat, the action is violent, and the solution perfect.

As to its behaviour in water, we find, upon several trials, that it is not tarnished by boiling in distilled water, but it is decidedly discoloured by boiling in hydrant water; and without appreciable loss in either case. The tarnish from hydrant water is, of course, owing to the contact of some earthy alkaline matter held in solution.—The lively action which takes place in boiling water, and which, at first, looks like a process of solution of the metal, or a decomposition of the water, is simply because the metal, in its rapid conduction of heat, is a nucleus or point for generating and letting off the bubbles of steam.

With further reference to culinary or housekeeping uses, we tried the effect of ordinary vinegar, at boiling heat. There was no action nor any loss.

Exposed to the vapours of sulphuretted hydrogen, which quickly blackened fine silver, there was no discolouration of aluminum.—Yet it is certain, that a sufficiently long exposure to the atmosphere will impart a slightly blueish tint; as we have seen, after pickling or whitening the metal in nitric acid. This, of course, is due to the oxygen in the air.

The effects of *heat*, upon this metal, are next to be stated.—There is a well-known distinction among metals, by which some are classified as *noble* or *precious*, and others as *base*. It is quite unnecessary to review the grounds of this distinction; we may merely observe, that the grand test of it is found in the bone-ash vessel, or cupel. The precious metals are not absorbed into such a vessel, under heat; the base metals are carried down, and disappear. Subjected to this trial, the metal under consideration, however precious it may be, in the market, or however valuable it may become to the manufacturer, does not take its stand amongst the precious metals. It has a good degree of fixedness, and, for a while, though somewhat enveloped by the great metallurgic solvent, lead, it still remains “above ground,” though at a full red heat: but the addition of more lead will hasten the oxidation, and the whole is carried down into the pores of the cupel.—Still it is a more fixed and less oxidable metal than such as tin, zinc, lead, and others; and this, with some collateral characters, should assign it a medium place, between the noble and the base.

Its *melting-point* has all along been stated to be higher than that of cast-iron; but since it has been produced in the ingot, by M. De-

ville's process, it is rated to melt at a point a little higher than that of zinc. The fact is, when strictly in a metallic state, it melts or becomes tremulous and plastic, yet not quite fluid, at a low red heat; but as soon as a coating of oxide, or alumina, is formed, it resists a far higher degree of heat; and the reduction of that oxide is a very important part of the secret of M. Deville.

Its *ductility* is a very marked and important characteristic; one of our specimens being rolled down to $\frac{3}{10000}$ inch. The rolling requires some care and management, and we do not feel qualified to speak particularly on this point, from the small samples we have had to operate upon.

Lastly, although it is out of the line of our profession, the comparative *rigidity*, or power of resisting pressure, is so very important an element, in determining the uses to which a metal may be applied, that we have made a trial of this also, with a very simple, though apparently accurate apparatus. Rolled strips of standard silver, iron, copper, zinc, and aluminum, equal in length, breadth, and thickness (by a very delicate gauge in this latter measurement), were rested upon cross pieces at the ends, and a pressure of given weights applied precisely at the middle of the strip, to bear down to a stopping-point, making but a small deflection or curve. The weights required to bring each strip down to this point, were relatively as follows:

Standard silver (composed of nine-tenths silver, one-tenth copper),	.	.	.	.	.	.	114
Wrought iron,	.	.	.	.	.	.	154
Copper,	.	.	.	.	.	.	123
Aluminum,	.	.	.	.	.	.	123
Zinc,	.	.	.	.	.	.	28

From the foregoing particulars, any one may imagine for himself what purposes this metal may be applied to. Wherever it is desirable to concentrate strength, with as little weight as possible, this extraordinary material will, of course, be thought of, and tried. It has already been used for the beams of fine balances, and for the works of watches; and some sanguine minds, which imagine that the air may yet be made a highway of travel, have considered aluminum as a timely offering, for such metallic machinery as may be indispensable.

Very much depends, manifestly, upon the price at which this article can be furnished, when the demand will justify its manufacture upon

a large scale. Prof. Booth expresses to us the clear conviction, that inasmuch as sodium, which forms the basis of the manufacture of aluminum, can be made at a comparatively low price, perhaps fifty cents a pound, the metal in question will eventually be sold at nearly or quite the same rate. Such a consummation would be likely to open the way for withdrawing the copper cent from our currency, and substituting for it a light and cleanly coin of the new metal. In the mean time, it will be wise to wait until it has been found useful for other purposes; for nothing will be acceptable as coin, unless it be good for something else.

Judge Kane mentioned, for the information of the Society, that Dr. E. K. Kane returned, on last Thursday, from his expedition to the Arctic regions, having mapped out his discoveries as far as north latitude $82^{\circ} 30'$. He had hoped for Dr. Kane's attendance with the Society this evening; but this had been accidentally prevented.

Mr. Justice and Mr. Lea described the appearance of the aurora borealis on Thursday evening last, as observed by them,—and general remarks on the subject were made by Prof. Frazer, Dr. Boyé and others.

The Secretary reported that he had responded to the letter from the Imperial Society of Naturalists of Moscow, as directed at the last meeting.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

All other business having been concluded, the ballot boxes were opened by the presiding officer, and the Rev. ALBERT BARNES, of Philadelphia, was declared to be duly elected a member of the Society.

Stated Meeting, November 2.

Present, twenty-two members.

Dr. DUNGLISON, Vice-President, in the Chair.

A letter was read:—

From the Rev. Albert Barnes, dated Philadelphia, Oct. 23, 1855, acknowledging the receipt of notice of his election as a member of the Society.

The following donations were announced:—

FOR THE LIBRARY.

- Transactions of the Royal Society of Edinburgh. Vol. XXI. Part 2, for Session of 1854-5. 4to.
- Proceedings of the Royal Society of Edinburgh. Vol. III. No. 45. 1854-5. 8vo.—*From the Society.*
- Bulletin de la Société de Géographie. IV. Série. Tome IX. Paris, 1855. 8vo.—*From the Society.*
- Documents relative to the Colonial History of the State of New York: procured in Holland, England and France, by John Romeyn Broadhead, Esq. Agent, &c. Edited by E. B. O'Callaghan, M.D. Vol. IX. Albany, 1855. 4to.—*From the Regents of the University of the State of New York.*
- Report on Insanity and Idiocy in Massachusetts, by the Commission on Lunacy, under the resolve of the Legislature of 1854. Boston, 1855. 8vo.—*From Dr. Edward Jarvis.*
- Catalogue of Books in Astor Library, relating to the Languages and Literature of Asia, Africa, and the Oceanic Islands. New York, 1854. 8vo.—*From J. G. Cogswell, Esq.*
- Our Country's Mission in History; An Address delivered at the Anniversary of the Philomathean Society of Pennsylvania College, Sept. 19, 1855. By William H. Allen, LL.D. President of the Girard College for Orphans. Philadelphia. 8vo.—*From the Author.*
- The Medical News and Library. Vol. XIII. No. 155. Nov. 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Description of a portion of the lower jaw and a tooth of the Mastodon Andium;—also of a tooth and fragment of the femur of a Mastodon from Chile. By Jeffries Wyman. 4to.—*From the Author.*
- Nineteenth Annual Report of the Executive Committee of the Young Men's Association of the City of Buffalo;—also, Record of the Proceedings of the Association. Buffalo, 1855. 8vo.—*From the Association.*

Dr. Dunglison being in the chair, the following resolution was offered, on his behalf, by Dr. Franklin Bache,—which was read and adopted:—

Resolved, That this Society do offer their heart-felt congratulations to Dr. Kane, on his safe return from his hazardous expedition,—and

whilst they regret that it was not vouchsafed to him to succeed in the great object for which the voyage was so philanthropically and so chivalrously undertaken, they assure him that it is to them a source of gratification that the name of one of their fellow-members must ever command an exalted position amongst those of the gallant and enlightened adventurers who have succeeded, at so much risk and privation, in extending the boundaries of knowledge into regions previously unexplored, and even deemed inaccessible.

Dr. Le Conte called the attention of the meeting to a mortgage held by the Society on certain property:—and, on motion of Prof. Frazer, the matter was referred to the Committee of Finance, with authority to take such action as they shall think proper, and to report at an early period.

Stated Meeting, November 16.

Present, twenty-eight members.

JUDGE KANE, Vice-President, in the Chair.

The Rev. Albert Barnes, a recently elected member, was presented and took his seat.

Dr. Adamson and Mons. Carlier, members of corresponding Societies, were introduced.

Letters were read:—

From the Leeds Philosophical and Literary Society, dated Sept. 3, 1855, returning thanks for Vol. X. Part 3, of the Transactions of this Society: and—

From the Zoological Society of London, dated Oct. 17, 1855, announcing a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Boston Society of Natural History. Vol. IV. No. 15. Oct. 1855. Boston. 8vo.—*From the Society.*

Journal of the Franklin Institute. Third Series. Vol. XXX. No. 5. Nov. 1855. Philadelphia. 8vo.—*From the Institute.*

- The American Journal of Science and Arts. Vol. XX. No. 60. Nov. 1855. New Haven. 8vo.—*From the Editors.*
- The African Repository. Vol. XXXI. No. 11. Nov. 1855. Washington. 8vo.—*From the Am. Colonization Society.*
- Origin and Operations of the U. S. Astronomical Expedition. By Lieut. J. M. Gilliss, Superintendent. 1855. 4to.—*From the Author.*
- The Astronomical Journal. Vol. IV. No. 16. Dec. 5, 1855. Cambridge. 4to.—*From the Editor.*
- Essay on the Relation of Atomic Heat to Crystalline Form. by J. Aitken Meigs, M.D. (Jour. Acad. Nat. Sci. Philadelphia. Vol. III. Part 2). Philadelphia, 1855. 4to.—*From the Author.*

Dr. E. K. Kane, in an oral communication, described the geographical features of portions of the Arctic regions visited by him in his late expedition, and illustrated his remarks by a map drawn for the purpose. He gave a sketch of the progress of the expedition;—spoke of the difficulties encountered,—of the observations made, and of the phenomena observed;—occasionally referring to incidents of adventure,—escapes from peril,—obstacles surmounted,—and described the final extrication of the party from the difficulties with which they were surrounded.

A specimen of Turkish paper money was exhibited by Mr. Du Bois, accompanied by the following explanatory communication.

The Ottoman Empire, which, like the nations farther east, has always maintained a metallic currency, to the exclusion of bills of credit, has been driven by the stress of protracted war, to adopt the same expedient which was resorted to by our own revolutionary fathers, in the issue of “continental money.”

This is a print from wood-engraving, of the size of an ordinary bank note; but in reading is to be held, not lengthwise, but crosswise; and in the various ornamental scollops are to be found the following inscriptions, in the Arabic character; “Good paper currency of the Sublime Porte, to pass like specie.”

“Sultan Abdul Medjid, son of Mahomed Khan; may his victories be perpetuated.”

“Paper currency of the Sublime Porte, ten piastres, in good currency.”

“Note without interest. Ten piastres, to be so taken at the Royal Treasury; such are the conditions of this note.”

“Treasury Department.” Seal endorsed.

As by the last quotation, 26 paper piastres were equal to 20 piastres in silver, the laws of trade are plainly more despotic than those of the most absolute prince.—The commercial value of this note is only about 33 cents of our money.—It belongs to the cabinet of the Mint.

Mr. Du Bois also laid upon the table two specimens of silver ore, just received from Lake Superior, and placed in the Mint Cabinet.

The larger is pure metallic silver in carbonate of lime, with a few specks of copper.

The smaller specimen, though less valuable, is more characteristic of the occurrence of silver in that remarkable mining region.

Although the silver and copper are intimately commingled, each metal is pure where it occurs, and not at all alloyed with the other. In all cases hitherto observed, from Lake Superior, the lumps of silver and copper, though firmly *welded* together, as it were, are yet free from intermixture.—As well as we can deduce from specific gravity, the larger piece is worth \$25 dollars, the other \$3.75.

Dr. Boyé described certain phenomena of the remarkable Aurora borealis observed by him in the vicinity of Cape Race, Newfoundland, on the second of September, 1853, and illustrated the variable phases which it presented, by drawings thereof.

Dr. Kane remarked upon the frequency of Auroras in northern regions, as observed by him, and their general want of effect upon the magnetic needle in high latitudes.

The proceedings of the Board of Officers and Council, at their late meeting, were read.

The Committee appointed on the 4th of May last, on the subject of re-engraving the seal of the Society, presented a report and were discharged.

Stated Meeting, December 7.

Present, twenty-five members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From W. Haidinger, dated Vienna, April 22, 1855, acknowledging the receipt of notice of his election as a member of the Society, and announcing a donation for the library, of sundry essays written by himself on subjects of science:—

From the Literary and Philosophical Society of Manchester, dated Society's rooms, George street,—and from the Natural History Society of Northumberland, Durham and Newcastle upon Tyne, dated Newcastle, Sept. 1, 1855, returning thanks for Vol. X. Part 3, of the Transactions, and for Nos. 49, 50 of the Proceedings:—

From the Zoological Society of London, dated Oct. 11, 1855, and from the Society of Arts, Manufactures and Commerce, dated Adelphi, London, Oct. 17, 1855, acknowledging the receipt of Nos. 51, 52 of the Proceedings:—

From the Royal Geographical Society of London, dated 14th Nov. 1854, returning acknowledgments for Vol. X. Part 3, of the Transactions, and for Nos. 17–49, 50 of the Proceedings:—

From the Imperial Society of Naturalists of Moscow, dated June 13–25, 1854;—from the Imperial Geological Institute at Vienna, dated March 20, 1855;—from the Royal Academy of Sciences at Amsterdam, dated June 5, 1855;—from the Jablonowski Society at Leipzig, July 4, 1855;—from the Natural History Society of Rhenish Prussia and Westphalia, dated Bonn, Aug. 15, 1855; and—from the Royal Society of Northern Antiquaries, dated Copenhagen, Aug. 2, 1855, severally accompanying donations for the library.

The following donations were announced:—

FOR THE LIBRARY.

Mémoires de la Société Royale des Antiquaires du Nord. 1848–9.
Copenhague, 1852. 8vo.

- Antiquarisk Tidsskrift, udgivet af det Kongelige Nordiske Oldskrift-Selskab. 1849–1851. Kiøbenhavn. 8vo.
- Vestiges d'Asserbo et de Söborg, decouvertes par S. M. Frederic VII. Roi de Danemark: mémoire publié par la Société Royale des Antiquaires du Nord. Copenhague, 1855. 8vo.
- Remarks on a Danish Runic Stone, from the Eleventh Century, found in the Central part of London. By Charles C. Rafn. Copenhagen, 1854. 8vo.
- Saga Íátvardar Konungs hins Helga :—udgiven efter Islandske Oldböger, af det Kongelige Nordiske Oldskrift-Selskab. Kiøbenhavn. 1852. 8vo.—*From the Royal Society of Northern Antiquaries.*
- Verhandelingen der Koninklijke Akademie van Wetenschappen, Tweede Deel. Amsterdam, 1855. 4to.
- Verslagen en Mededeelingen der K. Akad. van Wetenschappen. Tweede Deel, 1 Stuk. Derde Deel, 1, 2 Stuk. Amsterdam, 1854, 5. 8vo.
- Catalogus der Boekerij van de K. Akad. van Wetenschappen, gevestigd te Amsterdam. Eerste Aflevering, 1855. 8vo.—*From the Royal Academy of Sciences at Amsterdam.*
- Bulletin de la Société Imperiale des Naturalistes de Moscou. Tome XXVI. Nos. 3, 4. Tome XXVII. No. 1. Moscou, 1853–4. 8vo.—*From the Imperial Society of Naturalists at Moscow.*
- Jahrbuch der K. K. Geologischen Reichsanstalt. V. Jahrgang, 1854. No. 4. Oct. Nov. Dec. Wien. 8vo.—*From the Imperial Geological Institute, Vienna.*
- Verhandlungen der Naturhistorischen Vereines der Preussischen Rheinlande und Westphalen. XII. Jahrgang. 2 Heft. Bonn. 1855. 8vo.—*From the Natural History Union of Rhenish Prussia and Westphalia.*
- Preisschriften gekrönt und herausgegeben von der Fürstlich Jablonowskischen Gesellschaft zu Leipzig. V. H. B. Geinitz, Darstellung der Flora des Hainischen—Ebersdorfer und des Floehaer Kohlenbassins. Mit 14 Kupfertafeln in gross folio. Leipzig, 1854. 8vo.—*From the Jablonowski Society at Leipzig.*
- Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 9. London, 1855. 8vo.—*From the Society.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 11. Philadelphia, 1855. 8vo.—*From the Academy.*

Yellow Fever, considered in its Historical, Pathological, Etiological and Therapeutical Relations; including a Sketch of the Disease as it has occurred in Philadelphia from 1699 to 1854:—with an examination of the connections between it and the Fevers known under the same name in other parts of temperate as well as in tropical regions. By R. La Roche, M.D. Mem. Am. Phil. Society, &c. &c. 2 vols. Philadelphia, 1855. 8vo.—*From the Author.*

Voyage autour de la Mer Morte et dans les Terres Bibliques, exécutée de Decembre 1850 à Avril 1851. Par F. de Sauley, ancien élève de l'Ecole Polytechnique, Membre de l'Institut. Publié sous les auspices du Ministre de l'Instruction Publique. XV. Livraison, *Mol-lusques Terrestres et Fluviales*.—XVI. Livraison, *Catalogue des Plantes, et des Espèces d'Insectes Coleoptères*. Paris, 1853. 4to.—*From Prof. J. F. Frazer.*

Address before the Lyceum of Natural History of Williams College, Aug. 14, 1855. By Prof. William B. Rogers, Boston. 8vo.—*From the Author.*

Annales des Mines. V. Série. Tome VI. 6 livraison de 1854. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Fifty-seven Pamphlets and Papers on scientific subjects, chiefly relating to Geology and Mineralogy. By William Haidinger. Vienna, 1841–1855. 4to and 8vo.—*From the Author.*

The African Repository. Vol. XXXI. No. 12. Dec. 1855. Washington. 8vo.—*From the Am. Colonization Society.*

The Medical News and Library. Vol. XIII. No. 156. Dec. 1855. Philadelphia. 8vo.—*From Blanchard & Lea.*

Mr. Ord, pursuant to appointment at a former meeting, read an obituary notice of the late Col. C. C. Biddle, a member of this Society.

Clement Cornell Biddle was descended from a family that early settled in America. His ancestor, William Biddle, a citizen of London, emigrated to West New Jersey in the year 1681, shortly before the arrival of William Penn in this country; and, becoming a large landed proprietor, resided there until his death. Some of the descendants of William Biddle afterwards removed to Philadelphia, where the family have since principally lived. His great-grandson, Clement Biddle, the father of the subject of this notice, was born in this city about the middle of the last century; and was educated in the principles of the Society of Friends. But when the struggle for

Independence began, he took up arms in the cause of his country; and, rising rapidly to a prominent military position, was so fortunate as to win the regard of the Commander in Chief. He was present at the battle of Brandywine; and, in the gloomy winter of 1777-8, when the American army was quartered at Valley Forge, was actively engaged in procuring subsistence for our suffering troops. Many letters from General Washington, written at this period, and now in the possession of his descendants, attest his activity in the Commissariat department, the urgency of the service he was engaged in, and the confidence reposed in him by the Father of his country. At the termination of the war of the revolution, he engaged in business, as a Notary Public; and became well known in commercial circles for his ability in adjusting marine losses. He preserved the friendship, and enjoyed the intimacy, of General Washington, until the close of the life of this great man; and maintained with him a familiar epistolary correspondence until within a few weeks of the General's decease. By his wife, whose maiden name was Rebecca Cornell, he had a numerous family, of which the subject of our obituary was the third son.

Clement C. Biddle was born in this city on the 24th of October, 1784. His early education was received at the Academy of the University of Pennsylvania, then under the superintendence of the Rev. James Davidson. His scholastic training was not of long duration, for, in February, 1800, obtaining a midshipman's warrant, he went to sea, under the command of the elder Commodore Decatur. During a cruise in the Mediterranean he was placed in charge of a prize, which he brought successfully into port. After remaining about three years in the navy, he quitted the service, and shortly afterwards visited England. This was a remarkable epoch, as Pitt and his eminent rival were still living.—Mrs. Siddons and her gifted brother had not yet retired from the stage. His reminiscences of the events of this visit were always fresh; and were the source of much pleasure to himself, and the friends to whom they were occasionally imparted. On his return home he commenced the study of the law, under the instruction of the late John Sergeant, who, although but a few years his senior, was already known as a distinguished practitioner. Though Mr. Biddle was regularly called to the bar, he never engaged in practice; for the insult offered to the United States, by the attack upon the Chesapeake frigate occurring about this time, the whole nation was aroused to an assertion of its rights against the pretensions of Great

Britain; and, having a predilection for a military life, he accepted a commission, as Captain of Dragoons, from President Jefferson; and was stationed with his regiment at New Orleans. The excitement was, however, temporarily lulled, and Mr. Biddle resigned his commission. But when war was declared against Great Britain, in 1812, he originated, in his native city, the company of volunteers, known as the State Fencibles, of which company he was elected Captain, in July, 1812. Although just married, and in circumstances by no means opulent, he gave his whole time and abilities, during the continuance of the war, to the service of his country. On the organization of the First Regiment of Volunteer Light Infantry, of the Pennsylvania Line, he was elected Colonel. In the autumn of 1814, his regiment was stationed at Camp Dupont, in the State of Delaware; but, owing to the retreat of the enemy from Baltimore, it was never actively engaged.

Upon the restoration of peace, Mr. Biddle returned to Philadelphia, and was appointed, by the Governor, a Notary Public; which office he exercised for several years. Although his early education had not been regular, and his varied and desultory mode of life had interrupted the pursuit of letters, still a thirst for knowledge stimulated his naturally vigorous intellect to active exertions. The duties of his office not requiring his whole attention, he employed his leisure in study, and soon made considerable advances in Ethical and Metaphysical investigations; and in the science of Political Economy, for which he evinced a decided bias. An American edition of the Treatise on Political Economy, by Jean-Baptiste Say, translated into English by Prinsep, being projected, Mr. Biddle became the editor of it; and, by the addition of notes, and a translation of the Introductory Essay, which latter had been omitted by the English editor, the Treatise has been so favourably received by the public that it has passed through many editions. An autograph letter from Dugald Stewart, in February, 1824, and another from J. B. Say, in August of the same year, afford evidence of their approbation of the services of the American editor.

Upon the assembling of the Free Trade Convention, in Philadelphia, in September, 1831, Mr. Biddle took an active part in their deliberations; and, though not prominent as a debater, for which his previous training had not qualified him, he was recognised as one of the best informed members of that enlightened body. Entertaining decided opinions upon the great political questions of the day, he en-

forced them temperately, but without reserve, through the public journals, and in an extensive correspondence; but chiefly in conversational discussion, in which he was particularly happy. Though never in public office, it may be affirmed that he probably contributed as much as any individual to the establishment of the policy which has been finally adopted by the national government, in regard to the subjects of currency, and our commercial intercourse with foreign countries.

In the year 1821, Mr. Biddle was elected a member of this Society; which, at an early day, had availed itself of the services of his father, and uncle, Owen Biddle, the latter of whom was appointed, in 1769, in conjunction with Joel Bailey, to observe, near Cape Henlopen, the transit of Venus over the sun's disk. He was also connected with some of the principal literary and benevolent associations of our city.

In the year 1834, Mr. Biddle was elected President of the Philadelphia Saving Fund Society, an institution which he had been instrumental in establishing, and over which he continued to preside until the time of his death.

In the spring of 1838, after an interval of more than thirty years, he revisited Europe, accompanied with his valued friend, the late William McIlvaine; and renewed his acquaintance with scenes and objects of which he still retained a vivid impression. Of this journey, which lasted about six months, he preserved a circumstantial record, which will long be cherished by those for whose sake it was especially intended.

Mr. Biddle's fine constitution continued unimpaired (with the exception of a lameness in one of his limbs), the result of an accident, after his return from Europe, until May, 1854, when he was attacked by that disease which ultimately proved fatal. He rallied, however, from the first blow; and persevered in discharging his official duties until the summer of the present year, when he retired to a rural retreat, in a neighbouring county, which he had been in the habit of visiting for several years. Finding his end approaching, he returned to his city residence; where, on the 21st of August, in less than twenty-four hours after his arrival, he breathed his last.

It has been intimated that Mr. Biddle's academical education was limited; it was, consequently, imperfect; and a sense of his deficiencies was a stimulus to self-exertion. In the pursuit of knowledge the pleasure of acquisition increases with exercise; and that which is at-

tained by dint of application is apt to be more durable than what is derived from authority. The example afforded by the subject of this notice is strikingly appropriate, as but few individuals in our community were more conversant with those branches of polite literature which enhance the usefulness of the citizen or impart a dignity to the gentleman. But it was among his confidential friends that his acquisitions were best known and estimated. His fondness for study increasing with years, he gradually became weaned from public life, which, to one of his temperament, is any thing but inviting. Hence, as the domestic circle was the chief scene of his enjoyments, so there, where he was conspicuous for all those virtues which adorn humanity, has his loss been most severely felt, as it has occasioned a disruption of familiar associations which can never be supplied.

Judge Kane announced the death of Mr. J. J. Vanderkemp, a member of the Society, who died on the 4th inst. aged 72: and, on motion, Thomas I. Wharton, Esq. was appointed to prepare an obituary notice of the deceased member.

Dr. Dunglison announced the death of Dr. T. Romeyn Beck, of Albany, a member of this Society, who died on the 19th of November last.

Dr. Kane exhibited two charts drawn to illustrate the discoveries made during his late voyage to the Arctic seas, and his corrections of existing charts in consequence of observations made during the expedition,—and pointed out many new features in the geography of the regions visited.

Mr. Lea referred to a former communication on *Auroras*, and, with a view of correcting some erroneous impressions, read his notes made at the time of observing the phenomena.

June 11, 1852.—Lat. $50^{\circ} 30'$, Long. $38^{\circ} 11'$ west; wind west-north-west, light. About 11 o'clock, P. M. a pale auroral light was observable at the south, which increased into irregular masses over an arch or bank of darkness, as usual, in which the stars could be plainly seen. The light increased in a little while so as to be quite white and bright, like auroral clouds. The increase of size was towards the east. I looked several times towards the north, in expectation of seeing a corresponding luminousness there, but nothing appeared for 15 or 20 minutes. At this time a single spiculum appeared, nearly under the polar star. It increased in brightness rapidly, and soon

became a beautiful object. The southern light now began to show evident movements towards the form of spicula, with increased brilliancy. In the north, the first spiculum increased in size and brilliancy, and many new ones were now formed to the west of the first. These, as they shot up, increased in brilliancy, arose from the same kind of arch, or dark bank, which was still visible to the south. Then commenced another set of spicula, from the western horizon. The western and northern spicula moved towards the east, and the whole circumference of the heavens now became lighted up with a brilliancy that can scarcely be imagined. The whole had reached the vertex about 20° S. E. of the zenith. This convergence of spicula was very remarkable—the central point itself was not illuminated, but irregularly around it the brightness was very considerable. The spicula were now so numerous that they resembled the radiating sticks of a fan, and they spread around us on all sides. Their movement was rapid, and the brilliancy truly astonishing. The shooting up of spicula from the three dark banks, or arches, was in constant play. In regard to the dark bank at the north, I observed what I had never before seen, viz. occasional spicula arising from various parts *below* the dark arch—this seems to me to be a curious fact.

It became now, at half past 11 o'clock, quite faint, and dying away about 12 o'clock, I retired to bed. Some of the gentlemen remained up, and stated that it became, afterwards, still more brilliant, if possible, and so remained until day-light, at 2 o'clock, which caused the whole to disappear. It certainly was the finest aurora I have ever seen. There was no colour exhibited, but that of intense whiteness.

Dr. Boyé made some observations on the frequency and remarkable brilliancy of auroras, as they appear in the vicinity of Cape Race, and suggested, as very desirable, that the interests of the captains of ocean steamers, who constantly traverse that region, should be enlisted in making accurate observations of these phenomena. He read a communication from Mr. Charles Bullock, describing the appearance of an aurora in that neighbourhood, as seen from the Steamer Humboldt, October 2, 1851.

Dr. Boyé made a communication on *human hair*, and exhibited, in the microscope, a specimen of a hair which had been broken off at the root, and again re-produced. He described

the structure and properties of hairs, and illustrated by drawings the peculiar appearances which they present when subjected to a high magnifying power.

Some remarks were made by Dr. Duglison on the re-production and growth of hairs.

The annual report of the Treasurer was read, and referred to the Committee of Finance.

The Committee of Publication presented their report, which was read.

Stated Meeting, December 21.

Present, sixteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Mr. Samuel Powel, a recently elected member, was introduced and took his seat.

Letters were read:—

From the Literary and Philosophical Society of Manchester, dated Society's Rooms, George street;—and from the Natural History Society of Northumberland, Durham, and Newcastle upon Tyne, dated Newcastle, Oct. 27, 1855,—transmitting acknowledgments for Transactions and Proceedings of this Society: and—

From the Royal Asiatic Society, dated London, Nov. 17, 1855, returning thanks for Nos. 51, 52 of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the American Antiquarian Society, in Worcester, Oct. 22, 1855; with a List of the Officers and Members. Boston. 8vo.—*From the Society.*

Proceedings of the Boston Society of Natural History. Vol. V. No. 16. Nov. 1855. Boston. 8vo.—*From the Society.*

The U. S. Naval Astronomical Expedition to the Southern Hemisphere, during the years 1849, '50, '51, '52. By Lieut. J. M. Gilliss, Superintendent. 2 vols. 4to. Washington, 1855.—*From Lieut. Gilliss.*

Les Ouvriers Européens: Etudes sur les Travaux, la Vie Domestique, et la Condition Morale des Populations Ouvrières de l'Europe:— precedées d'un Exposé de la Methode d'Observation. Par M. F. Le Play, Ingénieur en Chef des Mines, &c. &c. Paris, 1855. Folio.—*From Mr. Henry Seybert.*

Distribution Géographique de la Famille des Limaciens,—par le Docteur de Grateloup. Bordeaux, 1855. 8vo.—*From the Author.*

Deux Tableaux Statistiques et Géographiques du nombre des Espèces de Mollusques Terrestres et Fluviatiles, vivants et fossiles, de la France, &c. Par MM. les Docteurs de Grateloup et V. Raulin. Bordeaux, 1855.—*From the same.*

Memoir of Dr. Amos Binney:—by Augustus A. Gould, M.D. Boston, 1850. 8vo.—*From the Author.*

The Astronomical Journal. Vol. VII. No. 17. Dec. 13, 1855. Cambridge. 4to.—*From Dr. B. A. Gould, jr. Editor.*

Mr. Justice laid before the meeting several specimens of engraving on tin plates, with the printed impressions therefrom. The merit of this invention consists in its economy of preparation and engraving of the plates, and the facility with which they can be restored when worn by use. For many purposes these plates of tin appear to be destined to supersede the use of wood-cuts, and probably, in some cases, the more expensive copperplates, now commonly used. The inventor of this mode of producing impressions is Mr. Samuel W. Lowe, of this city.

The Committee of Finance reported that they had examined the accounts of the Treasurer for the fiscal year, ending Dec. 1, 1855, and found them correct. The Committee recommended the following appropriations for the current year, which were ordered to be made accordingly:

For Publications,	. . .	\$400
„ Journals,	. . .	50
„ Hall,	. . .	100
„ Binding,	. . .	100
„ General Account,	. . .	1500
		—
Total,	. . .	\$2150
		—

MAGELLANIC PREMIUM

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

This premium arises from a donation made to the Society by John Hyacinth de Magellan, of London, the interest of which is annually to be disposed of in premiums, to be adjudged by the Society, according to certain regulations, to the author of the best discovery, or most useful invention relating to Navigation, Astronomy or Natural Philosophy (mere natural history only excepted).

According to the conditions prescribed by the donor, the premium shall consist of an oval plate of solid standard gold, of the value of ten guineas, with appropriate inscriptions, &c.

The candidate shall send his discovery, invention or improvement, addressed to the President or one of the Vice-Presidents of the Society, free of postage or other charges, and shall distinguish his performance by some motto, device, or other signature. He shall also send a sealed letter, containing the same motto, device or signature, and subscribed with the real name and place of residence of the author, which letter shall not be opened unless the candidate be successful.

No discovery, invention or improvement shall be entitled to this premium which has been already published, or for which the author has been publicly rewarded elsewhere.

The candidate shall communicate his discovery, invention or improvement, either in the English, French, German or Latin language.

Philadelphia, Jan. 1, 1856.

PROCEEDINGS
OF THE
AMERICAN PHILOSOPHICAL SOCIETY.

VOL. VI.

JANUARY—JUNE, 1856.

No. 55.

Stated Meeting, January 4.

Present, thirteen members.

Judge KANE, Vice-President, in the Chair.

The judges and clerks of the annual election, held this day, for officers of the Society, made report that the following named gentlemen were elected:

President.

Alexander Dallas Bache.

Vice Presidents.

John K. Kane,
Robley Dunglison,
John F. Frazer.

Secretaries.

Charles B. Trego,
E. Otis Kendall,
Frederick Fraley,
John L. Le Conte.

Members of the Council, for Three Years.

Isaac Hays,
Charles D. Meigs,
Henry Vethake,
Robert Bridges.

Curators.

Franklin Peale,
John C. Cresson,
M. Fisher Longstreth.

Treasurer.

Charles B. Trego.

The following donations were announced:—

FOR THE LIBRARY.

- Memoirs of the Literary and Philosophical Society of Manchester. Second Series. Vols. XI. XII. London, 1854-5. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXX. No. 6. Dec. 1855. Philadelphia. 8vo.—*From the Institute.*
- Report of the Commissioner of Patents, for the year 1854. *Arts and Manufactures.* Vols. I. II. Washington, 1855. 8vo.—*From the Hon. J. R. Tyson.*
- Message of James Pollock, Governor of Pennsylvania, to the Legislature, 1856. Harrisburg. 8vo.—*From Eli K. Price, Esq.*
- The American Journal of the Medical Sciences. No. LXI. New Series. January, 1856. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XIV. No. 157. Jan. 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*

Pending nominations for membership were read.

Stated Meeting, January 18.

Present, twenty-six members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From the Royal Prussian Academy of Sciences, dated Berlin, Aug. 23, 1855, announcing a donation for the library, and returning thanks for publications of this Society.

From the Imperial Academy of Sciences, dated Vienna, Oct. 1, 1855, accompanying a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

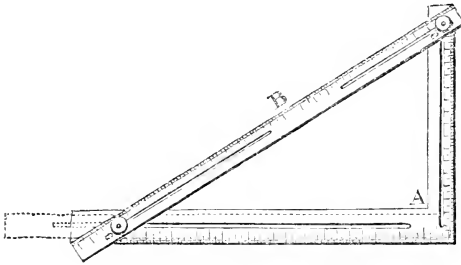
- Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin: aus dem Jahre, 1854. Berlin, 1855. 4to.
- Monatsberichte der K. Akad. der Wissenschaften zu Berlin, aus dem Jahre, 1855. Berlin. 8vo.—*From the Royal Academy of Sciences, Berlin.*

- Sitzungsberichte der K. Akad. der Wissenschaften zu Wien:—Math. Nat. Classe, XV. Band, 3 Heft. XVI. Band, 1 Heft.—Phil. Hist. Classe, XV. Band, 2, 3 Heft; XVI. Band, 1 Heft. Wien. 1855. 8vo.—*From the Imperial Academy of Sciences, Vienna.*
- Monthly Notices of the Royal Astronomical Society. Vol. XV. No. 2. London. 8vo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. Vol. V. No. 17. Boston. 8vo.—*From the Society.*
- Proceedings of the New Jersey Historical Society. Vol. VII. No. 4. Newark. 8vo.—*From the Society.*
- The African Repository. Vol. XXXI. No. 1. Jan. 1856. Washington. 8vo.—*From the American Colonization Society.*
- The American Journal of Science and Arts. Second Series. Vol. XXI. No. 61. Jan. 1856. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*
- Report of the Superintendent of the Coast Survey, showing the progress of the Survey during the year 1854. Washington. 8vo.—*From A. D. Bache, Superintendent.*
- The Right Use of History: An Anniversary Discourse delivered before the Historical Society of Pennsylvania. By William Parker Foulke, of Philadelphia. Philadelphia, 1856. 8vo.—*From the Historical Society of Pennsylvania.*
- Jewelry and the Precious Stones: with a History and Description from Models of the largest individual Diamonds known: including, particularly, a consideration of the Koh-i-noor's claim to notoriety. By Hipponax Roset. Philadelphia, 1856. 8vo.—*From Joseph R. Paxton, Esq.*
- The Astronomical Journal. Vol. V. No. 18. Cambridge. 4to.—*From Dr. B. A. Gould, jr., Editor.*

The Rev. Dr. Rogers read a communication, illustrated by a model and diagrams, on an improvement in the construction of the ordinary carpenters' square, rendering it practically applicable to uses for which, in its present form, it is not calculated.

The attention of the members of the Society is respectfully requested to a model of an improvement on the common square used by mechanics, which it is thought is possessed of some peculiar advantages. It consists of a moveable limb, attached to the common square, with corresponding graduations. This limb is so arranged that the square

can be used for all ordinary purposes, when not required for those for which it is especially designed, and is applicable to the measurement of extended dimensions by a simple reduction in the value of the proportional parts. For which reason the graduations are in inches and twelfths of an inch, to represent with greater ease the measurement of feet and inches in its practical application.



Upon examination of the above diagram, it will be observed that the letter *A* designates the ordinary carpenter's square, and the letter *B* the moveable limb, which is connected with it by steel pins and a securing thumb-screw, *C*. These pins are arranged so as to traverse with ease in the slots which appear in the diagram, in both members of the square, and also in the moveable limb, thus allowing the limb to take any position that may be required in either or both members of the square, and securing it in such a position by the thumb-screw, *C*. The dotted line, shown in the diagram, on the principal member of the square, represents the position of the moveable limb when not required for use. In this position it does not interfere with the use of the square for ordinary purposes, the width of the limb being such as not to conceal the graduations of the square. It is to be observed, that the length of the limb is such that, when placed at the extreme of the slots heretofore described, the ends of the graduated edge will correspond with the ends of the graduated edges of each member of the square, and any deviation therefrom will show, at a glance, when the instrument is out of square.

The practical mechanic will at once discover the value of this instrument in many instances in his daily labours, combining, as it does, accuracy, simplicity and rapidity of operation, and securing economy of time and material. For instance, in its application to *braces*, in ordinary framing, where the footing and bearing being known, the length and mitre of each end can be determined in a moment. So, also, in the construction of *carriages for stairs*, the rise

and tread being determined, the limb is then arranged on the members of the square to correspond therewith, and the instrument thus arranged being applied to the plank from which the carriage is to be cut, the members of the square will give the scribing edge required for the saw.

To explain more clearly the practical operation of this instrument, we will suppose that the length and mitre of a brace is required, where the perpendicular bearing is ten (10) feet, and the horizontal footing is six (6) feet, all that is required in this case is to place the zero point of the moveable limb at ten (10) on the long member of the square, causing the graduated edge of the limb to intersect the graduated edge of the other member of the square at six (6), when the length of brace required may be found by the reading on the limb at the point of intersection, which will give, as the required length of brace, eleven (11) feet eight (8) inches. And, upon securing the moveable limb to the members of the square, by the thumb-screws, and applying the edge of the moveable limb to the side of scantling, the members of the square will give a scribing edge for the two mitres desired.

The sum of the squares of the two sides of a right angled triangle is equal to the square of the hypotheneuse.

$$\begin{array}{r}
 10^2 = 100 \\
 6^2 = 36 \\
 \hline
 136 \quad (11.66 = 11 \text{ feet } 8 \text{ inches.}) \\
 1 \\
 \hline
 21 \overline{)36} \\
 \underline{21} \\
 1500 \\
 226 \overline{)1500} \\
 \underline{1356} \\
 2326 \overline{)14400} \\
 \underline{13956} \\
 \hline
 \hline
 \end{array}$$

A coin of *aluminum* was offered for the inspection of the members by Mr. Du Bois, accompanied by a communication on the subject.

In a former communication on the subject of *aluminum*, some remarks were made on the probability of its fitness for coinage, at a future day. The accompanying specimen of coin, struck in that metal, is exhibited as an illustration of that point. It is of the half dollar size, a little too thick; at the proper dimensions its weight would be $52\frac{1}{2}$ grains, a little more than one-fourth the weight of the silver half dollar. Its specific gravity is 2.8, being probably not quite free from iron; and there being some enhancement of gravity by the pressure in coinage. To show, however, that the metal is very firm and close in its texture (as might not be supposed, on account of its exceeding lightness), it may be mentioned, that the amount of compression, by the blow of coinage, was not much greater than is effected upon a planchet of copper.

The price of the metal is said already to have fallen from a gold to a silver valuation, and to be manufactured to some extent at Rouen.

The Society then proceeded to the election of a librarian, and Mr. Trego was re-elected.

The annual Standing Committees were appointed as follows:

Finance; Mr. Wagner, Mr. Justice, Mr. Fraley.

Hall; Mr. Peale, Mr. Fraley, Mr. Trego.

Library; Dr. Hays, Mr. Ord, Rev. Dr. Stevens.

Publication; Mr. Trego, Dr. Elwyn, Prof. Frazer.

The list of surviving members of the Society was read:—the number on the first of January, 1856, was 378,—of whom are resident in the United States 273, and in foreign countries 105.

The Society next proceeded to ballot for candidates for membership.

On motion, permission was granted to Mrs. Coolidge, the grand-daughter of Thomas Jefferson, or to Mr. Henry S. Randall, to have a copy taken by daguerreotype, or otherwise, of the Society's portrait of Mr. Jefferson, subject to the usual guaranty, for the safe return of the original to the Hall of the Society.

All other business having been concluded, the ballot-boxes were opened by the presiding officer, and the following named

gentlemen were declared to be duly elected members of the Society:—

HENRY COPPEE, of Philadelphia.
 GEORGE ALLEN, do.
 STRICKLAND KNEASS, do.
 HENRY WILLIAM FIELD, of London.
 JOHN P. BROWN, of Constantinople.
 GEORGE AUGUSTUS MATILE, of Philadelphia.
 THOMAS L. KANE, do.
 WILLIAM B. REED, do.
 CLEMENT A. FINLEY, do.
 ALBERT S. LETCHWORTH, do.

Stated Meeting, February 1.

Present, thirteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Mr. Strickland Kneass, Prof. Henry Coppée, Dr. C. A. Finley and Mr. Thomas L. Kane, recently elected members, were introduced and took their seats.

Letters were read from Prof. Henry Coppée, William B. Reed, and Prof. G. A. Matile, dated Philadelphia, January 21, 1856; from Thomas L. Kane and Dr. C. A. Finley, dated Philadelphia, January 22, 1856; from Prof. George Allen, dated Philadelphia, January 26, 1856; from Strickland Kneass and from Albert S. Letchworth, dated Philadelphia, January 26, 1856,—respectively acknowledging the receipt of notice of their election as members of the Society:—

From the Society of Antiquaries, dated Somerset House, London, Nov. 20, 1855; and from the Linnean Society, dated London, Nov. 9, 1855, both returning thanks for Nos. 51, 52 of the Proceedings of the Society:—

From the Historical Society of Pennsylvania, dated Philadelphia, January 25, 1856, acknowledging the receipt of No. 54 of the Proceedings: and—

From the Bath and West of England Society, dated Bath,

October 23, 1855, announcing a donation for the library, and returning thanks for Transactions and Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

- Philosophical Transactions of the Royal Society of London, for the year 1855. Vol. 145. Part 1. London. 4to.
- Proceedings of the Royal Society of London. Vol. VII. Nos. 14, 15. June, 1855. London. 8vo.
- Supplement to the Practical Rules for ascertaining the Deviations of the Compass which are caused by the Ship's Iron, &c. By Archibald Smith, Esq. M.A. &c. London, 1855. 8vo.—*From the Royal Society.*
- Transactions of the Linnean Society of London. Vol. XXI. Part 4. 1855. 4to.
- Proceedings of the Linnean Society, June 20, 1854, to June 19, 1855; with List of Members for 1855.—Address of Thomas Bell, Esq. V. P. R. S. &c. the President, together with Obituary Notices of Deceased Members, by John J. Bennett, Esq. F.R.S. the Secretary,—read at the Anniversary Meeting of the Linnean Society, May 24, 1855. London. 8vo.—*From the Society.*
- Transactions of the Zoological Society of London. Vol. IV. Parts 2, 3. London. 4to.
- Proceedings of the Zoological Society. Parts 18–22, 1850–1854:—Part 23, Jan. 9 to June 12, 1855. London. 8vo.—*From the Society.*
- Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. XIII. Part 2, 1852:—Vol. XV. Part 2, 1855. London. 8vo.
- Three Maps relating to Assyria and its Antiquities. By Felix Jones, Com. Indian Navy and Surveyor in Mesopotamia. Baghdad, July, 1852.—*From the Society.*
- Address at the Anniversary Meeting of the Royal Geographical Society, 28th May, 1855. By the Right Hon. the Earl of Ellesmere, K. G. D. C. L. &c. President. London, 1855. 8vo.—*From the Society.*
- Notices of the Meetings of the Members of the Royal Institution of Great Britain. Part V. Nov. 1854–July, 1855. London. 8vo.—*From the Institution.*

- Report of the Twenty-fourth Meeting of the British Association for the Advancement of Science,—held at Liverpool, Sept. 1854. London, 1855. 8vo.—*From the Association.*
- Transactions of the Royal Irish Academy. Vol. XXII. Part 6. 1855. 4to.
- Proceedings of the Royal Irish Academy. Vol. VI. Part 2, 1854–5. Dublin. 8vo.—*From the Academy.*
- Journal of the Bath and West of England Society for the Encouragement of Agriculture, Arts, Manufactures and Commerce. New Series. Vols. 1, 2, 3. 1853–4–5. London. 8vo.—*From the Society.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 2. Dec. 14, 1855. London. 8vo.—*From the Society.*
- Flora Batava, of Afbeelding en Beschrijving van Nederlandsche Gewassen. Aflevering 177. Amsterdam. 4to.—*From the King of Holland.*
- Journal of the Franklin Institute. Third Series. Vol. XXXI. No. 1. Jan. 1856. Philadelphia. 8vo.—*From the Institute.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VII. No. 12. Nov. Dec. 1855. Philadelphia. 8vo.—*From the Academy.*
- Theory of the Winds. By Capt. Charles Wilkes, U. S. N.—Read before the American Scientific Association, at Providence, Aug. 20, 1855. Accompanied by a Map of the World, showing the extent and direction of the Winds. To which is added Sailing Directions for a Voyage around the World: by the same Author. Philadelphia, 1855. 8vo.—*From the Author.*

Dr. Le Conte presented a communication entitled “Revision of the Cicindelæ of the United States,” which was referred to a committee consisting of Prof. Haldeman, Dr. Bridges and Mr. Peale.

Dr. Kane exhibited a number of sketches illustrative of the ice-growth in the Arctic regions, and described the manner of its accumulation in the great ice-belt of the high northern latitudes,—explaining the difference between this and the ordinary shore-ice of other formations.

Mr. Trego, reporter of the Society, laid upon the table No. 54 of the Proceedings, recently published.

Stated Meeting, February 15.

Present, seventeen members.

Prof. FRAZER, Vice-President, in the Chair.

Prof. G. A. Matile, Mr. A. S. Letchworth and Prof. George Allen, recently elected members, were presented to the presiding officer and took their seats.

Letters were read:—

From the Rev. W. R. De Witt, State Librarian, dated Harrisburg, Jan. 31, 1856;—from the American Antiquarian Society, dated Worcester, Mass. Feb. 1, 1856;—from the New Jersey Historical Society, dated Newark, Feb. 2, 1856;—from the Corporation of Yale College, dated New Haven, Feb. 5, 1856, and from the Connecticut Historical Society, dated Hartford, Feb. 6, 1856,—severally returning thanks for No. 54 of the Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Information concerning the History, Condition and Prospects of the Indian Tribes of the United States: Collected and prepared under the direction of the Bureau of Indian Affairs, per Act of Congress of March 3, 1847. By Henry R. Schoolcraft, L.L.D. Part V. Philadelphia, 1855. 4to.—*From the Commissioner of Indian Affairs.*

Reports of Explorations and Surveys to ascertain the most practicable and economical route for a Railroad from the Mississippi river to the Pacific Ocean:—made under the direction of the Secretary of War, in 1853-4, according to Acts of Congress. Vol. I. Washington, 1855. 4to.—*From Col. J. J. Abert.*

Journal of the Franklin Institute. Third Series. Vol. XXXI. No. 2. Feb. 1856. Philadelphia. 8vo.—*From the Institute.*

Journal of the Academy of Natural Sciences of Philadelphia. New Series. Vol. III. Part 2. Philadelphia, 1855. 4to.—*From the Academy.*

Report on the Recent Progress of Organic Chemistry, made to the American Association for the Advancement of Science, August,

1855. By Dr. Wolcott Gibbs. Cambridge, 1855. 8vo.—*From the Author.*

Science and the Bible: a Review of the "Six Days of Creation," of Prof. Tayler Lewis. By James D. Dana, Silliman Professor of Natural History in Yale College. Andover, 1856. 8vo.—*From the Author.*

Illustrations of the Birds of California, Texas, Oregon, British and Russian America. By John Cassin, Mem. Acad. Nat. Sci. &c. Nos. 6, 7, 8, 9, 10. Philadelphia. 8vo.—*From the Author.*

Medical News and Library. Vol. XIV. No. 153. Feb. 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*

The committee to which was referred Dr. Le Conte's paper on the Cicindelæ of the United States reported in favour of its publication in the Transactions, which was ordered accordingly.

Dr. R. E. Rogers exhibited Schönbein's Ozone scale and the test-papers saturated with iodide of potassium and starch used in connection with it. The scale consists of ten shades of blue, which are numbered from the faintest to the deepest tint. By means of this scale the ozone in the atmosphere, by its effect upon the test-papers in rendering them more or less blue after a given period of exposure, may be quantitatively compared at different times.

Dr. R. referred to some experiments he was now making, the results of which he was not yet prepared to report, on the disinfecting and antiseptic action of ozone, and expressed his belief that it is one of the most powerful agents in these respects, as it is known to be in its bleaching power.

The proceedings of the Board of Officers and Council at their last meeting were read.

Mr. Justice having taken the chair, Prof. Frazer called the attention of the Society to the recommendation of the Board of Officers and Council at their late meeting, with regard to increasing the salary of the librarian;—and moved that the laws of the Society be so amended that Article 7 of Chapter VIII. shall read as follows: "He shall receive such annual salary as the Society shall by resolution direct:"—Which motion, in accordance with the laws regulating amendments, is laid over for action at the next stated meeting, on the requisite notice being given.

Stated Meeting, March 7.

Present, twenty-two members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From the Geological Society, of London, dated Somerset House, Nov. 22, 1855, returning thanks for Nos. 51, 52 of the Proceedings of this Society:—

From the Trustees of the Boston Athenæum, dated Boston, Feb. 2;—and from the Smithsonian Institution, dated Washington, Feb. 10, 1856, acknowledging the receipt of No. 54 of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

- Proceedings of the Boston Society of Natural History. Vol. V. No. 18. Boston. 8vo.—*From the Society.*
- The African Repository. Vol. XXXII. No. 2. Feb. 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 3. Jan. 11, 1856. London. 8vo.—*From the Society.*
- Twenty-first Annual Report of the Board of Directors of the Young Men's Library Association of Cincinnati, for the year 1855. Cincinnati. 8vo.—*From the Association.*
- Official Army Register for 1856: published by order of the Secretary of War. Washington. 8vo.—*From S. Cooper, Adjutant General.*
- Report of the Superintendent of the U. S. Coast Survey, showing the progress of the Survey during the year 1854. Washington. 8vo.—*From the Hon. J. R. Tyson.*
- The American Journal of Science and Arts. Second Series. Vol. XXI. No. 62. March, 1856. New Haven. 8vo.—*From Profs. Siliman & Dana, Editors.*
- Report of the Pennsylvania Hospital for the Insane, for the year 1855. By Thomas S. Kirkbride, M.D. Physician to the Institution. Philadelphia. 8vo.—*From the Author.*
- The Scholar's Panoply, as illustrated by the Shield of Achilles;—the Biennial Oration delivered before the Zelosophic Society of the

- University of Pennsylvania. By Henry Coppée, Professor of English Literature in the University of Pennsylvania. Philadelphia, 1856. 8vo.—*From the Author.*
- Rapport du Surintendant de l'Éducation pour le Bas-Canada, pour 1854. Quebec, 1855. 8vo.
- The Farmer's Journal and Transactions of the Lower Canada Board of Agriculture. Vol. III. No. 10. Feb. 1856: with Prize List of the Agricultural Association of Lower Canada for the year 1856. Montreal. 4to.—*From L. A. Huguet Latour, N. P. of Montreal.*
- The Medical News and Library. Vol. XIV. No. 159. March, 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*
- The Florist and Horticultural Journal. Vol. IV. No. 9. Philadelphia, 1856. 8vo.—*From H. C. Hanson, Editor.*
- The Documentary History of the State of New York:—arranged under the direction of the Hon. Christopher Morgan, Secretary of State. By E. B. O'Callaghan, M.D. Vols. I. II. III. IV. Albany, 1850-51. 4to.—*From Henry S. Randall, Esq.*

Dr. Bell announced the death of Dr. William P. C. Barton, a member of the Society, who died on the 28th of February last, aged 69 years.

Mr. Peale solicited the attention of the members to a contrivance called the *skater's reel*, invented by him several years since:—exhibiting the instrument and showing the method of using it.

A spool of light wood, to which is attached, by one end, a thin but strong cord, about forty feet in length, which cord is wound around the spool, filling all the space between the two ends, somewhat similar to the ordinary cotton spool, so familiar to the domestic eye, but, of course, on a larger scale; the other end of the cord is spliced into a loop, which can be converted, in a moment, to a running noose.

The reel is usually carried in the pocket, being of a convenient size for that purpose, or in the breast of the coat; and the manner of use Mr. Peale illustrated by slipping the noose over the wrist, and throwing the reel to a person supposed to have "broken in:" or it may be thrown out, by a person who is in the water, and thus the instantaneous assistance given, which is so important under such circumstances.

Mr. Peale mentioned that the instrument was original with himself;

that he had carried it during the skating seasons of the last quarter of a century, and had used it serviceably in several instances; and that the statistics of the Skaters' Club of Philadelphia showed that a large number of persons had been rescued by the members, with its aid, of which the late winter had afforded several very remarkable instances; proving that simple means at hand, and ready for instantaneous use, are of more value than the most costly arrangements under other circumstances.

The requisite notice having been given, the Society proceeded to the consideration of the amendment to the laws proposed at last meeting, and the question being taken thereupon, the proposed amendment was agreed to;—making Article 7 of Chapter VIII. read as follows: “He shall receive such annual salary as the Society shall by resolution direct.”

It was then resolved that the salary of the librarian, for the present year, be fixed at one thousand dollars.

Prof. Frazer mentioned that Mr. Thomas Sully was desirous of painting a copy of the portrait of Dr. Robert M. Patterson, late President of the Society, and moved that Mr. Sully have permission to copy the portrait, under the usual conditions:—which motion was agreed to.

Dr. Dunglison having taken the chair, Judge Kane offered the following resolution:—Resolved, That the President or one of the Vice-Presidents, and one or more of the Secretaries be and they are hereby authorized to execute such deeds and conveyances to the Government of the United States, of the Hall now occupied by the Society, as, in the opinion of the Committee referred to in the resolution of the 17th of August last, may be proper for giving effect to the resolution adopted at that meeting:—Which was read, considered and adopted.

Stated Meeting, March 21.

Present, fourteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Henry W. Field, of London, dated Her Majesty's

Mint, Feb. 22, 1856, acknowledging the receipt of notice of his election as a member of the Society:—

From the Imperial Society of Naturalists of Moscow, dated 17–29 February, 1856, in answer to a letter from this Society of Oct. 19, 1855, on the subject of the celebration of the fiftieth anniversary of the Society of Naturalists: and—

From G. C. Swallow, State Geologist of Missouri, dated Columbia, Mo., Feb. 27, 1856, accompanying a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Journal of the Franklin Institute. Third Series. Vol. XXXI. No. 3.

March, 1856. Philadelphia. 8vo.—*From the Institute.*

Proceedings of the Boston Society of Natural History. Vol. V. No.

19. Feb. 1856. Boston. 8vo.—*From the Society.*

Report of the Secretary of the Treasury, transmitting a Report from the Register of the Treasury, of the Commerce and Navigation of the United States, for the year ending June 30, 1855. Washington. 8vo.—*From the Hon. J. R. Tyson.*

Mortality Statistics of the Seventh Census of the United States, 1850: with comparative and illustrative tables. By J. B. De Bow, Superintendent U. S. Census. Washington. 8vo.—*From the same.*

The First and Second Annual Reports of the Geological Survey of Missouri. By G. C. Swallow, State Geologist. Jefferson City, 1855. 8vo.—*From the Author.*

The Practicability of constructing Cannon of great calibre, capable of long continued use under full charges. By Daniel Treadwell, V. P. Am. Acad. &c. Cambridge, 1856. 8vo.—*From the Author.*

The Astronomical Journal. Vol. IV. No. 19. March 19, 1856. Cambridge. 4to.—*From Dr. B. A. Gould, jr. Editor.*

The Rev. Dr. Rogers referred to a former communication made by him on an improvement in the construction of the ordinary carpenters' square. He now exhibited a model of the instrument, and illustrated its use by diagram.

Dr. Emerson, in reference to the peculiar severity of the present winter, remarked upon the character of the first great snow-storm of the season, which consisted of snow of a dry

and granular consistency, and was followed by intense cold. Immediately succeeding the storm, the thermometers indicated a lower degree of temperature to the southward of Philadelphia than to the northward. He attributed to the peculiar character of this snow-storm, the deep and intense freezing of the soil beneath, and the unusual cold of the winter.

The Committee on the sale of the Society's Hall reported articles of an agreement for the sale of the Hall to the Government of the United States, for the purpose of holding courts of justice therein and offices connected therewith:—Which agreement was read, approved, and ordered to be executed.

On motion of Dr. Franklin Bache it was resolved,—That the Secretaries be directed to write to those members appointed to prepare obituary notices prior to 1854, and who have not yet read them, reminding them of their appointment and requesting to be informed when it will be convenient for them to fulfil the duties assigned to them.

Stated Meeting, April 4.

Present, seventeen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From the Statistical Society, dated London, Oct. 11, 1855, acknowledging the receipt of No. 51 of the Proceedings of this Society:—

From the Royal Saxon Society of Sciences, dated Leipzig, Nov. 24, 1855, returning thanks for Proceedings, Jan.—Dec. 1854:—

From the Lyceum of Natural History of New York, dated March 20, 1856, acknowledging the receipt of No. 53 of the Proceedings: and—

From Clement A. Finley, M.D. Surgeon U. S. A. dated Philadelphia, April 4, 1856, presenting a donation for the library, on behalf of Brig. Gen. Lawson, Surgeon General of the U. S. Army.

The following donations were announced:—

FOR THE LIBRARY.

- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 4. Feb. 8, 1856. London. 8vo.—*From the Society.*
- Annals of the Lyceum of Natural History of New York. Vol. VI. No. 5. Oct. 1855. New York. 8vo.—*From the Lyceum.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VIII. No. 1. Jan. Feb. 1856. Philadelphia. 8vo.—*From the Academy.*
- The African Repository. Vol. XXXII. No. 3. March, 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Report of the Secretary of the Treasury of the United States, on the state of the Finances, for the year ending June 30, 1855. Washington. 8vo.—*From the Hon. J. R. Tyson.*
- Report of the State Librarian to the Legislature of Pennsylvania; with a Catalogue of Books, for the year 1855. Harrisburg. 8vo.—*From the Rev. W. R. De Witt, State Librarian.*
- A Manual of Instruction for the South African College. *Science, Part 1.* Elementary Geometry, according to a Natural System. *Literature, Part 1.* The Principles of Grammar, applied to the English Language. 2 vols. Cape Town, 1838, 1846. 8vo.—*From the Author, J. C. Adamson, D.D.*
- The American Journal of the Medical Sciences. No. LXIII. New Series. April, 1856. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XIV. No. 160. April, 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*
- The First and Second Annual Reports of the Geological Survey of Missouri. By G. C. Swallow, State Geologist. Jefferson City, 1855. 8vo.—*From Mr. F. B. Meek.*
- Army Meteorological Register, for twelve years, from 1843 to 1854, inclusive, compiled from observations made by the Officers of the Medical Department of the Army, at the Military Posts of the United States.—Prepared under the direction of Brevet Brigadier General Thomas Lawson, Surgeon General, U. S. Army. Washington, 1855. 4to.—*From Gen. Lawson.*
- Revision of the Cicindelæ of the United States. By John L. Le Conte, M.D. (From the Transactions of the Am. Phil. Society. Vol. XI.) Philadelphia, 1856. 4to.—*From the Author.*

Mr. Du Bois laid upon the table, for the inspection of members, sundry articles of interest, recently added to the Mint Cabinet.

1. The *itzebue*, silver coin of Japan; of which there is no mention in print, as it differs much from the *itzebue* formerly described by Dutch traders. It is 991 thousandths fine (no doubt regarded there as absolutely fine), and worth 38 cents of our money. Since the treaty with Japan, a number of these have appeared at San Francisco, whence this piece came. The opening of trade with that country, will make it important to know the value of Japanese money.

2. Medal, presented by the merchants of Boston to Com. Perry, who concluded the treaty with Japan. Engraved by Mitchell, and struck at the mint.

3. 20 shilling piece of James I., and six-pence of Elizabeth; remarkable only as being part of the contents of an earthen pot, lately dug up at Richmond's island, mouth of the Saco river, State of Maine. According to the published accounts, the treasure was buried there, apparently, about 1630 to 1640.

4. Gold in quartz, from Australia; precisely similar in character to the auriferous matrix in California, Georgia and elsewhere.

Mr. Trego made some observations upon the remarkable similarity between the specimens of auriferous quartz from Australia and those from the gold-bearing regions of the United States.

Mr. Peale spoke of the superior execution of the medal presented to Com. Perry, and attributed high credit to the artist for the execution of the head;—excepting, however, from his commendation the lettering of the medal.

Dr. Hallowell offered, for the Transactions, a communication "On a New Genus of the *Bœdæ*," which was referred to a Committee consisting of Dr. Bridges, Dr. Hays and Dr. Leidy.

The Committee on the sale of the Hall reported that the article of agreement with the Government of the United States, presented at last meeting, was duly executed on Saturday, 22d ultimo.

On motion of Mr. Justice, it was resolved that the Board of Officers and Council be instructed to inquire into the expediency of purchasing a Microscope, for the use of the Society.

Stated Meeting, April 18.

Present, twenty-one members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read:—

From John P. Brown, dated American Legation, Constantinople, Turkey, March 6, 1856, acknowledging the receipt of notice of his election as a member of the Society:—

From H. Bossange & Son, dated 25 Quai Voltaire, Paris, January, 1856, accompanying a donation for the library: and—

From Dr. Charles W. Short, dated near Louisville, Kentucky, April 5, 1856, giving reasons for not fulfilling his appointment by the Society to prepare an obituary notice of the late Mr. William Short, and requesting to be released from the duty assigned.

The following donations were announced:—

FOR THE LIBRARY.

Annales des Mines. V. Série. Tome VII. 1 livraison de 1855. Paris.

8vo.—*From the Engineers of l'Ecole des Mines.*

Documents relating to the Colonial History of the State of New York, procured in Holland, England and France, by John Romeyn Brodhead, Agent, &c. Edited by E. B. O'Callaghan, M.D. Vol. VI. Albany, 1855. 4to.—*From the Regents of the University of the State of New York.*

Results of a Series of Meteorological Observations, made in obedience to instructions from the Regents of the University, at sundry Academies in the State of New York, from 1826 to 1850, inclusive. Compiled from the original returns, and the Annual Reports of the Regents of the University, by Franklin B. Hough, A.M. M.D. &c. &c. Albany, 1855. 4to.—*From the same.*

Sixty-ninth Annual Report of the Regents of the University of the State of New York: transmitted to the Legislature Jan. 15, 1856. Albany. 8vo.—*From the same.*

Annual Report of the Trustees of the New York State Library: transmitted to the Legislature January 22, 1856. Albany. 8vo.—*From the same.*

Journal of the Franklin Institute. Third Series. Vol. XXXI. No. 4.
 April, 1856. Philadelphia. 8vo.—*From the Institute.*
 Ma Bibliothèque Française. Paris. 12mo.—*From Hector Bossange
 & Son.*

The Committee appointed at last meeting, on a communication by Dr. Hallowell, "On a New Genus of Boædæ from Cuba," reported in favour of its publication in the Transactions of the Society, which was ordered accordingly.

Judge Kane announced the decease of Thomas I. Wharton, Esq. a member of this Society, who died April 7, 1856, aged 65:—

And, on motion of Dr. Franklin Bache, Judge Kane was appointed to prepare an obituary notice of Mr. Wharton.

Mr. Durand made a communication concerning the collection of plants brought from the Arctic regions by the expedition under the command of Dr. Kane.

The collections of plants, brought by Dr. E. K. Kane, from his two voyages to the polar regions, comprehend 148 species—77 of which are dicotyledonous; 29 monocotyledonous, and 42 cryptogamous plants: all from the western coast of Greenland, between the 64th and 80th north parallels.

Although compelled, by the casualties of his voyage back to the United States, to sacrifice several of his packages, Dr. Kane's collections are yet among the richest ever brought by arctic and polar explorers. They not only afford a great accession to our previous knowledge of the polar vegetation, but they, almost, complete the flora of northern Greenland, by adding 27 new species to the 49 allotted by Sir J. Richardson, in his statistical tables, to the polar section of that vast island, from the 73d parallel.

They, moreover, develop facts of great importance in a physico-geographical point of view: first, by exhibiting throughout the range of coasts between the arctic and polar circle no perceptible change in the number and species of plants therein collected; which seems to establish that the third or polar zone of Sir J. Richardson, as far at least as Greenland is concerned, might as well begin at the 67th as at the 73d degree of north latitude. Secondly: By the reappearance, beyond the limits of Smith's sound, of two plants, *Hesperis Pallasii* and *Vesicaria Arctica*, belonging rather to the milder parts of the arctic zone. Both these plants were gathered, with a few

others, on the newly discovered lands of Washington and Humboldt, on the very verge of that mysterious polar sea which Dr. Kane's expedition had the chance to espy and ascertain to be free from ice as far as the eye could reach. Such a fact, indeed, although limited to two species, seems to indicate the existence of peculiar isothermal influences, depending either on warm currents, greater depth of water, or actual depression of our globe at its poles.

Another remarkable feature of Dr. Kane's collections is: That, dividing into two equal parts the extent of coast, explored by him, and each section presenting about the same number of stations at which herborizations were made—the northern section, from Uppernavik, 73° , to Washington land, has yielded more dicotyledonous; but fewer monocotyledonous species than the southern section from Fiske Fiord to 73° north parallel.

These unexpected results show that the polar zone cannot, properly, be compared with the alpine regions of the more temperate climates. The uninterrupted action of light and heat, during the whole period between the rising and setting of the sun, which make the day or summer season of the poles; a purer and damper atmosphere, aided perhaps by a greater accumulation of electric fluid, must, necessarily, and more promptly (in the lowest levels) actuate and perfect the vegetation, not only of the plants already inured to those hyperborean regions; but also of those the seeds of which may have been transported either from milder climates, by currents, migration of birds, or otherwise. Unlike the snow-capped and barren summits of alpine regions, at all times destitute of verdure, it is probable that vegetation is permitted to extend to the very pole itself, wherever it meets with proper soil, favourable solar exposure and protection from the blasts of winds.

Dr. Kane also made some remarks upon the flora of the polar zones, considered in relation to temperature. The farthest northern point visited by him produced plants as abundant in number as those of the botanical region of Lancaster sound.

Prof. Haldeman called the attention of the Society to a recent publication by Professor Lepsius, of Berlin, on the sound of the human voice,—and noticed certain sounds in which he thinks Professor Lepsius has not been accurate in the exponents used to indicate them.

Dr. Kane mentioned that the corrections of the observations

upon temperature made during his late expedition to the polar regions, have been recently completed, and result in giving a considerably lower mean temperature than was stated by him in a previous communication to the Society.

A discussion ensued upon the imperfections of thermometers and their want of reliability when used to indicate extremes of temperature, whatever may be their form of construction, or the fluid with which their tubes are filled.

On motion of Dr. F. Bache, Dr. C. W. Short was excused from the duty of preparing an obituary notice of the late Mr. William Short.

The Society proceeded to ballot for candidates for membership,—and the ballot-boxes being afterwards opened by the presiding officer, the following named gentlemen were declared to be duly elected members of the Society:—

THEO. LACORDAIRE, of Liège.

DR. HERMAN BURMEISTER, of Hallé.

SAMUEL L. HOLLINGSWORTH, M.D., of Philadelphia.

CHRISTIAN OLRICK, of Denmark.

Stated Meeting, May 2.

Present, nine members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Dr. Samuel L. Hollingsworth, dated Philadelphia, April 21, 1856, acknowledging the receipt of notice of his election as a member of this Society: and—

From J. A. Thomas, Assistant Secretary, dated Department of State, Washington, April 19, 1856, announcing a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Executive Documents, 2d Session of 33d Congress, 1854-5,	22 vols.
Senate Documents,	14 vols.
Senate, Miscellaneous,	3 vols.

Senate Reports, 2d Session of 33d Congress, 1854-5,	1 vol.
Reports of House Committees " "	1 vol.
House, Miscellaneous, " "	1 vol.
List of Private Claims, " "	2 vols.

From the Department of State, Washington.

Report of the Commissioner of Patents, for the year 1851. Part 2.
Agriculture. Washington, 1852. 8vo.

Message from the President of the United States to the two Houses of Congress at the commencement of the First Session of the 34th Congress;—with accompanying Documents. Parts I. II. (2 vols.)
Washington, 1855. 8vo.—*From the Hon. J. R. Tyson.*

Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 5. March 14, 1856. London. 8vo.—*From the Society.*

The African Repository. Vol. XXXII. No. 4. April, 1856. Washington. 8vo.—*From the Am. Colonization Society.*

The Astronomical Journal. Vol. IV. No. 20. April 26, 1856. Cambridge. 4to.—*From the Editor.*

The Medical News and Library. Vol. XIV. No. 161. May, 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*

Mr. Trego laid upon the table a specimen of "Colombian Guano," from Monks' Islands, in the Caribbean Sea, near the entrance to the Gulf of Venezuela or Maracaibo. The specimen was presented by Dr. A. S. Piggot, of Baltimore, from whom the following communication has since been received.

In the spring of 1855, there was brought into the port of Baltimore a hard, rocky substance, which was offered for sale under the name of Colombian Guano. At first, there was a great effort made to involve in mystery the whole history of the article, its locality being carefully kept secret. Gradually, however, it became known that it was found on Los Monges, a collection of keys at the entrance of the Gulf of Maracaibo. It has also been found on El Roncador, off the Mosquito coast, on Aves and various other keys of the Caribbean sea. On Los Monges, it forms, as the captains who procured it say, a thin polished crust over the entire surface. Below this crust lies the common Mexican guano. In some instances, however, this same smooth incrustation covers thinly the jutting points of primitive and metamorphic rocks. I have before me a splinter of rock of this kind, crested with an inch-thick deposit of this guano; and I have seen many in which the white crust formed a thin lamina over the surface. Many such

were brought in, in the first cargo, which will account for the large amount of sand in the subjoined analysis. Only the ground guano was thus sent to me, so that the analysis represents the commercial article, not a selected specimen. The actual guano contains only about 0.5 per cent. of siliceous matter.

The unusual quantity of phosphoric acid, contained in this substance, attracted attention, and many analyses were made of the new guano. The habit of calculating the phosphates in these Mexican guanos, as bone earth, or tribasic phosphate of lime, led some chemists into grievous errors. The new material was, in one breath, called a super phosphate of lime, and in another, said to contain from seven to eleven per cent. of *free phosphoric acid*. In common with other chemists of Baltimore, on the first importation of this guano, I made an analysis of it, and found it to contain a large proportion of phosphates, but expressed no opinion as to their composition. At last, however, hearing so much said about the soluble phosphoric acid in this substance, I examined it more carefully, and found but little of this acid soluble in water, and none of it *free*. I obtained the following results :

Phosphoric acid,	-	-	-	-	41.62
Sulphuric acid,	-	-	-	-	3.65
Chlorine,	-	-	-	-	.05
Lime, -	-	-	-	-	33.83
Magnesia,	-	-	-	-	3.27
Iron, -	-	-	-	-	a trace.
Fluorine,	-	-	-	-	a trace.
Sand (consisting chiefly of primitive rocks in powder)					5.34
Water (hygrometric),	-	-	-	-	2.15
Organic matter, salts of ammonia (containing 0.23 of ammonia) and combined water,					8.62
Loss, in which are the alkalis (not estimated)					1.47
					100.00

The proportions of the phosphates vary in different samples. Thus, in one specimen, recently examined, there was a very small proportion of magnesia and 4.23 per cent. of phosphate of iron.

The organic matter was partly soluble in hydrochloric acid, and partly in potash. A cursory examination of it seemed to indicate

that it consisted chiefly of humus and the acids of the crenic group.

From this analysis I thought myself justified in announcing that the lime and magnesia in the compound under consideration are combined with the phosphoric acid so as to form a tribasic salt, in which one atom of water substitutes one atom of alkaline earth, according to the formula $2\text{MO}, \text{HO}, \text{PO}_5$. A subsequent examination and recalculation of my results has convinced me that the announcement was somewhat premature, and that the analysis would not fully bear the construction put upon it. I have, however, never changed the opinion then advanced, as the discrepancies are slight and easily accounted for.

The statement of my views led to further investigation. Among others, Dr. Campbell Morfit examined the substance, and came to a different conclusion from that at which I had arrived. Drs. Higgins and Bickell, Chief and Assistant State Chemists of Maryland, shortly after published a paper in which they agreed with me in the main. Their analysis was more elaborate than mine, and comprised two distinct examinations; one of the white, polished crust, the other of the body of the rock. Without going into minutia, I will simply state that they found the exterior layer to contain phosphates of lime and magnesia, of the formula 3MO PO_5 while, in the body of the rock, the salts were composed, as I had previously announced. They also ascertained that in the outer layer the sulphuric acid was combined with soda, while in the body of the rock it was united to lime.

A discussion ensued upon the application and effect of sundry articles used as manures, and their influence upon different soils and crops,—in which Dr. Dunglison, Prof. Frazer, Dr. F. Bache and Mr. Trego participated.

Stated Meeting, May 16.

Present, sixteen members.

Prof. FRAZER, Vice-President, in the Chair.

Dr. S. L. Hollingsworth, a recently elected member, was introduced and took his seat.

The following donations were announced:—

FOR THE LIBRARY.

- Proceedings of the American Association for the Advancement of Science. *Seventh Meeting*, held at Cleveland, Ohio, July, 1853:— and *Ninth Meeting*, held at Providence, R. I. August, 1855, 2 vols. 8vo.—*From the Association.*
- Vierzigster Jahresbericht der Naturforschenden Gesellschaft in Emden, für 1854. 8vo.—*From the Natural History Society, Emden.*
- Die Temperatur von Emden, als Ergebniss der daselbst von 1844 bis 1853, auf den Stand des Thermometers gerichteten Beobachtungen: von Dr. M. A. F. Prestel. 1855. 4to.—*From the Author.*
- Proceedings of the Boston Society of Natural History. Vol. 5, Nos. 20, 21. Boston. 8vo.—*From the Society.*
- Chambersburg, in the Colony and the Revolution. A Sketch. By Lewis H. Garrard, Mem. Hist. Soc. Penna. &c. Philadelphia, 1856. 8vo.—*From the Historical Society of Pennsylvania.*
- Journal of the Franklin Institute. Third Series. Vol. XXXI. No. 5. May, 1856. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXII. No. 5. May, 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Constitution and By-laws of the Academy of Sciences of Saint Louis. St. Louis, 1856. 8vo.—*From the Academy.*
- Reports of the Prison Discipline Society, Boston, 1826 to 1853. 3 vols. Boston. 8vo.—*From the Society.*
- Flora Batava, of Afbeelding en Beschrijving van Nederlandsche Gewassen. Aflevering 178. Amsterdam. 4to.—*From the King of Holland.*
- Standard Alphabet for reducing unwritten Languages and foreign Graphic Systems to a uniform Orthography in European letters. By Dr. R. Lepsius, Prof. Univ. and Mem. Roy. Acad. Berlin. 1855. 8vo.—*From the Author.*
- The American Journal of Science and Arts. Second Series. Vol. XXI. No. 63. May, 1856. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*
- The U. S. Naval Astronomical Expedition to the Southern Hemisphere, during the years 1849, '50, '51, '52. Lieut. J. M. Gilliss, Superintendent. Vols. 1, 2. Washington, 1855. 8vo.—*From the Hon. Job R. Tyson.*

Catalogue of the Books belonging to the Library Company of Philadelphia. Vol. III. Containing the Titles added from 1835 to 1856 :—together with an Alphabetical Index to the whole. Philadelphia, 1856. 8vo.—*From the Company.*

Dr. Franklin Bache announced the decease of Dr. John C. Warren, of Boston, a member of this Society, who died on the 4th inst. in the 78th year of his age.

Messrs. Eckfeldt and Dubois exhibited to the meeting an apparatus for ascertaining the specific gravity of ores, metals, coins, gems, &c. with the following descriptive communication.

The apparatus for taking specific gravity of solids is, essentially, a tin cup, with a spout at the side. Five vessels are here shown, of different sizes and shapes, to suit different cases. Four of these are cylindrical, ranging from six to ten inches high, and from two to five inches in diameter. The tall one (ten inches by two), is intended for the trial of silver spoons and forks, or articles of similar shape; the others are adapted to lumps of stone or metal, or blocks of wood, of various sizes. The fifth vessel is rectangular, measuring $6\frac{1}{2}$ inches high, $1\frac{3}{4}$ inches long, and $\frac{1}{4}$ inch broad, being intended for coins, not smaller than the half eagle, or quarter dollar, and for small medals, and gems of admissible size. This vessel is provided with a brass plate, as a *plunger*, for diminishing the surface. The smaller vessels are set firmly in mahogany blocks, to insure steadiness in the operation; and these blocks have screw feet, for convenience of levelling. The spouts extend upward, with a curve outward, the beak being far enough below the top of the cup to allow for the space to be taken up by the specimen, that it may not force the water over the top nor leave any point uncovered by water. The aperture of the spout is tapered to the one-sixteenth of an inch, and a small bit of wire projects downwards from the beak, to carry the drops of water properly. A small cup is placed directly under, to catch the water displaced, and a brass weight, equal to the weight of this cup when empty, is found convenient (though not necessary) as a counter-weight.

When the operation is to be performed, suppose upon a gold or silver ore, the ore is first weighed, and afterwards its surface is moistened. The vessel is then nearly filled with water, and so much as is superfluous, or above the level of the beak of the spout, runs or drips off, to a final drop. The small cup is then set under the beak, and

the lump is carefully lowered into the vessel by a hair wire, or waxed thread. This, of course, displaces its own bulk of water, which runs off into the small cup, gradually coming back to the former level, by a final drop. The weight of this water is the divisor, the weight of the lump the dividend, and the quotient is the specific gravity.

In connection with this apparatus, the following miscellaneous remarks are offered to the Society.

The opening of the gold mines of California brought out a great number of beautiful specimens of gold in the matrix (or mingled with quartz) of the most fanciful forms, and every variety of size and value. In many cases it was presumed, by the holders of these prizes, that they would bring more money, as curiosities, than as bullion; and, at any rate, very many owners were unwilling to have such attractive specimens spoiled until they had been sufficiently exhibited. At the same time, it was always desirable to know, pretty nearly, how much gold was actually contained; and, to obtain such estimates, upon what was supposed to be reliable authority, many of these specimens were brought to the assay office of the mint. They came at a time when we were overpowered with the legitimate business of the office, and yet it seemed impossible to refuse such requests; and, for a considerable time, such employment was interesting as a matter of scientific inquiry. Especially when we could compare our estimates with the more definite and accurate results obtained by putting the specimens or "nuggets" through the regular routine of melting and assay. On one occasion a lump, weighing over 200 pounds, came to us for this purpose. It was sent by the Isthmus route, at a time when transportation was enormously dear, and having visible gold on the surface, was expected to be rich throughout the mass; and, with this expectation, was on the way to London, to make an impression upon the stock market there. By the aids of a very large steelyard beam and copper kettle, we were enabled to take the specific gravity, but could not make it higher than that of compact quartz. The result seemed so questionable, that we obtained permission to break up the rock, and found that what little gold it contained was at the surface.

Not only were ores brought to us from California, to be estimated, but also from other mining regions, and of various metals; but chiefly gold and silver. As the specimens were of all sizes, these demands upon us often proved embarrassing, since it was necessary to have beams suited to them, and with attachments for weighing in water. We therefore had frequent recourse to the method advised by the elder Dr. Patterson (formerly President of this Society), which con-

sisted in using a jar or pitcher, rather larger than the specimen, and not over-large at the mouth; this was filled with water up to a marked line; and then, by introducing the specimen, and bringing back the water to the same line, so much water was removed as was just equal in bulk to the bulk of the specimen; the weight of this water gave the divisor, the weight of the specimen (taken while dry), the dividend, and the quotient was the specific gravity.

The results thus obtained were, generally, as satisfactory as those by the usual method. And here it may be interesting to cite a few examples, from our minutes, of specimens estimated by one or other of the processes mentioned, and afterwards melted down and assayed as regular deposits.

1. A lump of quartz, containing gold, found by two Mexicans of the "Sonorian camp," in California, weighed $265\frac{1}{2}$ ounces; assuming the quartz at the sp. gr. of 2.60, the amount of gold appeared by sp. gr. of the lump, to be $209\frac{1}{2}$ ounces; the actual amount was $211\frac{1}{8}$ ounces.—2. Another lump, where we assumed the matrix at 2.64, gave an estimate of $100\frac{1}{8}$ ounces of gold; the actual product was $100\frac{1}{10}$ ounces.—3. Four pebbles taken together, estimated at 77 ounces; actual content, $76\frac{8}{10}$ ounces.—And, lastly, a lump which had been bought in California for 800 dollars, and which weighed $408\frac{1}{2}$ ounces, gave an estimate of $89\frac{1}{2}$ ounces, or 1572 dollars, taking the matrix at 2.63; the actual yield was $91\frac{2}{10}$ ounces, or 1602 dollars; the fineness being 850 thousandths. In this case there was an error of 30 dollars, or about two per cent. upon the value; an amount of error to which such specimens are liable, with any apparatus.

But it was obvious that the method of displacement required a series of vessels, specially adapted to the operation, to compete with weighing, in closeness of results. After a good deal of reflection, and experimenting, in which many modifications of shape and arrangement were tried and discarded, and which it would be cumbersome to notice in this place, the apparatus now shown was found to answer best. In practice, it is really a pleasant and satisfactory substitute for the tedious and irksome method usually resorted to. Some few precautions must, of course, be attended to. The vessel must stand firmly. If at first the water will not flow, or flows fitfully, the obstruction will be removed by blowing a little in the spout.

An investigation of some interest, growing out of this matter, may properly be noticed. Where we are operating upon substances of low specific gravity, say wood or stone, a drop or two of water, or

the size of the drop, in tapering off the divisor, is of no consequence. But it is otherwise in the case of a gold coin, for example:—in a double eagle, the difference of one drop of water (ordinarily about a half-grain) in the divisor, would affect the result to the extent of 0.3, which, carried into the fineness, would make a difference of 15 or 20 thousandths; and in the case of a half-eagle, the uncertainty of result would be proportionally increased. The question then arose, what fluid, or what modification of water, will afford us a smaller drop? for, as was just observed, a half-grain is, on the average, the smallest weight of clean water that will detach itself by its own weight. Very much depends, of course, upon the size of the aperture, in the measure of drops of fluid; one drop of water, from a large beak, weighed $1\frac{1}{3}$ grains. In the Dispensatory of Drs. Wood and Bache, there is a table of the experimental results of Mr. Durand, showing the number of drops of different liquids equivalent to a fluidrachm (Page 1405). The differences are very remarkable; distilled water, for instance, being set down at 45 drops, and pure alcohol at 138 drops. And in our own experiments, the drop of alcohol was about one-third the weight of the drop of water, from the same pipette. This seemed to point to alcohol as a substitute; but there were obvious objections, and a much better vehicle was found in *soapy water*.

The best white soap, sold at the shops, is of the same specific gravity as water, and its mixture with water makes no change, in that respect. When the mixture is as strong as children use for blowing bubbles (we cannot conveniently give this measure in figures), the cohesion or tenacity of the water is so much weakened that the drop is reduced to one-tenth of a grain. No other fluid makes so small a drop as this. And there is the further advantage, that soapy water, though excellent for making bubbles, is less liable to retain them below the surface than pure water. So small a drop, of course, makes the experiment more tedious, and, by using less soap, the size of the drop will be, in many cases, advantageously increased.

Some years ago, at the desire of Prof. Henry, experiments were made in the assay-office, to test the comparative tenacity of pure water and soapy water, by observing how much weight, at a beam, would detach metallic disks held together by those fluids, respectively. This problem is more readily solved by the method just stated; namely, by observing the size of the drop.

This apparatus has a decided advantage for taking specific gravi-

ties of substances lighter than water; it being only necessary to hold them down by a pin or wire. By the usual method, the operation is complicated. The following are a few duplicate results, given to show the uniformity which is attainable by this mode.

Fine silver,	10.55	repeated,	10.55
Gold double eagle,	17.14	do.	17.37
Lead,	11.315	do.	11.307
Pyritous iron ore,	3.912	do.	3.919
Agate,	2.607	do.	2.604
Lithographic stone,	2.669	do.	2.670
Coarse quartz,	2.589	do.	2.599
Birch wood,	0.931	do.	0.934
White pine wood,	0.371	do.	0.379

These figures correspond sufficiently with the results given in books; which, however, very commonly disagree, even at the first decimal; chiefly because of the want of homogeneity, or uniform compactness in substances operated upon.

It will be objected to this process, that it is going back to the first crude idea of Archimedes, and rejecting subsequent improvements. It may claim, however, to be a refinement upon that philosopher's bath-tub; and if the operation is easy, and the results are good, not much further need be said. For specimens of very small size, and high density, the balance would be preferable; but the genuineness of a gold coin, as small as the half-eagle, is easily determined by the cup. And to demonstrate, to a class of learners, the *principle* of specific gravity, this is evidently to be preferred to the weighing in water, which is an after-thought of some complexity.

Stated Meeting, June 20.

Present, eleven members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read:—

From the Etat Major of the Corps of Mining Engineers of Russia, dated St. Petersburg, Feb. 25, 1855;—from the Imperial Society of Naturalists of Moscow, dated 1–13 August, 1855;—from the Imperial Academy of Sciences at Vienna,

dated Nov. 1, and Dec. 30, 1855;—from the Imperial Geological Institute, dated Vienna, Sept. 23, 1855; severally announcing donations for the library:—

From the Director of the Physical Central Observatory of Russia, dated St. Petersburg, 18–30 March, 1855; acknowledging the receipt of Vol. X. Part 3 of the Transactions of this Society;—from the Royal Academy of Sciences at Amsterdam, dated Jan. 15, 1856;—from the Horticultural Society of Berlin, dated Feb. 8, 1856;—and from the Royal Society of London, dated Somerset House, March 8, 1856,—returning thanks for Nos. 51, 52, of the Proceedings:—

From the Royal Bavarian Academy of Sciences, dated Munich, Jan. 12, 1856, accompanying a donation for the library, and acknowledging the receipt of Nos. 45, 46, 51 and 52 of the Proceedings; and from the same, dated Jan. 20, 1856, requesting to be furnished with duplicate copies of all the publications of this Society:—

From the Royal Society of Sciences at Göttingen, dated March 23, 1856, transmitting one impression in silver and one in bronze, of a medal struck by order of His Majesty the King of Hanover, in memory of Dr. Charles Frederic Gauss, the eminent mathematician and astronomer: and—

From the Academy of Science of St. Louis, Missouri, dated May 30, 1856, requesting a correspondence with this Society, and offering to give extinct mammalian fossils in exchange for the Transactions of the Society, or for other books or articles.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der K. K. Geologischen Reichsanstalt. Band II. Wien, 1855. Fol.

Jahrbuch der K. K. Geologischen Reichsanstalt. VI. Jahrgang. No. 1. Jan. Feb. Mar. No 2. Apr. May, Jun. 1855. Wien, 8vo.—*From the Imp. Geological Institute, Vienna.*

Coup d'œil géologique sur les Mines de la Monarchie Autrichienne. Redigé, par ordre de l'Institut Impérial et Royal de Géologie, par le Chevalier Fr. de Hauer et Fr. Fötterle;—avec une introduction par Guillaume Haidinger. Vienne, 1855. 8vo.—*From the Authors.*

- Sitzungsberichte der Kaiserlichen Akad. der Wissenschaften:—Math. Nat. Classe, XVI. Band, 2 Heft; XVII. Band, 1, 2, 3 Heft:—Phil. Hist. Classe, XVI. Band, 2 Heft; XVII. Band, 1, 2 Heft. Wien, 1855. 8vo.—*From the Imp. Acad. Sciences, Vienna.*
- Annales de l'Observatoire Physique Central de Russie, &c. Par A. T. Kupffer, Directeur de l'Observatoire. Année 1852. St. Petersburg, 1855. 4to.—*From the Administration of Mines of Russia.*
- Bulletin de la Société Impériale des Naturalistes de Moscou, publié sous la redaction du Docteur Renard. Tome XXVII. Année 1854. Nos. 2, 3, 4. Tome XXVIII. Année 1855. No. 1. Moscow. 8vo.—*From the Society.*
- Philosophical Transactions of the Royal Society of London, for the year 1855. Vol. 145. Part 2. London. 4to.
- Proceedings of the Royal Society of London. Vol. VII. Nos. 3, 4,—16, 17. Vol. VIII. No. 18. London. 8vo.—*From the Society.*
- Quarterly Journal of the Chemical Society. Vol. IX. No. 33. April 1856. London. 8vo.—*From the Society.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 6. April 11, 1856. London. 8vo.—*From the Society.*
- Journal of the Royal Dublin Society. Vol. I. No. 1. April, 1856. Dublin. 8vo.—*From the Society.*
- Proceedings of the American Association for the Advancement of Science. First Meeting, held at Philadelphia, 1848;—Second, at Cambridge, 1849;—Third, at Charleston, 1850;—Fifth, at Cincinnati, 1851, (not previously received).—*From the Association.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VIII. No. 2. Philadelphia, 1856. 8vo.—*From the Academy.*
- Proceedings of the Elliott Society of Natural History of Charleston, S. C. Nov. 1, 1853 to July 24, 1855. Charleston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Vol. XXXI. No. 6. June, 1856. Philadelphia. 8vo.—*From the Institute.*
- Fourth Annual Report of the Trustees of the Free Public Library of New Bedford. Presented to the City Council, March 31, 1856. New Bedford. 8vo.—*From the Trustees.*
- Thirty-fifth Annual Report of the Mercantile Library Association of the City of New York, May, 1856:—With the Report of the

- Trustees of the Clinton Hall Association. New York. 8vo.—
From the Trustees.
- The African Repository. Vol. XXXII. No. 6. June, 1856. Wash-
ington. 8vo.—*From the Am. Colonization Society.*
- Message from the President of the United States to the two Houses of
Congress, at the commencement of the First Session of the Thirty-
fourth Congress:—With accompanying Documents. *Part 3.*
Washington, 1855. 8vo.—*From the Hon. J. R. Tyson.*
- Professor William Chauvenet's Great Circle Protractor,—with De-
scription and Application. Annapolis. 1854.—*From the Au-
thor.*
- Eulogy on the Life and Character of Theodric Romeyn Beck, M.D.
L.L.D. Delivered before the Medical Society of the State of New
York, by Frank Hastings Hamilton, M.D. Albany, 1856. 8vo.—
From Mr. John H. Hickox.
- A Discourse on the Necessity of Revelation to the Knowledge of the
Existence of God, Spirit and Immortality. By C. F. H. Crockett,
M.D. Richmond, 1856. 8vo.—*Donor unknown.*
- The Astronomical Journal. Nos. 93, 94. (Vol. IV. Nos. 21, 22).
Cambridge. 4to.—*From Dr. B. A. Gould, jr. Editor.*
- On the New Red Sandstone Formation of Pennsylvania.—Descrip-
tion of a new Sub-Genus of Naiades.—Description of a New Spe-
cies of Triquetra.—Description of New Fresh Water Shells from
California.—Description of Twenty-five New Species of Exotic
Uniones. By Isaac Lea, L.L.D. &c. &c. (Proc. Acad. Nat. Sci.)
Philadelphia, 1856. 8vo.—*From the Author.*
- The Medical News and Library. Vol. XIV. No. 162. June, 1856.
Philadelphia. 8vo.—*From Blanchard & Lea.*

FOR THE CABINET.

Two Medals, one of silver and one of bronze, in memory of Dr.
Charles Frederick Gauss, struck by order of H. M. the King of
Hanover, and presented through the *Royal Society of Sciences*
at Göttingen.

Dr. Hallowell presented a paper entitled "Notice of some
New and Rare Species of Scincidæ, in the Collection of the
Academy of Natural Sciences of Philadelphia," which was
referred to a Committee, consisting of Dr. Le Conte, Dr.
Bridges and Mr. Lea.

A communication by Dr. Leidy was offered, entitled "Notice of Remains of the Walrus discovered in the United States," which was referred to Dr. Hallowell, Prof. Frazer and Major Le Conte.

A paper was presented and read from Messrs. Eckfeldt and Dubois, explanatory of their communication read at the last meeting, on an apparatus for determining specific gravities.

Messrs. Eckfeldt and Dubois desire to offer a word of explanation, in regard to the apparatus for taking specific gravities, which was exhibited at the last meeting of the Society. A few days after that meeting, Dr. Bache had the kindness to call upon us with a copy of the May number of the London Pharmaceutical Journal, which he had then just received. In it was detailed a contrivance, for the same purpose, and on the same principles, which had been exhibited at the North British Branch of the Pharmaceutical Society, held at Edinburgh on the 11th April. And it was further mentioned, that the same apparatus had been shown at a meeting of the Royal Scottish Society of Arts; and a committee, the chairman of which was Dr. George Wilson, Professor of Technology, was appointed to report upon its merits; which report was made on the 23d July, 1855, and the Society's medal was awarded to Mr. P. Stevenson, the inventor.

We have first to say, that, being entirely ignorant of these proceedings, and of this apparatus, we, of course, derived no aid or suggestion from this source. It has so happened, as it has happened before, that the same idea was acted upon by two minds, independently, and distant from each other, at nearly the same time. The experiments of Mr. Eckfeldt began in December last.

In regard to the principle, of operating by displacement, there will be no dispute as to originality. It was the neat, convenient and accurate *application* of this principle that remained a desideratum.

The apparatus of Mr. Stevenson consists of a tall cylindrical vessel, from which the displaced water runs off by a short spout near the top, having a stopcock or faucet at the end. From this the water runs into a graduated glass vessel of $3\frac{1}{2}$ inches diameter. The object of this graduation is to dispense with a balance, and save the trouble of weighing.

But any one who will take a vessel of only half that diameter, will find that as much as fifteen grains of water may be added, or withdrawn, and the eye will scarcely be able to see any difference. In the apparatus of Mr. Eckfeldt, it was found desirable, for high gravities,

to taper down the displaced water to a fifth or tenth of one grain. It is true, that Mr. Stevenson's apparatus is mainly designed for substances lighter than water; but it is also intended for those that are heavier; and, in either case, so large a scope for the divisor would produce very irregular and unreliable results, as it appears to us.

The graduated tube was thought of, and experimented upon; and, after all, it was found that a balance would be indispensable, to obtain satisfactory results. A very fine instrument is not generally requisite, and the weighing can be done nearly as soon as an observation can be made of the marked degrees.

As to the stopcock at the end of the spout, Mr. Stevenson must soon find that this is a superfluity; and, more than that, a source of error and vexation. We found this the case in a supposed improvement, of French invention, in drawing off the dose for humid assays of silver. A drop of water, or a bubble of air, will lie concealed, and spoil the result, or render it uncertain.

As the specific gravities of solids lighter than water, have hitherto been obtained by a complex operation, and as the apparatus of Mr. Eckfeldt is specially adapted to obtain such gravities by a direct and simple mode, we propose, at a future day, to offer to the Society a table of results, as found by this method; particularly of the different kinds of wood, charcoal, &c.

The Secretary was directed to inform the Royal Bavarian Society of Sciences at Munich, that this Society is unable to comply with their request to be supplied with duplicate copies of the publications of the Am. Philosophical Society.

The Academy of Sciences at St. Louis, Missouri, and the Elliott Society of Natural History, of Charleston, S. C. were ordered to be placed on the list of Corresponding Societies.

A letter signed J. R. Lambdin, dated Philadelphia, June 12, 1856, and addressed to the American Philosophical Society, was read, in which Mr. Lambdin informs the Society that it is his intention shortly to visit Europe, and that he desires, while there, to execute original portraits of some of the most eminent scientific men of the countries which he may visit:—

Whereupon, a preamble and resolution upon the subject were offered by Mr. Henry D. Gilpin, which were read and postponed for consideration at the next meeting of the Society.

P R O C E E D I N G S
OF THE
A M E R I C A N P H I L O S O P H I C A L S O C I E T Y .

VOL. VI. JULY—DECEMBER, 1856. No. 56.

Stated Meeting, July 18.

Present, eight members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From the Baron J. Von Hammer Purgstall, dated Vienna, Dec. 1855, and from Richard Cull, Esq., Secretary of the Ethnological Society of London, dated 13 Tavistock Street, Bedford Square, April 23, 1856, announcing donations for the library of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Bulletin de la Société de Géographie. IV. Serie. Tome X. Paris, 1855. 8vo.—*From the Society.*

Annales des Mines. V. Serie. Tome VII. 2 livr. de 1855. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Gelehrte Anzeigen, herausgegeben von mitgliedern der K. Bayerischen Akademie der Wissenschaften. Band 40, 41. München. 4to.

Friedr. Wilh. Jos. von Schelling. Denkrede von Dr. Hubert Peters. März 28, 1855.

Rede in K. Akad der Wissenschaften zu ihrer 96 Stiftungsfeier: gehalten von Fr. von Thiersch.

Ueber die Gliederung der Bevölkerung des Königreichs Bayern. Festrede von Dr. Fr. B. W. von Hermann, Nov. 28, 1855. München. 4to.

Annalen der Königl. Sternwarte bei München: von Dr. J. Lamont, Conservator der Sternwarte, &c. &c. VIII. Band. München. 8vo.—*From the Royal Bavarian Academy of Sciences.*

- Proceedings of the Royal Geographical Society of London. Nos. 1, 2. Nov. 1855 to April, 1856. London. 8vo.—*From the Society.*
- Journal of the Ethnological Society of London. Vol. IV. 1856: with List of Members and Regulations of the Society. London. 8vo.—*From the Society.*
- Acoustics and Logic, in their application to reading aloud: A Lecture delivered in University Hall, Oct. 12, 1855: With an Appendix on the Clergyman's Sore Throat. By Richard Cull, Fellow of the Ethnological Society. London. 8vo.
- Two Letters addressed to the Author of "The Land of Silence," an article in the Edinburgh Review for 1855. By a Gentleman. 8vo.—*From Richard Cull, Esq.*
- Astronomical and Meteorological Observations made at the Radcliffe Observatory, Oxford, in the year 1854; under the superintendence of Manuel J. Johnson, M. A. Radcliffe Observer, Vol. XV. Oxford, 1856. 8vo.—*From the Radcliffe Trustees.*
- Geschichte Wassaf's:—Persisch herausgegeben und Deutsch übersetzt, von Hammer Purgstall. Band I. Wien, 1856. 4to.—*From the Baron von Hammer Purgstall.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 7. May 9, 1856. London. 8vo.—*From the Society.*
- Collections of the Massachusetts Historical Society. Vol. III. Fourth Series. Boston, 1856. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXII. No. 1. July, 1856. Philadelphia. 8vo.—*From the Institute.*
- Almanaque Nautico para 1857, calculado de orden de S. M. en el Observatorio de Marina de la ciudad de San Fernando. Cadiz, 1855. 8vo.—*From the Observatory.*
- African Repository. Vol. XXXII. No. 7. July, 1856. Washington. 8vo.—*From the American Colonization Society.*
- Twentieth Annual Report of the Committee of the Young Men's Association of the City of Buffalo. Buffalo, 1856. 8vo. *From the Association.*
- The American Journal of Science and Arts. Vol. XXII. No. 64. July, 1856. New Haven. 8vo.—*From the Editors.*
- History of the Ordinance of 1787. By Edward Coles, formerly Governor of the State of Illinois, &c. &c. Read before the Historical Society of Pennsylvania, June 9, 1856. Philadelphia. 8vo.—*From the Hist. Society of Pennsylvania.*

- On the Tides of the Atlantic and Pacific Coasts of the United States,—the Gulf Stream,—and the Earthquake waves of December, 1854. By A. D. Bache, Superintendent of the U. S. Coast Survey. (Am. Jour. Sci. and Arts. Vol. XXI. 1856.)—*From the Author.*
- The American Journal of the Medical Sciences. No. LXIII. New Series. July, 1856. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XIV. No. 163. July, 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Report of the U. S. Mint and its Branches, including the Assay Office, for the year 1855. Washington. 8vo.—*From J. R. Snowden, Esq. Director.*
- Lemon Hill, in its connection with the efforts of our citizens and councils to obtain a Public Park. Philadelphia, June, 1856. 8vo.
- Catalogue of the Graduates of the Jefferson Medical College of Philadelphia, from the first commencement, held in 1826, to that of 1856 inclusive: With the Announcement of the College for the session of 1856-7. Philadelphia. 8vo.—*Donors unknown.*

The committees on Dr. Hallowell's paper, "On some new and rare species of Scincidæ in the collection of the Academy of Natural Sciences of Philadelphia," and on Dr. Leidy's paper, "On Remains of Walrus discovered on the coast of the United States," reported in favour of publication in the Transactions of the Society, which was ordered accordingly.

Dr. Harris announced the decease of James Gibson, Esq., of Philadelphia, a member of this Society, who died on the 8th inst. aged 87.

Judge Kane announced the decease of Dr. John Locke, of Cincinnati, a member of this Society, who died on the 10th inst. aged 64.

A paper by Dr. Joseph Leidy, entitled "Descriptions of the Remains of Fishes, from the Carboniferous Limestone of Illinois and Missouri," was presented, and referred to a committee consisting of Prof. Frazer, Mr. Trego and Dr. Bridges.

Judge Kane laid upon the table the medal presented by the Royal Geographical Society of London to Dr. E. K. Kane, as a tribute to his zeal and success in prosecuting discoveries in the Arctic regions.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

All other business having been concluded, the ballot boxes were opened by the presiding officer, and the following named gentlemen declared to be duly elected members of the Society:—

Rev. J. C. ADAMSON, D. D., of Philadelphia.

J. P. LESLEY, do.

Rev. JOHN LEYBURN, do.

HUGH BLAIR GRIGSBY, L.L.D., of Virginia.

Stated Meeting, August 15.

Present, eight members.

Dr. DUNGLISON, Vice-President, in the Chair.

The Rev. Dr. Leyburn, a recently elected member, was introduced, and took his seat.

Letters were read:—

From the Rev. John Leyburn, dated Philadelphia, Aug. 13, 1856, acknowledging the receipt of notice of his election as a member of the Society:—

From Dr. William Balfour Baikie, dated Haslar Hospital, near Portsmouth, July 9, 1856, accompanying a donation for the library:—

From the Trustees of the Boston Athenæum, dated July 31, 1856;—from the Corporation of Harvard College, and from the New Jersey Historical Society, dated Aug. 1, 1856:—from the Connecticut Historical Society, dated Hartford, Aug. 2, 1856,—severally acknowledging the receipt of No. 55 of the Proceedings: and—

From John Samuel, Esq., dated Philadelphia, Aug. 12, 1856, offering for sale certain property to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Journal of the Royal Dublin Society. No. 2. July, 1856. Dublin.
Svo.—*From the Society.*

- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 8. London. 8vo.—*From the Society.*
- Twenty-third Annual Report of the Royal Cornwall Polytechnic Society, 1855. Falmouth. 8vo.—*From the Society.*
- Memoirs of the American Academy of Arts and Sciences. New Series. Vol. V. Part 2. Boston, 1855. 4to.—*From the Academy.*
- Transactions of the Connecticut State Agricultural Society, for the year 1855: With the Reports of the County Societies for the same year. Hartford, 1856. 8vo.
- Fortieth Annual Report of the Directors of the American Asylum at Hartford, for the Education and Instruction of the Deaf and Dumb. Hartford, 1856. 8vo.
- Thirty-second Annual Report of the Officers of the Retreat for the Insane at Hartford, Connecticut. Hartford, 1856. 8vo.—*From the Connecticut Historical Society.*
- Proceedings of the Boston Society of Natural History. Vol. V. Nos. 22, 23. Boston. 8vo.—*From the Society.*
- Annual Report of the Trustees of the New York State Library; transmitted to the Legislature, Jan. 22, 1856. Albany. 8vo.—*From the Trustees.*
- Thirty-sixth Annual Report of the Directors of the Mercantile Library Association of the City of Boston. Boston, 1856. 8vo.—*From the Directors.*
- Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VIII. No. 3. Philadelphia. 8vo.—*From the Academy.*
- Quarterly Journal of the Chemical Society. Vol. IX. 2. No. XXXIV. July, 1856. London. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXII. No. 2. Aug. 1856. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXII. No. 8. Aug. 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Documents relative to Central American Affairs and the Enlistment Question: Printed by direction of the House of Representatives of the U. S.
- Report of the Committee of the House of Representatives of the U. S. upon the alleged Assault upon Senator Sumner.
- Speech of the Hon. J. R. Tyson, of Pennsylvania, on the Resolutions reported from the Committee on the alleged assault by Mr. Brooks on Senator Sumner:—delivered in the House of Representatives,

July 12, 1856. Washington. 8vo.—*From the Hon. J. R. Tyson.*

Address illustrative of the Nature and Power of the Slave States, and the Duties of the Free States:—delivered at the request of the inhabitants of the town of Quincy, Massachusetts, June 5, 1856,—by Josiah Quincy. Boston. 8vo.—*From the Author.*

The Astronomical Journal. No. 95. (Vol. IV. No. 23). Aug. 4, 1856. Cambridge. 8vo.—*From Dr. B. A. Gould, jr., Editor.*

The Medical News and Library. Vol. XIV. No. 164. August, 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*

Narrative of an Exploring Voyage up the rivers Kwora and Binue (commonly known as the Niger and Tsadda) in 1854: With a Map and Appendices. By William Balfour Baikie, M.D. R. N., &c. &c. London. 8vo.—*From the Author.*

The committee on Dr. Leidy's communication, entitled "Descriptions of the Remains of Fishes from the Carboniferous Limestone of Illinois and Missouri," made report recommending the publication of the paper in the Transactions of the Society. The communication was accordingly ordered to be published, and the committee discharged.

The Minutes of the Board of Officers and Council, at their late meeting, were read.

Mr. Trego, Reporter of the Society, laid on the table No. 55 of the Proceedings, published since the last meeting.

Stated Meeting, September 19.

Present, seventeen members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read:—

From the Imperial Academy of Sciences at Vienna, dated April 15, 1856,—acknowledging the receipt of Nos. 51, 52, of the Proceedings;—and one dated March 25, 1856, announcing a donation for the library:—

From the Society of Antiquaries, dated Edinburgh, August,

1856, acknowledging the receipt of Nos. 51, 52, of the Proceedings of this Society:—

From the Secretary of l'Ecole des Mines, dated Paris, March 20, 1856, announcing a donation for the library:—

From the Boston Society of Natural History, dated Boston, August 20, 1856, returning acknowledgments for Nos. 54, 55 of the Proceedings:—

From the Department of State, dated Washington, Sept. 3, 1856, announcing a donation for the library:—

From Mr. H. D. Saunders, dated Philadelphia, Sept. 15, 1856, asking for the loan of the Society's portrait and bust of Thomas Jefferson, for the purpose of modelling a bust of that distinguished man.

An extract of a letter was read, from Theo. Lacordaire to Dr. John L. Le Conte, dated Liege, June 30, 1856, acknowledging the receipt of notice of his election as a member of this society.

The following donations were announced:—

FOR THE LIBRARY.

Sitzungsberichte der K. Akad. der Wissenschaften: Math. Nat. Classe, Band XVIII. Heft 1, 2;—Band XIX. Heft 1, 2. Nov. 1855—Feb. 1856. Wien. 8vo.

Almanach der K. Akad. der Wissenschaften, VI. Jahrgang, 1856. Wien. 8vo.—*From the Imperial Acad. Sciences, Vienna.*

Compte Rendu Annuel adressé à S. Exc. M. de Brock, Ministre des Finances, par le Directeur de l'Observatoire Physique Central, A. T. Kupffer. Année 1854. St. Petersburg. 4to.—*From the Administration of Mines of Russia.*

Abhandlungen der Math. Phys. Classe der Bayerischen Akademie der Wissenschaften. Band VII. Abth. 3. München, 1855. 4to.—*From the Royal Bavarian Academy of Sciences.*

Denkrede auf Johann Nepomuk von Fuchs, von F. v. Kobell.—Rede von Fr. von Thiersch, 28 Mar. 1856, und 28 Nov. 1855. München. 4to.—*From the same.*

Verhandlungen des Naturhistorischen Vereines der Preuss. Rheinlande und Westphalens:—Herausgegeben von Prof. Dr. Budge, Secretair des Vereines. Jahrgang XII. Heft 3, 4.—XIII. 1. Bonn, 1855-6. 8vo.—*From the Nat. History Union of Rhenish Prussia and Westphalia.*

- Memorie della Reale Accademia delle Scienze di Torino. Serie Seconda. Tomo XV. Torino, 1855. 4to.—*From the Royal Academy of Sciences, Turin.*
- Mémoires de la Société Impériale des Sciences, de l'Agriculture et des Arts, de Lille. Supplément à l'Année 1853, et Table Générale de la Première Série. Lille, 1856. 8vo.—*From the Imp. Society of Science, Agriculture and Arts, Lille.*
- Annales des Mines. V. Série. Tome VII. 3 livr. de 1855. Tome VIII. 4, 5 livr. de 1855. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*
- Narrative of Commodore Perry's Expedition with an American Squadron to the China Seas and Japan, in the years 1852-3-4. (Executive Documents, Vol. XII. Part 1, 2d Session of 33d Congress, 1854-5).
- Another copy of the same, being Senate Doc. Vol. XIV. Part 1, same session. Washington. 4to.—*From the Department of State.*
- Annals of the Astronomical Observatory of Harvard College. Vol. I. Part 1. Cambridge, 1856. 4to.—*From the Observatory, by Prof. W. C. Bond, Director.*
- American Journal of Science and Arts. Second Series. Vol. XXII. No. 65. Sept. 1856. New Haven. 8vo.—*From Professors Silliman & Dana, Editors.*
- Proceedings of the New Jersey Historical Society. Vol. VIII. No. 1. Jan.—May, 1856. 8vo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. Vol. V. No. 24. Aug. 1856. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXII. No. 3. Sept. 1856. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXII. No. 9. Sept. 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Report of the Special Committee appointed to investigate the troubles in Kansas: with the views of the Minority of said Committee. Washington, 1856. 8vo.—*From the Hon. J. R. Tyson.*
- Sanitary, Meteorological and Mortuary Report of the Philadelphia County Medical Society, for 1855: with an account of the prevalent diseases in the Consolidated City during the year: Accompanied with a Geological Chart of the County. By Wilson Jewell, M.D., &c. &c. Philadelphia, 1856. 8vo.—*From the Author.*
- Plantæ Kaneanæ Grœnlandicæ: Enumeration of Plants collected by

Dr. E. K. Kane, U. S. N., in his first and second expeditions to the Polar Regions—with descriptions and remarks. By Elias Durand. (Jour. Acad. Nat. Sci. Philadelphia). 4to. 1856.—*From the Author.*

Papers relating to Public Events in Massachusetts, preceding the American Revolution: Printed for the Seventy-six Society. Philadelphia, 1856. 8vo.—*From Dr. A. L. Elwyn.*

Mr. Quincy's Remarks on Mr. Choate's Letter to the Whig State Committee of Maine. Boston, 1856. 8vo.—*From the Author.*

The Medical News and Library. Vol. XIV. No. 165. Sept. 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*

Report and Announcement of the Medical Department of the University of Pennsylvania, for the Session of 1856-7. Philadelphia, June, 1856. 8vo.—*Donor unknown.*

Mr. Trego announced the decease of F. André Michaux, a member of this Society, which took place in the month of November last, at Vauréal, near Pontoise, in France, at the age of 85 years. Whereupon Mr. E. Durand was appointed to prepare an obituary notice of Mr. Michaux.

Mr. Trego recalled the attention of the Society to the fact that on the 19th day of November, 1852, Mr. Michaux had deposited in the archives of the Society a sealed paquet, containing, as it was said, an instrument of writing of a testamentary character:—And the original packet being thereupon produced from the archives,—it was ordered that a committee be appointed to inquire what action should be taken by the Society in relation to the sealed paquet deposited with it by Mr. Michaux. The committee consists of Judge Kane, Judge Sharswood, Mr. Lea and Mr. Durand.

On motion of Mr. Durand, it was ordered that the Curators be authorized to grant the request of Mr. Saunders, contained in his letter read this evening, for a loan of the portrait and the bust of Mr. Jefferson, in possession of the Society.

The Society being informed that Mr. Tobias Wagner, one of its members, is about to visit Europe, where he expects to remain for some time, the Secretary was instructed to furnish him with an attested certificate of his membership in this Society.

The resignation of Mr. Wagner, as a member of the committee of finance was accepted.

Stated Meeting, October 3.

Present, eleven members.

Prof. FRAZER, Vice-President, in the Chair.

Mr. J. P. Lesley and Dr. S. D. Gross, recently elected members, were introduced, and took their seats.

Letters were read:—

From J. P. Lesley, dated Philadelphia, Oct. 3, 1856, acknowledging the receipt of notice of his election as a member of the Society: and—

From the Historical Society of Pennsylvania, dated Philadelphia, Sept. 29, 1856, returning thanks for No. 55 of the Proceedings of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Nuovi Esperimenti risguardanti l'Origine dell' Elettricità Atmosferica &c. di Zantedeschi. Venezia, 1854. 8vo.—Ricerche sulla Contemporaneità del Passaggio delle opposte correnti elettriche in un filo metallico; del Prof. Zantedeschi. Vienna, 1855. 4to.—Nuovo Elettroscopio per le due elettricità d'influenza; del Prof. Francesco Zantedeschi. Vienna, 1855, 8vo.—Sur les Courants Électriques dirigés en sens opposé sur le même fil, en relation avec la télégraphie: par M. Zantedeschi. Paris, 1855. 4to. (*Comptes Rendus, Tome XLl.*)—*From the Author.*

Documents relative to the Colonial History of the State of New York, procured in Holland, England and France, by John Romeyn Brodhead, Esq., Agent, &c. Edited by E. B. O'Callaghan, M.D. Vol. VII. Albany, 1856. 4to.—*From the Regents of the University of the State of New York.*

Ninth Annual Report of the Regents of the University of the State of New York, on the Condition of the State Cabinet of Natural History, and the Historical and Antiquarian Collection annexed thereto:—made to the Senate, Feb. 20, 1856. Albany. 8vo.—*From the same.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VIII. No. 4. Philadelphia. 8vo.—*From the Academy.*

Proceedings of the Boston Society of Natural History. Vol. V. No. 25. Sept. 1826. Boston. 8vo.—*From the Society.*

Human Physiology: by Robley Dunglison, M.D. LL.D., &c. &c. Eighth Edition, revised, modified and enlarged. 2 vols. Philadelphia, 1856. 8vo.—*From the Author.*

Experiments upon Digestion: by Francis G. Smith, M.D. &c. &c. Philadelphia, 1856. 8vo.—*From the Author.*

Mr. Justice laid upon the table a dried fungus from near Juliustown, New Jersey, which, in the dried specimen, has the radii of the *volva* firmly closed over the flattened spherical *capitulum*; but upon being moistened the rays of the *volva* open widely, like a stellate flower, gradually closing again as the fungus becomes dry; and this may be repeated a great number of times. The specimen agrees very nearly with the description of *Geastrum hygrometricum*, as given by Persoon in his Synopsis Methodica Fungorum (Göttingen, 1801), as referring to *Lycoperdon volvam recolligens* of Schmidel.

A vacancy in the Committee of Finance having occurred by the resignation of Mr. Wagner, Mr. John F. James was appointed a member of that committee.

Stated Meeting, October, 17.

Present, nine members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From the Royal Academy of Sciences at Madrid, dated Dec. 3, 1854;—from the Royal Geographical Society of London, dated Whitehall place, June 12, 1856;—and from the Royal Bavarian Academy of Sciences, dated Munich, June 20, 1856, all announcing donations for the library.

The following donations were announced:—

FOR THE LIBRARY.

Memoirs of the Royal Astronomical Society. Vol. XXIV. being the quarto half volume for the session 1854–5. London. 4to.

- Monthly Notices of the Royal Astronomical Society, containing Papers and Abstracts of Papers and Reports of the Proceedings of the Society, from Nov. 1854, to June, 1855. Vol. XV. London. 8vo.—*From the Society.*
- Journal of the Royal Geographical Society of London. Vol. XXV. London, 1855. 8vo.
- Proceedings of the Royal Geographical Society. Nos. 3, 4. April, May, June, 1856. London. 8vo.—*From the Society.*
- Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. XVI. Part 2. London, 1856. 8vo.—*From the Society.*
- Memorias de la Real Academia de Ciencias de Madrid. Tomo I. 3 Serie. Ciencias Naturales. Parte 3.—Tomo II. 1 Serie. Ciencias Exactas. Tomo I. Parte 1. Madrid, 1853-4. 4to.
- Resumen de las Actas de la Academia Real de Ciencias de Madrid, en los años Academicos de 1851 a 1852, y 1852 a 1853, leído por el Secretario perpetuo, Dr. Don Mariano Lorente. Madrid. 8vo.—*From the Academy.*
- Smithsonian Contributions to Knowledge. Vol. VIII. Washington, 1856. 4to.—*From the Smithsonian Institution.*
- Journal of the Franklin Institute. Third Series. Vol. XXXII. No. 4. Oct. 1856. Philadelphia. 8vo.—*From the Institute.*
- Description of New or Improved Instruments for Navigation and Astronomy, exhibited at the Paris Universal Exposition of 1855. By C. Piazzzi Smyth, Astronomer Royal for Scotland, &c. Edinburgh, 1855. 8vo.—*From the Author.*
- Of the Constants of Nature; Class Mammalia; by C. Babbage:— and Note sur la Machine Suédoise de MM. Schutz, pour calculer les Tables Mathématiques par la Méthode des différences, et en imprimer les résultats sur des planches stéréotypes: par M. Charles Babbage. (Comptes Rendus Tome XLI.) 4to.—*From the Author.*
- Neue Näherungsweise Auflösung der Keplerschen Aufgabe: von Prof. Grunert in Greifswald. Wien, 1856. 8vo.—*From the Author.*
- The American Journal of the Medical Sciences. No. LXIV. Oct. 1856. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XIV. No. 166. Philadelphia. 8vo.—*From Blanchard & Lea.*

Mr. Dubois laid upon the table a Turkish Treasury Note, received at the Mint from Mr. J. P. Brown, of the American

Legation at Constantinople,—and made a communication on the subject.

Mr. Brown, of the American Legation at Constantinople, has sent to the mint a specimen of the new Turkish Treasury Notes; which, from the novelty of its appearance, and of the terms of its issue (which constitute a new feature in state-financieing), may be worth exhibiting to the Philosophical Society.

The translation of the reading, which Mr. Brown has furnished, will explain the character of this security.

(At the top, and on the margin.) “A legal paper note, issued from the Imperial Privy Treasury, to circulate in the Capital, and in every other part of the Ottoman Empire, amongst all persons. Its circulation is legal; its interest shall be paid to the possessor of it without any Tax; a declaration being required of him or her at the Treasury. Conditioned, that when the holder shall die without heirs, it will fall void of value. It is a valid *Séhim* of *ten purses* (each 500 piastres); and *one purse* of interest.” (That is, about 215 dollars of our money; and ten per cent. interest).

(In the centre). “An Ordinary *Séhim* of the Sublime Porte, payable from the proceeds of the Royal Privileges and Mines; to be paid to the claimant without any *Berat* (voucher for tax paid); its annual interest payable at the beginning of March, at the Imperial Treasury.”

At the bottom are interest coupons; and Mr. Brown states that this bond is to be redeemed in six years from the date of issue. (It is in blank, without seal or signature). He adds, “they are much in demand, because of their rate of interest, and limited number. Many families collect and hold them for the revenue they afford.”

It appears that, six years ago, there was a somewhat similar issue, to the extent of 12 millions of piastres, at an interest of $8\frac{1}{2}$ per cent.; with the stipulation, that upon the payment of a *berat*, or tax, the holder of a bond might transfer the same; or, in the event of his death, it should enure to his own children, male and female; but this privilege was not to extend to a second generation, nor to any but a lineal heir.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

The committee appointed on the testamentary document contained in a sealed paquet deposited with the Society by F.

André Michaux, on the 19th Nov. 1852, made a report, accompanied by the following resolution, which was read, considered and adopted.

Resolved, That the testamentary writing entrusted to the care of this Society by the late F. André Michaux, be deposited by the Treasurer with the Register of Wills, in the presence of the Chancellor of the French Consulate, for probate;—and that the Treasurer take, thereafter, all necessary measures for giving it legal operation and effect.

Prof. Frazer having taken the chair, Judge Kane, after some remarks upon the subject of procuring a suitable location for the accommodation of the Society, offered the following resolution:—

Resolved, That the Committee which was constituted to negotiate terms and make sale of the Hall of the Society, be authorized and empowered to negotiate for the purchase of a suitable property for the Society's accommodation:—

And the question on this resolution being taken, the yeas were *seven*, and the nays *one*; so the resolution was adopted.

All other business having been concluded the ballot box was opened by the presiding officer, who declared that Dr. ROBERT P. HARRIS, of Philadelphia, was duly elected a member of the Society.

Stated Meeting, November 7.

Present, twenty-one members.

Dr. DUNGLISON, Vice-President, in the Chair.

Dr. Robert P. Harris, a recently elected member, was introduced and took his seat.

Letters were read:—

From H. Burmeister, dated Southampton, Oct. 8; and from Robert P. Harris, dated Philadelphia, Oct. 8, 1856, acknowledging the receipt of notice of their election as members of the Society:—

From the Royal Geographical Society of London, dated Nov. 17, 1855, acknowledging the receipt of Nos. 51, 52 of the Proceedings:—

From the Corporation of Yale College, in New Haven, dated Oct. 11, 1856, returning thanks for No. 55 of the Proceedings:—

From the Department of State, dated Washington, —, 1856, announcing a donation for the library: and—

From Mr. Thomas Sully, dated Philadelphia, Oct. 24, 1856, asking the loan of the Society's portrait of Thomas Jefferson, for the purpose of making a copy.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London for the year 1856. Vol. 146. Part 1. 4to.

Proceedings of the Royal Society of London. Vol. VIII. Nos. 19, 20, 21, 22. 1856. 8vo.—*From the Society.*

Astronomical and Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the year 1854; under the superintendence of George Biddell Airy, Esq., M.A., Astronomer Royal. London. 1856. 4to.—*From the same.*

Proceedings of the Royal Geographical Society; containing the Address of Rear Admiral F. W. Beechey, V.P.R.S., &c. President, at the Anniversary Meeting, May 26, 1856. London. 8vo.—*From the Society.*

Report of the Twenty-fifth Meeting of the British Association for the Advancement of Science, held at Glasgow in September, 1855. London. 8vo.—*From the Association.*

Compte Rendu Annuel Adressé à S. E. M. de Brock, Ministre des Finances, par le Directeur de l'Observatoire Central, A. T. Kupffer, Année 1854. St. Petersburg, 1855. 4to.—*From the Observatory.*

Observations Météorologiques faites à Nijne Taguisk (Monts Oural), Gouvernement de Perm. Année 1854. Paris. 8vo.—*From the same.*

Transactions of the Royal Irish Academy. Vol. XXIII. Part 1. Science. Dublin, 1856. 4to.

Proceedings of the same; 1855-6. Vol. VI. Part 3. Dublin. 8vo.—*From the Academy.*

- Journal of the Royal Dublin Society. No. 3. Oct. 1856. Dublin. 8vo.—*From the Society.*
- Bulletin de la Société de Géographie. IV. Série. Tome XI. Paris, 1856. 8vo.—*From the Society.*
- Executive Documents. Vol. XII. Part 3;—and Senate Documents. Vol. XIV. Part 3, of Second Session of 33d Congress: being Observations on the Zodiacal Light, from April 2, 1853, to April 22, 1855,—made chiefly on board the U. S. Steam Frigate Mississippi, during her late cruise in the Eastern Seas and her voyage homeward;—with conclusions from the data thus obtained. By the Rev. George Jones, A.M. Chaplain U. S. Navy. Vol. III. Washington, 1856. 4to.—*From the Department of State.*
- Proceedings of the Boston Society of Natural History. Vol. VI. No. 1. Oct. 1856. Boston. 8vo.—*From the Society.*
- Systema Agriculturæ: being the Mystery of Husbandry discovered and laid open, by J. W. London, 1668. 8vo.—*From Dr. Robley Dunglison.*
- New Remedies; with Formulæ for their preparation and administration. By Robley Dunglison, Prof. Inst. Med. in Jeff. Med. College, Philadelphia, &c. &c. Seventh Edition, with numerous additions. Philadelphia, 1856. 8vo.—*From the Author.*
- The Medical News and Library. Vol. XIV. No. 167. Nov. 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*
- On Periodical Laws discoverable in the mean effects of the larger Magnetic Disturbances. No. III. By Col. Edward Sabine, R.A. &c.—On the Lunar Magnetic Diurnal Variations at Toronto. By Maj. Gen. Edward Sabine, R.A., &c.—Terrestrial Magnetism,—with Map. By the same. London, 1856.—*From the Author.*
- Ricerche sulle Leggi della Capillarità.—Del Moto Rotatorio dell' Arco Luminoso dell' Elettromotore Voltiano: del Prof. Zantedeschi.—Delle Differenze che intercedono fra gli effetti prodotti dalle Luce e dal Calorico sopra i Cloruri e Ioduri d' Argento: Memoria seconda dei Signori Zantedeschi e Borlinetto.—Cenni Biografici di Francesco Zantedeschi: estratti dalla Galleria dei Naturalisti pubblicata da Lenoir, in Vienna, nel 1856.—*From Prof. Zantedeschi.*
- Manual of Coal and its Topography: illustrated by original drawings, &c. By J. P. Lesley, Topographical Geologist. Philadelphia, 1856. 8vo.—*From the Author.*

The American Journal of Science and Arts. Second Series. Vol. XXII. No. 66. Nov. 1856. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*

On the Relations of the Fossil Fishes of the Sandstone of Connecticut and other Atlantic States to the Liassic and Oolitic Periods. (Am. Jour. Sci. and Arts. Vol. XII. 1856). By W. C. Redfield. 8vo.—*From the Author.*

The Astronomical Journal. No. 96. Oct. 17, 1856. Cambridge. 4to.—*From Dr. B. A. Gould, jr., Editor.*

Dr. Le Conte referred to the dried fungus exhibited at a former meeting, and laid on the table a specimen of another plant, which, after having been dried, possesses a similar property of expanding itself when moistened. It is commonly called the Rose of Jericho (*Anastatica Hierochontia*), a native of Syria, and belongs to the order of Cruciferæ.

In connection with this subject, Mr. Peale referred to the desiccation of various kinds of garden vegetables and culinary plants for preservation on long sea-voyages, by which means they can be kept for a long time, and when immersed in warm water nearly resume their original forms and properties.

The Treasurer reported, that on the 20th of last month, the sealed paquet left in charge of the Society by F. André Michaux, was deposited in the office of the Register of Wills, and there opened in the presence of the Chancellor of the French Consulate. A copy of the documents contained in the paquet was read to the Society.

Whereupon, the following resolution was offered by Judge Kane:—

Resolved, That a Committee be appointed to consider and report as to the expediency of accepting the bequest of M. Michaux, upon the trusts described in his testamentary disposition;—and that the said committee further report, from time to time, what measures, if any, should be taken by the Society for giving effect to the trusts referred to in the said bequests:—

Which resolution was read, considered and adopted:—the committee appointed consists of Mr. Trego, Mr. Durand and Judge Kane.

On motion of Mr. Trego, it was ordered that Mr. Sully have permission to use the Society's portrait of Mr. Jefferson, for the purpose of making a copy, according to the request contained in his letter read this evening.

Stated Meeting, November 21.

Present, twelve members.

The President and Vice-Presidents being absent, Mr. Fraley was called to the chair.

The following donations were announced :—

FOR THE LIBRARY.

- Transactions of the Royal Society of Edinburgh. Vol. XXI. Part 3, for the session 1855-6. 4to.
- Proceedings of the Royal Society of Edinburgh. Vol. III. No. 46. Edinburgh. 8vo.—*From the Society.*
- Quarterly Journal of the Chemical Society. No. XXXV. (Vol. IX. 3). Oct. 1856. London. 8vo.—*From the Society.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 9. July 11, 1856. London. 8vo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. Vol. VI. No. 2. Oct. 1856. Boston. 8vo.—*From the Society.*
- The African Repository. Vol. XXXII. No. 11. Nov. 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Arctic Explorations: the Second Grinnell Expedition in search of Sir John Franklin, 1853, '54, '55. By Elisha Kent Kane, M.D., U. S. N. 2 vols. Philadelphia, 1856. 8vo.—*From the Author.*
- The Medical Profession and Modern Chemistry: An Oration delivered before the Medical and Chirurgical Faculty of Maryland, at its Annual Convention, June 4, 1856. By Lewis H. Steiner, M.A. M.D., &c. &c. Baltimore. 8vo.—*From the Author.*
- Refuge in God: A Sermon delivered in the Church of the Ascension, Philadelphia, on Sunday morning, Oct. 26, 1856. By the Right Rev. Henry U. Onderdonk, D.D. Philadelphia. 8vo.—*From J. J. Barclay, Esq.*
- Sixth Annual Report of the Board of Trustees of the Young Man's Institute. Philadelphia, 1856. 8vo.—*From the same.*

A paper by Dr. Joseph Leidy was read, entitled "Observations on the Extinct Peccary of North America;" and another, by the same author, entitled "Remarks on Saurocephalus and its allies,"—which were referred to a committee consisting of Dr. Le Conte, Mr. Lea and Prof. Frazer.

Stated Meeting, December 5.

Present, eighteen members.

Judge KANE, Vice-President, in the Chair.

Letters were read:—

From the Royal Society of Sciences, at Upsal, dated Nov. 6, 1855:—from the Imperial Geological Institute at Vienna, dated March 20, 1856:—from the Imperial Academy of Sciences at Vienna, dated July 16, 1856:—and from the Secretary of l'Ecole des Mines, Paris, dated July 2, 1856,—severally announcing donations for the library:—

From the Royal Prussian Society of Sciences, dated Berlin, March 20, 1856, announcing a donation, and acknowledging the receipt of Transactions and Proceedings of this Society: and—

From the Imperial Geological Institute, dated Vienna, Dec. 21, 1855, acknowledging the receipt of Nos. 51, 52 of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der K. Akademie der Wissenschaften zu Berlin, aus dem Jahre 1854. Erster Supplement Band. Berlin, 1856. Folio.—*From the Academy.*

Monatsbericht der K. Akad. der Wissenschaften zu Berlin, July—Dec. 1855. Berlin. 8vo.—*From the same.*

Sitzungsberichte der K. Akademie der Wissenschaften: Phil. Hist. Classe, XIX. Band, 2 Heft, XX. Band, 1 Heft:—Math. Nat. Classe, XX. Band, 1 Heft. Wien, 1856. 8vo.—*From the Academy.*

- Jahrbuch der K. K. Geologischen Reichsanstalt; VI. Jahrgang, 1856.
No. 3. Jul. Aug. Sept. Wien. 8vo.—*From the Geological Institute, Vienna.*
- Nova Acta Societatis Scientiarum Upsaliensis. Seriei Tertię. Vol. I.
Upsalię, 1855. 4to. *From the Society.*
- Annales des Mines. V. S. r. e. Tome VIII. 4, 5, 6 livr. de 1855.
Tome IX. 1 livr. de 1856. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*
- Journal of the Franklin Institute. Third Series. Vol. XXXII. No. 5.
Nov. 1856. Philadelphia. 8vo.—*From the Institute.*
- Report of the Proceedings of the Geological and Polytechnic Society
of the West Riding of Yorkshire, 1854-5. Leeds. 8vo.—*From the Society.*
- On the Claims of the Gigantic Irish Deer to be considered as contemporary with man. By Mr. H. Denny, A.L.S. &c. May 29, 1855.
Leeds. 8vo.—*From the Author.*
- The Physiological Effects of Alcohol and Tobacco upon the Human
System. By W. A. Hammond, M.D., U. S. Army. (Am. Jour. Med. Sci. Oct. 1856). 8vo.—*From the Author.*
- The American Missionaries in Greece: An Address delivered at St.
Luke's Church, in Philadelphia, Oct. 13, 1856. By Henry D. Gilpin. Philadelphia. 8vo.—*From the Author.*
- A Memoir of the Life and Character of James B. Rogers, M.D. Professor of Chemistry in the University of Pennsylvania. By Joseph Carson, M.D. Prof. Mat. Med. and Pharmacy, Univ. Pennsylvania. Philadelphia, Oct. 11, 1852. Philadelphia. 8vo.—*From the Author.*
- The Astronomical Journal. No. 97. (Vol. V. No. 1). Albany, Nov. 26, 1856. 4to.—*From Dr. B. A. Gould, jr., Editor.*

The committee to which were referred the papers by Dr. Leidy, entitled "Observations on the Extinct Peccary of North America," and "Remarks on Saurocephalus and its allies," made report recommending the publication of the papers in the Transactions of the Society; which was ordered accordingly.

Mr. Durand, pursuant to appointment, read an obituary notice of the late Francois André Michaux, a member of the Society. This paper was referred to a committee, as communications intended for the Transactions are referred. The com-

mittee consists of Dr. La Roche, Prof. Coppée and Dr. Le Conte.

In a brief introduction, Mr. Durand enumerated the claims of scientific explorers to the admiration and gratitude of mankind, he portrayed them as deserting their native land and family affections, for the sole object of advancing sciences and benefitting their fellow beings, by adding to the wealth they already possessed, the useful productions which they procured for them from foreign and unexplored regions; he pointed out the fatigues and inconveniences to which those devoted men expose themselves, in order to attain their object; he showed them wending their way through inextricable forests, through pestilential marshes and grounds yet untrodden by the human foot, struggling and panting under the rays of a burning sun, or shivering under heavy showers of rain, and constantly exposed to danger of every sort. He then entered upon the particulars of the life and labours of the subject of his memoir.

Francois André Michaux was born in 1770, at Satory, a royal domain situated near Versailles. He was the son of André Michaux, one of the pioneers of botanical explorations in North America, and accompanied him to this country, when only fifteen years of age. He remained four years with his father, assisting him in his journey, and at the Charleston Nursery. In consequence of an accident, through which his sight was injured, his father sent him back to France, which he reached just at the breaking out of the revolution.

In the year 1800, young Michaux was studying medicine, with the view of returning to the United States, and devoting himself to the healing art, but, animated by the example of his father, and convinced his efforts, employed in other directions, could afford more benefit to mankind, he solicited a commission to return to North America, in order to achieve the work of usefulness, left unfinished by the departure of his father.

This commission he received at last, in 1801, from Mr. De Chaptal, then minister of the interior, with various instructions which he faithfully fulfilled. After visiting Charleston, New York and Philadelphia, he started on a voyage to the States of Kentucky and Tennessee, whence he returned to Charleston through the range of mountains which separates the latter State from that of South Carolina. He had travelled over 1800 miles in three months and a half. After sojourning eighteen months in this country, Michaux returned to France

and published, two years afterwards, an interesting account of this voyage. (“*Voyage à l’ouest des monts Allegheny.*”) He assisted also in the publication of his father’s works, “*The History of the American Oaks* and *Flora Boreali-Americana*; and in 1805, he addressed to the Central Society of Agriculture of Paris, a memoir, entitled “*Sur la naturalization des Arbres forestiers de l’Amérique du Nord.*” In this memoir he endeavoured to prove the great advantage which might accrue to France from the acclimation of certain American trees, susceptible of being cultivated with advantage in certain lands that produce nothing, or which could be a valuable addition to the native trees of France. The means proposed by Michaux to attain this object was simply to send a naturalist to the United States, in order to collect seeds and young trees, and forward them to the national nurseries of France.

Michaux, having been intrusted with this mission, under the patronage of the Duke de Guëte, embarked at Bordeaux on the fifth of February, 1806, in a vessel bound to Charleston. After three days at sea, he was met by a British man of war, who took him to the Bermuda Islands. While in port he was permitted freely to go ashore, and had thus the opportunity to make some interesting observations, which he communicated to the Professors of the Museum of Natural History, in a memoir entitled “*Notice sur les Isles Bermudes,*” &c.

He was finally permitted to proceed on his voyage to the United States, which he reached towards the end of May. Beginning his explorations at the District of Maine, he travelled over the Atlantic States as far as Georgia, a distance of 1800 miles, and made five different journeys into the interior of the country. His object was not merely the science of botany; but the application of that science to useful purposes. As the knowledge of which he was in need was principally in the possession of artisans, he visited the principal dock-yards, with the view of examining the timber employed in ship-building, and entered the different work-shops in which wood was employed in any way; he paid a particular attention to the trees that formed the bulk of the forests, with reference to the nature of their wood, or as objects of commerce; he ascertained the sources of the different barks that are used in tanning, and formed a complete collection of polished specimens of the species employed in cabinet-work, &c. &c. The range of his observations was unlimited, and could not fail to interest exceedingly the people of the United States, as well as Europeans, and to become one of the main points of the

splendid work which he published almost immediately after his return.

Michaux employed three years in this voyage. During the two years following his return, he was actively occupied in the publication of his great work, "*Histoire des Arbres Forestiers de l'Amérique du Nord*," so anxiously expected by those who took an interest in the flora of the United States, and in the observations of one so well versed in agricultural pursuits. This work, illustrated by 144 copper-plates, executed by the best artists of the day, was published, the first volume, in 1810; the second, in 1812, and the third in 1813. It was translated into English by Augustus L. Hillhouse, and published in Paris in four volumes, under the title of *North American Sylva*, with the addition of several plates, and of new observations by the Author. Mr. Maclure having purchased the plates in Paris, brought them to this country, and to this circumstance is owing the publication of two American editions, which are likely soon to be followed by a third. The first was published in New Harmony, Indiana, in 1842, and the second in Philadelphia, in 1852, with notes, by J. J. Smith, Esq.

Mr. Durand relates the circumstances of his acquaintance with Mr. Michaux in 1824, and gives the following description of his person: "He was rather tall, strongly built, but not corpulent; his complexion was fair; he was slightly pock-marked and possessed prominent features. His light blue eyes had a haggard expression, which startled me at first, and was probably caused by the artificial eye to which, I am assured, he had resorted to disguise his infirmity. His countenance was stern and cold on first approach, but it smoothed off and brightened gradually as he spoke and became more familiar. His utterance, in the beginning slow and cautious, became rapid and impressive, and his conversation gay and even humorous. All his manners were quite simple and unaffected, frank and lively—they were altogether those of a good country gentleman, in whose presence, young as I was at the time, I felt neither embarrassment nor shyness."

Since the appearance of his great work, Michaux has not ceased to devote all his attention to his favourite pursuit—the cultivation and propagation of trees, presenting a special object of public utility. Interested with the direction of the large model-plantation belonging to the Central Society of Agriculture, and owning, himself, a country

place, at a small distance from Paris, he continued his experiments on arboriculture to the very last day of his life.

The main point of those experiments was to turn to advantage those sandy or marshy soils, considered as utterly sterile, and, through forty years of experiments, he was enabled to prove that they might be rendered productive and valuable by the cultivation of certain foreign trees which succeed well in such soils.

In a letter, bearing date of October 24, 1852, and addressed to the President of the American Philosophical Society, Mr. Michaux recommends to the particular attention of the people of the northern and middle States of the Union, the cultivation of the Russian pine, *Pinus Sylvestris*, as thriving well in all the sandy lands upon which scarcely another tree will succeed. With the view to remedy the great scarcity of wood, under which this country is beginning to suffer, through the rapid and improvident destruction of the native forests, he recommends also the cultivation of bushy or spreading trees, producing copses, or taillis, to which he has applied a special mode of culture, more rational and more favourable to the development of vegetation, and, consequently, more profitable to the landholders. He was, at the time, preparing for publication a work in which he intended, succinctly, to expose his ideas on those subjects, and to lay open the result of his observations and practical experience for the particular benefit of the American arboriculturists.

In this same letter, Mr. Michaux informed his colleagues of the Philosophical Society that, wishing to give the American nation a testimonial of his heartfelt gratitude for the hospitality and assistance which his father and himself had received in this country, during the course of their long and toilsome journeys, he had made testamentary provisions in favour of this Society, and also of the Society of Agriculture and Arts of Boston (\$14,000 for the former, \$8000 for the latter), with the view to afford the means of promoting the progress of the science of Sylviculture in the United States.

Mr. Michaux died of a stroke of apoplexy, in the month of November, 1855, at the age of eighty-five years, at his country residence of Vauréal. He had been occupied, the whole day, planting American trees and directing himself his journeymen. He withdrew from his work in good health, dined moderately with good appetite, and went to bed at his usual hour. At about one o'clock his wife heard him move about and calling; she instantly ran to his apartment and found

him struggling on the floor, but on examining him he had breathed his last.

Michaux left no issue. He had lived single to an advanced age, and changed abruptly his condition, by marrying a relation of his, who, for a long time, had been the manager of his house, his attendant in sickness and the companion of his solitude. He has left her a comfortable provision for the remainder of her life.

Mr. Michaux was a member of the Legion of Honour, and a correspondent of the French Institute. He was also a member of the American Philosophical Society, of the Society of Agriculture and Arts of Boston, of the Central Society of Agriculture of Paris, &c.

Mr. Justice made a communication in which he stated that he had recently, in company with two other members of the Society, Prof. E. O. Kendall and Dr. M. F. Longstreth, spent a night at Haverford School, at the request of the Trustees, to examine a Refracting Telescope made for their Observatory by Henry Fitz, of New York. The short period of one night's observations did not admit of testing the instrument fully; but, as far as it was tried, the performance was highly satisfactory.

The Telescope is about 10 feet focal length, and the object glass $8\frac{1}{4}$ inches clear aperture; it is mounted after the most approved Fraunhofer instruments, and is perfectly free in motion, being well adjusted by counterpoises. It carries magnifying powers varying from 60 to 900 times.

The companion of Polaris was seen immediately after the sun had set. The ring nebula in Lyra was clearly defined, and with the higher powers, its centre appeared slightly misty, approaching in resemblance to a thin veil of gauze stretched across it. The separation of the star Epsilon, in the same constellation, was very clean. The clusters in Hercules, and the sword-handle of Perseus were splendid objects; the stars in the latter being very beautifully defined on a dark ground, thus appearing not only exceedingly brilliant, but rendering the different colours more vivid. Jupiter's belts appeared to be of a light brown colour; this has been heretofore noticed by some observers, but it is believed some instruments do not indicate this. Saturn's rings were clearly separated, the line of division being seen extending entirely around, excepting where the body of the planet intervened. It is supposed by some astronomers, that the dark line

across the disc of Saturn, below the shadow of the rings, is a *third ring*; if this be so, the telescope exhibited that also.

Uranus and Neptune appeared as discs of a faint yellow colour, small but easily to be distinguished from the stars in the same field.

The Treasurer presented his annual report, which was read and referred to the Committee of Finance.

The annual report of the Committee of Publication was read.

Dr. Joseph Carson, having presented for the library of the Society, a printed copy of a Memoir written by him, on the life and character of the late James B. Rogers, M.D., Professor of Chemistry in the University of Pennsylvania, was excused from his appointment to prepare an obituary notice of Dr. Rogers for this Society.

Stated Meeting, December 19.

Present, thirteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Dr. J. C. Adamson, dated New York, Dec. 17, 1856, acknowledging the receipt of notice of his election as a member of the Society:—

From the Royal Institution:—from the Statistical Society:—and from the Society of Arts, Manufactures and Commerce,—all dated London, Nov. 22, 1856, and acknowledging the receipt of Proceedings of the Society: and—

From the Editors of the Natural History Review (the Journal of the Zoological and Botanical Association), dated 5, Trinity College, Dublin, Nov. 28, 1856, announcing the transmission of a donation, and expressing their desire for a scientific intercourse and exchange of publications with this Society.

The following donations were announced:—

FOR THE LIBRARY.

Tenth Annual Report of the Board of Regents of the Smithsonian Institution, showing the operations, expenditures and condition of

- the Institution, up to Jan. 1, 1856: And the Proceedings of the Board, up to March 22, 1856. Washington. 8vo.—*From the Institution.*
- Proceedings of the Academy of Natural Sciences, of Philadelphia. Vol. VIII. No. 5. Sept.—Oct. 1856. Philadelphia. 8vo.—*From the Academy.*
- The African Repository. Vol. XXXII. No. 12. Dec. 1856. Washington. 8vo.—*From the Am. Colonization Society.*
- Report of the Commissioner of Patents, for the year 1855. *Arts and Manufactures.* Vol. I. Washington. 8vo.—*From the Hon. C. Mason, C.P.*
- New Tables for determining the values of the co-efficients in the perturbative function of Planetary Motion, which depend upon the ratio of the mean distances. By John D. Runkle, Assistant in the Office of the American Ephemeris and Nautical Almanac. (Smithsonian Contributions). 1856. 4to.—*From the Author.*
- Address delivered before the Montgomery County Agricultural Society: By J. R. Tyson, LL.D. of Philadelphia, an Honorary Member. 1856. 8vo.—*From the Author.*
- A Decimal System for the Arrangement and Administration of Libraries. By Nathaniel B. Shurtleff, M.D. Boston, 1856. 4to.—*From the Author.*
- Proceedings on the occasion of laying the Corner-stone of the Public Library of the City of Boston, Sept. 17, 1855. Boston. 8vo.—*From N. B. Shurtleff, M.D.*
- Fourth Annual Report of the Trustees of the Public Library of the City of Boston, Oct. 1856. 8vo.—*From the same.*
- Proceedings of the Cushman Celebration at Plymouth, Aug. 15, 1855, in Commemoration of the Embarkation of the Plymouth Pilgrims from Southampton, England:—together with an account of the Services at the grave of Elder Thomas Cushman, Aug. 16, 1855. Boston. 8vo.—*From the same.*
- Thirteenth Report to the Legislature of Massachusetts, relating to the Registry and Returns of Births, Marriages and Deaths in the Commonwealth, for the year ending Dec. 31, 1854. By Ephraim M. Wright, Secretary of the Commonwealth. Boston. 8vo.—*From the same.*
- Proceedings of the Zoological Society of London. Nos. 292 to 304, inclusive. 1855–6. London. 8vo.—*From the Society.*
- Memoirs of the Literary and Philosophical Society of Manchester.

Second Series. Vol. XIII. (Memoir of John Dalton.) London, 1856. 8vo.—*From the Society.*

The Medical News and Library. Vol. XIV. No. 168. Dec. 1856. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Astronomical Journal. No. 98. Dec. 10, 1856. Albany. 4to.—*From Dr. B. A. Gould, jr., Editor.*

The Committee to which was referred the biographical notice of Mr. F. A. Michaux, read by Mr. Durand at the last meeting, reported in favour of its being published as an introductory article to Part 1, of Vol. XI. of the Transactions:—Which was ordered accordingly and the committee discharged.

Dr. Franklin Bache announced the decease of William Yarell, of London, a member of this Society, who died August 31, 1856, aged 72.

A paper intended for the Transactions, entitled “Remarks on the Structure of the Foot of the Megalonyx; by Joseph Leidy, M.D., was read and referred to Dr. Le Conte, Prof. Trego and Dr. Bridges, as a Committee.

The Committee of Finance reported that they had examined the accounts of the Treasurer, and found them correct. The committee recommended the following appropriations for the current year, which were ordered to be made.

For Publications,	. . .	£400
„ Journals,	. . .	50
„ Hall,	. . .	100
„ Binding,	. . .	50
„ General Account,	. . .	1500

The same committee reported a preamble, accompanied by the following resolution, with a recommendation that it be adopted; and it was accordingly adopted:—

Resolved, That the further increase of the permanent publication fund is at this time inexpedient, and that the provisions of the resolution of the Society passed May 21, 1852, relative to said fund be, and the same are hereby suspended until the further order of the Society.

The Transactions and Proceedings of the Society hereafter published, were ordered to be sent to the Dublin University Zoological and Botanical Association.

P R O C E E D I N G S
O F T H E
A M E R I C A N P H I L O S O P H I C A L S O C I E T Y .

VOL. VI.

JANUARY—JUNE, 1857.

No. 57.

Stated Meeting, January 2.

Present, thirteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

The report of the judges and clerks of the annual election for officers of the Society, held this day, was presented and read; by which it appeared that the following named gentlemen had been elected:

President.

John K. Kane.

Vice Presidents.

Robley Dunglison,

John F. Frazer,

John C. Cresson.

Secretaries.

Charles B. Trego,

E. Otis Kendall,

Frederick Fraley,

John L. Le Conte.

Members of the Council, for Three Years.

George M. Justice,

George Tucker,

William Harris,

Robert Patterson.

Curators.

Franklin Peale,

Elias Durand,

M. Fisher Longstreth.

Treasurer.

Charles B. Trego.

The following donations were announced:—

FOR THE LIBRARY.

- Monthly Notices of the Royal Astronomical Society. Vol. XVI. No. 1. Nov. 1856. London. 8vo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. Vol. VI. No. 3. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXII. No. 6. Dec. 1856. Philadelphia. 8vo.—*From the Institute.*
- Report of the Commissioner of Patents for 1855. *Arts and Manufactures.* Vol. 2. Washington. 8vo.—*From the Commissioner.*
- Astronomical Observations made during the year 1848, at the U. S. Naval Observatory, Washington, under the direction of M. F. Maury, L.L.D. Lieut. U. S. Navy, Superintendent. Washington, 1856. 4to.—*From the Author.*
- A Treatise on Therapeutics and Pharmacology or Materia Medica. By George B. Wood, M.D. late President of the Am. Med. Assoc. &c. &c. 2 Vols. Philadelphia, 1856. 8vo.—*From the Author.*
- Report on Strychnia: its Physiological Properties and Chemical Detection. By Lewis H. Steiner, M.D., of Baltimore, Md. Philadelphia. 8vo.—*From the Author.*
- Twenty-eighth Report of the Natural History Society of Montreal, delivered by the late Council, and read at the Annual Meeting of the Society, May 19, 1856. Montreal. 8vo.
- Rapport du Surintendant de l'Education pour le Bas-Canada, pour l'année 1855. Toronto. 8vo.
- Rapport de l'Ecole Normale, des Ecoles de Grammaire, et les Ecoles Communes du Haut-Canada, pour l'année 1854; avec une Appendice par le Surintendant en chef des Ecoles. Quebec. 8vo.
- Rapport des Commissaires des Travaux Publics, pour l'année expirée le 31 Dec. 1856. Toronto. 8vo.—*From M. L. A. Huguet Latour.*
- Astronomical Journal, No. 99. (Vol. V. No. 3.) Dec. 24, 1856. Albany. 4to.—*From Dr. B. A. Gould, Jr. Editor.*
- Proceedings of the Elliott Society of Natural History of Charleston, S. C. Jan. July, 1856. Charleston. 8vo.—*From the Society.*
- Journal of the Academy of Natural Sciences of Philadelphia. New Series. Vol. III. Part 3. Philada. Nov. 1856. 4to.—*From the Academy.*

Pending nominations for membership were read.

Stated Meeting, January 16.

Present, nineteen members.

Judge KANE, President, in the Chair.

Judge Kane, the newly elected President, on taking the chair, expressed his acknowledgment of the honour conferred upon him, and addressed the Society on its condition, duties, and future prospects of scientific usefulness.

The following donations were announced:—

FOR THE LIBRARY.

- Annales des Mines. V. Série. Tome IX. 2 livraison de 1856. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*
- Proceedings of the American Antiquarian Society in Boston, April 30, 1856,—and in Worcester Oct. 21, 1856. Boston. 8vo.—*From the Society.*
- Report of the Commissioner of Patents, for the year 1855. *Agriculture.* Washington, 1856. 8vo.—*From the Hon. J. R. Tyson.*
- The American Journal of the Medical Sciences. No. LXV. New Series. January, 1857. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XV. No. 169. Jan. 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Report on the present state of our knowledge of Linguistic Ethnology, made to the American Association for the Advancement of Science, Aug. 1856. By Prof. S. S. Haldeman. Cambridge. 8vo.—*From the Author.*
- Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures and Condition of the Institution to January 1, 1856: and the Proceedings of the Board up to March 22, 1856. Washington. 8vo.—*From the Institution.*

The Committee on Dr. Leidy's paper, entitled "Remarks on the Structure of the Foot of *Megalonyx*," made report in favour of its publication in the Transactions of the Society, which was ordered, and the committee discharged.

Mr. Justice exhibited two microscopic photographs, made by J. B. Dancer, of Manchester, England, an eminent optician, whose objectives for microscopes are said to be of superior quality. These photographs are each but one-twelfth of an inch in diameter, and represent family groups, one of three and the other of seven figures, all of which, under an objective of two inches, with a power of sixty diameters, are very sharply and beautifully defined.

Prof. Trego was re-elected Librarian.

The Standing Committees of the Society, for the ensuing year, were appointed as follows:—

Finance—Mr. Fraley, Mr. Justice, Mr. J. F. James.

Publication—Prof. Trego, Dr. Elwyn, Prof. Frazer.

Hall—Mr. Peale, Prof. Trego, Prof. Coppée.

Library—Rev. Dr. Stevens, Dr. Hays, Mr. Ord.

The list of surviving members of the Society was read: the number on the 1st of January, 1857, was 390; of whom are resident in the United States 282, and in foreign countries 108.

Mr. Fraley, on behalf of the Secretaries, informed the Society that they had agreed that Prof. Trego should continue to act as reporter of the Proceedings for the ensuing year.

The Society then proceeded to ballot for candidates for membership.

All other business having been concluded, the ballot boxes were opened by the presiding officer, and the following named gentlemen were declared to be duly elected members of the Society:—

THOMAS F. BETTON, M.D. of Germantown.

THEODORE CUYLER, Esq., of Philadelphia.

MR. THOMAS P. JAMES, of Philadelphia.

NATHANIEL P. SHURTLEFF, M.D. of Boston.

Prof. FAIRMAN ROGERS, of Philadelphia.

Stated Meeting, February 6.

Present, thirteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Fairman Rogers, dated Philadelphia, Jan. 23, 1857, and from Theodore Cuyler, dated Philadelphia, February 5, 1857, acknowledging the receipt of notice of their election as members of the Society:—

From the Etat Major of the Corps of Mining Engineers of Russia, dated St. Petersburg, 15–27 May, 1856; and from the Royal Academy of Sciences at Stockholm, dated August 1, 1856, both announcing donations for the Library:—

From the Royal Academy of Sciences at Stockholm, dated Aug. 1, 1856; and from the Royal Society of Sciences at Göttingen, dated August 23, 1856, both returning thanks for Nos. 51, 52, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Annales de l'Observatoire Physique Central de Russie. A. T. Kupfer, Directeur. Année 1853. Nos. 1, 2. St. Petersburg, 1855. 4to.—*From the Etat Major of the Corps of Mining Engineers of Russia.*

Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen. Band VI. 1853–1855. Göttingen. 4to.

Nachrichten von der Georg-Augusts Universität, und der Königl. Gesellschaft der Wissenschaften zu Göttingen. 1855. Nos. 1–18. Göttingen. 8vo.—*From the Royal Society of Sciences at Göttingen.*

Kongl. Vetenskaps Akademiens Handlingar; 1853, Part 2:—1854, Part 1. Ofversigt af Kongl. Vetenskaps Akad. Förhandlingar: XII. Årgangen, 1855. Arsberättelse om Botaniska Arbeten och Upptäckter för år 1851, till Kongl. Vet. Akad. 31 Mars, 1852: af Joh. Em. Wikström. Stockholm. 8vo.—*From the Royal Academy of Sciences, Stockholm.*

Schriften der Russisch Kaiserlichen Gesellschaft für die Gesamte

- Mineralogie. 1. Band; 1, 2 Abtheilung. St. Petersburg, 1842. 8vo.—*From the Imp. Russian Mineralogical Society.*
- Notices of the Meetings of the Members of the Royal Institution of Great Britain: Part VI. July 1855, July 1856. With list of the Officers, Members, &c., and the Report of the Visitors for the year 1855. London. 8vo.—*From the Institution.*
- The Natural History Review; published quarterly: including the Transactions of the Irish Natural History Societies, and of the Geological Society of Dublin. Nos. 9, 10, 11, 12. Jan.—Oct. 1856. London. 8vo.—*From the Editors.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVII. No. 2. Dec. 1856. London. 8vo.—*From the Society.*
- Proceedings of the Boston Society of Natural History. Vol. VI. No. 4. Jan. 1857. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIII. No. 1. January, 1857. Philadelphia. 8vo.—*From the Institute.*
- The American Journal of Science and Arts. Second Series. Vol. XXIII. No. 67. January, 1857. New Haven. 8vo.—*From the Editors.*
- A Memoir on the Cholera at Oxford, in the year 1854; with considerations suggested by the Epidemic. By Henry Wentworth Acland, M.D. F.R.S. &c. London, 1856. 4to.—*From the Author.*
- First Annual Message of the Hon. Richard Vaux, Mayor of Philadelphia; with accompanying Documents. Presented to the City Councils, January 8, 1857. Philadelphia. 8vo.—*From the Author.*
- Charter and By-laws of the Newark Library Association. Newark, 1856. 8vo.—*From the Association.*
- The Medical News and Library. Vol. XV. No. 170. February, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*
- The Astronomical Journal: No. 100. (Vol. V. No. 4). Jan. 17, 1857. Albany. 4to.—*From the Editor.*
- The African Repository. Vol. XXXIII. No. 1. Jan. 1857. Washington. 8vo.—*From the American Colonization Society.*

Mr. Fraley announced the decease of Isaac R. Davis, a member of the Society, who died on the 4th inst. aged 47.

On motion of Dr. William Harris, Mr. Stephen Colwell was appointed to prepare an obituary notice of Mr. Davis.

Dr. Dunglison announced the decease of the Baron Joseph Von Hammer Purgstall, a member of this Society, who died recently in Vienna at an advanced age.

A communication was read, entitled "Notes on certain modes of measuring minute intervals of time," by Dr. J. C. Adamson, which was referred to a committee consisting of Prof. Frazer, Mr. Justice, and Prof. Kendall.

Judge Kane asked for information relative to photographic representations of the moon, and inquired why the process cannot be so improved as to give pictures of the moon's surface, by means of magnified photographs, under intense light, which may be rendered useful for astronomical purposes, and to afford us a more complete knowledge than we now possess, of the actual condition of affairs on the surface of the moon.

Mr. Justice, in reference to this subject, remarked, that in magnifying photographic representations of the moon's face, the imperfections of the picture (arising from irregularities of the surface upon which the impression is made or transferred) are so magnified as materially to impair the useful effects of the operation. He referred to the difficulty of producing magnified images with clear and distinct characters of the objects represented by the photographic process; but expressed a confident hope that the progress of the arts would, before long, produce apparatus by which the present difficulties in relation to this matter would be overcome.

The Reporter laid upon the table No. 56 of the Proceedings of this Society, recently published.

Stated Meeting, February 20.

Present, twelve members.

Prof. CRESSON, Vice-President, in the Chair.

Prof. Fairman Rogers, Mr. Thomas P. James, and Mr. Theodore Cuyler, recently elected members, were introduced and took their seats.

Letters were read:—

From the Historical Society of Pennsylvania, dated Philadelphia, February 6: from the New York Historical Society, dated February 10: from the Connecticut Historical Society, dated Hartford, February 11: from the Antiquarian Society, dated Worcester, February 11: from the New Jersey Historical Society, dated Newark, February 16, 1857: all acknowledging the receipt of No. 56 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

- Message from the President of the United States to the two Houses of Congress, at the commencement of the third session of the 34th Congress: with accompanying documents. 2 Vols. Washington, 1856. 8vo.—*From the Hon. J. R. Tyson.*
- Chaplains of the General Government; with objections to their employment considered. Also a List of all the Chaplains to Congress, in the Army, and in the Navy, from the formation of the government to this time. By George D. Johnson. New York, 1856. 8vo.—*From the same.*
- The History of the United States, from their colonization to the end of the 26th Congress in 1831. By George Tucker. Vols. I. II. Philadelphia, 1856. 8vo.—*From the Author.*
- The U. S. Naval Astronomical Expedition to the Southern Hemisphere, during the years 1849, 50, 51, 52. Vol. VI. Magnetical and Meteorological Observations, under the direction of Lieut. J. M. Gilliss, L.L.D. Superintendent. Washington, 1856. 4to.—*From the Author.*
- Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1856. Philadelphia. 8vo.—*From James J. Barclay, Esq.*
- Criminal Insane: Insane Transgressors and Insane Convicts. By Edward Jarvis, M.D.—and Address delivered at the laying of the corner stone of the Insane Hospital at Northampton, Mass. By Edward Jarvis, M.D. Boston, 1856-7. 8vo.—*From the Author.*
- Twenty-second Annual Report of the Young Men's Library Association of Cincinnati, for the year 1856. Cincinnati. 8vo.—*From the Association.*

Proceedings of the Boston Society of Natural History. Vol. VI. No. 5. Jan. 1857. Boston. 8vo.—*From the Society.*

The African Repository. Vol. XXXIII. No. 2. February, 1857. Washington. 8vo.—*From the American Colonization Society.*

Prof. Trego announced the death of Mr. W. C. Redfield, of New York, a member of this Society, who died on the 12th inst. in the 68th year of his age.

In reference to the application of photography to produce correct representations of the moon's surface, spoken of at the last meeting, Dr. Le Conte remarked that the distortion of the moon, in consequence of the attraction of the earth, had, as Prof. Hansen observed, resulted in an elevation of the visible face of the moon of about eight miles; and that, in his opinion, the surface, at this elevation, would be deprived in great part, or, indeed, entirely, of the ordinary physical agents of geological changes.

Mr. Justice expressed doubt as to this being the case, and thought it probable that changes are going on there as every where else in nature.

Prof. Cresson referred to the changes of temperature on the moon, owing to its position with regard to the action of the sun's rays, as likely to produce meteorological phenomena on that planet, of a nature and intensity of which we can have little conception.

The minutes of the Board of Officers and Council at their last meeting were read.

On motion of Dr. Harris, it was resolved that the Board of Officers and Council be requested to consider the expediency of appointing a member to bring forward a subject for discussion, and to give his views thereon; or of any other measure which, in their opinion, may tend to increase the interest of the meetings, and promote the objects for which the Society was instituted.

On motion of Mr. Fraley, the following resolution was adopted:—

Resolved, That the Board of Officers and Council be requested to inquire and report, whether it be expedient to make any alteration in the regulations under which the Magellanic and Extra-Magellanic

premiums are awarded; and if they may deem alteration expedient, then to report such modifications in the regulations as will invite regular claims for such premiums.

Special Meeting, February 27.

Present, twenty-four members.

DR. DUNGLISON, Vice-President, in the Chair.

The presiding officer stated that he had ordered a special meeting to be called, under the conviction that the Society would be desirous to pay their tribute of respect to the memory of a distinguished member, Dr. E. K. Kane, whose services to science and humanity are appreciated by the whole civilized world; whose life had been one of adventurous daring and of genuine philanthropy; and whose enlightened efforts had greatly enlarged the boundaries of geographical and general knowledge.

Whereupon, the following resolutions were offered by Dr. William Harris, and unanimously adopted:—

Resolved, That this Society has heard, with deep regret, of the death of its late distinguished member Dr. Elisha Kent Kane, who fell a victim to his zeal in the cause of humanity and of science, from the effects of exposure and sufferings endured during his last expedition to the Arctic regions, in search of Sir John Franklin and his party.

Resolved, That in the death of Dr. Kane, this Society has lost one of its brightest ornaments; science a distinguished contributor; humanity a devoted friend; and the world an intrepid navigator and learned geographer.

Resolved, That in respect to the memory of the deceased, the Society will, as a body, attend the funeral of our late associate.

Resolved, That a portrait of Dr. Kane be placed in the Hall of the Society, as a continuing memorial of him, which may silently teach us, and those who are to come after us, how to pursue and to adorn science with persevering energy, truth, modesty and excellence.

Resolved, That a member be appointed to prepare a notice of the

life, character and services of Dr. Kane, and that the same be published in the proceedings of the Society.

Resolved, That a letter expressive of condolence and sympathy for their loss, be addressed on behalf of this Society, by its officers, to the family of Dr. Kane, with a copy of these resolutions.

Stated Meeting, March 6.

Present, nineteen members.

Prof. FRAZER, Vice-President, in the Chair.

Dr. E. Brown-Sequard, a recently elected member, was introduced, and took his seat.

Letters were read:—

From the Society of Antiquaries, dated London, Nov. 28, 1856, and from the Natural History Society of Newcastle upon Tyne, dated December 13, 1856, returning thanks for Nos. 53, 54, of the Proceedings of this Society: and—

From Prof. A. D. Bache, dated U. S. Coast Survey Office, Washington, February 24, 1857, announcing a donation for the Library.

The following donations were announced:—

FOR THE LIBRARY.

Documents relative to the Colonial History of the State of New York, procured in England, Holland and France. By John Romeyn Brodhead, Esq., Agent. Edited by E. B. O'Callaghan, M. D., &c. Vol. I. Albany, 1856. 4to.

Catalogue of the New York State Library, 1855. 2 Vols. Albany. 8vo.—*From the Trustees of the N. Y. State Library.*

Monthly Notices of the Royal Astronomical Society. Vol. XVII. No. 3. January, 1857. London. 8vo.—*From the Society.*

Proceedings on laying the corner stone of the Library Edifice for the Free Public Library of the City of New Bedford, Aug. 28, 1856. New Bedford. 8vo. *From the Trustees.*

Journal of the Franklin Institute. Third Series. Vol. XXXIII. No. 2. Feb. 1857. Philadelphia. 8vo.—*From the Institute.*

- Report on the Commercial Relations of the United States with all Foreign Nations. Edmund Flagg, Superintendent. Prepared under the direction of the Secretary of State. Vol. I. Washington, 1856. 4to.—*From the Hon. J. R. Tyson.*
- Official Army Register of the United States, for 1857. Published by order of the Secretary of War. Washington, 1857. 8vo.—*From S. Cooper, Adjutant General.*
- Anniversary Address before the American Institute of the City of New York, Oct. 28, 1856. By Prof. A. D. Bache, Supt. U. S. Coast Survey. New York. 8vo.
- Inauguration of the Dudley Observatory at Albany, Aug. 28, 1856. 8vo.
- U. S. Coast Survey Maps: York River Harbour, Maine. Newburyport Harbour, Mass. Gloucester Harbour, Mass. Salem Harbour, Mass. Charleston Harbour, S. Carolina. Mobile Bay, Alabama. Key West Harbour, Florida. Galveston Entrance, Texas. Reconnaissance of the Western Coast of the U. S. from San Francisco to Umpquah River, California and Oregon. Reconnaissance from Umpquah River to the boundary, Oregon and Washington Territory. Lines of equal Magnetic Declination for the year 1850. Lines of Equal Magnetic Dip and Horizontal Intensity for the year 1850.—*From Prof. A. D. Bache, Supt. of the U. S. Coast Survey.*
- The American Journal of Science and Arts. Second Series. Vol. XXIII. No. 68. March, 1857. New Haven. 8vo.—*From the Editors.*
- Report of the Pennsylvania Hospital for the Insane, for the year 1856. By Thomas S. Kirkbride, M. D., Physician to the Institution.—*From the Author.*
- Twenty-second Annual Report of the Trustees of the Philadelphia Gas Works, to the Select and Common Councils of the City of Philadelphia, January 1857. 8vo.
- Report of the Board of Managers to the Stockholders of the Mine Hill and Schuylkill Haven Rail Road Company, at their Annual Meeting, January 12, 1857. Philadelphia. 8vo.—*From Prof. J. C. Cresson.*
- Twenty-ninth Annual Report of the Board of Managers of the House of Refuge. Philadelphia, 1857. 8vo.—*From James J. Barclay, Esq.*
- The Medical News and Library. Vol. XV. No. 171. March, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*

Biographical Memoir of the late François André Michaux. By Elias Durand. (Trans. Am. Phil. Soc. Vol XI.) Philadelphia, 1857. 4to.—*From the Author.*

The Committee to which was referred a paper by Dr. Adamson, entitled "Notes on certain methods of measuring minute intervals of time," made a report favourable to the publication of the paper in the Transactions of the Society, which was ordered, and the committee discharged.

Dr. William Harris referred to the decease of Dr. E. K. Kane, at Havana, on the 16th ultimo, in the 38th year of his age; and spoke of his early devotion to scientific pursuits, his assiduity as a student, his energy as an adventurer, and his excellence as a man and a Christian.

On motion of Dr. Harris, the Rev. Dr. Boardman was appointed to prepare an obituary notice of Dr. Kane.

Dr. E. Brown-Sequard exhibited crystals from blood taken from the veins of dogs after the extirpation of the supra-renal capsules, and mentioned the results of several experiments upon animals in relation to the extirpation of these glands, upon the duration of life after the operation, and other phenomena connected with the functions of those capsules.

Dr. Dunglison expressed his gratification at the statements of Dr. Brown-Sequard. The functions of the supra-renal capsules had recently received great attention, and it had been found by Dr. Addison that their disorganization was accompanied by a fatal wasting and bronzed appearance of the skin, a diseased condition, to which the name "Addison's disease"—*Maladie d'Addison*—had been given.

After further remarks upon the subject, Dr. D. expressed his hope that the attention of Dr. Brown-Sequard might be turned to other ductless glands—the *thymus* and the *thyroid*, for example—to determine whether they also do not possess more intimate relations with the great vital functions than are at present admitted.

Mr. Peale solicited the attention of the members to a new form of *valves* which he submitted for their inspection.

He remarked that he used the word *new*, but in doing so desired to explain that they were imitations, as near as the means permitted,

of the valves of the arteries, veins, and some other portions of the human structure; they were therefore, in principle, as *old* as the creation of man.

These valves, he observed, are applicable generally, to all the purposes of ordinary valves, but particularly so to flexible tubes; in which application they are now presented in syringes of an economical form.

Mr. Peale then desired permission to state the advantages which he believed these valves possessed, and for which letters patent of the United States had been granted to him, the drawings with which exhibited their structure fully, and were now presented for inspection.

1. Their extreme simplicity of form, and economy of construction.
2. Their non-liability to injury, as they may fall, be bent, or even beaten or trodden upon, without derangement.
3. Their indestructibility, except by agents that would destroy the whole fabric or instrument.
4. Their operation in any position, vertical, horizontal, or upside down.

Mr. Peale then showed the practical operation of valves constructed according to this mode, as applicable to various purposes.

Stated Meeting, March 20.

Present, seventeen members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Natural History Society at Emden, dated Oct. 2, 1856, on transmitting a donation to the Library:—

From the Linnean Society, dated Soho Square, London, Nov. 25, 1856, returning thanks for Nos. 53, 54, of the Proceedings of this Society:—

From the Massachusetts Historical Society, dated Boston, Feb. 19, 1857; and from the Smithsonian Institution, dated Washington, March 6, 1857, acknowledging the receipt of No. 56 of the Proceedings: and—

From Mr. E. Godfrey Rehrer, dated Harrisburg, March 2,

1857, on presenting certain manuscripts relating to the early history of the Society.

The following donations were announced:—

FOR THE LIBRARY.

- Transactions of the Linnean Society of London. Vol. XXII. Part 1. 1856. 4to.
- Journal of the Proceedings of the Linnean Society of London: *Botany*. Vol. I. Nos. 1, 2, 3. *Zoology*. Vol. I. Nos. 1, 2, 3. With list of the Society for 1856. London. 8vo.—*From the Society*.
- Ein und vierzigster Bericht der Naturforschenden Gesellschaft in Emden, für 1855. Emden. 8vo.—*From the Nat. Hist. Society, Emden*.
- Quarterly Journal of the Chemical Society. Vol. IX. No. 4. London, Jan. 1857. 8vo.—*From the Society*.
- Bulletin de la Société de Géographie. IV. Série. Tome XII. Paris, 1857. 8vo.—*From the Society*.
- Flora Batava, of Afbeelding en Beschrijving van Nederlandsche Gewassen. Aflevering 180. Amsterdam. 4to.—*From the King of Holland*.
- Proceedings of the Boston Society of Natural History. Vol. VI. No. 6. Feb. 1857. 8vo.—*From the Society*.
- Journal of the Franklin Institute. Third Series. Vol. XXXIII. No. 3. March, 1857. Philadelphia. 8vo.—*From the Institute*.
- Twenty-first Annual Report of the Executive Committee of the Young Men's Association of the City of Buffalo: with a Record of the Proceedings of the Association. Buffalo, 1857. 8vo.—*From the Association*.
- African Repository. Vol. XXXIII. No. 3. March, 1857. Washington. 8vo.—*From the American Colonization Society*.
- Report of the Secretary of the Treasury on the Finances of the United States, for the year ending June 30, 1856. Washington. 8vo.—*From the Hon. J. R. Tyson*.
- Report of the Superintendent of Common Schools of Pennsylvania, for the year ending June 2, 1856. Harrisburg. 8vo.—*From the Hon. A. G. Curtin*.
- Recherches expérimentales sur la Physiologie et la Pathologie des Capsules surrénales: par le Dr. E. Brown-Sequard, Lauréat de l'Académie des Sciences, &c. Paris, 1856. 8vo.—*From the Author*.
- The Navy of the United States, from the commencement, 1775 to

1853; with a brief history of each vessel's service and fate, as appears upon record. Compiled by Lieut. George F. Emmons, U. S. N. &c. &c. Washington, 1853. 4to.—*From the Author.*
 Report of the State Librarian to the Legislature of Pennsylvania, with a Catalogue of Books for 1856. Harrisburg. Svo.—*From James J. Barclay, Esq.*

Dr. Le Conte announced the death of Prof. J. W. Bailey, a member of this Society, who died at West Point, N. Y. on the 26th of February last.

Prof. Trego laid upon the table a number of specimens of crystallized slags from the Glendon iron works, at Easton, Pennsylvania.

These crystals have generally the primary and modified forms common to the varieties of the mineral called *augite* or *pyroxene*, which is a silicate of lime and magnesia. The specimens have not been analyzed; but from the form and structure of the crystals, Prof. Trego was inclined to consider them as similar in composition to augite. The limestones in the vicinity of Easton generally contain a portion of magnesia, and used as a flux in the furnace would supply lime and magnesia, with perhaps some silica, while the ore would afford silica and iron; thus furnishing the necessary ingredients for the formation of a substance similar in composition, as well as in crystallization, to augite.

A discussion ensued, in which a number of the members took part, on the effects of magnesian limestones when used as a flux for iron ores, and on the operation of lime burned from them when applied as a manure for soils and for other purposes.

On motion of Dr. William Harris, it was agreed that a committee be appointed to consult with Mr. J. R. Lambdin, relative to the painting of a portrait of the late Dr. E. K. Kane, and to report to the Society at a future meeting. Dr. W. Harris, Mr. Justice, and Prof. Trego, were appointed as the committee.

Several manuscripts sent to the Society by Mr. E. Godfrey Rehrer were laid upon the table. They consist of an original subscription book, dated July 4, 1786, for raising funds to

erect the Society's Hall, on Fifth street below Chestnut; a paper containing the names of subscribers towards the payment of the expenses of Andrew Michaux, on a journey of discovery to the western country; with some other papers containing memoranda of financial affairs.

Stated Meeting, April 3.

Present, ten members.

Judge KANE, President, in the Chair.

Letters were read:—

From Dr. Nathaniel B. Shurtleff, dated Boston, March 21, 1857, acknowledging the receipt of notice of his election as a member of the Society: and—

From the Rev. Henry A. Boardman, dated Philadelphia, March 25, 1857, asking to be excused from his appointment to prepare an obituary notice of the late Dr. Elisha K. Kane.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Boston Society of Natural History. Vol. VI.

Nos. 7, 8. March, 1857. Boston. 8vo.—*From the Society.*

Report of the Twenty-fifth Exhibition of American Manufactures, held in the City of Philadelphia, from 11th to 29th Nov. 1856, by the Franklin Institute of the State of Pennsylvania, &c. Philadelphia. 8vo.—*From the Institute.*

Report of the Secretary of the Treasury, transmitting a Report from the Register of the Treasury, of the Commerce and Navigation of the United States, for the year ending June 30, 1856. Washington. 8vo.

Report of the Commissioner of Patents, for the year 1855. *Arts and Manufactures.* Vols. 1, 2. Washington. 8vo.—*From the Hon. J. R. Tyson.*

Address delivered at the University of Pennsylvania, before the Society of the Alumni, on the occasion of their Annual Celebration. Dec. 10, 1856. By the Hon. George Sharswood, L.L.D. Philadelphia. 8vo.—*From the Author.*

Smithsonian Contributions to Knowledge: Researches on the Ammonia Cobalt Bases. By Wolcott Gibbs and F. A. Genth, 1856. 4to.—*From the Authors.*

Approximate Co-tidal lines of Diurnal and Semi-diurnal Tides of the Coast of the United States on the Gulf of Mexico. By A. D. Bache, Superintendent of the U. S. Coast Survey. 8vo.—*From the Author.*

A Catalogue of Theological Books in Foreign Languages, including the Sacred Writings, Fathers, Doctors of the Church, Schoolmen, and Ecclesiastical Historians, to the death of Boniface VIII. 1303, &c. &c., on sale by David Nutt, and Trübner & Co. London, 1857. 8vo.—*From Trübner & Co.*

Catalogue of the Trustees, Officers and Students of the University of Pennsylvania. Session 1856-7. Philadelphia. 8vo.—*From Prof. C. B. Trego.*

Dr. W. Harris, from the committee appointed at last meeting, relative to a portrait of Dr. Kane, reported that Mr. Lambdin offers to paint a portrait, of a size corresponding to those already in the Hall of the Society, for one hundred dollars:—

Whereupon, the committee was authorized to contract with Mr. Lambdin for the execution of the portrait, and an appropriation of \$100 was made to defray the cost of the same.

The Rev. Dr. Boardman having requested to be excused, Prof. A. D. Bache was appointed to prepare an obituary notice of the late Dr. Kane.

Prof. Kendall having taken the chair, the following resolution was offered by Judge Kane, which was read, considered, and adopted:—

Resolved, That Prof. Trego, Prof. Frazer, and Mr. Thomas L. Kane, be authorized and empowered as a committee to proceed to Harrisburg, and there to solicit of the Legislature, if they shall deem it expedient, the deposit with this Society of the geological collection now the property of the State.

Stated Meeting, April 17.

Present, nineteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From the Royal Danish Society of Sciences, dated Copenhagen, June 1, and Sept. 1, 1856, acknowledging the receipt of Proceedings, and announcing a donation for the library:—

From the Royal Saxon Society of Sciences, dated Leipsic, Sept. 15; and from the Imperial Geological Institute, dated Vienna, Sept. 29, 1856, both accompanying donations for the library: and,—

From the Academy of Sciences, of St. Louis, dated April 6, 1857, acknowledging the receipt of No. 56 of the Proceedings of this Society, and announcing the transmission of Vol. I. No. 1, of the Transactions of the Academy.

The following donations were announced:—

FOR THE LIBRARY.

Abhandlungen der K. K. Geologischen Reichsanstalt. Band III.
Wien, 1856. Folio.

Jahrbuch der K. K. Geologischen Reichsanstalt. VI. Jahrgang, Oct.
Nov. Dec. 1855. VII. Jahrgang, Jan. Feb. Mar. 1856. Wien.
8vo.—*From the Imp. Geological Institute, Vienna.*

Recueil des Mémoires présentés à l'Académie des Sciences par les
Astronomes de Poulkova, ou offerts à l'Observatoire Central par
d'autres Astronomes du pays: publié avec l'autorization de l'Académie,
par W. Struve, Directeur de l'Observatoire Central. Vol.
I. St. Petersburg, 1853. 4to.

Positions moyennes pour l'Époque de 1790, 0, des Étoiles Circumpolaires,
dont les observations ont été publiées par Jerome Lalande dans les
Mémoires de l'Académie de Paris de 1789 et 1790. Par Ivan Fedorenko,
Astronome surnuméraire à l'Observatoire de Poulkova. St. Petersburg,
1854. 4to.

Almæ Universitati Dorpatensi, diem XII. Decembris, Anni
MDCCLII, quo quinquaginta annos inde ab origine feliciter perfectos
celebrat, pie gratulantur Speculæ in Rossia primariæ Di-

- rector et Astronomi: Adjecta est Othonis Struvii narratio de Parallaxi Stellæ *a* Lyræ. Petropoli, 1852. 4to.
- Ueber Dr. Wichmann's Bestimmung der Parallaxe des Argelander'schen Sterns: von W. Döllén, Astronomen der Pulkowaer Sternwarte. St. Petersburg, 1854. 4to.
- Sur la Jonction des Opérations Géodésiques, Russes et Autrichiennes, exécutée par ordre des deux Gouvernemens. Par W. Struve, Directeur de l'Observatoire Central de Russie. St. Petersburg, 1853. 8vo.
- Nachricht von der Vollendung der Gradmessung zwischen der Donau und dem Eismeere. St. Petersburg, 1853. 8vo.
- Rapport fait à M. le Directeur de l'Observatoire Central sur les travaux de l'Expédition de Bessarabie, entreprise en 1852, pour terminer les opérations de la mesure de l'arc du méridien: par M. Prazmovski, Astronome de Varsovie. 1853. 8vo.—*From the Observatory at Pulkova.*
- Berichte über die Verhandlungen der K. Sächsischen Gesellschaft der Wissenschaften zu Leipzig: Math. Phys. Classe, 1854, III. 1855, I. II. 1856, I. Phil. Hist. Classe, 1855, III. IV. 1856, I. II. Leipzig, 8vo.
- H. D'Arrest: Resultate aus Beobachtungen der Nebelflecken und Sternhaufen. Erster Reihe. Leipzig, 1856. 8vo.
- R. Kohlrausch und W. Weber: Elektrodynamische Maassbestimmungen insbesondere zurückführung der Stromintensitätsmessungen auf mechanisches-maass. Leipzig, 1856. 8vo.
- P. A. Hansen: Auseinandersetzung einer zweckmässigen methode zur Berechnung der absoluten störungen der Kleinen Planeten. Leipzig, 1856. 8vo.
- M. W. Drobisch: Nachträge zur Theorie der Musikalischen Tonverhältnisse. Leipzig, 1855. 8vo.
- Die Stadtrechte der Lateinischen Gemeinden Salpensa und Malaca, in der Provinz Baetica: von Theodor Mommsen. Nachtrag. Leipzig, 1855. 8vo.—*From the Royal Saxon Society of Sciences.*
- Det Kongelige Danske Videnskabernes Selskabs Skrifter. Femte Række. Hist. Phil. Afdeling, II. Binds, 1 Hefte. Nat. Math. Afdeling, IV. Binds, 1 Hefte. Kiøbenhavn, 1856. 4to.
- Oversigt over det K. Danske Vid. Selskabs Forhandling, og dets Medlemmers Arbejder i Aaret 1855: af Prof. G. Forschhammer, Secretair. Kiøbenhavn. 8vo.
- Collectanea Meteorologica, sub auspicijs Societatis Scientiarum Danicæ edita. Fase. IV. Continens observationes in Grønland

- institutas. Hauniæ, 1856. 4to.—*From the Royal Danish Society of Sciences.*
- Annales des Mines. V. Série. Tome X. 3 livraison de 1856. Paris. 8vo.—*From the Engineers of l'École des Mines.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIII. No. 4. April, 1857. Philadelphia. 8vo.—*From the Institute.*
- Transactions of the Academy of Sciences, of St. Louis. Vol. I. No. 1. St. Louis, 1857. 8vo.—*From the Academy.*
- The African Repository. Vol. XXXIII. No. 4. April, 1857. Washington. 8vo.—*From the American Colonization Society.*
- American Journal of the Medical Sciences. No. LXVI. New Series. April, 1857. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XV. No. 172. April, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*
- The Astronomical Journal: No. 101. (Vol. V. No. 5.) March 31, 1857. Albany. 8vo.—*From Dr. B. A. Gould, Jr., Editor.*
- Speech of the Hon. J. R. Tyson, of Pennsylvania, on the Fugitive Slave Law and Compromise Measures of 1850: delivered in the House of Representatives, Feb. 28, 1857. Washington. 8vo.—*From the Author.*
- Liberty and Necessity; in which are considered the Laws of Association of Ideas, the meaning of the word Will, and the true intent of Punishment. By Henry Carleton, late one of the Judges of the Supreme Court of Louisiana. Philadelphia, 1857.—*From the Author.*
- Money: a Lecture delivered before the New York Geographical and Statistical Society, Feb. 1857. By Henry C. Carey. New York, 1857. 8vo.—*From the Author.*

On motion of Dr. Wm. Harris, Prof. Coppée was appointed to prepare an obituary notice of Prof. J. W. Bailey, of West Point, a deceased member.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

Prof. Frazer was, on his request, excused from serving on the committee appointed at last meeting, relative to the State geological collection, and Mr. Fraley was appointed in his place.

All other business having been concluded, the ballot boxes

were opened by the presiding officer, and the following named gentlemen were declared to be duly elected members of the Society:—

REV. HENRY J. MORTON, D.D. of Philadelphia.

B. HOWARD RAND, M.D. of Philadelphia.

CHARLES M. CRESSON, M.D. of Philadelphia.

REV. KINGSTON GODDARD, of Philadelphia.

J. LAWRENCE SMITH, M.D. of Louisville, Ky.

Stated Meeting, May 1.

Present, fifteen members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read:—

From Dr. B. Howard Rand, dated Philadelphia, April 18; from Dr. Charles M. Cresson, dated Philadelphia, April 20; from the Rev. Henry J. Morton, dated Philadelphia, April 23; and from the Rev. Kingston Goddard, dated Philadelphia, April 30, 1857; severally acknowledging the receipt of notice of their election as members of the Society:—

From the Corporation of Yale College, dated New Haven, Oct. 15, 1856, returning thanks for No. 55 of the Proceedings; and,—

From Dr. Giovanni Copello, dated Lima, Dec. 21, 1856, on transmitting a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society. Vol. XVI.

No. 4. Feb. 13, 1857. London. 8vo.—*From the Society.*

Seventieth Annual Report of the Regents of the University of the State of New York: transmitted to the Legislature, Jan. 2, 1857.

Annual Report of the Trustees of the New York State Library; transmitted to the Legislature, Jan. 23, 1857. Albany. 8vo.—

From the Trustees.

- The African Repository. Vol. XXXIII. No. 5. May, 1857. Washington. 8vo.—*From the American Colonization Society.*
- The American Journal of Science and Arts. Second Series. Vol. XXIII. No. 69. May, 1857. New Haven. 8vo.—*From Profs. Silliman and Dana, Editors.*
- The Medical News and Library. Vol. XV. No. 173. May, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Nuova Zoonomia, ovvero Dottrina de Rapporti Organici: del Dottore Giovanni Copello. Vol. I. Lima, 1856. 8vo.—*From the Author.*
- A Discourse on the Tendencies of Modern Science: read before the Philadelphia City Institute, Dec. 1855. 8vo.
- On the Arterial circulation: its Physiology and chief Pathological Relations. By Henry Hartshorne, M.D., &c. &c. Philadelphia, 1856. 8vo.—*From the Author.*
- Description of New Fossil Crinoidea from the Palæozoic Rocks of the Western and Southern Portions of the United States. By B. F. Shumard, M.D. St. Louis, 1857. 8vo.—*From the Author.*
- First Annual Report of the Board of Directors of the McKean and Elk Land and Improvement Company to the Stockholders. Philadelphia, 1857. 8vo.—*From Prof. John C. Cresson.*
- The Astronomical Journal: No. 102. April 22, 1857. Albany. 4to.—*From Dr. B. A. Gould, Jr., Editor.*

Mr. William Parker Foulke requested permission to make a statement in relation to some remarks of the late Mr. Hugh Miller, upon pages 171 to 175 of his recently published book, entitled "The Testimony of the Rocks." (Boston Ed. 1857.)

It appeared that Mr. Miller had so far mistaken the spirit and phraseology of a brief criticism upon his reasoning, as to believe that he had been charged with *intentional misrepresentation*. This was the less to be expected, as the criticism had been published by one of the leading scientific societies of this country as a part of its proceedings, and had been purposely guarded by express mention of "the esteem in which the character of Mr. Miller is deservedly held in the United States"—a phrase, the intended value of which was so little seen by him, that he has omitted to quote it, although originally printed in juxtaposition with the extract which he republishes.

The melancholy associations now connected with the writings of Mr. Miller, seemed to Mr. F. to suggest as proper the proffer by him

of a disclaimer of any such imputation as had been, without full consideration, supposed by the lamented author. Although grieved by that supposition, Mr. F. wished to offer to the memory of the deceased the tribute of that denial which the truth warranted; and he sought to do this here, because it especially concerned the American Philosophical Society to promote, by its influence, the maintenance of that comity which is proper to the intercourse of the friends of learning throughout the world. He did not purpose to discuss the question raised, as to the validity of the reasoning employed in the book referred to. That would be judged in due time by well informed readers. He had assumed no facts which are not stated by all the latest elementary writers on geology; and he was sure that a closer consideration of the phraseology of his criticism would have convinced Mr. Miller that not only in respect to his motives, but also in respect to the geological facts assumed, a correct acceptance of that phraseology rendered irrelevant the comments made upon it. Mr. F. requested that his disclaimer might be noticed in the next printed proceedings of the Society.

Prof. Trego, from the committee on the sale of the Hall, laid before the Society a certified copy of an act of the legislature of Pennsylvania, passed April 25, 1857, granting the assent of this Commonwealth to the purchase of the Society's Hall by the United States, for the purposes and business of courts of justice, and the offices and officers connected therewith.

The committee on the portrait of Dr. Kane reported that the painting is now nearly completed.

Stated Meeting, May 15.

Present, sixteen members.

Prof. CRESSON, Vice-President, in the Chair.

Dr. B. Howard Rand, a recently elected member, was introduced and took his seat.

Letters were read:—

From J. Lawrence Smith, dated Louisville, Ky. April 28;

and from Hugh B. Grigsby, dated Norfolk, Virginia, May 1, 1857, acknowledging the receipt of notice of their election as members of the Society:—

From the Imperial Society of Naturalists of Moscow, dated 12–24 June, 1856: from the Royal Academy of Sciences at Amsterdam, dated Aug. 27, 1856: from the Royal Society of Sciences at Upsal, dated Nov. 10, 1856: from the Royal Saxon Society of Sciences, dated Leipzig, December 31, 1856: from the Natural History Society in Emden, dated Jan. 4, 1857: from the Royal Bavarian Academy of Sciences, dated Munich, Feb. 4, 1857: and from the Natural History Society at Altenburg, dated Feb. 10, 1857, severally announcing the transmission of donations for the library:—

From the Royal Saxon Society of Sciences, dated Leipzig, Jan. 12, 1857: from the Ethnological Society of London, dated Jan. 31, 1857: from the Royal Bavarian Academy of Sciences, dated Feb. 4, 1857: and from the Boston Society of Natural History, dated May 4, 1857, returning acknowledgments for copies of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Nouveaux Mémoires de la Société Impériale des Naturalistes de Moscou; Tome X. 1855. 4to.

Bulletin de la Société Impériale des Naturalistes de Moscou: Année 1855, Nos. 2, 3, 4. 1856, No. 1. Moscou. 8vo.—*From the Society.*

Die Urkundlichen Quellen zur Geschichte der Universität Leipzig, in den ersten 150 Jahren ihres bestehens: von F. Zarncke. W. Hofmeister: Beiträge zur Kenntniss der Gefässcryptogamen, II. W. G. Hankel: Elektrische Untersuchungen. Leipzig, 1856–7. —*From the Royal Saxon Society of Sciences.*

Gelehrte Anzeigen: herausgegeben von mitgliedern der K. Bayerischen Academie der Wissenschaften. Band 42, 43. München, 1856. 4to.—*From the Royal Bavarian Academy of Sciences.*

Verhandlungen des Naturhistorischen Vereines der Preussischen Rheinlande und Westphalens. Jahrgang, XIII. 2, 3, Heft. Bonn, 1856. 8vo.—*From the Nat. Hist. Union of Rhenish, Prussia, and Westphalia.*

- Nova Acta Regiæ Societatis Scientiarum Upsaliensis. Seriei Tertiæ.
Vol. II. Fasc. 1. 1856. Upsal. 4to.—*From the Royal Society of Sciences, Upsal.*
- Verhandelingen der K. Akademie van Wetenschappen: Derde Deel.
1856. 4to.
- Verslagen en Mededeelingen der K. Akad. van Wetenschappen, III.
Deel, 3 Stuk: Afdeeling Letterkunde, I Deel, 1, 2, 3 Stuk; II.
Deel, 1 Stuk: Afdeeling Natuurkunde, IV. Deel, 1, 2, 3 Stuk; V.
Deel, 1 Stuk. Lycidas Ecloga, &c. Amsterdam. 8vo.—*From the Royal Academy of Sciences, Amsterdam.*
- Mittheilungen aus dem Osterlande: Band XIII. 1, 2 Heft. Alten-
burg. 1855-6. 8vo.—*From the Nat. Hist. Society at Alten-
burg.*
- Kleine Schriften der Naturforschenden Gesellschaft in Emden. IV.
Die Gewitter des Jahres 1855, von Dr. Prestel. 8vo.—*From the
Nat. Hist. Society in Emden.*
- Handbuch der Schifffahrtskunde: mit einer Sammlung der Seemans-
Tafeln &c., von Dr. C. Rümker. Hamburg, 1857. 8vo.
- Mittlere Oerter von 12,000 Fix-Sternen für den Anfang von 1836: von
Carl Rümker. Hamburg, 1843.
- Neue Folge der Mittleren Oerter von Fixensternen für den Anfang von
1850: von Carl Rümker.
- Meteorological Observations made at the Observatory of Hamburg:
by M. Rümker. Hamburg, 1856. *From the Author.*
- Journal of the Bath and West of England Society. Vol. I. New
Series. London, 1856. 8vo.—*From the Society.*
- Monthly Notices of the Royal Astronomical Society: Vol. XVII. No.
5. March 13, 1857. London. 8vo.—*From the Society.*
- Flora Batava, of Afbeelding en Beschrijving van Nederlandsche
Gewassen; Aflevering 181. Amsterdam. 4to.—*From the King
of the Netherlands.*
- The Terrestrial and Air-breathing Mollusks of the United States and
the adjacent territories of North America, described and illustrated
by Amos Binney. Edited by Augustus A. Gould. Vol. III.
Plates. Boston, 1857. 8vo.—*From the Executors of the will
of the late A. Binney.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIII. No.
5. May, 1857. Philadelphia. 8vo.—*From the Institute.*
- On the Relations between Chinese and the Indo-European Languages.
By S. S. Haldeman, of Columbia, Penna. (Proc. Am. Assoc.
Albany, Aug. 1856.) Cambridge. 8vo.—*From the Author.*

Report of the Director of the Mint, Jan. 31, 1857. Washington. 8vo.—*From the Hon. J. R. Snowden, Director.*

Report to the Secretary of the U. S. Navy, at Washington, of the Expedition in search of Sir John Franklin, during the years 1853-4-5: with a chart, showing the discoveries made in the Arctic Regions. By Elisha Kent Kane, M.D. U. S. N. (Geog. Soc. Lond. Jan. 1856.) 8vo.—*From the Hon. John K. Kane.*

Rapport de A. C. Buchanan, Ecuyer, Agent Principal des Emigrés, pour l'année 1855. Quebec. 8vo.—*From L. A. Huguet Latour, N. P.*

Mr. Dubois laid upon the table a lump of native gold lately received from California, and purchased for the Mint Cabinet. Its fineness is 926 thousandths; value \$43.50. The mass is dendritic in its structure, and its form is extraordinary for native gold; indeed, of the innumerable specimens heretofore received at the Mint, none like it have been noticed. There was not the least quartzose or earthy matter in the many interstices of this specimen when it was received at the Mint.

The following resolution, offered by Mr. Fraley, was read, considered, and unanimously adopted:—

Resolved, That the President and Secretary be authorized and directed, upon the receipt of the consideration money, to affix the seal of the Society to such deed or deeds of conveyance as may be necessary to grant the Hall of the Society, and the lot of ground and the appurtenances thereto belonging, to the United States, as agreed to be conveyed to them by the resolution of the Society, and the agreement made in conformity therewith, dated the 22d day of March, 1856.

Special Meeting, May 29.

Present, twenty-seven members.

Judge KANE, President, in the Chair.

Dr. Thomas F. Betton, Rev. Kingston Goddard, and Dr. Charles M. Cresson, recently elected members, were presented to the presiding officer, and took their seats.

The President announced that the meeting had been called to receive a report from the committee charged with the duty of negotiating for the purchase of a suitable property for the accommodation of the Society.

The said committee then presented a report, accompanied by the following resolutions:—

1. *Resolved*, That it is expedient to purchase the Spring Garden Hall for the uses of the Society, provided such purchase can be made on advantageous terms.

2. *Resolved*, That a committee be appointed to negotiate for, and complete such a purchase from the Corporation of the City of Philadelphia, if, in their judgment, the same can be made on terms advantageous to the Society.

Which resolutions were separately read, considered and adopted.

On motion of Dr. DUNGLISON, the committee appointed under the second of the above resolutions, is the same as that heretofore charged with the subject of procuring a suitable property for the uses of the Society, viz.—Mr. Fraley, Prof. Trego and Mr. Justice.

Stated Meeting, June 19.

Present, twenty-six members.

Dr. DUNGLISON, Vice-President, in the Chair.

Major Alfred Mordecai, of the U. S. Army, was introduced, it being his first attendance since his election as a member.

The following donations were announced:—

FOR THE LIBRARY.

Memorie dell' I. R. Istituto Lombardo di Scienze, Lettere ed Arti.
Vol. V. Milano, 1856. 4to.

Giornale dell' I. R. Istituto Lombardo. Nuova Serie. Fascicoli XXXVII—XLVI. Milano, 1855-6. *From the Royal Lombardy Institute.*

Catalogue of Stars near the Ecliptic, observed at Markree during the years 1854-5-6, and whose places are supposed to be hitherto un-

- published. Vol. IV. Containing 14,951 stars. Dublin, 1856. 8vo.—*From the Royal Society.*
- Journal of the Royal Dublin Society. Nos. IV. V. Jan. April, 1857. Dublin. 8vo.—*From the Society.*
- Quarterly Journal of the Chemical Society. Vol. X. No. 1. April, 1857. London. 8vo.—*From the Society.*
- Proceedings of the Royal Geographical Society of London. No. 6. Jan. 1857. London. 8vo.—*From the Society.*
- Jahrbuch der K. K. Geologischen Reichsanstalt. VII. Jahrgang, 1856. Nos. 2, 3. April, Sept. Wien. 8vo.—*From the Imperial Geological Institute, Vienna.*
- Archives du Muséum d'Histoire Naturelle: Tome VIII. Livr. 3, 4. Tome IX. Livr. 1, 2, 3. Paris, 1855-6. 4to.—*From the Museum of Nat. History, Paris.*
- Monthly Notices of the Royal Astronomical Society. Vol. VII. Nos. 6, 7. April, May, 1857. London. 8vo.—*From the Society.*
- Memoirs of the American Academy of Arts and Sciences. New Series. Vol. V. 1855. Vol. VI. Part 1, 1857. Boston. 4to.—*From the Academy.*
- Proceedings of the Boston Society of Natural History. Vol. V. No. 10. April, 1857. Boston. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIII. No. 6. June, 1857. Philadelphia. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXIII. No. 6. June, 1857. Washington. 8vo.—*From the American Colonization Society.*
- The Virginia Convention of 1776. A Discourse delivered before the Virginia Alpha Phi Beta Kappa Society, in the chapel of William and Mary College, in the city of Williamsburg, July 3, 1855. By Hugh Blair Grigsby. Richmond, 1855. 8vo.
- The Virginia Convention of 1829-30. A Discourse delivered before the Virginia Historical Society, at their Annual Meeting held in the Athenæum in the City of Richmond, Dec. 15, 1853. By Hugh B. Grigsby. Richmond, 1854. 8vo.—*From the Author.*
- Description of New Species of Shells, &c. (Extracts from Proc. Acad. Nat. Sci. Philadelphia.) By Isaac Lea, L.L.D. &c. &c. Philadelphia, 1857. 8vo.—*From the Author.*
- Catalogue of Human Crania in the Collection of the Academy of Natural Sciences of Philadelphia. By J. Aitken Meigs, M.D. Philadelphia, 1857. 8vo.—*From the Author.*
- Fourth Annual Report of the Secretary of the Massachusetts Board of

Agriculture: together with the Reports of the Committees appointed to visit the County Societies, &c. Boston, 1857. 8vo.
—*From C. L. Flint, Secretary.*

Annual Report of the Inspectors of the Eastern State Penitentiary of Pennsylvania; transmitted to the Senate and House of Representatives, March, 1857. Philadelphia. 8vo.—*From James J. Barclay, Esq.*

The Astronomical Journal. No. 103. May 30, 1857. Albany. 4to.—*From Dr. B. A. Gould, Jr. Editor.*

The Medical News and Library. Vol. XV. No. 174. June, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*

Description of the Observatory of Haverford College. 1857. 8vo.
—*Donor unknown.*

Prof. Frazer announced the decease of M. le Baron Cauchy, of Paris, a member of this Society, who died May 23, 1857, aged 67.

Dr. William Harris announced the decease of Mr. Thomas Biddle, of Philadelphia, a member of this Society, who died on the 3d inst. aged 81; and on motion of Dr. Harris, Dr. J. B. Biddle was appointed to prepare an obituary notice of the deceased member.

The Committee of Publication laid upon the table Vol. XI. Part 1, of the Transactions of the Society, published since the last stated meeting.

A motion was made by Prof. Frazer, that the resolutions adopted at the special meeting held on the 29th of last month, in relation to the purchase of the Spring Garden Hall, be repealed:

And, after some discussion on the subject, the following resolutions were offered by Prof. Frazer, which were read, considered and agreed to:—

Resolved, That the further consideration of the resolutions be postponed, and that it be made the subject of consideration at a special meeting to be held on the first Friday in July.

Resolved, That the Secretary be requested to give notice of the said special meeting, and of the business to be considered at it, by printed notices addressed to the resident members, at least three days before the date of the meeting.

MAGELLANIC PREMIUM

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

This premium arises from a donation made to the Society by John Hyacinth de Magellan, of London, the interest of which is annually to be disposed of in premiums, to be adjudged by the Society, according to certain regulations, to the author of the best discovery, or most useful invention relating to Navigation, Astronomy or Natural Philosophy (mere natural history only excepted).

According to the conditions prescribed by the donor, the premium shall consist of an oval plate of solid standard gold, of the value of ten guineas, with appropriate inscriptions, &c.

The candidate shall send his discovery, invention or improvement, addressed to the President or one of the Vice-Presidents of the Society, free of postage or other charges, and shall distinguish his performance by some motto, device, or other signature. He shall also send a sealed letter, containing the same motto, device or signature, and subscribed with the real name and place of residence of the author, which letter shall not be opened unless the candidate be successful.

No discovery, invention or improvement shall be entitled to this premium which has been already published, or for which the author has been publicly rewarded elsewhere.

The candidate shall communicate his discovery, invention or improvement, either in the English, French, German or Latin language.

Philadelphia, July 1, 1857.

PROCEEDINGS
OF THE
AMERICAN PHILOSOPHICAL SOCIETY.

VOL. VI. JULY—DECEMBER, 1857. No. 58.

Special Meeting, July 3.

Present, fifty-two members.

Prof. CRESSON, Vice-President, in the Chair.

The resolution adopted at the last stated meeting of the Society, directing a special meeting to be called for this evening, was read.

The object of the present meeting was stated to be the consideration of the motion offered at last meeting by Prof. Frazer, to repeal the resolutions adopted on the 29th of May last, authorizing the purchase of the Spring Garden Hall, provided such purchase can be made on terms advantageous to the Society.

The subject having been considered and debated, the question on the motion to repeal the resolutions was taken by *yeas* and *nays*; the yeas being 26, and the nays 26: so the motion to repeal was not agreed to.

Stated Meeting, July 17.

Present, seven members.

Judge KANE, President, in the Chair.

A letter was read from Tobias Wagner, dated Geneva, June 11, 1857, in relation to astronomical observations recently made at Rome by P. A. Secchi, and also announcing a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

- Annales des Mines. V. Série. Tome X. 5 livraison de 1856. Paris. 8vo.—*From the Engineers of l'École des Mines.*
- Proceedings of the American Association for the Advancement of Science. Tenth meeting, held at Albany, N. Y. Aug. 1856. Cambridge 8vo.—*From the Association.*
- Collections of the New York Historical Society. Second Series. Vol. III. Part 1. 1857. 8vo.
- The Dutch at the North Pole and the Dutch in Maine: A Paper read before the New York Historical Society, March 3, 1857, by J. Watts De Peyster, a member of the Society. New York. 8vo.—*From the Society.*
- Proceedings of the American Antiquarian Society, at the Semi-annual meeting held in Boston, April 29, 1857. Boston. 8vo.—*From the Society.*
- Minutes of the Proceedings of the Quarantine Convention, held at Philadelphia by invitation of the Philadelphia Board of Health, May 13–15, 1857. Philadelphia. 8vo.—*From the Committee of Publication.*
- The African Repository. Vol. XXXIII. No. 7. July, 1857. Washington. 8vo.—*From the Am. Colonization Society.*
- The American Journal of Science and Arts. Second Series. Vol. XXIV. No. 70. July, 1857. New Haven. 8vo.—*From Professors Silliman & Dana, Editors.*
- The American Journal of the Medical Sciences. No. LXVII. New Series. July, 1857. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XV. No. 175. July, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Report of the Superintendent of the Coast Survey, showing the progress of the Survey during the year 1855. Washington. 4to.—*From Prof. A. D. Bache, Superintendent.*
- Notice of some Remarks by the late Mr. Hugh Miller, Author of the "Testimony of the Rocks," "The Old Red Sandstone," &c., &c. Philadelphia, 1857. 8vo.—*From W. P. Foulke, Esq.*
- Nieuwe Verhandelingen van het Bataafsch Genootschap der Proefondervindelijke Wijsbegeerte te Rotterdam. IX. Deel, 2 Stuk: X. Deel: XI. Deel: XII. Deel, 1 Stuk. Rotterdam, 1849–1851. 4to.—*From the Batavian Society of Experimental Philosophy.*

An Account of the Smithsonian Institution, its Founder, Building, Operations &c., prepared from the Reports of Prof. Henry to the Regents, and other authentic sources. By William J. Rhees. Washington, 1857. 8vo.—*From the Institution.*

Prof. Trego announced the decease of the Hon. Langdon Cheves, a member of this Society, who died at Columbia, S. C. on the 25th of June last, in the 81st year of his age.

The balloting for candidates for membership being the next business in order, nomination No. 374 was postponed on the written request of Prof. Frazer, and the ballot proceeded with on a remaining nomination.

The committee appointed on the 7th of November last, on the testamentary bequest of M. François André Michaux, and the trusts described in his will, made a report, accompanied by the following resolution:—

Resolved, That the “American Philosophical Society held at Philadelphia, for promoting useful knowledge,” accepts, with gratitude, the legacy bequeathed by M. F. André Michaux, in his will, dated September 4, 1855, for the purposes therein mentioned, and that the officers of the Society be directed to furnish such proofs as may be necessary to establish the right of the Society to receive the said legacy.

Which resolution was read, considered and adopted.

All other business having been concluded, the ballot box was opened by the presiding officer, who declared that E. SPENCER MILLER, Esq., of Philadelphia, was duly elected a member of the Society.

Stated Meeting, August 21.

Present, nine members.

Judge KANE, President, in the Chair.

Letters were read:—

From E. Spencer Miller, dated July 30, 1857, acknowledging the receipt of notice of his election as a member of the Society:—

From the Cambridge Philosophical Society, dated Feb. 26, 1857; and from the Royal Geographical Society, dated April 2, 1857, both announcing donations for the library:—

From Prof. Zantedeschi, dated Padua, July 6, 1857, on the subject of the electro-telegraphic current, and announcing the transmission of sundry publications written by himself on that and other subjects:—

From the Royal Geographical Society of London, dated November 29, 1856; and from the Royal Society of Sciences at Göttingen, dated April 18, 1857, both acknowledging the receipt of Nos. 53 and 54 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Astronomical and Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the year 1855: under the direction of George Biddell Airy, Esq., M. A. Astronomer Royal. London, 1857. 4to.—*From the Royal Society of London.*

Journal of the Royal Geographical Society. Vol. XXVI.

Proceedings of Do. Nos. 7, 8, Feb., March, 1857. London. 8vo.
—*From the Society.*

Transactions of the Cambridge Philosophical Society. Vol. IX. Part 4. Cambridge, 1856. 4to.—*From the Society.*

Abhandlungen der K. Akademie der Wissenschaften zu Berlin, aus dem Jahre 1855. 4to.

Monatsberichte der K. Akademie der Wissenschaften zu Berlin, Jan.—Dec. 1856. 8vo.—*From the Royal Academy of Sciences at Berlin.*

Nachrichten von der Georg-Augusts-Universität und der Königl. Gesellschaft der Wissenschaften zu Göttingen. Jahre 1856. No. 1-18. Göttingen. 8vo.—*From the Royal Society of Sciences at Göttingen.*

Annales des Mines. V. Série. Tome X. 4 livraison de 1856. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Monthly Notices of the Royal Astronomical Society. Vol. XVII. No. 8. June, 1857. London. 8vo.—*From the Society.*

Proceedings of the Boston Society of Natural History. Vol. VI. 12, 13, June, July, 1857. Boston 8vo.—*From the Society.*

Annals of the Astronomical Observatory of Harvard College. Vol. II. Part 1: Observations on the Planet Saturn, made with the

- twenty-three foot Equatorial, 1847—1857. By William Cranch Bond, A. M. Director of the Observatory. Cambridge, 1857. 4to.—*From the Observatory.*
- Fifth Annual Report of the Free Public Library of New Bedford, April 4, 1857. New Bedford. 8vo.—*From the Trustees.*
- Thirty-sixth Annual Report of the Mercantile Library Association of the City of New York:—With the Report of the Trustees of the Clinton Hall Association. New York, 1857. 8vo.—*From the Directors.*
- The African Repository. Vol. XXXIII. No. 8. August, 1857. Washington. 8vo.—*From the Am. Colonization Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIV. No. 1, July: No. 2, Aug. 1857. Philadelphia. 8vo.—*From the Institute.*
- Studies in Organic Morphology: An Abstract of Lectures delivered before the Pottsville Scientific Association in 1855 and 1856, by John Warner. Philadelphia. 8vo.—*From the Association.*
- Memorie del Osservatorio dell'Universita Gregoriana in Collegio Romano, diretto dai P. P. della Compagnia di Gesu. Anno 1850—51.
- Memorie del Nuovo Osservatorio del Collegio Romano. Anno 1852—55.
- Pontifica Corrispondenza Meteorologica Telegrafica in Roma. Primo Semestre—Luglio—Dicembre, 1855. Breve Ragguaglio del P. A. Secchi, Direttore del Osservatorio del Collegio Romano.
- Ricerche sull'Attuale Valore della Declinazione Magnetica in Roma: Memoria del P. A. Secchi, Dir. Oss. Coll. Rom. 1854.
- Intorno ad un Nuovo Barometrografo:—Memoria del P. Angelo Secchi. 1857. Roma. 4to.—*From P. Angelo Secchi.*
- Note sur les Courants Electriques dirigés en sens opposé sur le même fil, en relation avec la telegraphie:—par M. Zantedeschi. Risposta del Prof. F. Zantedeschi ai cenni della Relazione del Sig. Dott. Gintl, intorno al contemporaneo passaggio delle correnti opposte in un solo filo:—De mutationibus quæ contingunt in spectro solari fixo: elucubratio Prof. Francesco Zantedeschi:—Delle Irradiazioni Chimiche, e della necessita del loro foco separato da quello delle irradiazioni calorifiche e luminose al conseguimento della purezza e perfezione delle prove fotografiche negative ottenute coi ioduri d'argento: Memorie III. dei Signori Zantedeschi e Borlinetto:—Dei limita di impressionabilita delle sostanze fotografiche dell'influenza delle superficie nei fenomeni fotogenicé, della loro chimica natura, dei miglioramenti apportati all'arte eliogra-

fica: Memorie IV. dei Signori Zantedeschi e Borlinetto:—Sull'Influenza del Vuoto e di alcuni gaz ne fenomeni chimice che presentano i ioduri d'argento esposti alla luce solare: Memorie V. di S. S. Zantedeschi e Borlinetto:—Di alcuni nuovi esperimenti co'quali si e creduto di comprovare la non simultanea esistenza di due correnti opposte sul medesimo filo conduttore: nota di P. Zantedeschi:—Risultamenti ottenuti da un Giroscopio: di Prof. Zantedeschi a Padua.—*From Prof. Zantedeschi.*

Appendix No. 28. On the general distribution of Terrestrial Magnetism in the United States, from observations made in the U. S. Coast Survey and others: By A. D. Bache Superintendent, and J. E. Hilgard, Assistant U. S. Coast Survey. Washington. 4to.—*From Prof. A. D. Bache.*

Specimens of Tables, calculated, stereomoulded and printed by machinery. (Swedish Calculating Machine). London, 1857. 8vo.—*From Edward Scheutz.*

On the Cyclones or Typhoons of the North Pacific Ocean: with a Chart showing their courses of progression. By W. C. Redfield. (Am. Jour. Sci. and Arts, July, 1857.) 8vo.—*Donor unknown.*

The Astronomical Journal: No. 104. (Vol. V. No. 8.) June 30, 1857. Albany. 4to.—*From Dr. B. A. Gould, jr., Editor.*

The Medical News and Library. Vol. XV. No. 176. Aug. 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*

Smithsonian Contributions to Knowledge. Vol. IX. Washington, 1857. 4to.

Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures and Condition of the Institution for the year 1856, and the Proceedings of the Board up to January 28, 1857. Washington. 8vo.—*From the Institution.*

Mr. Ord announced the decease of Charles Lucien Bonaparte, Prince of Canino, a member of this Society, who died at Paris, July 29, 1857, aged 54: and, on motion of Dr. William Harris, Mr. Ord was appointed to prepare an obituary notice of the deceased member.

The letter from Prof. Zantedeschi, read this evening, informs the Society that he has sent to them a copy of his treatise on a system of Telegraphs for Locomotives and Rail Roads, and of his "Telegraph of double simultaneous correspondence upon the same wire by direct successive currents of simultaneous derivation." As the priority of

this discovery has been claimed by others, he communicated to the Institute of France, published documents of a date proving his right to it, and invited all who might have preceded him by similar publications, to establish their right to the priority. No response having been made, he considers himself entitled to the credit of the discovery, and sends to the Society a copy of his communication to Dr. Gintl, in which he invited all the claimants to reply.

He prays the Society to call the attention of those in this country, who may have a knowledge of the subject, to his "Telegraph of double correspondence by direct successive currents of simultaneous derivation," so that experiments with regard to it may be made upon the great telegraphic line which is to connect America with Europe. He expresses his belief, that on a single internal conducting wire, a simultaneous correspondence of America with Europe, and of Europe with America, may be successfully accomplished;—and that, by multiplying the apparatus, opposite despatches from the two continents may be distinctly transmitted simultaneously.

The pamphlet containing a description of his telegraph is in the library of the Society, and if drawings to illustrate it should be desired, he offers to send them.

He concludes by referring to the pleasure it would give him to be aided in this matter by the countrymen of Franklin, who was the first to extend a line connecting the heavens with the earth.

This letter of Prof. Zantedeschi gave rise to some discussion on the subject of the passage of electric currents, in which Mr. Justice, Judge Kane, and Dr. F. Bache, participated.

Stated Meeting, September 18.

Present, thirteen members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read:—

From the Massachusetts Historical Society, dated Boston, June 8, 1857, acknowledging the receipt of Vol. XI. Part 1, of the Transactions of this Society: and—

From G. B. Airy, Astronomer Royal, dated Royal Obser-

vatory, Greenwich, August 8, 1857, announcing a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

- Legislative Documents and Laws of Wisconsin, 1854-5-6. 25 vols.
 Transactions of the Wisconsin State Agricultural Society, 1852-3.
 2 vols.
- History of Rock County and Transactions of the Rock County Agricultural Society and Mechanics Institute. 1856.
- History of Wisconsin, by William R. Smith. Vol. III. 1854.
- Collections of the Wisconsin Historical Society. Vol. I. 1854.
 Vol. II. 1855.
- Wisconsin Gazetteer, by John Warren Hunt. 1853.
- Milwaukie Directory, 1856-7:—Madison Directory, 1855.
- With a large collection of Pamphlets relating to the History, Statistics, Politics, &c., of Wisconsin—and a number of Maps.—*From the State Historical Society of Wisconsin.*
- Proceedings of the Elliott Society of Natural History at Charleston, S. C. No. 7. Nov. 1856—Apr. 1857. Charleston. 8vo.
 —*From the Society.*
- Quarterly Journal of the Chemical Society. No. XXXVIII. Vol. X. 2. July, 1857. London. 8vo.—*From the Society.*
- The American Journal of Science and Arts. Vol. XXIV. Second Series. No. 71. Sept. 1857. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*
- Proceedings of the Boston Society of Natural History. Vol. VI. 14, 15. Aug. 1857. Boston. 8vo.—*From the Society.*
- The African Repository. Vol. XXXIII. No. 9. Sept. 1857. Washington. 8vo.—*From the Am. Colonization Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIV. No. 3. Sept. 1857. Philadelphia. 8vo.—*From the Institute.*
- Maury's Wind and Current Charts: Gales in the Atlantic. Observatory, Washington, May, 1857. 4to.—*From the Observatory, Washington.*
- M. le Baron Cauchy: Lettre de M. Biot à M. de Falloux, Membre de l'Académie Française. Paris, 1857. 8vo.—*From the Family of M. Cauchy.*
- Climatology of the United States and of the Temperate Latitudes of the North American Continent: embracing a full comparison of these with the Climatology of the Temperate Latitudes of Europe

and Asia,—and especially in regard to Agriculture, Sanitary Investigation and Engineering: With Isothermal and Rain Charts for each season, the extreme months, and the year, &c., &c. By Lorin Blodget, Author of several recent reports on American Climatology, Member of the National Institute &c. &c. Philadelphia, 1857. Svo.—*From the Author.*

Ricerca sul Calorico Raggiante, del Prof. Zantedeschi. Wien, 1857. Svo.—*From the Author.*

Report on the Recent Contributions of Chemistry to the Medical Profession:—Read before the Pathological Society of Baltimore, June 16, 1857, by Dr. Lewis H. Steiner. Richmond, Va. Svo.—*From the Author.*

The Life of John Fitch, the Inventor of the Steamboat. By Thompson Westcott. Philadelphia, 1857. Svo.—*From the Author.*

Statistical Information relative to certain Branches of Industry in Massachusetts, for the year ending June 1, 1855; by Francis R. De Witt, Secretary of the Commonwealth:—With a collection of 38 Pamphlets relative to the Statistics, Public and Charitable Institutions, &c. of Massachusetts.—*From Dr. Edward Jarvis.*

The Astronomical Journal. No. 105. (Vol. V. No. 9.) Aug. 28, 1857. Albany. Svo.—*From Dr. B. A. Gould, jr., Editor.*

The Medical News and Library. Vol. XV. No. 177. Sept. 1857. Philadelphia. Svo.—*From Blanchard & Lea.*

Dr. Franklin Bache announced the decease of Dr. John Ludlow, a member of the Society.

And also of Dr. Marshall Hall, another member, who died on the 11th of August last, aged 68.

Prof. Vethake was appointed to prepare an obituary notice of Dr. Ludlow.

A communication was received and read, signed by 28 members of the Society who were not present at the special meeting held July 3, 1857, requesting to have their names registered “as being in favour of the repeal of the resolution adopted at the special meeting held on the 26th of June (May 29), which resolution authorizes the purchase of the Spring Garden Hall for the uses of the Society.”

The communication, with the names of the signers, was ordered to be recorded on the minutes.

Stated Meeting, October 2.

Present, twelve members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Royal Academy of Sciences, &c. at Brussels, dated Jan. 15, 1856, and from the same, dated Feb. 1, 1857, acknowledging the receipt of Nos. 51 to 54, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Mémoires de l'Académie Royale des Sciences, des Lettres et des Beaux Arts de Belgique. Tome XXX. Bruxelles, 1857. 4to.

Mémoires Couronnés et Mémoires des Savants Etrangers, publiés par l'Académie Royale de Belgique. Tome XXVII. 1855-6. Tome XXVIII. 1856. 4to.

Bulletins de l'Académie Royale de Belgique. Tome XXII. 2 Partie, 1855. Tome XXIII. Parties 1, 2. 1856. 8vo.

Annuaire de l'Académie Royale de Belgique, 1856, 1857. 8vo.

—*From the Royal Academy of Sciences &c. at Brussels.*

Annales de l'Observatoire Royal de Bruxelles, publiées par le Directeur, A. Quetelet. Tome XI. 1857. Bruxelles. 4to.—*From the Observatory.*

Observations des Phénomènes Périodiques. (Mem. Tome XXX.)

Annuaire de l'Observatoire Royal de Bruxelles: par A. Quetelet, Directeur. 1856, 1857.

Notices extraites de l'Annuaire: par A. Quetelet, Directeur.

Rapport adressé à M. le Ministre de l'Intérieur, sur l'état et les travaux de l'Observatoire Royal, pendant l'année 1856: par le Directeur A. Quetelet.

Notice sur G. J. A. Baron de Stassart, 1854: sur Philippe Lesbroussart, 1855: et Dominique François Jean Arago, 1855: par A. Quetelet. 8vo.—*From the Author.*

The Astronomical Journal. No. 106. (Vol. V. 10.) Sept. 11, 1857. Albany. 4to.—*From Dr. B. A. Gould, jr., Editor.*

Stated Meeting, October 16.

Present, six members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read:—

From the Director of the Central Physical Observatory of Russia, dated St. Petersburg, Dec. 19–31, 1856; and from the Imperial Academy of Sciences at Vienna, dated April 10, 1857, announcing the transmission of donations for the library: and—

From the Imperial Academy of Sciences at Vienna, dated April 10, 1857, returning thanks for Nos. 53 and 54 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Sitzungsberichte der K. Akademie der Wissenschaften:—Phil. Hist. Classe, XXI. Band, 3 Heft. XXII. Band, 1, 2 Heft. Math. Nat. Classe, XXII. Band, 1, 2, 3 Heft. XXIII. Band, 1 Heft.

Almanach der K. Akademie der Wissenschaften: Jahrgang XVII. 1854. Wien. 8vo.—*From the Imperial Academy of Sciences, Vienna.*

Compte Rendu Annuel, adressé à S. Exc. M. de Brock, Ministre des Finances, par le Directeur de l'Observatoire Physique Central, A. T. Kupffer. Année 1855. St. Petersburg. 4to.—*From the Director.*

Observations made at the Magnetical and Meteorological Observatory at Toronto, in Canada. Printed by order of Her Majesty's Government, under the Superintendence of Maj. Gen. Edward Sabine, R. A. Vol. III. 1846–7–8; with Abstracts of Observations to 1855, inclusive. London, 1857. 4to.—*From the British Government.*

Astronomical and Meteorological Observations made at the Radcliffe Observatory, Oxford, in the year 1855; under the superintendence of Manuel J. Johnson, M. A. Radcliffe Observer. Vol. XVI. Oxford, 1856. 8vo.—*From the Radcliffe Trustees.*

Verhandlungen des Naturhistorischen Vereines der Preussischen Rheinlande und Westphalens. Herausgegeben von Prof. Dr.

- Budge. XIII. Jahrgang, 4 Heft: XIV. Jahrgang, 1 Heft. Bonn. 1856-7. 8vo.—*From the Nat. Hist. Union of Rhenish Prussia and Westphalia.*
- Almanaque Nautico, para el año 1858, calculado de orden de S. M. en el Observatorio Marina de la Ciudad de S. Fernando. Cadiz, 1856. 8vo.—*From the Marine Observatory of San Fernando.*
- Documents relative to the Colonial History of the State of New York, procured in Holland, England and France, by John Romeyn Brodhead, Esq., Agent. Edited by E. B. O'Callaghan, M.D. L.L.D. Vol. VIII. Albany. 4to.
- Catalogue of the New York State Library, 1856. 8vo.
- Tenth Annual Report of the Regents of the University of the State of New York, on the Condition of the State Cabinet of Natural History, and the Historical and Antiquarian Collection connected therewith: Made to the Senate, March 11, 1857. Albany. 8vo.—*From the Regents.*
- Transactions of the Albany Institute. Vol. IV. Part 1. Albany, 1857. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXIII. No. 10. Oct. 1857. Washington. 8vo.—*From the Am. Colonization Society.*
- Charts: Track Survey of the rivers Salado, Parana and Colastiné:—Mouths of Parana and Uruguay:—Track Survey of the river Parana. Surveyed by Commander Thomas J. Page, U. S. S. Water Witch, 1855.—*From the Author.*
- Journal of the Proceedings of the Seventy-third Convention of the Protestant Episcopal Church, in the Diocese of Pennsylvania, held in St. Luke's Church, Philadelphia, May 25-27, 1857. Philadelphia. 8vo.
- Christian Oneness: The Sermon preached before the Seventy-third Annual Convention of the Protestant Episcopal Church in Pennsylvania; preached in St. Luke's Church, May 27, 1857, by the Rev. Edmund Leaf, Rector of Christ Church, Pottstown, &c. Philadelphia. 8vo.—*From James J. Barclay, Esq.*
- The American Journal of the Medical Sciences. No. LXVIII. New Series. October, 1857. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XV. No. 178. October, 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*
- An Engraved Portrait of François André Michaux, from an original painting belonging to Dr. Joseph Carson, of Philadelphia.—*From Elias Durand.*

Prof. Trego announced the decease of the Hon. Louis M'Lane, a member of this Society, who died at Baltimore, on the 7th instant, aged 72.

Dr. R. E. Rogers made a communication on the mode of securing more certain and effectual results from the operation of electrical machines; and laid before the Society a drawing of a machine of his own invention, which he believes will operate much more effectually than the machines in ordinary use; the peculiar feature being the rapid motion given to the rubbers and the points, instead of the plate or the cylinder, as in common electrical machines.

The Society then proceeded to the stated business of the meeting, the balloting for candidates for membership.

Prof. Trego, reporter for the Proceedings of the Society, laid upon the table No. 57, published since the last meeting.

All other business having been concluded, the ballot box was opened by the presiding officer, and Capt. ANDREW A. HUMPHREYS, of the U. S. Topographical Engineers, was declared to be duly elected a member of the Society.

Stated Meeting, November 6.

Present, nineteen members.

Judge KANE, President, in the Chair.

Letters were read:—

From the Society of Antiquaries, dated London, July 7, 1857, and from Captain Charles Wilkes, U. S. N., both announcing donations for the library:—

From the Smithsonian Institution, dated Washington, June, 1857, returning acknowledgment for Part 1, Vol. XI. of the Transactions of the Society:—

From the Historical Society of Pennsylvania, dated Philadelphia, Oct. 12, 1857: from the Connecticut Historical Society, dated Hartford, Oct. 19, 1857: from the Corporation of Harvard College, dated Cambridge, Oct. 23, 1857: and from

the Academy of Science, of St. Louis, dated Oct. 31, 1857, severally returning thanks for No. 57, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Archæologia, or Miscellaneous Tracts relating to Antiquity: published by the Society of Antiquaries of London. Vol. XXXVI. Part 2. Vol. XXXVII. Part 1. London, 1857. 4to.

Proceedings of the Society of Antiquaries of London. Vol. III. Nos. 43, 44, 45: Vol. VI. No. 46:—with lists of the Society, April 23, 1856,—and April 23, 1857. London. 8vo.—*From the Society.*

Proceedings of the Royal Geographical Society of London. No. 9. Apr. May, 1857. London. 8vo.—*From the Society.*

Tables de la Lune, construites d'après le Principe Newtonien de la Gravitation Universelle: par P. A. Hansen, Directeur de l'Observatoire Ducal de Gotha. Londres, 1857. 4to.—*From the Lords Commissioners of the British Admiralty.*

Catalogue of the Officers and Students of Harvard University, for the Academical year 1857–8. First Term. Cambridge. 8vo.—*From the University.*

Theory of the Zodiacal Light. By Charles Wilkes, U. S. N. Read before the Meeting of the American Association for the Advancement of Science, at Montreal, August, 1857. Philadelphia. 4to.—*From the Author.*

Prize Essay on the Stereoscope. By William O. Lonie, A. M. F. E. J. S. &c. London, 1856. 8vo.—*From Mr. William Sharswood.*

On the Limitation of Actions, and of Liens against Real Estate in Pennsylvania. By Eli K. Price. Philadelphia, 1857. 8vo.—*From the Author.*

Elements of Logic: designed as a Manual of Instruction. By Henry Coppée, A. M. Prof. Eng. Lit. Univ. Pennsylvania. Philadelphia, 1858. 8vo.—*From the Author.*

Astronomical Journal. No. 107. (Vol. V. No. 11). Oct. 24, 1857. Albany. 4to.—*From the Editor.*

The Gospels written in the Negro Patois of English, with Arabic characters, by a Mandingo slave in Georgia: A paper read before the Ethnological Society of New York, Oct. 13, 1857; by W. B. Hodgson, Esq. of Savannah. 8vo.—*Donor unknown.*

The American Journal of Science and Arts. Second Series. Vol. XXIV. No. 72. Nov. 1857. New Haven. 8vo.—*From the Editors.*

Report of the Secretary of War, communicating in compliance with a resolution of the Senate, of Feb. 2, 1857, information respecting the purchase of Camels for the purposes of Military Transportation. Washington, 1857. 8vo.—*From Major H. C. Wayne, U. S. A.*

Major Wayne, of the U. S. Army, having been introduced to the Society, made a communication relative to the introduction of the camel into the south-western territories of the United States.

He referred to the efforts made to induce the government to attempt the introduction of the camel into our country; to the antiquity of the uses of this animal, and its peculiar adaptation to an arid and sterile region. He gave an account of the preliminary measures taken by himself and others entrusted by the government with the execution of the project; and of his visits to England and France in pursuit of information concerning the best means of carrying it into effect.

He next spoke of the habits and capacity of the camel as a useful animal, and of its great endurance under privations of food and water, often going for six or seven days without drink, and sometimes as long as ten days—remarking, at the same time, upon the easy and economical manner in which it may be subsisted.

He pointed out the errors of Buffon, in his account of the camel and dromedary, the latter name being unknown in the east. He showed that both animals are properly camels, the variety with one hump being used for riding. Its ordinary speed is about 60 miles in a day's journey of eight hours; but it may be made to perform more than this. The most useful camel of burden is a cross breed between the two varieties.

He referred to the peculiar conformation of the camel's stomach, and to the physiological examinations which demonstrate its structure. The hump of the camel is composed of a gelatinous fatty substance, which, during long abstinence, is absorbed, and appears to act as a source of sustenance. The eye is of a peculiar formation, enabling the animal to look downward and on both sides, almost without turning its head. The yielding nature of its spongy foot enables it to tread safely over rough and stony paths, where the horse would travel

with great difficulty. The flesh of the camel forms a palatable and nourishing article of food, and its milk is as good for use as that of the cow.

The camels introduced into Texas by Major Wayne have done well; only two having died of acclimatory disease since their introduction. He left Smyrna with thirty-three, of which number one died on the passage. Six young ones were born during the voyage, of which four died. The number landed was thirty-four, being one more than were on board when the vessel left Smyrna.

Major Wayne considers the climate and vegetation of Texas to be as well adapted to the camel as those of Asia, and thinks the chief inconvenience will be found in the scarcity of grain, particularly of barley, a common food of the camel in the east.

He then referred to some practical performances of the camels in Texas, showing the advantages of their employment as beasts of burden; and advanced arguments in favour of the opinion that, owing to the expense and difficulties of constructing a rail road across the continent, either by the government or by individuals, the employment of the camel must, for some time at least, be mainly relied upon as a means of transportation.

Prof. Frazer, after referring to the interesting and instructive nature of the communication just made by Major Wayne, moved that the thanks of the Society be presented to him for the remarks made by him this evening, on the introduction of the camel into the United States; which motion was unanimously agreed to.

Stated Meeting, November 20.

Present, twenty-three members.

Prof. CRESSON, Vice-President, in the Chair.

A letter was read from Prof. Zantedeschi, dated Padua, Oct. 19, 1857, accompanying a communication "On the correlation of chemical forces with the refrangibility of radiations."

Also one from the Corporation of Yale College, dated New Haven, Oct. 30, 1857, acknowledging the receipt of No. 57, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

- Mémoires de l'Académie Impériale des Sciences de St. Petersbourg.
VI. Série: Sciences, Politiques, Histoire, Philologie, Tome VIII.
Tome IX. 2 Partie. Sciences Naturelles, Tome VII. 1855. 4to.
Mémoires présentés à l'Académie Impériale des Sciences de St. Petersbourg, par divers Savants, et lus dans ses assemblées. Tome VII. 1854. 4to.
- Comptes Rendus de l'Académie Impériale des Sciences de St. Petersbourg, 1852-3-4-5. St. Petersbourg. 8vo.—*From the Academy.*
- Exposition des opérations faites en Lapponie pour la détermination d'un arc du méridien, en 1801, 1802, and 1803; par Messrs. Ofverboom, Svanberg, Holmquist et Palander. Redigée par Jöns Svanberg, Mem. Acad. Roy. Sci. Stockholm, &c. Stockholm, 1805. 8vo.—*From the Royal Academy of Sciences, Stockholm.*
- Zweiundvierzigster Jahresbericht der Naturforschenden Gesellschaft in Emden, für 1856.—*From the Natural History Society of Emden.*
- Proceedings of the New Jersey Historical Society. Vol. VIII. No. 2. 1856. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIV. No. 5. November, 1857. Philadelphia. 8vo.—*From the Institute.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVII. No. 9. July 10, 1857. London. 8vo.—*From the Society.*
- Memorial of the Inauguration of the Statue of Franklin:—prepared and printed by authority of the City Council of Boston, 1857. 8vo.—*From the City of Boston.*
- Report of the Commissioner of Patents, for the year 1856. *Arts and Manufactures*, 3 vols. *Agriculture*, 1 vol. Washington. 8vo.—*From the Commissioner of Patents.*
- The African Repository. Vol. XXXIII. No. 11. Nov. 1857. Washington. 8vo.—*From the Am. Colonization Society.*
- Surgical Reports and Miscellaneous Papers on Medical Subjects. By George Hayward, M. D. Pres. Mass. Med. Soc. &c. Boston, 1855. 8vo.—*From the Author.*
- Experimental Researches relative to the nutritive value and physical effects of Albumen, Starch and Gum, when singly and exclusively used as food:—being one of the Prize Essays of the American Medical Association for 1857. By William A. Hammond, M.D.

Assistant Surgeon U. S. A. Cor. Mem. Acad. Nat. Sci. Philadelphia. 8vo.—*From the Author.*

Address on the Scientific Life and Labours of William C. Redfield, A.M. First President of the American Association for the Advancement of Science:—delivered before the Association at their Annual Meeting in Montreal, Aug. 14, 1857: By Denison Olmstead, L.L.D. Prof. Nat. Phil. and Astron. Yale College. New Haven. 8vo.—*From Mr. John H. Redfield.*

Philips and Robinson's Municipal Telegraph: to which is invited the attention of the Municipal Authorities, Fire Departments, Property Owners, Insurance Companies, and Citizens of all large cities. Philadelphia, 1857.—*From Dr. Lawrence Turnbull.*

The Medical News and Library. Vol. XV. No. 179. Nov. 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*

The letter of Prof. Zantedeschi, read this evening, with the communication accompanying it, was referred to a committee, consisting of Prof. A. D. Bache, Prof. Frazer, and Prof. Cresson.

The decease of Mr. Charles M'Euen, a member of the Society, was announced as having occurred on the 18th inst.

Prof. A. D. Bache made some remarks upon the estimable character of the deceased member, and spoke of his devotion to objects of science.

Judge Kane bore testimony to the liberality of Mr. M'Euen in promoting scientific research, by granting to others the use of instruments belonging to him, and gave an instance of this in his having supplied Dr. E. K. Kane with a number of instruments for use on his Arctic expedition.

The proceedings of the Board of Officers and Council at their late meeting, were read.

Stated Meeting, December 4.

Present, ten members.

Prof. FRAZER, Vice-President, in the Chair.

Letters were read from the Natural History Union of Rhenish Prussia and Westphalia, dated Bonn, April 20, 1857; one

announcing a donation for the library, and the other returning thanks for Nos. 53, 54, of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Rapport des Commissaires des Travaux Publics du Canada, 1855, 1856.

Rapport des Inspecteurs du Pénitencier Provincial, 1855.

Rapport et Comptes de la Compagnie du Grand Tronc de Chemin de Fer du Canada, Apr. 23, 1857.

Rapport spécial sur les mesures qui ont été adoptées pour l'établissement d'une Ecole Normale, &c. July 24, 1847.

Extraits du Rapport sur l'Exposition de Paris, relativement aux produits du Canada, 1857.

Rapport de A. C. Buchanan, Ecuyer, Agent principal des Emigrés, 1855.

Reponses aux adresses de l'Assemblée Legislative, 1856, 1857.

Second Rapport sur l'Exploration des lacs Supérieur et Huron, par le Comte de Rottermund, 1857.

Twenty-ninth Annual Report of the Natural History Society of Montreal, May 18, 1857.—*From M. L. A. Huguet Latour, N. P. of Montreal.*

Proceedings of the Boston Society of Natural History. Vol. VI. 16. Oct. 1857. Boston. 8vo.—*From the Society.*

The Medical News and Library. Vol. XV. No. 180. Dec. 1857. Philadelphia. 8vo.—*From Blanchard & Lea.*

The Treasurer presented his annual report, which was read, and referred to the Committee on Finance.

The annual report of the Committee of Publication was also presented and read.

Stated Meeting, December 18.

Present, twelve members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Capt. A. A. Humphreys, dated Washington, Dec. 7, 1857, acknowledging the receipt of notice of his election as a member of the Society: and—

From the Central Commission of Statistics of Belgium, dated Brussels, June 30, 1854, and Nov. 10, 1855, accompanying donations for the library.

The following donations were announced:—

FOR THE LIBRARY.

- Bulletin de la Commission Centrale de Statistique; Tome V. Tome VI. Parties 1, 2. Bruxelles, 1853-4-5. 4to.—*From the Central Commission of Statistics of Belgium.*
- Bulletin de la Société de Géographie. IV. Série. Tome XIII. Paris, 1857. 8vo.—*From the Geographical Society of Paris.*
- Proceedings of the American Antiquarian Society, at the Annual Meeting held in Worcester, October 21, 1857. Boston. 8vo.—*From the Society.*
- Charts:—Track Survey of the river Paraguay; sheets No. 11, 12, 13. Surveyed by Commander Thomas J. Page, U. S. S. Water Witch, 1855.—*From the U. S. Navy Department.*
- Reformatory Education: Papers on Preventive, Correctional and Reformatory Institutions and Agencies in different countries. By Henry Barnard, L. L. D. Part 1, European States. Part 2, United States. Hartford, 1857. 8vo.—*From the Managers of the House of Refuge.*
- Directory of the Borough of West Chester, for 1857-8; containing a complete History of the Borough, from its settlement to the present time; the names of all the inhabitants, &c., &c. West Chester. 8vo.—*From Dr. William Darlington.*
- The Astronomical Journal. No. 108. (Vol. V. No. 12). Dec. 11, 1857. Albany. 4to.—*From Dr. B. A. Gould, jr., Editor.*
- The Evangelical Repository. Vol. XVI. Nos. 4, 5, 6, 7, Sept. Oct. Nov. Dec. 1857. Philadelphia. 8vo.—*From Mr. Wm. S. Young.*

The committee to which was referred the letter and communication of Prof. Zantedeschi, read on the 20th of last month, made report, recommending the publication of the memoir in the Transactions of the Society, which was ordered, and the committee discharged.

The Committee on Finance presented their annual report, which was read. They recommend the following appropriations, which were ordered to be made:—For Journals, \$50; Hall, \$100; Binding, \$50; Publication, \$400; General Account, \$1500.

P R O C E E D I N G S
O F T H E
A M E R I C A N P H I L O S O P H I C A L S O C I E T Y .

VOL. VI.

JANUARY—JUNE, 1858.

No. 59.

Stated Meeting, January 1.

Present, eleven members.

The President and Vice-Presidents being absent, Dr. Franklin Bache was called to the chair.

The annual election for officers of the Society having been held this day, the judges and clerks of the said election presented their report, by which it appeared that the following named gentlemen were elected.

President.

John K. Kane.

Vice-Presidents.

Robley Dunglison,
John C. Cresson,
Isaac Lea,

(In place of Prof. Frazer, who declined a re-election.)

Secretaries.

Charles B. Trego,
E. Otis Kendall,
Frederick Fraley,
John L. Le Conte.

Members of the Council for Three Years.

Alfred L. Elwyn,
John Bell,
Henry Coppée,
Edward King.

Curators.

Franklin Peale,
M. Fisher Longstreth,
Elias Durand.

Treasurer.

Charles B. Trego.

Letters were read:—

From the Royal Society of Edinburgh, dated Dec. 1, 1856, returning thanks for No. 53 of the Proceedings of this Society: and—

From the Proprietors of the Bowditch Library, dated Boston, November, 1857, acknowledging the receipt of No. 55 and 56 of the Proceedings, and Part 1, Vol. XI. of the Transactions.

The following donations were announced:—

FOR THE LIBRARY.

- Transactions of the Royal Society of Edinburgh. Vol. XXI. Part 4, for the session of 1856-7. 4to.
- Proceedings of the Royal Society of Edinburgh. Vol. III. No. 47. Nov. 1856—April, 1857. 8vo.—*From the Society.*
- Monthly Notices of the Royal Astronomical Society. Vol. XVIII. No. 1. Nov. 13, 1857. London. 8vo.—*From the Society.*
- Memoirs of the Literary and Philosophical Society of Manchester. Second Series. Vol. XIV. London, 1857. 8vo.—*From the Society.*
- A New System of Chemical Philosophy. By John Dalton, D.C.L. LL.D. &c. Parts 1, 2, and Part 1 of Vol. II. London. 8vo.—*From the same.*
- Meteorological Observations and Essays. By John Dalton, F.R.S. &c., &c. Manchester, 1834. 8vo.—*From the same.*
- Journal of the Franklin Institute. Third Series. Vol. XXXIV. No. 6. Dec. 1857. Philadelphia. 8vo.
- Practical Views on the Improvement of the Ohio River. By W. Milnor Roberts, C. E. With Remarks by Ellwood Morris, C. E. Philadelphia, 1857. 8vo.—*From the Institute.*
- The African Repository. Vol. XXXIII. No. 12. Dec. 1857. Washington. 8vo.—*From the Am. Colonization Society.*
- The American Journal of the Medical Sciences. New Series. No. LXIX. January, 1858. Philadelphia. 8vo.—*From Dr. Isaac Hays, Editor.*
- The Medical News and Library. Vol. XVI. No. 181. Jan. 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

Stated Meeting, January 15.

Present, twenty-four members.

Judge KANE, President, in the Chair.

Letters were read:—

From the Society of Arts, Manufactures and Commerce, dated London, Nov. 19, 1857, and from the Royal Asiatic Society, dated London, Dec. 5, 1857, both returning acknowledgments for Vol. XI. Part 1, of the Transactions, and for No. 56 of the Proceedings of this Society:—

From the Boston Society of Natural History, dated Boston, Jan. 7, 1858, acknowledging the receipt of Vol. XI. Part 1, of the Transactions, and No. 57 of the Proceedings: and—

From the Society of Arts and Sciences of Batavia, dated Oct. 20, 1857, in relation to transmitting the publications of this Society.

The following donation was received:—

FOR THE LIBRARY.

Quarterly Journal of the Chemical Society. No. XXXIX. (Vol. X. 3.) October 1857. London. 8vo.—*From the Society.*

Dr. Emerson made a communication on the subject of the Chinese Sugar Cane, as grown in this country. He referred to the difficulty at first experienced in granulating the sugar produced from it; but stated that by recent experiments, as made and described by Mr. Lovering, that difficulty has been obviated and the process rendered so simple as to be easily practised by an intelligent rural producer.

Dr. E. referred to the product of this cane, as stated by Mr. Lovering, and expressed the opinion that its cultivation will be found adapted to a variety of soils, and will ultimately prove to be important and profitable to those who engage in it.

Specimens of sugar produced from this cane were exhibited by Dr. Emerson.

Prof. Cresson remarked that the fibrous substance of the Sorghum is well adapted to the manufacture of paper, and may hereafter be of importance for that purpose.

In addition, Dr. Emerson observed that the scum which rises from the juice of this cane, as well as the leaves from the stalks, afford a grateful and nourishing food for many animals.

Dr. R. E. Rogers expressed the opinion that many of the failures in making sugar from the Chinese Cane, have been owing to the canes not having been cut and pressed at the proper stage of development of the saccharine matter, and to a want of skill in the process of evaporation.

The Society then proceeded to ballot for a librarian for the ensuing year, and Mr. J. P. Lesley was elected.

The Standing Committees of the Society for the year 1858, were then appointed as follows:—

Finance; Mr. Fraley, Mr. Justice, Mr. J. F. James.

Publication; Prof. Trego, Dr. Elwyn, Prof. F. Rogers.

Hall; Mr. F. Peale, Prof. Trego, Prof. Coppée.

Library; Rev. Dr. Stevens, Dr. Hays, Mr. Ord.

The list of surviving members of the Society was read. The number on the list, January 1, 1858, was 390, of whom are resident in the United States 286, and in foreign countries 104.

The Society then proceeded to the next stated business of the meeting, the balloting for candidates for membership.

All other business having been concluded, the ballot-box was opened by the presiding officer, and the following named gentlemen were declared to be duly elected members of the Society.

ELIA LOMBARDINI, Civil Engineer, of Milan.

MAJOR HENRY C. WAYNE, of the U. S. Army.

Stated Meeting, February 5.

Present, forty-seven members.

Judge KANE, President, in the Chair.

Letters were read:—

From Major Henry C. Wayne, dated Philadelphia, Jan. 25, 1858, acknowledging the receipt of notice of his election as a member of the Society:—

From the Royal Society of London, dated Aug. 6, 1857;—
 From the Royal Society of Sciences at Stockholm, dated July 10, 1857;—from the Geological Society of London, dated Dec. 3, 1857;—from the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, dated Newcastle, Dec. 21, 1857; and from the Society of Antiquaries of Edinburgh, dated January, 1858, severally returning thanks for copies of the Transactions and Proceedings of this Society:—

From the Imperial Academy of Sciences at Vienna, dated Nov. 27, 1856, and from the Royal Academy of Sciences at Stockholm, dated July 10, 1857, accompanying donations for the library.

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Royal Society of London, for the year 1856.

Vol. 146. Parts 2, 3: with List of Members, Nov. 30, 1856.
 4to.—*From the Society.*

Proceedings of the Royal Society of London. Vol. VIII. Nos. 23–26.

Nov. 20, 1856—June 15, 1857. London. 8vo.—*From the Society.*

Memoirs of the Royal Astronomical Society. Vol. XXV. Quarto
 half vol. for 1855–1856.

Monthly Notices of the Royal Astronomical Society. Vol. XVI.

Containing abstracts of Papers and reports of Proceedings, from
 Nov. 1855 to July 1856. London. 8vo.—*From the Society.*

Anniversary Address before the Royal Geographical Society, 25 May,

1857, by Sir R. I. Murchison. London, 1857. 8vo.—*From the Society.*

Quarterly Journal of the Geological Society. Vol. XIII. Parts 2,

3. (Nos. 50, 51.) May, Aug. 1857. London. 8vo.—*From the Society.*

Report of the Twenty-sixth Meeting of the British Association for

the Advancement of Science, held at Cheltenham, in August, 1856.
 London. 8vo.—*From the Association.*

Meteorological Observations made at the Radcliffe Observatory, Ox-

ford, in the year 1855, under the superintendence of Manuel J.
 Johnson, M.A. Oxford. 8vo.—*From the Radcliffe Trustees.*

The Chemist. Vol. III. New Series (incomplete). Vol. IV. Nos.

37, 38. London, 1856. 8vo.

- Lady Willoughby's Diary. London, 1845. 8vo.—*From Mr. Wm. Sharswood.*
- Sitzungsberichte der K. Akademie der Wissenschaften: Math. Nat. Classe, Band XX. 2, 3, Heft. Band XXI. 1, 2, Heft. April–July 1856: Register, Band XI–XX.—Phil. Hist. Classe, Band XX. 2, 3 Heft. Band XXI. 1, 2 Heft. April–July 1856: Register, Band XI–XX. Wien. 8vo.—*From the Imp. Acad. Sciences, Vienna.*
- Compte Rendu Annuel, adressé à S. Exc. M. de Broeck, Ministre des Finances, par le Directeur de l'Observatoire Physique Central, A. T. Kupfler. Année 1855. St. Petersburg. 4to.—*From the Administration of Mines of Russia.*
- Tageblatt der 32 Versammlung Deutscher Naturforscher und Artzte in Wien, 1856. 4to.—*From the Meeting.*
- Flora Batava: aflevering 182. Amsterdam. 4to.—*From the Government of the Netherlands.*
- Exposition des Operations faites en Lapponie, pour la determination d'un arc du méridien, en 1801, 2, 3; par MM. Ofverboom, Svanberg, Holmquist et Palander. Stockholm, 1805. 8vo.
- Års berättelse om Botaniska Arbeten och Uppäckter under ar 1852, J. M. Wikström: under åren 1853, 1854, N. J. Anderson. 8vo.
- Berättelse om framstegen i Insekternas, Myriapodernas och Arachnidernas Naturalhistoria för 1853, 1854, C. H. Boheman. 8vo.
- Kongl. Vetenskaps—Akademiens Handlingar för 1854.
- Kongliga Svenska Vetenskaps—Akademiens Handlingar. Ny foljd. 1 Bandet, 1 Häftet. 1855. 4to.
- Ofversigt af Kongl. Vet. Akad. Förhandlingar, 1856. Årg. XIII. 8vo.
- Om förflutna tidens Svenska Ordboks-företag. April 9, 1856. 8vo.—*From the Royal Swedish Academy of Sciences at Stockholm.*
- The Medical News and Library. Vol. XVI. No. 182. Feb. 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*
- The Astronomical Journal: No. 109. (Vol V. No. 13.) Jan. 20, 1858. Albany. 4to.—*From Dr. B. A. Gould, Jr., Editor.*
- Journal of the Franklin Institute. Third Series. Vol. XXXV. No. 1. Jan. 1858. Philadelphia. 8vo.—*From the Institute.*
- The American Journal of Science and Art. Vol. XXV. No. 73. Jan. 1858. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*
- Blunt's American Coast Pilot. Revised January, 1857. 8vo.—*From A. D. Bache, Sup't. U. S. Coast Survey.*
- Official Army Register, for 1858. Washington. 8vo.—*From S. Cooper, Adjutant General.*

Proceedings of the First Convention of the Managers and Superintendents of Houses of Refuge and Schools of Reform in the United States, held in New York, May 12, 13, 14, 1857. New York, 8vo.—*From the Managers of the House of Refuge.*

Report of the State Librarian to the Legislature of Pennsylvania, with a Catalogue of Books for the year 1857. Harrisburg. 8vo.—*From the State Librarian.*

Catalogue or Alphabetical Index of the Astor Library. Part 1, Authors and Books, A.—E. (Vol. 1.) F.—L. (Vol. 2.)—*From the Trustees of the Astor Library.*

Dr. Le Conte exhibited specimens of a species of Lycopodium from Honduras, which when dry is contracted in the form of a ball; but when placed in water again expands.

A preamble and resolutions, in relation to the duties and compensation of the Treasurer and Librarian, were offered, and after some amendment, were adopted.

Stated Meeting, February 19.

Present, fifty members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Lyceum of Natural History, dated New York, Feb. 12, 1858, acknowledging the receipt of Nos. 56 and 57 of the Proceedings of this Society:—

From Major J. D. Graham, dated Chicago, Illinois, Jan. 30, 1858, accompanying a donation for the Library:—

From the Publishers of the Journal of Insanity, dated State Asylum, Utica, N. Y. Feb. 3, 1858, with a copy of the Journal and the 13th and 14th Reports of the Managers of the Asylum.

From the Imperial Society of Emulation, dated Abbeville, Jan. 10, 1858, in relation to a copy of their Memoirs.

The following donations were announced:—

FOR THE LIBRARY.

Monthly Notices of the Royal Astronomical Society. Vol. XVIII. No. 2. Dec. 11, 1857. London. 8vo.—*From the Society.*

- The Astronomical Journal. No. 110. Feb. 13, 1858. Albany. 4to.—*From Dr. B. A. Gould, Jr., Editor.*
- Report of Major J. D. Graham on the Commerce and Improvement of the Western Lake Harbours. Part 1, 1854-5. Part 2, 1856. Senate Document No. 16. Washington. 8vo.—*From the Author.*
- Boston Journal of Natural History. Vol. VI. No. 4. Boston, 1857. 8vo.
- Proceedings of the Boston Society of Natural History, p. 273-304. Oct. 7—Dec. 16, 1857. 8vo.—*From the Society.*
- Journal of the Franklin Institute. Third Series. Vol. XXXV. No. 2. Feb. 1858. Philadelphia. 8vo.—*From the Institute.*
- On the Heights of the Tides of the United States, from Observations on the Coast Survey. (Am. Jour. Sci.) 8vo.—*From A. D. Bache, Sup't. U. S. Coast Survey.*
- The American Journal of Insanity. Vol. XIV. No. 1. July, 1857. Utica. 8vo.
- The Thirteenth and Fourteenth Reports of the Managers of the State Lunatic Asylum at Utica, N. Y. 1856, 1857. Albany. 8vo.—*From the Managers.*
- Annual Report of the Board of Directors of the Pennsylvania Institution for the Deaf and Dumb, for 1857. Philadelphia. 8vo.—*From the Directors.*
- Thirtieth Annual Report of the Board of Managers of the House of Refuge, 1858. Philadelphia. 8vo.—*From the Managers.*
- Observations on the Genus Unio, together with descriptions of New Species in the family Unionidæ. Vol. VI. Part 1. 1857. By Isaac Lea, LL.D. Philadelphia. 4to.—*From the Author.*

The minutes of the Board of Officers and Council at their last meeting were read.

A resolution was offered to rescind the resolutions adopted at the last meeting, defining the duties and fixing the compensation of the Treasurer and Librarian.

An amendment was offered that a committee be appointed to revise the laws of the Society, with a view to a definition of the duties of the offices of Librarian and Treasurer, and a proper compensation for such duties:—and pending the consideration of this subject, the Society was adjourned.

Special Meeting, February 23.

Present, twenty-two members.

Dr. DUNGLISON, Vice-President, in the Chair.

The presiding officer said:—

I have called this meeting to announce officially to the Society, the death of their distinguished President, who expired at his residence, Fern Rock, on Sunday 21st instant, in the 63d year of his age.

I have felt that the Society would desire to do honour to the memory of one, who for a third of a century had been a zealous and effective member; and who, for nearly that length of time, had filled various offices in it, until he became President.

I need not say to this body how faithfully he has always served them; nor shall I dwell, because I doubt not this will be done by others, on his exalted public and private virtues; nor attempt to show how estimable he was in all the relations of life.

To me, personally, his loss is a severe privation. I have known him for thirty years, and I do not call to mind that there has been a single ripple on the smooth surface of our intercourse during the whole of that time. I had for him, indeed, unbounded attachment.

It will be for the Society to take such action on this melancholy occasion as they may deem meet and proper.

Mr. Fraley, with some remarks upon the estimable character and amiable qualities of the deceased, offered the following resolutions, which were unanimously agreed to:—

Resolved, That the Society has heard, with deep and unfeigned sorrow, of the death of its President, John K. Kane.

Resolved, That the Members will assemble at the Hall on Wednesday morning, the 24th instant, at 10 o'clock, in order to attend his funeral.

Resolved, That the President's chair be shrouded in black for the period of six months.

Resolved, That Thomas Dunlap, Esq. be requested to prepare an obituary notice of Judge Kane, to be read before the Society and perpetuated among its records.

Resolved, That a letter be addressed to the family of Judge Kane, expressive of the deep sympathy of the Society in the bereavement which they have sustained, and that it be accompanied by a copy of these resolutions.

Stated Meeting, March 5.

Present, sixty-eight members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Madame A. A. Temminck, dated Leyden, Jan. 30, 1858, giving information of the death of her husband, C. J. Temminck, a member of this Society, aged about 80 years: and—

From Prof. Zantedeschi, dated Padua, Jan. 31, 1858, accompanying a communication “On the measure of the limits of the electrical nervous-muscular sensibility of man, considered in comparison with his mechanical force.”

The following donations were announced:—

FOR THE LIBRARY.

Transactions of the Zoological Society of London. Vol. IV. Part 4. 1857. 4to.

Proceedings of the same, Part XXIII. p. 65–135. Part XXIV. p. 192. 8vo.—*From the Society.*

Monthly Notices of the Royal Astronomical Society. Vol. XVIII. No. 3. Jan. 1858. London. 8vo.—*From the Society.*

Quarterly Journal of the Chemical Society. No. XL. (Vol. X. 4.) Jan. 1858. London. 8vo.—*From the Society.*

Journal of the Academy of Natural Sciences. New Series. Vol. III. Part 4. Philadelphia. 4to.—*From the Academy.*

The Medical News and Library. Vol. XVI. No. 183. March, 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*

The American Journal of Science and Art. Second Series. Vol.

- XXV. No. 74. March, 1858. New Haven. 8vo.—*From Profs. Silliman & Dana, Editors.*
- Report of the Board of Managers of the Eastern Lunatic Asylum, Lexington, Kentucky, 1856-7. 8vo.—*From the Managers.*
- Report of the Pennsylvania Hospital for the Insane, Philadelphia, 1857. 8vo.—*From Dr. T. S. Kirkbride.*
- The African Repository. Vol. XXIV. No. 2. Feb. 1858. Washington. 8vo.—*From the Am. Colonization Society.*
- Documents relative to the Colonial History of the State of New York. Vol. X. 4to.
- Census of the State of New York, for the year 1855. Albany, 1857. 4to.—*From the Regents of the University of the State of N. Y.*
- A Collection of 13 pamphlets; being chiefly Reports, &c. relative to the Public Institutions and Statistics of Massachusetts.—*From Dr. Edward Jarvis.*

The communication of Prof. Zantedeschi, "On the measure of the limits of the electrical nervous-muscular sensibility of man, considered in comparison with his mechanical force," was ordered to be published in the Proceedings, accompanied by a translation into English.

Della Misura dei Limiti della sensibilità Nerveo-muscolare Elettrica dell'uomo, studiata comparativamente alla forza Meccanica dello stesso.

ESPERIENZE DI ZANTEDESCHI.

La misura dei limiti della sensibilità nerveo-muscolare elettrica dell'uomo, interessa altamente la fisiologia e la terapia. La prima trae argomento a riconoscere in un modo positivo i varii gradi di squisitezza dell'organismo nell'uomo; come ha tratto argomento della squisitezza del nervo acustico dall'estensione della scala dei suoni percettibili, ed ha determinato il numero delle vibrazioni che è necessario alla percezione di un suono grave od acuto. La terapia ritrae una regola direttrice per applicare con prudenza l'elettricità ai varii individui. Io mi ricordo che un individuo avea tale squisitezza nerveo-muscolare da non poter sostenere la forza elettromotrice di un solo elemento rame e zinco montato con acqua salata. Gli elettrodi erano stati applicati al sopracciglio di un occhio affetto da una paralisi di moto.

Nel giorno 27 di Maggio del 1857, trattando di questo argomento

dei limiti di sensibilità nerveo-muscolare nell'uomo, io feci allestire la slitta di Dubois Reymond con un elemento ordinario alla Bunsen montato con acido nitrico di 40° B, e con acqua acidulata con acido solforico, di 10° B, e zinco bene amalgamato. La spirale inducente era di filo di rame. Eccone le dimensioni:

Lunghezza della spirale,	-	-	-	0 ^m ,0800
Diametro interno della spirale,	-	-	-	0 ^m ,0250
Diametro del filo di rame,	-	-	-	0 ^m ,0010
Lunghezza del filo di rame,	-	-	-	26 ^m ,0000

Dimensioni della spirale indotta:

Lunghezza della spirale,	-	-	-	0 ^m ,0700
Diametro interno della spirale,	-	-	-	0 ^m ,0600
Diametro del filo di rame,	-	-	-	0 ^m ,0033
Lunghezza del filo di rame,	-	-	-	1187 ^m ,4400

Il diametro interno della spirale inducente portava in suo seno fili di ferro dolce del diametro di 0,0015, della lunghezza 0,10; e in numero di 190.

Dodici furono gli individui sottoposti a questo esperimento. Non si è trovato alcuna regola costante di decrescimento, nella sensibilità da aversi il minimo grado negl'individui più avanzati in età. Io prossimo all'età di anni 60 ho sentito l'azione inducente volto-elettrica alla distanza alla quale qualche giovine di 20 anni circa non sperimentava effetto sensibile. Neppure ho riscontrato che la sensibilità nerveo-muscolare sia in ragione inversa della forza dinamica, esplorata con un dinamometro. Segue una ragione tutta sua propria e speciale, della quale non si può render ragione e siamo costretti a dire, che esiste e nulla più. I limiti esplorati sopra dodici individui furono della distanza di 0^m,04 e di 0^m,30 della spirale indotta dall'induceute. Questi estremi darebbero il rapporto della squisitezze nerveo muscolare di 1 : 56,25 calcolati secondo la legge della ragione inversa dei quadrati delle distanze. Una tensione elettrica adunque nell'uno, 56,25 volte maggiore produrrebbe lo stesso effetto di una tensione uguale ad uno; che è quanto dire che la squisitezze nerveo-muscolare elettrica dell'uno individuo era 56,25 volte maggiore che nell'altro. Questo individuo alla distanza di 25 centim, della spirale indotta dall'induceute provava tale sensazione molesta da non poter reggere alla scossa elettrica. A questa stessa distanza tutti gli altri individui non provavano effetto veruno sensibile. E con questa azione che diremmo tenuissima l'effetto sull'organismo fu tale da ap-

palesarsi con dolori nel basso ventre, e scarica straordinaria come se avesse preso un purgante. Del resto la facoltà digestiva non fu accresciuta come accade in taluni individui. Si scorge da tutto questo quale debba essere la circospezione e cautela nell'applicare l'elettricità agli umani organismi. Io debbo ricordare un fenomeno al tutto speciale, che ha presentato l'individuo di rara squisitezza nerveo-muscolare elettrica, per l'interesse che esso presenta alla spiegazione di un effetto che è stato argomento di gravi discussioni in Italia e fuori, voglio dire del simultaneo passaggio di due o più correnti elettriche opposte incanalate sul medesimo filo conduttore. L'apparato del quale mi valse fu il mio induzionometro dinamico differenziale, che è formato di tre spirali piane. È ben noto che allorquando la corrente elettrica cammina nelle due spirali inducenti nel medesimo senso, si ha una corrente elettrica nella spirale indotta che è compresa o collocata nello spazio interposto alle due spirali inducenti. Effetto indotto, che è tanto maggiore quanto è maggior la tensione della scarica Leido-elettrica, e minore la distanza che separa la spirale indotta dalle inducenti. È ugualmente noto che allorquando nelle due spirali inducenti la corrente elettrica è diretta in senso opposto, e che sieno ambedue le spirali equidistanti perfettamente dalla spirale indotta, la persona che chiude il circolo con questa spirale non si risente di effetto veruno. La spiegazione di questo fatto fu data col ritenere che nella spirale indotta, o non circoli la più minima elettricità, o che circolino due correnti uguali e contrarie da non produrre effetto percettibile sull'umano organismo, analogamente a quanto accade sull'ago magnetico sottoposto a due correnti uguali e contrarie, che rimane in perfetto equilibrio. L'individuo della squisitezza nerveo-muscolare speciale ebbe ad accusare una sensazione distinta al carpo e metacarpo di ambe le mani. L'esperimento fu ripetuto per assicurarsi della costanza dell'effetto.

Quale sarebbe la spiegazione che si potrebbe ragionevolmente dare di questo fenomeno? Mi sembra potersi dire che due correnti sovrapposte in direzione contraria non si distruggono, come nell'acustica l'onda riflessa non viene distrutta dall'onda diretta; ma che però una tale sensazione richieda un'organismo, che si tolga dai limiti ordinari o comuni. Egli è vero che si potrebbe dire che si hanno correnti elettriche indotte all'atto che incomincia la scarica della bottiglia di Leida, e all'atto che interamente cessa. Queste due azioni che devono essere separate da una frazione ben minima di minuto secondo sarebbero esse la cagione della sensazione prodotta nel caso speciale? L'intervallo che separerebbe le opposte correnti sarebbe di 3 diecimil-

lesimi di minuto secondo, calcolata la media velocità dell'elettrico di 100,000 metri per 1".

Ho amato successivamente di confrontare la sensibilità nerveo-muscolare elettrica colla forza meccanica degli individui, sottoposti precedentemente agli esperimenti. Io non ho trovato che la sensibilità nerveo-muscolare sia nè nella ragione diretta, nè nella ragione inversa della forza meccanica. L'individuo che si risenti della corrente indotta alla distanza di 0,30, al dinamometro di Renier appalesò una forza muscolare nelle mani rappresentata da 82 kilogrammi; e l'individuo che si risenti della corrente indotta alla distanza di 0,07 centimetri dispiegò al dinamometro una forza di 92 kilogrammi.

Io rappresenterò in un prospetto la serie di questi esperimenti comparativi, indicando almeno alcuni de' nomi de' giovani che si sottoposero a questi saggi:

	Distanza della spirale indotta dall'inducente.	Misura della forza col dinamometro.
Majola,	0,07	92 kilogrammi.
Stella,	0,12	74,5 „
Gerloni,	0,30	82 „
Polonio,	0,055	77 „

Altri individui che si prestarono all'esperienze dei limiti della loro sensibilità nerveo-muscolare elettrica, si rifiutarono al confronto della forza meccanica determinata col dinamometro.

Aveva negli anni precedenti fatti consimili esperimenti, ed ho la compiacenza di potere soggiugnere che la natura si ebbe a manifestare col medesimo piano. Anzi nelle mie investigazioni che ho pubblicato nel 1852 nei Conti Resi dell'Accademia delle Scienze di Parigi riscontrai questa correlazione, che l'esaurimento della forza meccanica si accompagna coll'esaurimento della forza elettrica; e per converso che il rinvigorimento della forza meccanica si accompagna tuttavia coll'aumento della forza elettrica. Io però di questo esaurimento e di questo rinforzo comparativo non ho determinato in gradi il valore.

Dalla slitta di Dubois Raymond si ottenne fino il *fa diesis* della tonica 524, che dà 728 vibrazioni composte, ossia 1456 vibrazioni semplici, rappresentanti il numero delle magnetizzazioni e smagnetizzazioni in un minuto secundo. Il magnetismo temporario impertanto accoppiato all'acustica ci fornisce un mezzo potente alla misura delle più piccole frazioni di tempo, per le quali non si prestano i congegni applicati ai pendoli comuni. Noi attendiamo con impazienza l'apparato dell'ingegnosissimo meccanico Hipp di Berna.

Of the Measure of the Limits of the Electric Neruo-muscular Sensibility in Man, compared with his Mechanical Force.

EXPERIMENTS OF ZANTEDESCHL.

The measure of the limits of the electric neruo-muscular sensibility in man has a close relation to Physiology and Therapeutics. The first obtains the means of ascertaining in a positive manner the various degrees of sensibility of the human organism; as it has obtained proof of the sensibility of the acoustic nerve from the extension of the scale of perceptible sounds, and has determined the number of the vibrations which is necessary for the perception of a grave sound, and of an acute one. Therapeutics procures a guiding rule for the prudent application of electricity to different persons. I call to mind an individual whose neruo-muscular sensibility was such that he could not bear the electric motor force of a single combination of copper and zinc with salt water. The electrodes were applied to the eyebrow of an eye affected with paralysis.

For investigating the subject of the limits of neruo-muscular sensibility in the human subject, May 27, 1857, I caused to be constructed the apparatus of Dubois Raymond, with an ordinary element in the fashion of Bunsen, consisting of sulphuric acid of 40° B. and of water acidulated with sulphuric acid of 10° B. and thoroughly amalgamated zinc. The inducting spiral was of copper wire of the following dimensions:

Length of the spiral, - - -	0.0800 metres.
Internal diameter of the spiral, -	0.0250 „
Diameter of the copper wire, - -	0.0010 „
Length of the copper wire, - - -	26.0000

Dimensions of the inducted spiral:

Length of the spiral, - - -	0.0700 metres.
Internal diameter of the spiral, -	0.0600 „
Diameter of the copper wire, - -	0.0033 „
Length of the copper wire, - - -	1187.4400

In the interior of the inducting spiral there was a soft iron wire with a diameter of 0.0015, and the length of 0.10 of a metre, and the number 190.

Twelve individuals were subjected to this experiment. There was no positive rule of decrease of sensibility that would imply a minimum degree in those advanced in life. I myself, 60 years of age, felt the inducting volto-electric action at a distance at which it was quite in-

appreciable by a young man 20 years old. Nor have I even found the nervo-muscular sensibility to be in inverse proportion to the dynamic force, as measured by a dynamometer. It follows, that there is a quite peculiar and special ratio for which we can assign no reason, and we are constrained to say there is none to be found. The ascertained limits, among twelve persons, were from a distance of 0.04 metres to that of 0.30 metres, between the inducting and the inducted spirals. These extremes will give the proportion of nervo-muscular sensibility of 1 : 56,25 calculated according to the law of the inverse ratio of the squares of the distance. An electric tension, therefore, 56,25 times greater in one would produce an equal degree of tension as a simple unit in another; which is equivalent to saying that the electric nervo-muscular sensibility in one individual was 56,25 times greater than in another. This individual at the distance of 25 centimetres of the inducted from the inducting spiral, experienced such a distressing sensation that he could not bear the electric shock. At the same distance, all the other individuals experienced no sensible effects whatever: and with this, which might be termed the most attenuated action, the effect on the organism was such that it gave rise to pains in the bowels and copious evacuations as if a purgative had been taken. In other respects the activity of the digestive function was not increased, as is the case in some individuals. We learn from all this what circumspection and caution ought to be exercised in the application of electricity to the human frame. I must here record a phenomenon of quite a special character, which was exhibited in the individual who was endowed with such rare electric nervo-muscular sensibility, on account of the interest which it excites towards the explanation of a result that has given rise to grave discussions, both in Italy and in other countries. I refer to the simultaneous passage of two or more opposite electrical currents through the same wire. The apparatus which I made use of was my differential dynamic inductionmeter, which is made of three plane spirals. It is well ascertained that when the electric current travels along, in the same direction, two inducting spirals, there is an electrical current in the inducted spiral which is comprised in and restricted to the space interposed between the two inducting spirals—an effect by induction which is greater in proportion to the increased tension of the Leyden electrical discharge, and diminished distance between the inducting and the inducted spiral. It is equally well known that when the electric current is sent in opposite directions along two inducting spirals, and that these latter are precisely equidistant from the inducted spiral, the person who completes the circle by this spiral experiences no effect what-

ever. The explanation of this fact was given by supposing that in the inducted spiral, either electricity does not circulate in the minutest degree or that two equal opposing currents produce no effect on the human organism; reasoning by analogy from what occurs when the magnetic needle, which, subjected to two equal and opposite currents, remains in a state of perfect equilibrium. The individual endowed with special nervo-muscular sensibility had a distinct sensation at the wrist and metacarpal portions of both hands. The experiment was repeated in order that we might be assured of its accuracy.

What probable explanation can we give of this phenomenon? It appears to me that we are authorized to say, that two currents, taking opposite directions, do not neutralize each other, just as in acoustics the reflected wave is not destroyed by the direct one; but still the experiencing of such a sensation supposes an organism of unusual delicacy. We may, indeed, say that there are electrical currents, by induction, at the beginning and at the termination of the discharge from the Leyden jar. Could these two actions, which must be separated from each other by a very minute fraction of time, be the cause of the abovementioned special sensation? The interval which separates the opposite currents would be .0003 of a second, on the supposition that the medium velocity of the electric fluid is 100 metres in a second.

I have felt gratified in comparing the electric nervo-muscular sensibility with the mechanical power of the individuals subjected to the preceding experiments. I have not found any assignable proportions, either in a direct or inverse sense, between the two. The person who felt the inducted current at the distance of 0.30, displayed by the dynamometer of Renier a muscular power of the hand equal to 82 kilogrammes; and the one who felt the inducted current at the distance of 0.07 centimetres, exhibited, by the dynamometer, a power equal to 92 kilogrammes.

I will exhibit, at a glance, the series of these experiments, and indicate some, at least, of the names of the young men who have been subjected to them.

	Distance of the inducted from the inducing spiral.	Dynamometrical measure of force.
Majola,	0.07	92 kilogrammes.
Stella,	0.12	74.5 „
Gerloni,	0.30	82. „
Polonio,	0.055	77. „

Other individuals who had submitted to the experiments on the

limits of the electric nervo-muscular sensibility, refused to make a trial of their mechanical power, as determined by the dynamometer.

I had made similar experiments in former years, and it gives me pleasure to be able to add that they are in harmony with nature's arrangement. Thus, in my investigations which were published in the *Comptes Rendus* of the Academy of Sciences of Paris, for 1852, I met with this co-relation, *viz*: in the exhaustion of the mechanical power being accompanied by the exhaustion of the electrical force; and, conversely, in the increase of mechanical power being always accompanied by that of the electric force. I have not, however, determined as yet, in degrees, the relative amount of this exhaustion and increase.

By the apparatus of Dubois Raymond, we obtain, at length the *sharp in fa* of the tonic 524, which gives 728 compound, or 1456 simple vibrations, representing the number of magnetizings and their withdrawals or abstractions in a second of time. Temporary magnetizings, however, coupled with acoustics, may form a powerful means of measuring the minutest fractions of time, the like of which is not procured from common pendulums. We wait impatiently for the apparatus of the ingenious mechanic Hipp, of Berne.

The reporter for the Proceedings of the Society laid upon the table No. 58, recently published.

The unfinished business of the last stated meeting being under consideration, it was agreed that a Committee of seven members shall be appointed by the presiding officer, to revise the laws of the Society relative to the duties of Treasurer and Librarian.

Stated Meeting, March 19.

Present, twenty members.

The Vice-Presidents being absent, Dr. WILLIAM HARRIS was called to the chair.

Letters were read:—

From the Horticultural Society of London, dated February 2, 1858, returning thanks for Vol. XI. Part 1, of the Transactions of this Society:—

From the Connecticut Historical Society, dated Hartford,

March 11, 1858:—from the Corporation of Harvard College, dated Cambridge, March 11, 1858:—and from the American Antiquarian Society, dated March 12, 1858, severally acknowledging the receipt of No. 58 of the Proceedings.

The following donations were announced:—

FOR THE LIBRARY.

Catalogue des livres composant la Bibliothèque Scientifique du feu M. Alexandre Brongniart. Paris, 1858. 8vo.—*From the Librarian of the Institute.*

Report of the Superintendent of the United States Coast Survey for 1856. Washington. 4to.—*From Prof. A. D. Bache, Superintendent.*

Journal of the Franklin Institute. Third Series. Vol. XXXV. No. 3. March, 1858. Philadelphia. 8vo.—*From the Institute.*

Second Annual Report of the M'Kean and Elk Land and Improvement Company, 1858. Philadelphia. 8vo.—*From the Company.*

Description of New Organic Remains from north-eastern Kansas, indicating the existence of Permian rocks in that territory. (Proc. Alb. Inst. March 2, 1858.) By F. B. Meek and F. V. Hayden, M.D.—*From the Albany Institute.*

Remains of Domestic Animals discovered among Post Pliocene Fossils in South Carolina. By Francis S. Holmes, A.M. With letters from Profs. Leidy and Agassiz. Charleston, 1858. 8vo.—*From the Author.*

The Principles of Social Science. By Henry C. Carey. In three volumes. Vol. I. Philadelphia, 1858. 8vo.—*From the Author.*

The African Repository. Vol. XXIV. No. 3. March, 1858. Washington. 8vo.—*From the Am. Colonization Society.*

Reminiscences of Carpenters' Hall. Philadelphia, 1858. 8vo.—*From the Carpenters' Company.*

Mr. Colwell, pursuant to appointment, read an obituary memoir of Mr. Isaac R. Davis, a deceased member of the Society.

Isaac R. Davis, whose loss we now deplore, departed this life on the 4th of February, 1857. He was born in the year 1809, in the County of Montgomery, in the State of Pennsylvania. Evan Davis, his father, was a respectable member of the Society of Friends. His early education was received at a Friends' school in West Town, Chester County. He was at an early age apprenticed to a merchant

in Philadelphia, and duly fulfilled his duties in that position to the end of the time. He soon after occupied a very responsible station in one of the largest mercantile establishments in the city; and became subsequently a partner in the firm, in which he continued to the time of his decease. In this concern, which wields a large business and a large capital, Mr. Davis found scope for his talents as a man of business, and for his usefulness as a wise and good citizen. He will not be forgotten in either capacity by those who were brought into close relation with him: and especially will he be remembered by those who were capable of comprehending a character so finely balanced, and a mind so well endowed.

Mr. Davis was eminently a man of business. No one in the community stood higher as such. He exemplified the truth, that moral and intellectual qualities and powers of a high order are not wasted, nor their value diminished, by being united in a merchant or manufacturer. It may be true that such occupations are not so well fitted to excite and improve the higher powers of the mind, but if so, it is because the conceptions ordinarily formed of the purpose and conduct of business falls below the proper standard. There is not a business, not a station of life, which may not be enobled by a man of high honour and great abilities. Mr. Davis was precisely of the mould to become an example in that respect. His mind was of that clear, discriminating cast, which enabled him to comprehend his position in business, in society, and in the body politic, to perceive and distinguish between the claims thus made upon him. His intellect was well balanced and his character and conduct equally so. His mind sunk into no mere channel of routine, it did not become inactive for want of stimulus. His powers of observation, strong and pervading, suffered no subject or process to lose its interest by familiarity, and thus escape fresh and constant investigation. His views of business, of the claims of society, and of the working of the social system around him, were therefore even enlarging. His physical were far below his mental capacities, yet until struck down by paralysis, he never faltered nor hesitated to exact from his body whatever his mind required.

The points of contact between a man of his order of mind and a mind of similar power, devoted chiefly to science or philosophy, are not few. The progress of knowledge and science is such, that every department of business has its interests in and its relations with this progress; the mind that has any philosophic tendencies is now constantly invited to exert and apply them. Mr. Davis belonged to a

class, which, though as yet not numerous, is increasing, which looks upon the whole field of daily business with an eye to its improvement, not only by better methods, but by an application of all accessible and available knowledge. The man whose mind is thus awakened must rapidly attain an enlargement of his faculties and comprehension, which cannot fail to be visible, and to be marked with beneficial results, private and public. It is in this direction that we are to look for the progress of the highest proofs and benefits of civilization, as it pervades the masses of men who do the business of the world and who perform its labour. In this important path of such vital interest to human welfare, we find Mr. Davis conspicuous. It is this which establishes a legitimate connection between him and the American Philosophical Society, which is ever willing to extend the hand of fellowship to the philosophic mind, in whatever department of life it may be found.

Mr. Davis occupied a high position in this community as a merchant and as a manufacturer, but not without a full appreciation of the advantages and duties of such a position. While private interests were earnestly and industriously promoted, questions of public concern never failed to draw his attention in proportion to their importance. He was ever ready to give the benefit of his strong common sense, and his clear discrimination, to any measure which promised public advantage. Although he constantly declined office, he regarded public affairs with an interest scarcely less than he gave to his private business. It is well known to those who knew Mr. Davis best, that few men not in public life exerted a wider influence in public affairs. This involved an extensive and frequently elaborate correspondence, from the labour of which he never shrunk when a good end was in view. This influence was due chiefly to his clear views of public questions, and that knowledge of men and their motives which made him a safe and valuable adviser for men in responsible stations.

Mr. Dunlap was excused from preparing an obituary notice of the late Dr. Nathaniel Chapman, and Dr. J. B. Biddle was appointed to perform that duty.

Mr. Dunlap and Dr. Biddle were appointed in the place of the deceased members of the Committee to procure a portrait of Dr. Chapman.

Judge King called the attention of the Society to the present condition of the negotiation with the Government of the United

States for the sale of the Hall of the Society, and to the delay of the government official authorities in carrying into effect the articles of agreement entered into for such sale:

Whereupon, after some discussion of the subject, the following resolution, offered by Mr. Foulke, was read, considered and agreed to:—

Resolved, That Judge King be added to the Committee on the sale of the Hall, and that the Committee be authorized to take such proceedings as they may deem expedient to secure an early settlement of the negotiation respecting the proposed sale to the government.

A resolution was offered by Dr. Morris, as follows:

Resolved, That a Committee be appointed to confer with the Philadelphia Library Company, and the College of Physicians, on the subject of buildings for the accommodation of the respective bodies:

Which resolution was postponed for consideration at the next meeting of the Society.

Stated Meeting, April 2.

Present, forty-eight members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Corporation of Yale College, dated New Haven, March 16, 1858;—and from the Lyceum of Natural History, dated New York, March 27, 1858, both acknowledging the receipt of No. 58 of the Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Report on the Observatories of his highness the Maha Rajah of Travancore. By John Allan Brown, Director of the Observatories. Trevandrum, 1857. Svo.—*From the Author.*

Journal of the Royal Astronomical Society. Vol. XVIII. No. 4. Feb. 2, 1858, with Index of Papers. Svo.—*From the Society.*

- Astronomical Journal. Vol. V. No. 15. March 24, 1858. Albany, 1858. 4to.—*From Dr. A. B. Gould.*
- Transactions of the Academy of Science of St. Louis. Vol. I. No. 1. St. Louis, 1857. 8vo.—*From the Academy.*
- Annual Report of the President of the Maryland Historical Society, with Constitution and By-Laws. Baltimore, 1858. 8vo.—*From the Society.*
- Second Annual Report of the Trustees of the State Industrial School for Girls, at Lancaster, Mass. By Bradford K. Pierce. Boston, 1857. 8vo.—*From the Superintendent.*
- Report of the Superintendent of the North Branch Canal for the year ending Nov. 30, 1855, by W. R. Maffet, C. E. Harrisburg, 8vo.—*From C. B. Trego.*
- Second Annual Report of the Home for Destitute Colored Children, by the Managers. Philadelphia, 1857. 8vo.—*From the Managers.*
- Sense and Sound as they reciprocally form any sign of mind. By John Gaskill. Philadelphia, 1854. 8vo.—*From Mr. Huff.*
- Letters to the President on the Foreign and Domestic Policy of the Union, and its effects as exhibited in the condition of the people and the State. By H. C. Carey. Philadelphia, 1858. 8vo.—*From the Author.*
- Track Survey of the River Paraguay, surveyed by Commander Thos. J. Page, U. S. S. Water Witch, 1855. Sheets, Nos. 10, 14 and 15.—*From the Navy Department.*
- Medical News and Library. Vol. XVI. No. 184. April, 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*
- American Journal of the Medical Sciences. LXX. April, 1858. Philadelphia. By Dr. Isaac Hays.—*From the Editor.*
- Experiments upon Digestion. By Francis G. Smith, M.D. Philadelphia, 1856. 8vo.—*From the Author.*

Dr. Boyé exhibited a series of models which he has had constructed for the purpose of illustrating the forms of crystals and the laws of crystallography; in connection with which he explained the relation of various forms to each other, and their modifications and combinations in a variety of crystalline substances of different primary forms.

The Special Committee appointed in pursuance of a resolution adopted March 5, 1858, on the duties of the Treasurer

and Librarian, made a report recommending sundry amendments of the Laws of the Society, together with certain resolutions relating to the subject.

The report of the Committee was unanimously accepted, and laid over for further action at the next stated meeting.

The resolution offered by Dr. Morris, at the last meeting, was further postponed.

On motion of Dr. Wm. Harris, a committee, consisting of Dr. Harris, Mr. Dunlap and Mr. Patterson, was appointed to procure a portrait of Judge Kane, late President of the Society.

On motion it was resolved that the Librarian be authorized to take order on the distribution of the published Proceedings of the Society.

Mr. Justice, at his request, was excused from further service as a member of the Committee on the purchase of a hall.

Stated Meeting, April 16.

Present, thirty-five members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From the Royal Danish Society of Sciences, dated Copenhagen, June 30, 1857;—from the Society of Naturalists at Riga, dated July 3, 1857;—from the Imperial Academy of Sciences dated Vienna, Sept. 17, 1857;—from the Royal Saxon Society of Sciences, dated Leipzig, Oct. 1, 1857;—from the Academy of Arts, Sciences and Belles-lettres of Dijon, dated Jan. 17, 1857;—and from the Imperial Royal Lombardy Institute of Science, Letters and Arts, dated Milan, Jan. 20, 1858, severally accompanying donations for the library:—

From the Imperial Society of Naturalists of Moscow, dated March 3–15, 1857;—from the Royal Academy of Sciences at Turin, dated May 15, 1857;—from the Royal Danish Society of Sciences, dated Copenhagen, June 30, 1857;—from the Royal Saxon Society of Sciences, dated Leipzig, Oct. 1, 1857; and from the Massachusetts Historical Society, dated Boston,

March, 1858, respectively acknowledging the receipt of Transactions and Proceedings of this Society.

The following donations were announced:—

FOR THE LIBRARY.

- Sitzungsberichte der K. Akad. der Wissenschaften. Math. Naturwiss. Classe, XXIII. 2 H. XXIV. 1, 2, 3, 1857. Phil. Historische Classe, XXIII. 1, 2, 3, 4, Jan. Feb. March, April, 1857. Vienna, 1858. 8vo.—*From the Academy.*
- Berichte über die Verhandlungen der Kön. Sächsischen Gesellschaft der Wiss. zu Leipzig. Math. Phys. Classe, 1856, II. 1857, I. 8vo.—*From the Society.*
- Methode zur Berechnung der absoluten Störungen der Kleinen Planeten; 2 part. By P. A. Hansen. Leipzig, 1857. 8vo.—*From the same.*
- Electrische Untersuchungen; 2 part. By W. G. Hankel. Leipzig, 1857. 8vo.—*From the same.*
- Correspondenzblatt des Naturforschenden Vereins zu Riga. Ninth Year, 1855-6. Riga, 1857. 8vo.—*From the Society.*
- Memoir of Dr. Magnus Georg von Pancker, born Nov. 15, 1797, died Aug. 22, 1855. Dorpat, 1855. 8vo.—*From the same.*
- Verhandlungen des Vereins zur Beförderung des Gartenbaues in den Kön. Preussischen Staaten. First year, I. to XII. 1853; Second year, Jan. to Dec. 1854; Fourth year, July to Dec. 1856. Abhandlungen, No. 19 to 33, 34 to 43. Berlin.—*From the Society.*
- Oversigt over det K. Danske Videns. Selskabs Forhandlinge . . i Aaret, 1856. Kopenhagen, 1857. 8vo.—*From the Society.*
- Supplement aux Tables du Soleil de M.M. P. A. Hansen et C. F. R. Olufsen, par P. A. Hansen. Copenhagen, 1857. (8 pages.) 4to.—*From the same.*
- Quæstiones quæ in A. 1857 proponuntur cum præmii promissu. Copen. 1858. (4 pages.) 8vo.—*From the same.*
- Verslagen en Mededeelingen der Kon. Akad. van Wetenschappen. Letterkunde. 2 D. 2, 3, 4 Stuk. Natuurkunde 5 D. 2, 3 S. 6 D. 1, 2, 3 Stuk. Amsterdam, 1857. 8vo.—*From the Academy.*
- Octaviæ Querela carmen cuius auctori Johanni van Leeuwen e Vico Zegwaard, certaminis poetici præmium e legato J. H. Hoeufft adjudicatum . . . IX Marti 1857. Amsterdam, 1857. (14 pages.) 8vo.—*From the same.*

- Memorie della Reale Accademia della Scienze di Torino. 2 Ser. T. XVI. Turin, 1857. 4to.—*From the Academy.*
- Memoires de l'Academie des Sciences, Arts et Belles-lettres de Dijon. 2d Ser. T. 1, 1851. T. 2, 1852-3. T. 3, 1854. T. 4, 1855. T. 5, 1856. With Atlas. Dijon and Paris, 1857. 8vo.—*From the Academy.*
- Description d'un Nouveau Genre d'Edenté Fossile renfermant plusieurs espèces voisines du Glyptodon. Atlas. Dijon et Paris, 1857. 4to.—*From the Academy.*
- Archives du Muséum d'Histoire Naturelle. T. IX. liv. IV. Paris, 1856-7. 4to.—*From the Museum.*
- Proceedings of the Eleventh Meeting at Montreal of the American Association. Aug. 1857. Cambridge, 1858. 8vo.—*From the Secretary.*
- Proceedings upon the Dedication of Plummer Hall at Salem, Oct. 6, 1857, including Rev. Mr. Hopkin's Address and Judge White's Memoir of the Plummer Family. Salem, 1858. (97 pages.) 8vo.—*From the Salem Lyceum.*
- Memoir of the Baron De Kalb, read at the meeting of the Maryland Historical Society Jan. 7, 1858, by J. Spear Smith. Baltimore, 1858. (36 pages.) 8vo.—*From the Society.*
- Tenth Annual Report of the Massachusetts School for Idiotic and Feeble Minded Youth. Boston, 1858. (33 pages.) 8vo.—*From Dr. S. G. Howe.*
- The Rocks of Kansas, by G. C. Swallow and F. Hawn, with descriptions of new Permian Fossils by S. C. Swallow. St. Louis, 1858. (30 pages.) 8vo.—*From the Authors.*
- The Astronomical Journal. No. 112. Albany, April 2, 1858. 4to.—*From the Editor.*
- Journal of the Franklin Institute. Vol. 65. 388. April, 1858. No. 4. Philadelphia, 1858. 8vo.—*From the Institute.*

Dr. Bell announced the decease of Dr. John K. Mitchell, a member of the Society, who died on the 4th instant, aged 65:—and, on motion, Dr. Dunglison was appointed to prepare an obituary notice of the deceased member.

The Society then proceeded to ballot for candidates for membership.

The amendments to the Laws of the Society, proposed in the report of the Committee read at last meeting, next came up

for consideration; and being read separately, and the question taken upon each amendment, they were all adopted as follows:

CHAP. II. SECT. 6. Of the day, hour and place of election, notice shall be given by the Librarian, at least one week before the day of election, in such one or more of the public newspapers of the State of Pennsylvania as the Society shall direct.

CHAP. IV. SECT. 1. The Secretaries shall minute the proceedings of the Society at the meetings: they shall read all papers which are required to be read at the meetings, and shall preserve, in regular files, all documents presented to the Society; they shall give notice to members of their election, acknowledge in writing the reception of all communications, and generally conduct the correspondence of the Society.

CHAP. IV. SECT. 3. *Stricken out.*

CHAP. VI. SECT. 6. (*Treasurer.*) He shall, as a full compensation for his services, receive five per cent. on the amount of the annual income of the Society collected by him.

CHAP. VIII. SECT. 1. A member of the Society shall be chosen at the stated meeting on the third Friday of January in each year, to be the Librarian of the Society: nominations for said office shall be made at the first stated meeting in January, and no person shall be voted for who has not been so nominated.

SECT. 2. He shall have, under the direction of the proper standing Committees, the custody and care of the Hall and of the books and papers belonging to the Society, which he shall dispose and arrange in such a manner as shall be judged most convenient, and shall keep an arranged catalogue of them, with the names of the donors. He shall assist the Curators in their charge of the cabinet.

SECT. 3. He shall attend at the library, at every meeting of the Society, and daily, excepting Sundays, from 10 A. M. to 1 P. M. except when allowed leave of absence by the presiding officer of the Society, and shall then, &c. &c., (as at present).

SECT. 7. He shall transcribe carefully and correctly the minutes of the Society, as made by the officiating Secretaries. He shall acknowledge the receipt of all donations made to the Society, and transmit copies of its Transactions and Proceedings as directed, and shall from time to time perform such other executive or ministerial duties as may be charged on him by the vote of the Society given according to the laws.

SECT. 8. He shall, under the direction of the Secretaries, act as re-

porter of the proceedings of the Society, and shall cause such abstract of the Proceedings to be published for the use of the members and for distribution to correspondents as the Secretaries may deem expedient or proper, or as the Society may direct; but no expense shall be incurred, or any contracts made for printing or publishing the same, beyond the sum appropriated by the Society for such purposes.

SECT. 9. He shall receive an annual salary of seven hundred dollars, to be paid monthly from the treasury of the Society, and his services shall commence the first Monday after his election.

The preamble and resolutions attached to the report of the Committee were also unanimously adopted.

All other business having been concluded, the ballot box was opened by the presiding officer, who declared that PROF. WILLIAM H. ALLEN, of Philadelphia, was duly elected a member of the Society.

Stated Meeting, May 7.

Present, twenty members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From Prof. W. H. Allen, dated Girard College, April 19, 1858, acknowledging the receipt of notice of his election as a member of the Society:—

From the Geographical Society of Paris, dated Nov. 24, 1857,—and from the Leeds Philosophical Society, dated Dec. 8, 1857, both returning thanks for Vol. XI. Part 1, of the Transactions of this Society:—

From the Horticultural Society at Berlin, dated Sept. 28, 1857, acknowledging the receipt of Nos. 51–55 of the Proceedings of this Society, and also announcing a donation for the library:—

From the Royal Academy of Sciences, at Amsterdam, dated Aug. 15, 1857, accompanying a donation for the library:—

From the Royal Norwegian University at Christiania, announcing the presentation by the University to this Society, of a Bronze Medal, struck on the occasion of the celebration of

the semi-centennial anniversary of the official term of Dr. Christopher Hansteen, Professor of Astronomy in that University:

From Col. J. D. Graham, dated Chicago, Illinois, March 10, 1858, accompanying sundry maps and charts referred to in his reports on lake and harbour improvements, presented for the library of the Society:—and from the same, dated Chicago, April 2, 1858, announcing a donation for the library, and containing a communication in reference to the determination of the longitude of the City Hall or Court House at Chicago:—

From Dr. Nicholas Manzini, dated Havana, Dec. 10, 1857, announcing the presentation, for the library, of two copies of his History of Inoculation as a preservative from Yellow Fever:

From the Boston Society of Natural History, dated May 1, 1858, returning acknowledgment for No. 58 of the Proceedings of this Society:—

From Prof. Zantedeschi, dated Padua, April 9, 1858, on transmitting a donation for the library;—and

From Dr. Isaac I. Hayes, proposing to make an effort to reach the north pole of the earth, and requesting to be informed of any measures which, in the judgment of the Society, it will be expedient for him to adopt, to promote the advancement of any of the sciences for whose interests it labours.

The following donations were announced:—

FOR THE LIBRARY.

Collections of the Massachusetts Historical Society. Vol. IV. of the

IV. Series. Boston, 1858. (514 pages.) 8vo.—*From the Society.*

Thirteen Charts of Chicago, Sheboygan, Manitowoc, St. Josephs, Black Lake, Grand River, Kalamazoo, Kenosha, and New Buffalo Harbors, made under the direction of Br. L. Col. J. D. Graham. Chicago, 1855, 6, and 7.—*From Col. Graham.*

Geological Survey of Canada. Report of progress for 1853–6. Toronto, 1857. (500 pages, with a 4to. volume of plans.) 8vo.—*From Sir W. Logan.*

Plans of various Lakes and Rivers between Lake Huron and the River Ottawa, to accompany the Geol. Reports for 1853–6. 4to. *From T. Sterry Hunt.*

Annales des Mines. V. Ser. Vol. X. 1, Vol. XI. 2, 3, 4, Vol. XII. 5. Paris, 1857. 8vo.—*From the Engineers.*

- Histoire de l'inoculation preservative de la Fièvre Jaune, pratiquée, a l'hôpital Militaire de la Havane, redigée par Nicolas B. L. Manzini. Paris, 1858. (240 pages.) 8vo.—*From the Author.*
- A brief Memorial of the late Judge John K. Kane, Vice-President of the Pennsylvania Institution for the Instruction of the Blind, prepared by Robley Dunglison, M.D. Philadelphia, 1858. 4to.—*From the Author.*
- Notice sur les Mines de Cuivre du Cap de Bonne Espérance, par M. Delesse. Paris, 1858. (30 pages.) 8vo.—*From the Author.*
- Proceedings of the Royal Geographical Society of London. June, 1857. No. XI. London, 1858. 8vo.—*From the Society.*
- Report of the Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1856-7. Leeds, 1857. 8vo.—*From the Society.*
- Leeds Philosophical and Literary Society Annual Report for 1856-7. Leeds, 1857. 8vo.—*From the Society.*
- Maryland Institute. Transactions. Eighth Annual Report. Reports of the Committees on the Exhibitions of 1855 and 1856. Address before the Female Department of the School of Design. Baltimore, 1856. 8vo.—*From the Institute.*
- Maryland Institute Library Catalogue. Part 1. Alphabetical. Baltimore, 1857. 8vo.—*From the same.*
- Harbors of Lakes Michigan, St Clair, Erie, Ontario and Champlain. Last Annual Report of Lieut. Col. J. D. Graham. Cong. Doc. H. of Rep. Ex. Doc. No. 23. Jan. 11, 1858. Washington, 1857. (180 pages.) 8vo.—*From Col. J. D. Graham.*
- The American Almanac for 1848, with MSS. corrections by Col. Graham of the lat. and long. of Chicago, &c., dated Jan. 30, and June 5, 1857.—*From Col. J. D. Graham.*
- Memoirs of the Historical Society of Pennsylvania. Vol. V. Philadelphia, 1858. Large 8vo.—*From the Society.*
- Journal of the Franklin Institute. No. 5. Philadelphia, May, 1858. 8vo.—*From the Institute.*
- American Journal of Science and Arts. Vol. XXV. No. 75. May, 1858. New Haven. 8vo.—*From the Editors.*
- Notices of the Meetings of the Members of the Royal Institution of Great Britain. Part VII. Nov. 1856. July, 1857. London, 1857. 8vo.—*From the Institution.*
- A Catalogue of 3735 Circumpolar Stars observed at Redhill in 1854-5-6, and reduced to mean positions for 1850.0, by Rich. Chris. Carrington. Also 680 observed at Speyer by Prof. Schwers,

- and 50 observed at Markree by E. J. Cooper. London, 1857. (210 pages with 10 maps.) 4to.—*From the Board of Admiralty.*
- Edinburg Astronomical Observations. Vol. XI. 1849–54, by C. Piazzzi Smith. Edinburg, 1857.—4to.—*From the Royal Observatory.*
- Royal Astronomical Society. Monthly Notices. Vol. XVIII. No. 5. March 12, 1858. 8vo.—*From the Society.*
- Journal of the Society of Arts and of the Institutions in Union. Vol. V. No. 246 to 266. London, 1857. 8vo.—*From the Society.*
- Medical News and Library. No. 185. May, 1858. Philadelphia. 8vo.—*From Blanchard & Lea.*
- Illinois Geological Survey. By J. G. Norwood, M.D. Chicago, 1858. (100 pages.) 8vo.—*From the Chicago Historical Society.*
- General Notions of Chemistry by J. Pelouze and E. Fremy, translated by Edmund C. Evans, M.D. Philadelphia, 1854. (438 pages.) 8vo.—*From the Translator.*
- Calendrier de l'Instruction Publique pour 1858. Montreal, 1858. 4to.—*From L. A. Huguet Latour.*
- Estimate of certain expenses of the civil government of Canada for 1856. Toronto, 1858. (13 pages.) Large 8vo.—*From Capt. Huguet Latour.*
- Essai sur les Insectes et les Maladies qui affectent le Blé, par Emil. Dupont. Montreal, 1857. (40 pages.) 8vo.—*From the same.*
- Réponse a une adresse . . . relatifs a . . . le fief sillery, pres de Quebec. Par. H. Lemesurier et autres. Toronto, 1856. (85 pages.) Large 8vo.—*From the same.*
- Rapport Annuel du Magistrat Commandant l'Expédition pour la protection des Pecheries dans le Golfe St. Laurent, 1856. Toronto, 1856. (40 pages.) 8vo.—*From the same.*
- Nascita, Studij, Posizione sociale e Bibliografia delle principali opere e memorie di F. Zantedeschi. Padova, 1857. 8vo.—*From Prof. F. Zantedeschi.*

FOR THE CABINET.

A Medal struck in honor of the Fiftieth Anniversary of the Installation of Prof. Hansteen of Norway.—*From the Royal Norwegian University.*

Dr. Franklin Bache announced the death of the Hon. Charles Fenton Mercer, of Virginia, a member of this Society, who died on the 4th instant, in the 80th year of his age.

Dr. B. H. Coates announced the decease of Charles Nagy of Pesth, in Hungary, a member of this Society, who died in the year 1849.

Prof. Haldeman announced the death of Don Manuel de Naxera, of Mexico, a member of the Society.

Colonel Graham, in alluding to the well known accuracy afforded by the electric telegraph in determining differences of longitude, said he had understood that the British authorities were now testing the accuracy of a number of points, determined in longitude by the officers of engineers attached by the American and British governments to their respective commissions, for ascertaining and marking the boundary under the Treaty of Washington of 1842. These points are on and near the river St. John, and at other stations where the telegraphic wires have been extended.

The tests, he understood, were being made by electric connections with the meridian of Harvard College Observatory at Cambridge, Massachusetts. Whenever the results, which may be thus obtained, shall be announced, it may be a matter of some interest to compare them with those obtained before the invention of the electro-magnetic telegraph. Previous to this invention we were obliged to depend on direct observations upon the heavenly bodies, for determining initial or primary longitudes at suitable intervals apart, and then generally to obtain intermediate points by the transmission of chronometers to and fro between these primary meridians. Now the chronometers remain at rest at the observing stations, and are compared by electric signals transmitted along the telegraphic wires, thus avoiding all errors in the run of the chronometers, produced by the jolting of vehicles, and other accidents incident to travelling with them.

Col. Graham concluded by saying that the table at pp. 366 to 369, of the American Almanac for the year 1848, gives the positions of a number of points in New Brunswick, Canada, Maine, Vermont, New York, &c., as determined by himself and his assistants on the part of the American commission of boundary, which are now being subjected to the tests above alluded to.

The following is a copy of the letter from Col. Graham, read this evening.

Chicago, Illinois, April 2d, 1858.

To PROFESSOR E. O. KENDALL,

Corresponding Secretary of the Am. Philos. Soc. Philada.

Dear Sir,—I forward herewith to your care, for the library of the American Philosophical Society, two volumes, as follows, viz.

1. A bound copy of the American Almanac for the year 1848, containing, at pages 366 to 369, a table of latitudes and longitudes of a number of places in the United States, Canada, New Brunswick, and Texas before it became a State of our Union, determined by myself and my assistants, to which I wish to invite the attention of the Society. This table stands, in this volume, corrected of a few typographical errors.

2. A bound copy of my Annual Report on Lake Harbour Improvements, for the year 1857, 8vo. pp. 174, besides an "Addenda" and an "Errata" at the end of the volume. I wish to invite the attention of the Society, also, to a report at pp. 12 to 21, and 56 to 60, of this volume, upon the determination of the longitude of the City Hall or Court House of Chicago, west of Greenwich, giving it as $5h. 50m. 32s.08$, or, in arc, $87^{\circ} 38' 01''.2$.

This result is based upon the longitude of the centre of the citadel of Quebec, as determined by myself in the year 1842, while employed in ascertaining the north-eastern boundary of the United States, under the treaty of that year with Great Britain. It will be found announced in the American Almanac for the year 1848, at pages 368, 369, as west of Greenwich,

h. m. s.
4 44 49.65

To this, assumed as a primary meridian, was added the difference of longitude obtained in May, 1857, by Lieut. E. D. Ashe, of the British Navy, and myself, by means of electric signals transmitted along the telegraphic wires, between the British Observatory at Quebec, of which he is the Director, and my observing station at Chicago, which

h. m. s.
1 05 41.51

was thus found to be

Lieut. Ashe's observatory is east of the meridian of the centre of the Que- bec citadel, - - - - -	-0.17
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And the dome of the City Hall or Court House, of Chicago, is west of the meridian of my observing station, -	+ 01.09
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Hence the dome of the Chicago City Hall or Court House is west of the centre of the Quebec citadel, - - 1 05 42.43 +1 05 42.43

Longitude of the dome of the City Hall or Court House of Chicago, west of Greenwich, - - 5 50 32.08

I will remark that the longitude of the citadel of Quebec is given, under the authority of Bayfield, in the *Connaissances des Temps* for the year 1842, and in the subsequent numbers, as *h. m. s.*
west of Paris, - - - - - 4 54 26

Difference allowed at the time for reducing from the meridian of Greenwich to that of Paris, + 9m. 21s.5, and hence to reduce back to Greenwich, - - - - - - 9 21.5

Bayfield's longitude of the citadel of Quebec, west of Greenwich, - - - - - 4 45 04.5

Graham's determination of the longitude of the same point in 1842, - - - - - 4 44 49.65

Difference of determinations, Bayfield west of Graham, + 14.85

The latitude of the centre of the citadel of Quebec was observed by me in the year 1842 (see the American Almanac for 1848, pp. 368, 369), with portable instruments, to be 46° 48' 17".3 N.

It is stated in the *Connaissances des Temps*, from 1842 to the present time, under the authority of Bayfield, at - - - - - 46° 49' 12"

Difference, Bayfield north of Graham, - - - + 54".7

The American Almanac had adopted Bayfield's latitude and longitude of this position in its general table, previous to my contribution to that work published in the number for the year 1848; and since that time it has continued Bayfield's determination in preference to mine. I should be pleased, however, if the Society should think proper to notice this paper, giving the results of my observations, made in 1842, in its proceedings.

The Latitude of Chicago.

I was induced, in January last, to make a few observations, with portable instruments, for ascertaining approximately the latitude of the City Hall or Court House of Chicago. The instruments used

were a sextant of $7\frac{1}{4}$ inches radius, made especially for me by Simms (of the late firm of Troughton & Simms), of London, divided on *pal-ladium* to read by aid of the vernier to ten seconds of arc, with an artificial horizon of mercury, and a good chronometer by Parkinson & Frodsham, of London. The observations were made on Polaris (α Ursæ Minoris), north, and (circum-meridian) on β Orionis, south. The results were as follows, viz.

Latitude of station, by observations on the 20th of January, 1858, - - - - -	41° 53' 53" N.
Do. by observations of January 21st, 1858,	41 53 54.6
	<hr/>
Mean, - - -	41 53 53.8

By triangulation, based for orientation on the true meridian ascertained with the astronomical transit, the dome of the City Hall or Court House was found to be 4462.49 feet south of the parallel of the observing station; or, in arc, of the meridian,

— 44.1

Latitude of the City Hall or Court House of Chicago (approximate), - - - - -	41 53 09.7 N.
	<hr/>

In the American Almanac for 1858,* the longitude of Chicago is given west of Greenwich, - - - - - 5h. 50m. 20s.

And the latitude, - - - - - 42° 00' N.

Graham & Ashe west of the American Almanac for 1858, in the longitude of Chicago, - - - - - + 12s.08

Graham south of American Almanac for 1858, in the latitude of Chicago, - - - - - — 6' 50".3

The Magnetic Declination at Chicago.

This was ascertained on the 23d of July, 1857, by placing a circumferenter, furnished with a transit telescope and with a magnetic needle $4\frac{1}{2}$ inches long, upon a station in the true meridian line determined with the astronomical transit. By a mean of four readings of the needle, two with the zero (o) of the azimuth circle north, and two others with it south, the following result was obtained, viz.

1857, July 23, at 4 o'clock P. M.—Magnetic declination at Chicago (observing station as before), $5^{\circ} 46' 07\frac{1}{2}''$ E. of N.; or, say five degrees forty-six and one-tenth minutes east of north.

Very respectfully yours, &c. &c.

JAMES D. GRAHAM,

Member of the Society.

* See the table of latitudes and longitudes of places, p. 45.

Dr. Le Conte offered the following resolutions, which were read, considered and adopted:—

Resolved, That the Society receives, with much gratification, the announcement made by Dr. Isaac I. Hayes, of his purpose to attempt a further exploration of the Arctic regions, and, if practicable, to reach the north pole of the earth.

Resolved, That in the opinion of this Society such an exploration merits the zealous co-operation of the scientific men of the United States, and that at a convenient time, the Society will communicate to Dr. Hayes such suggestions respecting the promotion of its objects as may be considered useful.

Resolved, That a committee of five be appointed to co-operate with the committee recently appointed with reference to this subject by the American Association for the Advancement of Science; and to take such measures, from time to time, on behalf of this Society, as shall be deemed expedient.

The committee appointed under the above resolution consists of Prof. Frazer, Prof. Cresson, Mr. Colwell, Mr. Foulke and Dr. R. E. Rogers.

Stated Meeting, May 21.

Present, nineteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

A letter was read from Prof. John F. Frazer, dated May 8, 1858, expressing his regret at being obliged to decline the honour of serving on the committee appointed at last meeting in relation to the proposed attempt of Dr. I. I. Hayes to make a further exploration of the Arctic regions.

The following donations were announced:—

FOR THE LIBRARY.

Almanaque Náutico para 1859. Cadiz, 1857. 8vo.—*From the Observatory.*

Osservazioni ai nuovi sforzi fatti dal belli a difesa dei due esperimenti . . . contro la simultanea essistenza di due opposte correnti elettriche, &c. Nota 2, del Prof. Zantedeschi. Vienna, 1858. (8 pp.) 8vo.—*From the Author.*

Researches on Primary Pathology and the Origin and Laws of Epidemics, in 2 vols. By M. L. Knapp, M.D.. Philadelphia, 1858. (650 pp.) 8vo.—*From the Author.*

The Committee on the Distribution of Lunatic Hospital Reports. By E. Jarvis, M.D. Dorchester, 1857. 8vo.—*From the Author.*

Proceedings of the Boston Society of Natural History. Vol. VI. No. 22. April, 1858.—*From the Society.*

Bulletin de la Société de Géographie, rédigé par M. A. Maury et M. V. A. Malte Brun. 4 Ser. T. XIV. Paris, 1857. (548 pp.) 8vo.—*From the Society.*

Prof. Cresson announced the death of Dr. Robert Hare, a member of this Society, which occurred on the 15th instant, in the 78th year of his age.

Mr. Lesley referred to a paper read by him before the American Association for the Advancement of Science, at their late meeting in Baltimore; and, in connection with this, read some remarks upon "the insensible gradation of words in comparative philology."

On motion, Prof. Frazer was excused from serving on the committee appointed at last meeting, in relation to the proposed attempt at further Arctic exploration by Dr. I. I. Hayes, and Dr. Ruschenberger was appointed as a member of the committee.

Stated Meeting, June 18.

Present, twelve members.

Prof. CRESSON Vice-President, in the Chair.

Letters were read:—

From the Imperial Geological Institute, dated Vienna, May 20, 1857:—from the Etat Major of the Corps of Mining Engineers of Russia, dated St. Petersburg, May 15–27, 1857: from the Imperial Society of Naturalists of Moscow, dated July 1–13, 1857; from the Zoological Society of Amsterdam, dated Nov. 1857: and from the Directors of the Royal Observatory, Greenwich, dated May 6, 1858, severally announcing donations for the library:—

From the Royal Prussian Academy of Sciences, dated Berlin,

Oct. 27, 1857: and from the Royal Bavarian Academy of Sciences dated Munich, Dec. 12, 1857, acknowledging the receipt of Transactions and Proceedings of this Society, and also announcing the transmission of donations for the library:—

From the Batavian Society of Experimental Philosophy at Rotterdam, dated Jan. 14, 1858, returning acknowledgements for Proceedings and Transactions of this Society:—

From Dr. Robley Dunglison, dated June 8, 1858, informing the Society that, on account of the attacks of an oft-recurring and disabling malady, it would not be in his power, after this year, to undertake the duties that appertain to any official appointment by the Society.

The following donations were announced:—

FOR THE LIBRARY.

- The Samoan New Testament. London, 1849. (458 pages.) 12mo.
—*From Dr. Ruschenberger.*
- The Samoan Book of Ezekiel. Apia, 1849. (126 pages.) 12mo.
—*From the same.*
- The Samoan Catechism. London, 1856. (20 pages.) 12mo.—
From the same.
- Quarterly Summary of the Transactions of the College of Physicians of Philadelphia, from August 5, 1857 to Feb. 3, 1858. Vol. III. No. 4. Philadelphia, 1858. 8vo.—*From the College.*
- Proceedings of the Boston Society of Natural History. Vol. VI. No. 20, 22. Boston, 1858. 8vo.—*From the Society.*
- The Astronomical Journal. Vol. V. No. 17. May 20. Albany, 1858. 4to.—*From Dr. B. A. Gould.*
- Monthly Notices of the Royal Astronomical Society. No. 6. April 9. London, 1858.—*From the Society.*
- Proceedings of the American Antiquarian Society, April 28. Boston, 1858. (32 pages.) 8vo.—*From the Society.*
- Quarterly Journal of the Chemical Society. No. XLI. April. London, 1858. 8vo.—*From the Society.*
- Proceedings of the Royal Geographical Society. No. VII. Feb. 1857. London, 1858. 8vo.—*From the Society.*
- The Historical Magazine. Vol. I. No. 5. May. New York and Boston, 1858. 8vo.—*From Col. J. D. Graham.*
- Jahrbuch der Kai. Kön. Geologischen Reichsanstalt, 1856. VII. No. 4. 1857. VIII. No. 1. Wien, 1858. 8vo.—*From the Institute.*

- Gelehrte Anzeigen der K. Bayer. Akad. der Wissenschaften. Vol. 44. Jan. to June, 1857. München, 1857. (623 pages.) Small 4to.—*From the Academy.*
- Abhandlungen der Math. Phys. Classe der K. Bayer. Akad. der Wiss. 8 Bandes. 1 Ab. im. XXXI. Band. München, 1857. 4to.—*From the same.*
- Ueber den Anbau und Ertrag des Bodens im Königreiche Bayern. By Dr. F. B. W. Von Hermann. 1 Abt. München, 1857. (24 pages.) 4to.—*From the same.*
- Ueber die Physik der Molecularkräfte. Rede Vorgetragen von Prof. Dr. Jolly. München, 1857. (20 pages.) 4to.—*From the same.*
- Monatsbericht der Kön. Preuss. Akad. der Wiss. zu Berlin, Jan. 1856—Aug. 1857. 8vo.—*From the Academy.*
- Abhandlungen der Kön. Preuss. Akad. der Wiss. zu Berlin, 1856. 4to.—*From the same.*
- Memoires de l'Acad. Impériale des Sciences de Saint Petersburg. 6 Serie. Sci. met. et nat. T. VIII. 1 Part. Sci. math. et phys. T. VI. St. Petersburg, 1857. (With 13 plates.) 4to.—*From the Academy.*
- Annales de l'Observatoire Physique Central de Russie . . . par A. T. Kupffer. 1854, No. 1. (900 pages.) 1854, No. 2. (150 pages.) St. Petersburg, 1856. 4to.—*From the Observatory.*
- Bulletin de la Société Impériale des Naturalists de Moscou, publié sous le redaction du Dr. Renard. A. 1856, No. II. III. IV. A. 1857, No. 1. Moscou, 1856. Large 8vo.—*From the Society.*
- Jaarboekje van het Genootschap Natura Artis Magistra, voor het jaar 1852-7. 6 vols. Amsterdam. 12mo.—*From the Society.*
- Bijdragen tot de Dierkunde. 6 aflevering, 1854. Amsterdam, 1854. 4to.—*From the same.*
- Fauna Belgica Septentrionalis Auctore R. T. Maitland. Part 1. Animalia Radiata et Annulata Cuvèrii. Leyden, 1851. (234 pages.) 8vo.—*From the same.*
- Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. 2 Verzam. 13 Deel. Haarlem, 1857. 4to.—*From the Society.*
- Transactions of the Linnean Society of London. Vol. XXII. Part 2. London, 1857. 4to.—*From the Society.*
- List of Members, 1857. 8vo.—*From the same.*
- Anniversary Address of the President, May 25, 1857. 8vo.—*From the same.*
- Journal of the Proceedings. Botany, Vol. I. No. 4. Vol. II. No.

5, 6. Zoology, Vol. I. No. 4. Vol. II. Nos. 5, 6. London, 1857. 8vo.—*From the same.*

Journal of the Society of Arts and of the Institutions in Union. Vol. VI. Nos 267 to 275. Jan. 1 to Feb. 26. London, 1858. 8vo. *From the Society.*

Medical News and Library. Vol. XVI. No. 186. June. Philadelphia, 1858. 8vo.—*From Blanchard & Lea.*

Papers on Practical Engineering. No. 6. Report on Casement Embrasures, by Brev. Brig. Gen. Jos. G. Totten, Col. and Chief Eng. U. S. A. Washington, 1857. (180 pages.) 8vo.—*From the Engineer Department.*

Collections of the New York Historical Society. Vol. V. An analytical Index to the Colonial Documents. By Wm. A. Whitehead. Newark and New York, 1858. (500 pages.) 8vo.—*From the Society.*

Journal of the Franklin Institute. Vol. 65. No. 390. June. No. 6. Philadelphia, 1858. 8vo.—*From the Institute.*

Dr. Le Conte announced the decease of A. L. Crelle, of Berlin, a member of the Society, who died in 1856.

Dr. Le Conte exhibited a piece of silver, said to have been brought from China, which has the form of a flattened cylinder, bent until the ends meet, and having peculiar marks stamped upon it, one of which appears to be in Chinese characters.

Mr. Justice presented for inspection sundry substances consisting of paraffine, lubricating oil, burning oil, naphtha and benzole, all produced from the cannel coal of western Virginia, and now being extensively manufactured by the Union Coal and Oil Company at their works in Maysville, Kentucky. The coal is mined on the Kanawha river in Virginia, and is sent to Maysville, where the Company is now constructing works of a capacity to produce 3000 gallons per day. This coal yields from each ton about an average of 55 gallons of crude oil, from two to three gallons of benzole, and the same quantity of naphtha; also nearly 18 pounds of pure paraffine. The burning oil loses nearly one-third in the purifying process.

Prof. Cresson was excused from serving on the committee appointed in relation to the proposed Arctic explorations of Dr. I. I. Hayes, and the presiding officer was authorized to fill the vacancy by the appointment of another member.

P R O C E E D I N G S
OF THE
AMERICAN PHILOSOPHICAL SOCIETY.

Vol. VI. JULY—DECEMBER, 1858. No. 60.

Stated Meeting, July 16, 1858.

Present, six members.

Dr. DUNGLISON, Vice-President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Report of the Joint Select Committee, on the Wisconsin Land Frauds.

Madison, 1858. (320 pages.) 8vo.—*From the Committee.*

Monthly Notices of the Royal Astronomical Society. XVIII. 7.

London. May 14, 1858. 8vo.—*From the Society.*

Albany Astron. Journal. No. 114.—*From the Editor.*

American Jour. Med. Sciences. LXXI. July, 1858. Philadelphia.

Medical News and Library. No. 187.—*From Blanchard & Lea.*

American Jour. Science and Art. July, 1858.—*From the Editors.*

Reports of the Board of Visitors, &c. of the New Hampshire Asylum
for Insane. Concord, 1858. (22 pages.) 8vo.—*From the Board.*

Proceedings Boston N. H. Soc. (23.)—*From the Society.*

Journal Franklin Institute. July, 1858.—*From the Institute.*

United States Astronomical Expedition. Vol. III. Solar Parallax
Obs. Washington, 1856. 4to.—*From Sup't J. M. Gilliss.*

The death of the Hon. Job R. Tyson, a member of the Society, was announced as having occurred on the 27th of last month, in the 55th year of his age.

Johannes Müller, of Berlin, a member of the Society, was also announced as deceased.

Stated Meeting, August 20, 1858.

Present, five members.

The Vice-Presidents being absent, Mr. Justice was called to the Chair.

Letters were read:—

From the Royal Society of London, dated March 13, 1858, and from the Royal Geographical Society, dated December 30, 1857, respectively acknowledging the receipt of the Transactions of this Society, Vol. XI. Part 1, and of the Proceedings, Nos. 55 and 56: and—

From the Royal Geographical Society, dated April 20, 1858, announcing a donation for the library.

The following donations were announced:—

FOR THE LIBRARY.

Addresses of the newly appointed Professors of Columbia College. New York, 1858. (200 pages.) 8vo.—*From the College.*

Journal of the Proceedings of the 74th Pennsylvania Episcopal Diocesan Convention. Philadelphia, 1858. (200 pages.) 8vo.—*From Jas. J. Barclay.*

Report of the Managers of the Episcopal Church Hospital. Philadelphia, 1858. (40 pages.) 8vo.—*From the same.*

Third Annual Report of the Wisconsin Hist. Soc. Vol. III. Madison, 1857. (550 pages.) 8vo.—*From the Society.*

Tenth Annual Report of the Maryland Institute. Baltimore, 1858. (233 pages.) 8vo.—*From the Institute.*

Defence of Dr. Gould, by the Scientific Council of the Dudley Observatory. Albany, 1858. (92 pages.) 8vo.—*From A. D. Bache*

Thirty-seventh Annual Report, Mercantile Library and Clinton Hall Association. New York, 1858. (40 pages.) 8vo.—*From the Ass.*

Philosophical Trans. Royal Soc. London. Vol. 147. Parts 1, 2. Proceedings of the same. VIII. 27; IX. 28, 29; with the List of Officers and Fellows, Nov. 30, 1857; with the Anniversary Address of the President.—*From the Society.*

Monthly Notices, Royal Astron. Soc. XVII. XVIII. No. 8.

Memoirs of the same. Vol. XXVI. London, 1858.—*From the Soc.*

Journal Royal. Geog. Soc. XXVII. London, 1857. 8vo. and

- Proceedings of the same. II. No. 1, 2. Jan. March, 1858.
- Report of the Adjudication of the Copley, Rumford and Royal Medals and appointment of the Bakerian, Croonian and Fairchild lectures, compiled from the original Documents in the Royal Society, by James Hudson, Asst. Sec. and Librarian. London, 1834. 4to.
—*From the Royal Society.*
- Six Discourses before the Royal Soc. at the awarding of the medals, preceded by an address by Sir Humphrey Davy. London, 1827. 4to.—*From the Royal Society.*
- Observations Meteorologiques à Nijné Taguilsk. Paris, 1858. 8vo.
- Journal Soc. Arts and Inst. in Union. VI. 276-279. London, 1858.
- Journal Bath and West of England Soc. London, 1857. 8vo.
- Journal Royal Dublin Soc. Nos. 7 and 8. 8vo.—*From the Society.*
- Journal Franklin Institute. XXXVI. 2. Philadelphia, 1858. 8vo.
- Catalogue of Antiquities in the Royal Irish Acad. Museum, by W. R. Wilde, illustrated. Dublin, 1857. (250 pp.) 8vo.—*From W. R. W.*
- Bulletin Soc. de Geographie. T. XV. Paris, 1858. 8vo.
- Medical News and Library. XVI. 188. Philadelphia, 1858. 8vo.
—*From Blanchard & Lea.*
- Experiments on Sonorous Flames by W. B. Rogers. From the Amer. Jour. (15 pages.) New Haven, 1858. 8vo.—*From the Author.*
- The Dudley Observatory, an address to the citizens of Albany, &c. 1858. (32 pages.) 8vo.

Dr. Harris announced the decease of William Rawle, Esq., a member of the Society, who died on the 9th of the present month, in the 71st year of his age.

Mr. Lesley laid before the meeting some specimens of slate from the second coal bed of Broad Top, containing *Lepidostrobis*, which he considers important as establishing the identity of this coal bed at different points of its many outcrops in widely distant parts of the United States. In connection with this he also exhibited specimens of top-slate, polished to a perfect mirror surface by the disturbance of the coal bearing strata.

On motion of Mr. Letchworth, an appropriation of forty dollars was made to pay expenses incurred by the Librarian.

Stated Meeting, September 17, 1858.

Present, fourteen members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Dr. Thomas Horsfield, dated Library, India House, August 28, 1858, announcing a donation for the library, from the Hon. Directors of the India Company, London:—

From Mr. Charles F. Loosey, dated New York, August 19, 1858, announcing the transmission of a donation for the library from the I. R. Geographical Society of Vienna: and—

From M. Alfred Malherbe, dated Metz, August 4, 1858, accompanying a prospectus of his “*Monographie des Piscides*,” for which he solicits the patronage of the Society and its members.

The following donations were announced:—

FOR THE LIBRARY.

- Mittheilungen der K. K. Geogr. Ges. I. 1, 2. Wien, 1857. 8vo.
 Proceedings Amer. Acad. IV. (1) to (11). Boston, 1858. 8vo.
 Proceedings Boston Soc. N. H. VI. (24). 1858. 8vo.
 Journal Franklin Institute. No. 393. Philadelphia, 1853. 8vo.
 Amer. Journal Sci. XXVI. No. 77. New Haven, 1858. 8vo.
 Medical News. XVI. No. 189. Philadelphia, 1858. 8vo.
 Minutes of Gen. Ass. Connecticut. New Haven, 1858. 8vo.
 Bulletin, Soc. de Géographie. T. XV. Paris, 1858. 8vo.
 Proceedings at the Dedication of the Boston Public Library Building.
 Jan. 1, 1858. Boston. 8vo.—*From the City of Boston.*
 Map of the Basin of the La Plata.—*From the Navy Department.*

On motion of Dr. William Harris, it was resolved that Dr. Robert E. Rogers be requested to prepare an obituary notice of the late Dr. Robert Hare.

A paper, entitled “A List of Fifteen Hundred English-Sanscrit Analogues, by Pliny Chase,” was offered for publication in the Transactions of the Society, which was referred to a committee consisting of Mr. Lesley, Prof. Coppée and Judge King.

On motion of Dr. Le Conte, the Librarian was instructed to furnish a statement of the list of exchanges of the Society, and the value thereof.

The Reporter laid upon the table No. 59 of the Proceedings of the Society, which has been recently published.

Stated Meeting, October 1, 1858.

Present, fourteen members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Society of the Museum of Natural History, of Strasbourg, dated March 5, 1857, acknowledging the receipt of Nos. 53 and 54 of the Proceedings of this Society:—

From the Literary and Philosophical Society of Manchester, without date, returning thanks for Vol. XI. Part 1, of the Transactions, and Nos. 55 and 56 of the Proceedings:—

From the Connecticut Historical Society, dated Hartford, Sept. 23; from the Corporation of Yale College, dated New Haven, Sept. 24; and from the Academy of Science of St. Louis, dated Sept. 24, 1858, severally containing acknowledgments for No. 59 of the Proceedings: and—

From Prof. Zantedeschi, dated Padua, Sept. 9, 1858, in relation to the mode of forwarding letters and communications to him.

The following donations were announced:—

FOR THE LIBRARY.

Forty-third Annual Report, American Asylum for Deaf and Dumb.

Hartford, 1858. (60 pages.) 8vo.—*From the Conn. Hist. Soc.*

Thirty-fourth Ann. Report, Retreat for the Insane.—*From the same.*

History of the Indian Tribes, by H. R. Schoolcraft. Part VI. of the Series. Phila. 1857. (754 pp.) 4to.—*From Commiss. C. E. Mix.*

Principles of Social Science. Vol. II. By H. C. Carey. Philadelphia, 1858. 8vo.—*From the Author.*

Quarterly Journal, Chem. Soc. XI. 2. London, 1858. 8vo.

Letter to the Majority of the Trustees of the Dudley Observatory, by an Observer. Albany, 1858. 8vo.
 Journal Soc. Arts. VI. 276-279. London, 1858. 8vo.

The committee to which was referred the paper of Mr. Chase, read at the last meeting, made request that Prof. Haldeman be added to the committee, which was agreed to.

The committee appointed on the 7th of May last, on the subject of further Arctic explorations, by Dr. I. I. Hayes, made the following report:—

The committee to whom was referred the subject of the Arctic exploration proposed by Dr. I. I. Hayes, respectfully report,—

That, beside any reflections of their own upon that subject, they find in previous proceedings of the Society ample warrant for the opinion, that the verification of the alleged open sea about the north pole, and the probable contributions to be made from that region of the earth to the collections of science, constitute sufficient reasons for an earnest interest on the part of the Society, in any reasonable attempt to complete our knowledge in these respects by further exploration. After the signal manifestations which have been given by men of science throughout the world, of their estimate of the importance of circumpolar discovery; and with the advantage of recent reports, from a high latitude, received from our lamented fellow member, the late Dr. Kane, whose efforts were accompanied by warm solicitude on the part of the Society, your committee have believed it proper to confine themselves to a consideration of the grounds upon which Dr. Hayes rests his conviction of the practicability and seasonableness of his proposal. These have been already briefly submitted to the American Association for the Advancement of Science, and have received a very prompt acceptance by that body, the members of which referred the subject to a committee, with instructions to cooperate with Dr. Hayes. They have been also published through the Smithsonian Institution, at an invitation from which, Dr. Hayes announced them in one of the lectures of its last course. Nevertheless, your committee think proper to mention the principal of them as forming the basis of their own conclusion, that the proposal in question is sustained by sufficient evidence of its feasibility to engage the continued attention of the Society.

It is well known that one result of voyages of exploration prior to that of Dr. Kane, was the establishment of an opinion that a barrier

of ice surrounded the pole; and that in order to reach open water, if such existed, a way must be found through, or over, the barrier. Dr. Kane, after an intelligent consideration of the discoveries already reported, aided by the illustrations derived from his personal observation during his first visit to the Arctic circle, concluded that the most practicable course lay up Smith's Strait, which he accordingly followed upon his second voyage. The difficulties encountered by him were such, that after many gallant efforts, he was compelled to return to the United States without becoming an eye witness to the physical condition of the region towards which his labours tended. It seemed therefore proper for your committee to inquire whether those difficulties were clearly of so constant a nature in relation to all similar attempts, as to render it prudent on the part of the Society to avoid encouragement of a project which his experience may have shown to be impracticable. It appears that the most important impediments to his complete success were—1st. The arresting of his vessel and her permanent confinement by the ice, in a situation which was unfavourable to the efforts of his exploring parties. This occurred in a bay to the south of Kennedy channel, with an exposure to the main pressure of ice, which accumulated in hummocks on the north of his position; and thus the labour necessary to any exploration towards the pole, was in disproportion to the strength of his crew, and the resources at his command. On the west side of the channel, under the cover of the projecting land visited by Dr. Hayes (to the most prominent point of which the name Cape Frazer was given), the ice is reported as free from the impediments above stated; and a good harbour is reported to exist for wintering a ship, with egress by the opening of the channel, or through leads in the ice during the Arctic summer. The account published by Dr. Kane, shows how large a proportion of the sufferings and disappointments of his exploring parties was due to the position into which he was forced.

2d. The want of fresh provisions. The unavoidable delay of Dr. Kane's departure from New York beyond the period proposed by him, prevented his collecting, near the Danish settlements in Greenland, the fresh stores which abound in that neighbourhood. Originally contemplating a single year's work, he was detained beyond his expectation, with scanty supplies, until his men, worn out by excessive labour and restricted mainly to a salt diet, became the victims of fearful assaults of scurvy. His narrative shows how much of his disappointment is due to this cause. His dogs, indispensable auxiliaries, were unable to subsist upon salted meats; and thus the entire

stress of the work fell upon an ill-conditioned ship's company. Dr. Hayes proposes to give two years to his exploration. The first of these he designs to employ in reaching his head quarters at or near Cape Frazer; and in establishing thence northward, on the west side of Kennedy channel, secure depôts of provisions, as far as the latitude assigned by Morton to the open water reported by him, or further, if necessary; and in explorations preliminary to the main attempt. The second year, or such portion of it as may be sufficient, Dr. Hayes appropriates to the ascertainment of the condition of the polar adjacencies, and to such observations as may be most important to science. Thus the expedition of Dr. Kane, which may seem to discourage further attempts in the same direction, is viewed by Dr. Hayes as really furnishing the knowledge which promises final success. Your committee concur in this view.

In such circumstances, your committee cannot doubt that it is proper for the American Philosophical Society to co-operate with Dr. Hayes, in such manner as may be conformable with its usages in like cases; and especially to give to him the benefit of such systematic instruction as may best further the general purposes of the Society in the discovery and diffusion of useful knowledge.

Your committee respectfully submit the following resolution:—

Resolved, That a committee of nine members of the Society be appointed to co-operate with Dr. Hayes in his proposed extension of Arctic exploration, and to give to him, on the part of the Society, such instructions as may best promote its objects.

All of which is respectfully submitted.

The resolution accompanying the report was adopted, and the presiding officer authorized to appoint the committee, and announce it at a future meeting.

Mr. Justice referred to the comet which is now visible, and inquired whether any of the members had observed prismatic colours in the *coma*; stating that he thought he had distinctly observed a greenish hue, tinged with rose-colour, on several occasions.

Prof. Cresson remarked that he had observed a reddish tinge; and other members spoke of the appearances presented during their observations of the comet.

Mr. Lesley called the attention of the members to some specimens of photo-lithography, executed by Mr. Rehn, of Phila-

delphia, from photographic impressions made directly upon the stone. Mr. L. referred to the uses to which this process may be applied; its fidelity, and its cheapness as compared with other modes of obtaining copies of objects in natural history, and for other purposes.

A vacancy having occurred in the committee on the bequest of the late F. A. Michaux, by the death of Judge Kane, it was resolved that Judge King be appointed in his place, and that the committee be directed to communicate with M. Hector Bossange, of Paris, in relation to the legacy bequeathed to the Society by M. Michaux.

Stated Meeting, October 15, 1858.

Present, twenty-one members.

Prof. CRESSON, Vice-President, in the Chair.

Letters were read:—

From the Department of State, dated Washington, Oct. 9, 1858, accompanying a donation for the Library of the Society: and—

From the Historical Society of Massachusetts, dated Boston, Oct. 1, 1858, acknowledging the receipt of the Society's Proceedings, No. 59.

The following donations were announced:—

FOR THE LIBRARY.

Paraguay and Uruguay Sheet Maps. Nos. 8, 9, 1, 2, and reference chart.—*From the U. S. Navy Department.*

American Journal Med. Sci. Oct. 1858, and
Medical News, No. 190.—*From Blanchard & Lea.*

Diocesan Miss. Soc. First, Fourth and Fifth Annual Meetings.

Philadelphia, 1853'4'7'8. 8vo.—*From Jas. J. Barclay.*

Episcopal Miss. Ass. for the West. Annual Reports for 1856'8. 8vo.

Hospital of the P. Epis. Church. Annual Reports for 1856'7'8. 8vo.

Appeal of the Friends in behalf of the Coloured Races. Philadelphia, 1858. (48 pages.) 8vo.—*From the same.*

Dudley Observatory, Statement of Trustees. Albany, 1858. 8vo.
Journal Franklin Institute. Philadelphia, Oct. 1858. 8vo.

The Society then proceeded to ballot for candidates for membership.

In accordance with the resolution passed Sept. 17, the Librarian presented a statement of the annual exchange list of the Society, viz.—The number of pages annually presented to the American Philosophical Society as *donations*, amounts, at present, to about one-third of the number presented as *exchanges*; the nearest estimate of which is as follows: 12mo. 1000; Svo. 35,000; 4to. 17,000: equivalent, in volumes, to 5, 120, 45; and in money, say to \$10, \$600, \$340; total, \$950. There stand, upon the donation book, about 340 titles of works received since this date last year, of which one-fourth (95) are donations, and not exchanges.

All other business having been concluded, the ballot boxes were opened, and the following named gentlemen were declared to be duly elected members of the Society:—

Dr. WILLIAM M. UHLER, of Philadelphia.
Mr. CHARLES E. SMITH, of Philadelphia.
Dr. EDWARD HARTSHORNE, of Philadelphia.

Stated Meeting, November 5, 1858.

Present, ten members.

The Vice-Presidents being absent, Dr. Franklin Bache was called to the chair.

Dr. W. M. Uhler, a recently elected member, was introduced and took his seat.

Letters were read:—

From Charles E. Smith, dated Philadelphia, Oct. 25; from Dr. Edward Hartshorne, dated Oct. 28; and from Dr. Wm. M. Uhler, dated November 1, 1858, severally acknowledging the receipt of notice of their election as members of the Society.

The following donations were announced:—

FOR THE LIBRARY.

- Compte Rendu d'un ouvrage inédit de M. Roehrig, intitulé *Researches in Philosophical and Comparative Philology, chiefly with reference to the languages of Central Asia*, par M. L. Dubeux. Paris, 1850. (27 pages.) 8vo.—*From F. L. O. Roehrig.*
- Catalogue of Harvard University for 1858–9. Cambridge, 1858. 8vo.
- Astronomical Journal. No. 117.—*From B. A. Gould.*
- U. S. Naval Astron. Exped. Vols. III. VI. Executive Documents.
- U. S. Pacific R. R. Explor. Vols. II. III. IV. V. VI. VII. VIII. 4to.
- U. S. Japan Exped. Narrative of Com. Perry. Vol. II. 4to.
- U. S. Pacific Rail Road Surveys. Vols. II. to VIII. Senate Doc.
- U. S. Japan Exped. Narrative. Vol. II. Washington, 1856. 4to.
- Geology of Pennsylvania, Final Report. Vol. I. By H. D. Rogers, with Maps. Phila. 1858. (586 pages.) 4to.—*From Sec. of Com.*
- Massachusetts House Documents. School for Idiots, Report for April 28, 1857. Boston. (32 pp.) 8vo.—*From Dr. Ed. Jarvis.*
- Worcester State Lun. Asy. Twenty-fourth An. Rep. Bost. 1857. 8vo.
- Mass. Gen. Hospital. Reports for 1851–2–4–6. Boston. 8vo.
- Mass. Blind Asylum. Twenty-sixth An. Report. Boston, 1858. 8vo.
- Taunton State Lunatic Hospital. Fourth An. Rep. Bost. 1857. 8vo.
- Mass. Idiot School. Tenth Annual Report. Boston, 1858. 8vo.
- Tendency of Misdirected Education to produce Insanity, by Dr. Ed. Jarvis. (From Barnard's Jour. 20 pages.) Boston, 1858. 8vo.
- Mass. State Almshouse at Bridgewater. 4th An. Rep. Bost. 1857. 8vo.
- Medical Communications of the Mass. Med. Soc. VIII. 5, IX. 1, 2. Boston, 1856'5'6. (250 pages.) 8vo.—*From Dr. Ed. Jarvis.*
- Annual Report Adj. Gen. of Mass. Boston, 1857. (76 pp.) 8vo.
- Abstracts of returns from Mass. Banks, &c., prepared by Francis De Witt, Sec. Com. Boston, 1857. (130 pages.) 8vo.
- Finances of Dorchester. Eighteenth An. Report Boston, 1856. 8vo.
- Census of Legal Voters in Massachusetts. Boston, 1857. 8vo.
- Census of Boston, Mass. Report of J. Curtis. 1856. 8vo.
- Boston City Registrar's Report. (55 pages.) 1858. 8vo.
- Mass. Loan and Fund Ass. Second Annual Report. 1858. 8vo.
- Boston Public Library Report. (23 pages.) 1852. 8vo.—*All the above from Dr. Ed. Jarvis.*
- Monthly Notices Royal Astron. Soc. XVIII. 9. London, 1858. 8vo.
- Cours d'Economie politique fait au College de France, par Michel

- Chevalier. Vol. II. Sec. Edit. enlarged. Paris, 1858. (630 pages.) 8vo.—*From the Author.*
- Eléments de la Grammaire Turque a l'usage des élèves de l'école impériale et spéciale des langues orientales vivantes, par Louis Dubeux. Paris, 1856. 12mo.—*From the Author.*
- Catalogue of the Lepidopterous insects in the Museum of the Hon. E. India Co. by Thos. Horsfield. Vol. I. London, 1857. (276 pages.) 8vo. With plates.—*From the Author.*
- Catalogue of the Birds. Vol. II. (Vol. I. was published in 1854.) London, 1856-8. (300 pages.) 8vo.—*From the Company.*
- Report of the Supt. of Education for L. Canada for 1856; translated. Toronto, 1857. (230 pages.) Large 8vo.—*From Capt. Latour.*
- Report on the Chemical Analysis of the White Sulphur Water of the Artesian Well at Lafayette, Indiana, &c. By C. M. Wetherell. Lafayette, 1858. (31 pages.) 8vo.—*From the Author.*

At his request, Mr. Ord was excused from preparing an obituary notice of Charles L. Bonaparte, Prince of Canino, late a member of the Society.

Dr. F. Bache announced the death of Parker Cleaveland, LL.D., a member of the Society, who died at Brunswick, Maine, on the 15th ultimo, aged 78.

An amendment to the laws of the Society was offered by Dr. F. Bache, viz.—Repeal that clause of the third section of Chap. II. which reads as follows: “but no person shall be eligible to election as President at more than two out of any three successive elections:” which amendment was laid over for consideration at the next stated meeting.

Stated Meeting, November 19, 1858.

Present, twenty-seven members.

Dr. DUNGLISON, Vice-President, in the Chair.

Letters were read:—

From Lieut. Col. Henry James, of the Royal Engineers, dated Ordnance Survey Office, Southampton, Oct. 30, 1858,

announcing a donation for the library from the British Government: and—

From Prof. Zantedeschi, dated Padua, Oct. 28, 1858, accompanying a communication “On the polarized light of comets, of their probable nature, and of the atmosphere of the planets.”

Della luce Polarizzata delle comete, della sua Probabile natura e della atmosfera di pianeti.

MEMORIA DEL PROFESSORE FRANCESCO ZANTEDESCHI.

Fino dal 1846 io mi era occupato delle leggi della luce polarizzata dell'atmosfera serena; e nello stesso anno io pubblicava nella mia Raccolta Fisico-Chimica Italiana due memorie; che portano il titolo:

I. Delle leggi dell'intensità della polarizzazione della luce lunare nell'atmosfera serena.

II. Delle leggi dell'intensità della polarizzazione della luce solare nell'atmosfera serena.

Si veggia della Raccolta suddetta il T. I. pag. 429-453; Venezia co'tipi di Guiseppe Antonelli 1846.

Di queste due memorie io non referiro quì i risultamenti finali, ai quali sono pervenuto; avvegnachè essi potranno ancora leggersi nella *Lumière*. Dirò solo, che io mi era prefisso di fare le seguenti ricerche: i massimi ed i minimi dell'intensità della luce polarizzata da me osservati, hanno una relazione costante colla posizione del sole e della luna in tutte le epoche dell'anno? I punti detti neutri sono veramente tali, ovvero sono i minimi dell'intensità della luce polarizzata. Ossia i limiti dei colori complementori di due piani normali di polarizzazione, quali si presentarono alle mie indagini? Hanno essi punti neutri una distanza costante fra di loro, ed un rapporto costante colla posizione degli astri radianti? Il loro numero è costante in qualsivoglia epoca dell'anno? Non varia neppure nell'eclissi solare e lunare nelle quali epoche cangiano le quantità della luce diretta e riflessa? Ecco la somma delle indagini, che mi era prefissa e all'insieme di queste mie investigazioni era stato stimolato in Parigi da Babinet nel 1852 e susseguentemente nel 1855; una la mia vista aveva perduto di quella acutezza penetrante che possedeva; e perciò io desistetti da queste esperienze, nelle quali non avrei potuto portare quella precisione di confronto, che addimandavano le precedenti. E perciò mi rivolsi all'opera intelligente de' miei amici, i quali da più mesi in Italia e fuori si stanno occupando con assiduità di queste investigazioni.

Surse frattanto nel 1858 sul nostro orizzonte a fare vaga e lu-

minosa comparsa la cometa di Pons del 1827, alla quale richiamò per il primo l'attenzione l'astronomo Donati di Firenze ritenuta come nuova da lui, dal Santini; ma non come tale dal Corlini, da Bond e da altri. Io vidi una bella occasione, che mi presentava la natura a ripetere l'originale scoperta dell'insigne Arago, il quale nel suo Trattato di Astronomia intitolato, *Lezioni* ebbe a scrivere; "Le esperienze ebbero effetto il 23 Ottobre del 1835 e ne risulò che la luce dell'astro non era, almeno in totalità, composta di raggi dotati delle proprietà della luce diretta, propria o assimilata; vi si trovava della luce riflessa specularmente o polarizzata, cioè a dire, definitivamente della luce proveniente dal sole." (Arago *Lezioni di Astronomia* tradotte ed annotate di E. Capocci Napoli anno 1852 per Francesco Rossi, editore, pag. 386).

I miei amici d'Italia e di altre Alpi mi assicurarono, da me pregati, di occuparsi anche di questa osservazione; e fra essi il Sig. Professore Cirito Ronzoni mi ebbe a scrivere graziosamente la seguente lettera:

"Avendo io adoperato da principio il polariscopio di Savart *a bande* che la di lei gentilezza mi prestò pelle ricerche sulla polarizzazione atmosferica, e poi un altro polariscopio foggiato a modo di quello *detto a colori* di Arago, non ebbi sì coll'uno che coll'altro se non se mal sicuri indizj di polarizzazione, anche quando il campo dell'atmosfera era il più puro pel lungo ond'io osservava; il perchè mi venne in mente che meglio sarebbe stato cercare un polariscopio attraverso del quale la luce polarizzato, ove esistesse, non avesse a dare, ad ogni quarto di giro, che delle decise alternative di *chiaro e di scuro*, e come tale mi si offerse spontaneamente una eccellente laminetta sottile di *tormalina* parallela, che appartiene al Gabinetto di Fisica di questo R. Ginnasio Liceale. Con questa io potei verificare in modo deciso, fino della sera del *b* corrente l'esistenza di luce polarizzata nel nucleo come nella coda della cometa e potei di più accertarmi che nel nucleo il piano di polarizzazione era diretto nel senso secondo cui si spicca la coda del medesimo. Il Sig. Professore Luigi Dr. Cattaneo, che mi si associò gentilmente alle osservazioni, ebbe ad affermarmi di avere egli pure verificato quanto di sopra io scrissi d'aver osservato. Egli poi notò per di più questo fatto che potrebbe anche dirsi legge nei limiti dell'osservazione, che cioè, collocando successivamente in varii punti l'asse della tormalina tangenzialmente all'arco di curva che contermina la coda della banda australe, resta di mano in mano più visibile le parte dell'astro, compreso il nucleo, la quale rimane al disotto del punto di contatto, per cui deve inferirsi che il piano di po-

larizzazione della luce la quale emana dal suddetto arco di curva con-
gio da punto a punto, e contiene la tangente a questa curva.

Padova li 8 Ottobre, 1858. Ore 10 P. M."

Susseguentemente alle comunicazione di questa lettera venni da parecchie persone assicurato, che il colore e l'intensità della luce della coda della cometa non era costante; ma che presentava talora delle forti variazioni da sembrare quasi una luce fosforescente, che per intervalli si avviva e per intervalli s'infiolisce. Nella sera del giorno 11 di questo mese di Ottobre, il fenomeno si presentò in un modo il più cospicuo. Di questi intervalli o periodi si valse il Sig. Professore Ronzoni, per assaggiare il polariscopio a bande di Savart; e tenutolo col piano di polarizzazione orizzontale, vide distintamente le bande, che intersecavano la coda nella sua lunghezza. Le variazioni d'intensità della luce della coda, da rinscire quasi impercettibile, furono avvertite anche in Parigi, come emerge da una comunicazione fatta dal Sig. Bulard alla Accademia delle Scienze nel giorno 20 di Settembre di quest'anno. La scoperta in pertanto dell'Arago fu anche in questa circostanza pienamente confermata in Italia e per quanto sono assicurato, anche in Francia ed in altre contrade d'Europa.

Quale è la natura della luce delle comete? Le osservazioni riferite ci autorizzano ad ammettere che sia luce proveniente direttamente dal sole e riflessa specularmente dalla materia vaporosa della coda della cometa. Viene in conferma di questa sentenza l'osservazione delle fasi riferita dal Cassini ed ora confermata in Parigi come si ha dalla Nota del Sig. Bulard e da disegni presentati all'Accademia anzidetta. Il fenomeno della fase della cometa al tutto analogo a quella della luna e di venere venne pienamente confermato in Padova dal Sig. Professore Ronzoni nelle sere del 15, 16 e 17 di questo mese di Ottobre. Ecco quanto mi ebbe a comunicare, da me invitato, con sua lettera del 18 di questo mese: "La sera del 15 corrente essendomi posto ad osservare quest'astro mediante un eccellente rifrattore di Fraunhoffer della forza d'ingrandimento da 58 a 200 ne vidi il nucleo conformato a giusa di piccola *mezza luna* abbastanza bene determinata e di uno splendore giallicio non del tutto omogeneo, ma tale che la corda della *mezza luna* formava un brusco confine fra la parte splendente del nucleo, ed uno spazio pressochè uguale totalmente oscuro. Il più interessante poi si è che la detta corda era perpendicolare sensibilmente alla retta che va del centro del nucleo a quello del sole. Si notò eziandio che l'estensione della chioma dalla banda del

sole si era notevolmente accresciuta in confronto delle sere in cui la cometa trovavasi più vicina al perielio.

Avendo io ripetuto le osservazioni nelle sere del 16 e del 17, i medesimi fenomeni mi si mostrarono ogui sera più cospicui. Parcechi astanti che osservarono anch'essi meco la cometa col medesimo telescopio in ciascuna delle tre sere, mi affermarono di vedere decisamente in tutto e per tutto ciò che vedeva io." Altri osservatori ebbero ad assicurare che il centro della coda presentava in prossimità del nucleo una specie di cono ombroso, e quindi una luce meno intensa nel mezza, che ai bordi della coda. Ora è naturale la dimanda della genesi della chioma e della coda, che presentano questi corpi così singolari e che destarono non di rado la meraviglia e lo spavento ancora degli uomini. Bessel e Struve nella celebre cometa di Halley, allorchè nel 1835 giunse al suo perielio osservarono delle irradiazioni e movimenti vorticosi di una visibile emanazione dal nucleo; ed ora Pape nella presente cometa afferma aver osservato ad Altona nelle sere 17, 20 e 21 di Settembre il nucleo dall'una parte ben terminato, dall'altra verso il sole diffuso per un arco di 120° , e come emanante una materia luminosa, che, dopo di aver costituito la chioma fluiva dietro del nucleo a formare la coda. Secondo queste osservazioni, sembra probabile la sentenza, che riconosce un passaggio della materia del nucleo allo stato elastico, ed una forza ripulsiva emanante dal sole che respinge in dietro detta materia in modo da formare la chioma e la coda, la quale si tenga unita più o meno al nucleo della cometa in virtù di una forza coereciva, che lega le parti vaporose fra di loro e tutta la coda al nucleo. Mi gode l'animo nel leggere, che anche in Italia incominciano a diffondersi i principj della dinamica fisica molecolare; e che ora sia abbracciato quel dualismo, che da trenta e più anni ho sostenuto costantemente ne miei scritti.

Io aveva cercato fino dal 1842 di rendere sensibili le osservazioni di sopra riferite e le deduzioni intorno alla genesi e costituzione della chioma e coda delle comete, con una esperienza quanto semplice altrettanto parlante agli occhi del dotto e del minuto popolo ancora.

Nella sala di Fisica del R. Liceo di Venezia nel 1842 io disposi l'esperimento a questo modo. A mezzo di un portaluca universale introduceva nella sala resa oscura un fascetto di luce in direzione orizzontale, il quale andava a percuottere sopra un settore di una sfera cava di cristallo incolore a pareti finissime. Questa era sostenuta pendula in aria da un sottile filo metallico, e portava nel suo centro, mercè il prolungamento di detto filo, un nucleo solido opaco annerito alla superficie. La parte inferiore della sfera cristallina aveva

una larga apertura circolare. Veduta questa sfera illuminata dalla parte opposta al porta luce, appariva un globo trasparente con un nucleo falcato, che progettava un piccolo cono ombroso dietro di sè. Levato il nucleo opaco la sfera cristallina appariva un corpo trasparente, diafano in tutte le direzioni, nelle quali la si aveva ad osservare. Ecco, diceva a me stesso, un'immagine, un simbolo di una cometa con nucleo opaco e chioma; e senza nucleo ancora. Non contento di questo volli formi mi immagine ancora della coda. Presi del finissimo pluviscolo, come cenere, che teneva raccolto entro ad un pannolino di tessuto assai rado; e dal mio meccanico Sig. Francesco Cobres di cora ed onorata memoria, faceva scuotere il pannolino al di sotto della sfera e al di dietro della medesima nella direzione opposta a quella della luce. Io, che stava attentamente osservando, vedeva apparire il nucleo circondato da una specie di chioma, che si prolungava a forma di coda nella direzione opposta a quella del raggio luminoso. Dipendeva dalla mia volontà il prolungare più o meno la coda. Bastava ch'io estendessi di più o il pluviscolo. Poteva anzi per tal modo moltiplicare le code, cangiare la loro direzione; ed ancora generare degli anelli concentrici al nucleo. Tutto l'artificio consisteva nello spargere il pluviscolo a quel modo, che credeva più opportuno per far cambiare l'aspetto delle apparenze fenomenali. Io non ardisco di stabilire una identità fra miei esperimenti e gli effetti che presenta la natura nelle comete; ma è certo che artificialmente si ha mi immagine in una nostra camera oscura di quel maestoso fenomeno, che si ammira di notte sotto la volta celeste dell'universo non rischiarata, della luce del sole o della luna. Manca nell'esperienza descritta la virtù solvente, che si conosce nelle irradiazioni calorifiche solari; e forse anco nella materia stessa costituente la cometa.

Ma chiunque ha sperimentato sulla canfora, sul sodio e sul potassio come fece il Boutigny, collocati alla superficie di un'acqua stagnante si sarà avveduto dei getti vaporosi formanti la coda di questi corpi, che in miniatura rappresentano gli effetti bizzarri, stravaganti ed irregolari al tutto analoghi a quelli delle comete. Più volte io ho richiamato nel corso delle mie lezioni l'attenzione degli uditori alle analogie che presentano le espansioni molecolari di questi corpi colle espansioni della materia nebulosa delle comete.

La questione della atmosfera de' pianeti è stata da lungo tempo agitata, e lo è ancora. Uno degli argomenti, che parve sempre il più concludente, si è la mancanza di sensibile rifrazione all'atto dell'occultazione di un corpo celeste.

Mala mancanza di rifrazione sensibile ci conduce necessariamente ad

ammettere la mancanza della esistenza d'un atmosfera? Mi parve sempre che la conclusione non fosse necessaria; perchè il potere rifrangente si lega a due condizioni: natura del mezzo rifrangente e densità del medesimo. Non potrebbe accadere che la materia formante l'atmosfera d'un pianeta avesse il minimo del potere rifrattivo da riuscire insensibile ai nostri mezzi attuali? Il fenomeno della corona luminosa che presenta l'eclisse totale di sole mi parve l'argomento il più decisivo per comprovare l'esistenza della atmosfera della luna. Io che un tale effetto si riporta alla fotosfera solare; ma io non posso condurmi a tanta distanza col mio pensiero; ed in quella vece di troppo forse materializzando od impiccolendo i fenomeni della natura, ho cercato di creare, per così dire, questa corona luminosa. In luogo della sfera di cristallo collocai una sfera opaca annerita alla superficie. Percossa nella sua parte anteriore dal raggio solare, alla maniera stessa, che era stata la sfera di cristallo, io vidi guardando la parte posteriore o non illuminata dei fenomeni d'inflessione e d'interferenza luminosa, come una zona rossa che divideva l'emisfero illuminato dall'emisfero non illuminato; e degli accidenti di luce nello emisfero non illuminato, che non saprei ben descrivere; ma che però erano analoghi a quelli che presentò al mio sguardo il disco lunare progettato sopra il disco solare nel 1842. Non tutti convennero nell'eclisse del 1842 in questa mia osservazione; ma vi convennero tutti quelli che erano dotati di una virtù visiva la più penetrante e precipuamente gli artisti, che hanno l'occhio addestrato in tutti gli accidenti della luce. Non vidi in questo mio esperimento la corona luminosa, che avesse circondato il globo pendulo in aria; ma creai tosto questo corona sollevando al disotto del globo una atmosfera di pluviscolo o di materia attenuatissima. Collocato io nel cono ombroso vidi sempre questa corona nel modo il più distinto. Per tal guisa, io diceva a me stesso, si rende visibile l'esistenza d'un atmosfera circondante la luna e in generale i pianetti. Non si può ammettere (nello stato attuale della scienza), corpo al tutto fisso. Ciascuno ha la sua atmosfera, che è la causa di tanti fenomeni di azione reciproca, che prima delle dottrine della Dinamica molecolare, sembravano al tutto enigmatici e misteriosi.

Non mi fu mai di nessuna difficoltà l'ammettere riflessione di luce senza sensibile rifrazione della medesima. Avvegnachè l'un fenomeno non si leghi alle stesse identiche condizioni dell'altro. Nelle comuni esperienze, che si fanno per rendere visibile l'andamento o il cammino che segue il raggio luminoso in una camera oscura, non ho mai veduto che abbia luogo deviazione sensibile del raggio incidente sopra

di un piano per il pluviscolo o polverio che artificialmente s'innalza. Ed allora la riflessione rende visibile la luce in tutte le direzioni. Dirò di più la luce diretta, che non presenta sensibile polarizzazione, appare egregiamente polarizzata in tutte le sue parti, che sono specularmente riflesse dal pluviscolo nuotante nell'aria. Col polariscopio a bande di Savart tenuto col piano di polarizzazione verticale appare il fascio luminoso trasversalmente intersecato dalle note fascie collorate. Anche questo esperimento concorre a rendere sempre più stretta l'analogia fra la genesi supposta dei fenomeni delle comete, e quelli che artificialmente noi produciamo né nostri Gabinetti. Porrò fine a questo mio scritto con una osservazione che è stata fatta da parecchi in Padova ed ancora in Francia come ho dalla Lumière. Arturo all'atto della sua immersione perdette lo suntillamento, e lo riacquistò all'atto dell'emersione. Le altre stelle coperte dal velo trasparente della coda della cometa apparvero a diligenti osservatori come tanti punti luminosi che abbellivano la coda; non altrimenti che in alcuni antrichi dipinti si scorge, nè quali attraverso un finissimo velo appajano que' punti luminosi che l'arte seppe rappresentare e che non ugualmente lo può la parola anche degna interprete dei fenomeni della natura. Questo fatto dimostra che lo scintillamento è un fenomeno cosmico ultratmosferico, che ci guida a nuove meditazioni intorno alla natura degli spazii celesti.

The following donations were announced:—

FOR THE LIBRARY.

- Journal of the Franklin Institute. Philadelphia, Nov. 1858. 8vo.
 Albany Astronomical Journal. No. 118.—*From B. A. Gould.*
 American Journal. New Haven, Nov. 1858.—*From the Editors.*
 Letter of W. Re Kyan Bey to Edwin De Leon, on the Treatment and Use of the Dromedary. Washington, 1858. (35 pages.) 8vo.—*From Major Wayne, U. S. A.*
 Report of the Dinner given to Prof. Morse, in Paris, Aug. 17, 1858. Paris, 1858. (70 pages.) 12mo.—*From S. F. B. Morse.*
 Remarks on the recent Travels of Dr. Barth, read before the New York Ethnol. Soc. by W. B. Hodgson. Nov. 1858. (18 pages.) 8vo.
 Memoir of John Q. Adams, by Jos. Quincy. Boston, 1858. (428 pages.) 8vo.—*From the Author.*
 Mittheilungen der K. K. Geograph. Gesell. 11 J. 1858, h. 1. Wien, 1858. Great 8vo.—*From the Society.*

Ten pamphlets on various electrical and physical subjects, by Prof. Zantedeschi; from various European publications.—*From the Author.*

Dr. Dunglison, pursuant to appointment, read an obituary notice of the late Dr. John K. Mitchell, a member of the Society.

Dr. John Kearsley Mitchell was born in Shepherdstown, Virginia, on the 12th of May, 1793. His father was Dr. Alexander Mitchell, a native of Scotland, and a member of a respectable family in Ayrshire, who came to this country in 1789, took up his residence in Jefferson County, Virginia, and soon afterwards married into the Kearsley family, who resided at that time in Pennsylvania. Dr. Mitchell's father died before he was nine years old; and he was left in charge of a guardian, who sent him to Scotland in 1807, to be educated. In the town of Ayr he received his early instruction, and it was here, in the land of Burns, that he imbibed that love for the simple, but eminently expressive productions of Scotia's bard, which led him, on many occasions, whilst, as he remarked, "he sat in his office and waited for practice," to indulge in poetical compositions, several of which were received with no little favour. From Ayr he went to the University of Edinburgh, to complete his scholastic education, and in the year 1816 returned to America, and commenced the study of his profession with Dr. Kramer, of Jefferson County, Virginia, for whom he ever felt the greatest respect and veneration, and of whose character he often spoke enthusiastically in his lectures before the class of Jefferson Medical College. Subsequently, he became a pupil of Professor Chapman, of Philadelphia. His studies were, however, interrupted by impaired health, which induced him to take a voyage to China, from which he returned much improved; and after having obtained his diploma in the University of Pennsylvania, in 1819, he twice repeated the voyage in the capacity of surgeon to a merchant vessel. On his return to America, he established himself in Philadelphia, and, early in 1822, married a daughter of Alexander Henry, Esq. In the same year he was appointed physician to the Almshouse Hospital, and, some years afterwards, to the Pennsylvania Hospital. Between the years 1833 and 1838, he delivered a course of lectures on chemistry applied to the arts, in the Franklin Institute, and as early as the year 1822, formed part—as lecturer on medical chemistry—of the first summer association for teaching medicine, established in Philadelphia. He lectured, also, on

physiology and on chemistry, for some years, to a private class. In the year 1841, on the reorganization of the Faculty of Jefferson Medical College, he was looked to as eminently qualified to occupy the Chair of Practice of Medicine, to which he was accordingly appointed, and from that time forward ably fulfilled the various duties which appertained to it. In the spring of 1856, he was attacked with hemiplegia, from which he gradually, but never wholly recovered. It did not, however, interfere with the active exercise of his professorial duties in the following winter. In the course of the subsequent session, he experienced a second but slighter attack, which did not prevent him from meeting his class for more than a week, and neither of them seemed to have impaired his intellect. He never, indeed, rendered the various services that devolved upon him as professor, with greater satisfaction to his hearers. In the latter end of March, 1858, he was attacked with typhoid pneumonia, which speedily terminated his existence, in the 65th year of his age.

In the various relations of life, Dr. Mitchell was highly and justly estimated. In his profession he was held in great regard. Kind and attentive to his numerous patients, he was looked upon as a valued friend, as well as cherished medical adviser; as a teacher of medicine, he was faithful and energetic, alive to every improvement, and ever anxious to imbue his pupils with the great principles of their profession, and with the divine art of applying these principles to practice; as a cultivator of general science, he was full of zeal; and whilst he was a lecturer on chemistry—and there are many who retain a vivid recollection of his merits as such—he was watchful for every suggestion of value, and hastened to adopt them, with modifications indicated by his own ingenious and fertile mind. An example of this was the apparatus framed by him for the formation of solid carbonic acid. His researches, too, into the phenomena of capillarity, as exhibited in the penetrativeness of different liquids and gases, and the penetrability of different septa, and respecting which a philosopher of great distinction, Milne Edwards, of Paris, has very recently expressed his astonishment that they should have been treated with neglect by the greater part of physicists, were replete with interesting applications to physiology more especially. As a member of society he was most estimable; in his own family the beloved centre of the domestic circle; as a colleague in the college to which he was attached, and in the various charitable and other associations to which he belonged, courteous and gallant, and as a friend, firm and unwavering in his attachments.

As an author, he confined himself chiefly to Monographs, several of which were published in the scientific journals, and in detached pamphlets. To one on the penetration of gases, allusion has already been made. Others were on the Formation of Solid Carbonic Acid Gas; on Air, Fire and Water, as illustrating the Wisdom and Goodness of God; a new Theory and Treatment of Rheumatism; on Curvatures of the Spine; on the Tests for the Detection of Arsenic; on the Smallpox; on the Means of elevating the Character of the Working Classes; on the Value of the Practical Interrogation of Nature; on the Value of a great Medical Reputation, &c. &c.

Several of these were originally delivered before the Franklin Institute or the Jefferson Medical College. He read, also, before the College of Physicians of Philadelphia, an interesting communication on the phenomena of mesmerism as observed by him, with the inferences which he drew therefrom. His most elaborate monograph, however, was on the cryptogamous origin of malarial fever, which was replete with interesting facts and ingenious deductions. He published, also, an article in the American Cyclopaedia of Medicine and Surgery, on the Chemical and Pharmaceutical History and Toxicological Effects of Arsenic, and edited the American reprint of Faraday's Chemical Manipulations.

Dr. Mitchell was the author of various other scientific and literary productions, which added to his well earned and well merited reputation; and was a member of many scientific, literary, and philanthropic institutions.

He was elected into this Society in the year 1827.

The meeting then proceeded to the consideration of the resolution offered at the last meeting, proposing to repeal that clause of Sect. 3, Chap. II. of the Laws of the Society, which prohibits the election of any person as President, at more than two out of any three successive elections:—

And a vote being taken upon the proposed amendment, it was agreed to, the yeas being 23, and the nays 2: so the amendment was adopted, and the clause stricken out as proposed.

Stated Meeting, December 3, 1858.

Present, thirteen members.

Dr. Franklin Bache in the Chair, the Vice-Presidents being absent.

Letters were read:—

From the Bath and West of England Society, dated December 1857, acknowledging the receipt of Proceedings of this Society, Nos. 55 and 56, and of Part 1, Vol. XI. of the Transactions,—and also announcing a donation for the library:—

From the Royal Saxon Society of Sciences, dated Leipzig, Jan. 6, 1858, returning thanks for No. 56 of the Proceedings, and Part 1, Vol. XI. of the Transactions:—

From the Royal Society of Sciences at Upsal, dated Jan. 8, 1858, returning acknowledgements for Part 1, Vol. XI. of the Transactions, and No. 56 of the Proceedings of this Society:—

From the Librarian of the Royal Library at Berlin, dated Jan. 18, 1858, acknowledging the receipt of Part 1, Vol. XI. of the Transactions:—

From the Royal Society of Sciences at Göttingen, dated May 26, 1858, announcing the receipt of Part 1, Vol. XI. of the Transactions, and Nos. 55 and 56 of the Proceedings of this Society:—

From the Central Physical Observatory at St. Petersburg, dated June 1, 1858, returning thanks for Part 1, Vol. XI. of the Transactions, and No. 56 of the Proceedings:—

From the Royal Academy of Sciences at Turin, dated May 15, 1858, returning thanks for Part 1, Vol. XI. of the Transactions:—and

Prof. Zantedeschi, of Padua, dated Oct. 7, 1858, announcing the transmission, through the U. S. Consul at Bremen and the Department of State at Washington, of a number of treatises by him on subjects of physical science.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings Boston S. N. H. VI. 25. Oct. 1858.

Radcliff Obs. XVII. Oxford, 1858.—*From the Trustees of Obs.*

- Ordnance Trigonometrical Survey of Great Britain and Ireland, account of the observations and calculations of the Principal Triangulation, &c. London, 1858. (782 pages with a volume of plates.) 4to.—*From Sec. of State for War.*
- Transactions Soc. Antiq. 3. II. (Pages 315 to 498 with index, last paper read Feb. 18, 1858.) London, 1858. 4to.
- Proceedings of the same. IV. 47. (Pages 50 to 115, to meeting June 18, 1857.) London, 1858. 8vo.
- List of the same, April 23, 1858.—*From the Society.*
- British Association, Report of 27th Meeting. Dublin, Sept. 1857. London, 1858. 8vo.—*From the Association.*
- Proceedings Roy. Geograph. Soc. II. 3, 4, 5, (to July, 1858) and address of Sir R. J. Murchison, May 24. London, 1858. 8vo.
- Journal Soc. Arts, May 7, to Sept. 24. London, 1858. 8vo.
- Proceedings Roy. Soc. IX. 30, 31, to June 10, 1858. 8vo.
- Philosoph. Trans. of the same. CXLVII. III. London, 1858. 4to.
- Greenwich Obs. in 1856. London, 1858. 8vo.—*From the Roy. Soc.*
- Archives du Museum. X. 1, 2. Paris, 1858. 4to.
- Compte rendu de l'Acad. St. Petersburg for 1856. St. Pet. 1857. 8vo.
- Nachrichten von der Georgs Augusts Universität und König. Gesell. zu Göttingen, vom J. 1857, 1 to 23 nebst Register, 1858 12mo.
- Abhandlungen der K. Gesell. zu Göttingen VII. Göttingen, 1857. 4to.
- Memorie della R. Acad. di Torino. 2. S. XVII. Turin, 1858. 4to.
- Annals of New York Lycæum N. H. VI. 8, 9. New York, 1858. 8vo.
- Med. News. XVI. 192. Phila. 1858. 8vo.—*From Blanchard & Lea.*

Mr. Fraley announced the decease of Lieut. Col. William Reid, late Governor of Bermuda, a member of the Society.

The Annual Reports of the Treasurer and the Committee of Publication were presented and read;—the Treasurer's Report being, as usual, referred to the Committee of Finance.

Judge King, from the Committee on the legacy bequeathed to this Society by the late François André Michaux, made a statement, on the part of the Committee, relative to a correspondence which has been recently had with certain parties in France, on the subject of a transfer of Stock in the French funds to the Society by Madame Michaux, to the amount of the legacy,—the interest to be received by her during her life, according to the will of Mons. Michaux:—and, in relation to this subject, offered the following resolution:—

Resolved, That the Officers and Council of the Society are hereby authorized to demand and receive, on behalf of the same, from the executors of the last will and testament of François André Michaux, deceased, or whoever may have the legal charge and custody thereof, the sum of money bequeathed by the said François André Michaux to the Society in trust for the purposes expressed in the said legacy; and, if necessary, to appoint an attorney or attorneys under them for the purpose of demanding, receiving and seeing to the proper investment or transfer of the same;—which resolution was read, considered and adopted.

A report was made by the librarian, on leave given, in relation to the preparation of a catalogue of the library, and stating the plan and progress made in the same;—which was read and ordered to be inserted on the minutes.

A committee of six members was appointed to suggest the names of Officers of the Society for the ensuing year,—to make report at the next stated meeting.

Stated Meeting, December 17, 1858.

Present, thirty-nine members.

Mr. LEA, Vice-President in the Chair.

Dr. Edward Hartshorne, a recently elected member, was introduced and took his seat.

A letter was read from M. Jomard, dated Paris, Nov., 1857, returning thanks for Part 1, Vol. XI. of the Transactions of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Annual Report of the Commissioner of Statistics to the General Assembly of Ohio for 1857. Columbus, 1858. (112 pages.) 8vo.

—From E. D. Mansfield, Com.

Quarterly Summary Trans. Coll. Phys. III. 5. Phila. 1858. 8vo.

Journal of the Franklin Inst. No. 6. Phila. Dec. 1858. 8vo.

- Catalogue of Coleoptera of the regions adjacent to the boundary line between U. S. and Mexico, by John L. Le Conte, M.D. Philada. 1858. (33 pages with plates.)—*From the Author.*
- Proceedings New Jersey Hist. Soc. VIII. 3. New York, 1858. 8vo.
- On Picric Acid, &c. by M. Carey Lea. Phila. 1858. (7 pages.) 8vo.
- Embryonic forms of thirty-eight species of Unionidæ, by Isaac Lea. Phila. 1858. (7 pages.) 4to.—*From the Author.*
- Smithsonian Contributions. Ancient fauna of Nebraska, by Joseph Leidy. Memoir on the extinct Sloth tribe of America, by the same. Washington, 1858. (200 pages with plates.) 4to.

The report of the Committee of Finance was read, and the appropriations therein recommended for the ensuing year were ordered to be made, viz:

For Journals,	\$50
„ Hall,	250
„ Binding,	50
„ Publications,	400
„ General Account,	1500
	<hr/>
Total,	\$2250

The committee appointed at last meeting to suggest the names of officers to be voted for at the annual election of the Society in January next, made a report, which was ordered to be printed and furnished to each resident member.

Dr. R. E. Rogers made an oral communication in relation to the condition of water when apparently in contact with highly heated surfaces; but which is, in reality, as though suspended in spheroids above the heated mass;—and described some experiments which led him to infer that the peculiar phenomena observed are due to a repulsion existing between the heated matter and the water.

Prof. Kendall presented a communication from Lieut. Col. J. D. Graham, entitled “Contributions to Geography,” which was referred to the reporter for publication in the Proceedings of the Society.

CONTRIBUTIONS TO GEOGRAPHY, No. I.

On the Latitude and Longitude of Chicago, Illinois. By Lieut. Colonel J. D. Graham, of the U. S. Corps of Topographical Engineers.

Chicago, Illinois, November 29th, 1858.

To the American Philosophical Society, Philadelphia.

In my letter of the 2d of April last, published at pp. 313 to 315 in Vol. 6 (No. 59) of the proceedings of the Am. Phil. Society, I stated that I was induced, in the month of January previous, to make a few observations with my sextant of $7\frac{1}{4}$ inches radius, artificial horizon of quicksilver, and chronometer, for the approximate determination of the latitude of the City Hall, or Court House of Chicago. The approximate result announced for the latitude of that point, was $41^{\circ} 53' 09''.7$ N.

It was derived from two nights' observations, rather hastily made, consisting in all of 19 observed double altitudes of Polaris (α Ursæ Minoris), north, and 13 observed double (circum-meridian) altitudes of β Orionis, south.

Desiring to obtain a closer approximation to the true latitude of the point in question, and having no other instruments at my command than those already described, I made, with them, on the nights of the 15th and 23d of August, and the 18th of September of the present year, the observations given below.

The stars observed on were arranged in pairs, and were selected so that one of each pair should pass the meridian to the north and the other to the south of the zenith, and at nearly equal meridian altitudes. This was done for the purpose of eliminating any small and imperceptible errors that might appertain to the sextant, either in the graduation of the limb, or circular arc—in the centering of the same—in the adjustment of the mirrors—in the collimation of the telescope, or in the refraction as affected by any peculiar state of the atmosphere, especially in cases where neither thermometer nor barometer is at hand to aid in this last correction;—and also for the purpose of eliminating any error of personal equation appertaining to the observer. The index error, as it is called, of a sextant or other reflecting instrument, can only be approximately ascertained. Any residual error in its measurement is also eliminated by the arrangement above mentioned.

The *time* stars were also selected in pairs and of very nearly the same declination—both of north declination in this latitude—and of such right ascensions that one could be observed when near the east

and the other when near the west prime vertical, with but little elapsed time between the periods of their being at nearly equal altitudes when in these respective positions.

When, owing to peculiar circumstances, these time stars could not be observed when in the prime vertical, care was taken to observe them both on the same side of it, either both when north or both when south of that plane.

This was done to secure the same eliminations of errors as are above described, and also for the elimination of the effect of any small error in the observed latitude, when it was to be used as a term in the equation for computing the time.

In some instances equal altitudes of the same star were observed east and west, or before and after passing the meridian, for computing the time. This method ensures a perfect elimination of all the errors above described in obtaining the time, provided the temperature remains nearly the same during the elapsed time between the east and west observations. If, however, there be much change of temperature between these two periods, the effect upon the angular positions of the mirrors, with respect to the plane of the circular arc, may be such as to produce an appreciable error in the times of the western observations. One-half of this error would enter into the result for the time, by chronometer, of the meridian passage of the star. There is another inconvenience which sometimes attends this method of getting the time, which is, that after the observations are made east, clouds may arise before the time arrives for making those west, and thus cut them off. There is usually an elapsed time of five or six hours within which such an impediment may occur, unless the weather be settled.

It is only, therefore, when the temperature of the outward air is pretty uniform, and the weather clear and settled, that we have resorted to this method.

With these precautions a practical observer may, even with so light and portable an apparatus as a sextant of good construction, reading to ten seconds of arc by aid of the vernier, an artificial horizon of quicksilver, and a good watch or chronometer, obtain a pretty close determination of the local time, and of the latitude of a place, by a few hours' work in a single night.

The station occupied for the observations here reported, was the side walk on the north margin of Huron street, eighty (80) feet east of the middle of Wolcott street. It is also four hundred and three (403) feet south of the parallel, and two hundred and nine (209) feet west of the meridian of the observing station No. 1, near the Roman

Catholic Church, which was occupied in May, 1857, for determining the difference of longitude between this place and Quebec; for an account of which see pp. 12 to 21, and 56 to 60, of Senate (Executive) Documents No. 42, of the 35th Congress, 1st Session.

By triangulation, based, for orientation, on the true meridian line determined with the astronomical transit in May, 1857, we find that our present station, which I call Chicago observing station No. 3, is 4,059.49 feet north of the parallel, and 1,027.16 feet east of the meridian of the centre of the dome of the City Hall or Court House of Chicago, equal to 40''.11 difference in latitude, and 13''.6 of arc= 0.9 of a second of time, difference in longitude.*

Observations for the Latitude of Chicago.

1st. 1858, August 15th. Station No. 3.

Time stars α Andromedæ east, and α Coronæ Borealis west. Also, equal altitudes of α Cygni.

LATITUDE OF STATION:

By 25 circum-meridian altitudes of α Aquilæ (Altair) S., combined with 17 circum-meridian altitudes of γ Cephei, N. 41° 53' 46''.8

2d.—Same Night.

LATITUDE OF STATION.

By 12 circum-meridian altitudes of α Aquarii, S. combined with 10 altitudes of Polaris, (α Ursæ Minoris) N., 41° 53' 45''.6

3d. 1858, August 23d.

Time stars the same as on the 15th.

LATITUDE OF STATION:

By 24 circum-meridian altitudes of α Aquilæ, S., combined with 18 circum-meridian altitudes of γ Cephei, N., 41° 53' 47''.3

NOTE. There was still another observing station, called Chicago observing station No. 2. As I shall have occasion hereafter to refer to its position in longitude for chronometric comparisons with other places, I may as well here mention that it is 24 feet= $0''.24$ north of the parallel, and 179 feet= $2''.37$ of arc, or 0.16 of a second of time west of the meridian of the 1st. observing station, or that of May, 1857.

4th. 1858, September 18th.

Time stars, α Andromedæ, east, and α Coronæ Borealis, west. Also, equal altitudes of α Pegasi.

LATITUDE OF STATION:

By 15 circum-meridian altitudes of α Aquilæ, south,
 combined with 26 circum-meridian altitudes of
 γ Cephei, north, - - - - - $41^\circ 53' 46''$

5th.—Same Night.

By 28 circum-meridian altitudes of α Aquarii, and 22
 circum-meridian altitudes of β Aquarii, both south,
 and a mean from which was taken as one quantity,
 combined with 18 altitudes of Polaris (α Ursæ
 Minoris), - - - - - $41^\circ 53' 45''.8$

Mean;—or latitude of station No. 3, by giving the ob-
 servations on each pair of stars an equal weight, $41^\circ 53' 46''.3$
 Reduction to the centre of the dome of the City
 Hall, or Court House of Chicago, - - - - - $— 40''.1$

Latitude of the dome of the City Hall, or Court House
 of Chicago, from this series, - - - - - $41^\circ 53' 06''.2$

Extreme difference in the 5 results - - - - - $1''.7$

The result of this series gives the latitude $3''.5$ less than was reported in my letter of the 2d of April last. As they were hastily made to answer a call upon me by some of the citizens of Chicago to know the approximate latitude of the place, I do not propose to give them a weight here, but I would offer the result from the five sets of observations made in August and September as a close approximation.

I would adhere to the longitude of this position as given in my letter of April 2d, namely: *5h. 50m. 32s.08* = $87^\circ 38' 01''.2$ west of the meridian of Greenwich.

From these determinations, and our connections by triangulation, we obtain the positions of other stations in the city of Chicago, and as I am obliged, from peculiar circumstances, to use sometimes one and sometimes another, for the purpose of making chronometric comparisons, in order to determine the longitudes of other important places in the west, I beg leave to present them here in a tabulated form for future convenient reference. They are:—

POSITIONS IN THE CITY OF CHICAGO.	Latitude North.	Longitude West of Greenwich.	
		In Arc.	In Time.
1st. Station No. 1, the observing station of May, 1857, - - - -	41° 53' 50.3	87° 37' 44.8	5 h. 50 m. 30.99 s.
2d. Station No. 2, in the yard of the University of Saint Mary of the Lake, - - - - -	41 53 50.5	87 37 47.2	5 50 31.15
3d. Chicago observing station No. 3, on the north side-walk of Huron Street, 80 feet east of the middle of Wolcott Street, - -	41 53 46.3	87 37 47.5	5 50 31.2
4th. Steeple (front door) of the Roman Catholic Church of the Holy Name, on Wolcott Street, between Huron and Superior Streets, - - - - -	41 53 48	87 37 47.7	5 50 31.18
5th. Steeple (front door) of the Episcopal Church of St. James, on Cass Street, at the S. E. corner of Huron Street, - - - -	41 53 45.2	87 37 43	5 50 30.87
6th. Dome of the Chicago City Hall, or Court House, - - - - -	41 53 06.2	87 38 01.2	5 50 32.08
7th. The New Iron Light House, (unfinished) at the end of the North harbour-pier, - - - -	41 53 24.9	87 36 59	5 50 27.93
8th. Steeple of the West Market House, at the intersection of the middle of Randolph Street with the west margin of Des Plaines Street, - - - - -	41 53 08.4	87 38 47.8	5 50 35.19
9th. The point where stood the Flagstaff of Fort Dearborn, now destroyed to cut off a bend in Chicago River, - - - - -	41 53 22.9	87 37 35.6	5 50 30.37
10th. Intersection of the middle of North Clark Street, with the middle of Michigan Street; north division of the City, - - - -	41 53 28.5	87 37 59.1	5 50 31.94
11th. Tall chimney of the Illinois Central Rail Road Company's Machine Shop, on the lake shore, between Twelfth and Fenimore Streets; south division of the City, - - - - -	41 51 50.5	87 37 21.27	5 50 29.42
12th. The old Light House, on the south bank of the Chicago river, near River Street, - - - - -	41 53 22.5	87 37 38.77	5 50 30.59

The foregoing table affords great convenience in enabling me to take the Chicago time, by observation, at the station nearest to the rail road depot, from whence I have to start to go to any distant place which I may wish to connect chronometrically in longitude with the

meridian of Chicago, which I consider well determined with reference to the meridian of Greenwich.

I have already thus connected nine important points between Erie, Pennsylvania, and Prairie du Chien on the Mississippi river, and determined approximately their latitudes; but I have not time, at this moment, to add them here. I will, however, offer them at a future time, and as soon as I can arrange them in a brief form. They go to show that portions of the upper Mississippi river are laid down, even on the latest and most approved maps, several miles out of place in longitude.

I wish to offer this paper, as it is, for publication in the Society's Proceedings, provided it be considered acceptable.

J. D. GRAHAM,
Member of the Society.



CONTRIBUTIONS TO GEOGRAPHY, No. 2.

On the Latitude and Longitude of four additional positions on Lake Michigan, and of MADISON, the Capital of the State of Wisconsin; from astronomical observations by Lieut. Colonel J. D. Graham, U. S. Corps of Topographical Engineers.

Chicago, Illinois, December 14th, 1858.

To the American Philosophical Society, Philadelphia.

In my letter of the 29th ultimo, I offered for the consideration of the Society, and for publication in its Proceedings, some observations on the latitude and longitude of Chicago.

I beg leave now to offer, for the same, the following observations in a brief form, made between the 20th of June and the 7th of September, 1858, for the determination of the geographical positions of the following places. Calling Chicago I, as already presented, I will enumerate the others, for convenient reference, as follows, viz:—

- II. MICHIGAN CITY, INDIANA.
- III. WAUKEGAN, ILLINOIS.
- IV. RACINE, WISCONSIN.
- V. MILWAUKEE, WISCONSIN.
- VI. MADISON, THE CAPITAL OF WISCONSIN.

The instruments used for the observations were all of a portable character, adapted to ready use at night, whenever I had occasion to halt in the course of a long journey by rail road.

I will describe them as follows, viz:—

1. A sextant of $7\frac{1}{4}$ inches radius, made by Simms, of London, reading by aid of the vernier to 10 seconds of arc.
2. An artificial horizon of quicksilver.
3. A sidereal chronometer No. 2557, by Parkinson and Frodsham, of London; beats half-seconds.
4. A mean solar chronometer No. 141, by Isaiah Lukens, of Philadelphia; beats half-seconds. This chronometer runs eight days without winding. It was made by Mr. Lukens about the year 1830 or 1831, while on a visit to London. It is one of the earliest chronometers, I know of, made by an American. It is now an excellent time-keeper.

The latitudes, as will be seen, are derived from observed circum-meridian altitudes of stars arranged in pairs, one of each pair passing the meridian to the north and the other to the south of the zenith. When it could be done, they were selected of such declinations as to cause them to pass the meridian at altitudes varying only a few degrees, say 2° to 3° . But this last mentioned advantage for a close elimination of errors could not always be secured on the occasions here presented. There is, however, an approximate elimination from having one of the stars of each pair to pass the meridian to the north and the other to the south of the zenith.

The time stars were selected also in pairs, the one being observed eastward and the other westward of the meridian, and conformable, as nearly as was practicable under the circumstances attending each case, to the principle stated in my communication of the 29th ultimo.

The longitudes are all derived from chronometrical comparisons with the meridian of Chicago. They rest, for accuracy, on the correctness of my determination, in the year 1842, of the longitude of the citadel of Quebec, west of Greenwich, already alluded to in my previous communications, and on the sextant observations for the time at Chicago and at the several places whose longitudes are sought.

All the comparisons of time with the meridian of Chicago,—now assumed as a primary for my operations in our western country,—were by means of electric signals transmitted forth and back along the telegraphic wires.

The system adopted was as follows:—The night before visiting a place whose geographical position was to be ascertained, observations were made for the time at Chicago, with the sextant, the artificial horizon of quicksilver, and the sidereal chronometer. Both before

and after these observations the sidereal and mean solar chronometers were compared. This gave the error of the first on sidereal, and of the second on mean solar time for the meridian of the Chicago observing station. Immediately on returning to Chicago the same thing was again done. This gave a new determination of the errors for the second Chicago period, and also the rates of both chronometers during the elapsed time.

Between these two periods the journey forth and back was made, and also the observations at the place whose position was sought, and the telegraphic signals exchanged, in the manner hereinafter reported.

The mean solar chronometer was always left at Chicago, and the signals sent from that place, as well as those sent to Chicago, were noted by it there.

The observations at the distant station, whose position was sought, and the telegraphic signals received at and sent from that station, were all noted there by the sidereal chronometer. These signals were always made by myself by pressing the telegraph key with the fingers, so as to produce the click of that key as nearly as possible in coincidence with a given beat of the chronometer.

The signals at Chicago were always made by an experienced telegraph operator, who was, in the beginning, carried through a course of practice in making dots as nearly as possible in coincidence with the beats of the mean solar chronometer at every ten seconds of interval, for seven to ten and sometimes thirteen minutes as a series. It is remarkable how soon a person, with a good ear for cadence, or time, will acquire an accuracy in making these time-signals approaching almost to exactness. The results which will presently be presented will serve as evidence on this point.

After the observations for the time, at the place visited, were completed, the sidereal chronometer was carried to the telegraph office at that place. I then began by calling for a certain number of signals from Chicago at intervals of ten seconds apart, sufficient to insure two or three periods of coincidence in the beats of the two chronometers.

This period of coincidence of beats having been thus ascertained, signals were sent from the distant station back to Chicago, at intervals that would ensure a coincidence with the beats of both chronometers. These intervals were easily ascertained by making allowance for the difference of the rates of the two chronometers affected by their proper algebraic signs of + when gaining, and — when losing, as well as for the gain of sidereal on mean solar time.

Sometimes additional signals were called for from Chicago at stated

moments, varying the interval two, three, or four seconds, each way, and sometimes throwing them into the half-second beats, and at others into the whole-second beats at that place, as tests upon the series. The reductions from Chicago mean solar to sidereal time, with the difference of the rates of the two chronometers incorporated into the calculations, give the fractions of a second which appear in the stated differences of longitude between the two stations—the signals corresponding to coincident beats of the two chronometers being the only ones used in the computations.

I will now proceed to state, in a brief form, the observations and the results derived from them.

The Observations for Time at Chicago.

1st. 1858, June 20th. At Chicago Observing Station No. 2, in latitude $41^{\circ} 53' 50''.5$ N.: longitude $5h. 50m. 31s.15$ W.

Sidereal chronometer No. 2557, fast:

By 11 observations on α Lyræ, east (at 15h. 40m. sidereal)	m. s.
- - - - -	59 18.93
By 12 observations on α Bootis, west (at 16h. 13m. sidereal)	
- - - - -	59 18.32

Result—Chronometer No. 2557, fast of sidereal time for this station (at 15h. 56m. sidereal) - + 59 18.62

By comparison—Chronometer No. 141, slow of mean solar time for this station (at 10h. 00m. mean time) - - 4 59.07

2d. June 22d. Same Station.

Sidereal chronometer No. 2557, fast:	m. s.
By 14 observations on α Lyræ, E. (at 15h. 36m.)	59 30.90
By 16 observations on α Bootis, W. (at 16h. 10m.)	59 30.53

Result—Chronometer No. 2557, fast of sidereal time for this station (at 15h. 53m.) - - + 59 30.71

By comparison—Chronometer No. 141, slow of mean solar time for this station (at 9h. 48m. mean time) - - 4 58.33

3d. 1858, June 28th. Same Station.

Sidereal chronometer No. 2557, fast:	<i>h. m. s.</i>
By 10 observations on α Lyræ, E. (at 15h. 37m.)	1 00 07.92
By 12 observations on α Bootis, W. (at 16h. 08m.)	1 00 07.20

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 15h. 52m.) - - + 1 00 07.56

By comparison—Chronometer No. 141, slow of mean
solar time for this station (at 9h. 25m.) - — 4 53.75

4th. June 30th. At Chicago Observing Station No. 3, in latitude
41° 53' 46".3 N., longitude 5h. 50m. 31s.2. W.

Sidereal chronometer No. 2557, fast:	<i>h. m. s.</i>
By 10 observations on α Coronæ Borealis, W. (at 19h. 22m.)	1 00 21.22
By 13 observations on α Andromedæ, E. (at 20h. 08m.)	1 00 20.48

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 19h. 45m.) - - + 1 00 20.85

By comparison—Chronometer No. 141, slow of mean
solar time for this station, (at 13h. 09m. mean time) — 4 53.1

5th. 1858, July 3d. At Chicago Observing Station No. 2.

Sidereal chronometer No. 2557, fast:	<i>h. m. s.</i>
By 6 observations on α Lyræ, E. (at 16h. 12m.)	1 00 36.95
By 12 observations on α Cygni, also east (at 17h. 13m.)	1 00 37.40

By a mean of the results from two East stars (at 16h. 42m.)	<i>h. m. s.</i>
By 14 observations on α Bootis, W. (at 16h. 38m.)	1 00 37.03

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 16h. 40m.) - - + 1 00 37.1

By comparison—Chronometer No. 141, slow of mean
solar time for this station (at 9h. 53m. mean time) — 4 50.53

6th. July 5th. At Chicago Observing Station No. 3.

Sidereal chronometer No. 2557, fast:

By 14 observations on α Coronæ Borealis, W. (at 19h. 28m.)	-	-	-	-	-	h. m. s.
						1 00 50.08
By 18 observations on α Andromedæ, E. (at 20h. 00m.)						1 00 49.97

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 19h. 44m.) - - + 1 00 50.02

By comparison—Chronometer No. 141, slow of mean
solar time for this station (at 12h. 48m. mean time) — 4 49.38

7th. 1858, July 7th. At Chicago Observing Station No. 2.

Sidereal chronometer No. 2557, fast:

By 5 observations on α Lyræ, E. (at 15h. 27m.) using horizon roof No. 1, being	h. m. s.
an old one in use 18 years, -	1 01 00.06
By 8 observations on α Bootis, W. (at 16h. 17m.) with same roof, -	1 00 59.34

By E. and W. stars (at 15h. 52m.)
using horizon roof No. 1, + 1 00 59.7 h. m. s.
+ 1 00 59.70

By 5 observations on α Lyræ, E. (at 15h. 36m.) using horizon roof No. 2, a new one, - - - 1 00 59.91

By 7 observations on α Bootis, W. (at 16h. 02m.) also using roof No. 2, 1 00 59.41

By the same E. and W. stars (at 15h. 49m.), using horizon roof No. 2, + 1 00 59.66
+ 1 00 59.66

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 15h. 50m.) by 10 observations
on α Lyræ, E.; 15 observations on α Bootis, W. + 1 00 59.68

By comparison—Chronometer No. 141, slow of mean
solar time for this station (at 8h. 48m. mean time) — 4 48.79

8th. 1858, July 12th. At Chicago Observing Station No. 2.

Sidereal chronometer No. 2557, fast:

By 10 observations on α Lyræ, E. (at
15h. 32m.) using horizon roof *h. m. s.*
No. 1, - - - 1 01 30.12

By 14 observations on α Bootis, W.
(at 16h. 12m.) also using roof
No. 1. - - - 1 01 30.41

By E. and W. stars, using roof No. 1
(at 15h. 52m.) - + 1 01 30.26 *h. m. s.*

+ 1 01 30.26

By 5 observations on α Lyræ, E.,
using horizon roof No. 2 (at 15h.
45m.) - - - 1 01 30.

By 8 observations on α Bootis, W.,
using roof No. 2 (at 15h. 57m.) · 1 01 30.22

By E. and W. stars (at 15h. 51m.)
using roof No. 2, . + 1 01 30.11

+ 1 01 30.11

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 15h. 51m. 30s.) by 15 obser-
vations on α Lyræ, east, and 22 observations on
 α Bootis, west, - - - + 1 01 30.18

By comparison—Chronometer No. 141, slow of mean
solar time for this station (at 8h. 28m. mean time) - 4 44.48

9th. 1858, July 15th. At Chicago Observing Station No. 3.

Sidereal chronometer No. 2557, fast:

By 7 observations on α Coronæ Bo-
realis, W. (at 19h. 06m.) using *h. m. s.*
horizon roof No. 1, - - - 1 01 46.54

By 5 observations on α Andromedæ,
E. (at 20h. 18m.) using also roof
No. 1, - - - 1 01 44.96

By E. and W. stars (at 19h. 42m.)	h. m. s.	
using horizon roof No. 1,	+ 1 01 45.75	h. m. s.
	+ 1 01 45.75	

By 6 observations on α Coronæ Borealis, W. (at 19h. 24m.) using horizon roof No. 2,	- - -	1 01 46.04
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By 9 observations on α Andromedæ, E. (at 20h. 02m.) using also horizon roof No. 2,	- - -	1 01 45.31
	1 01 45.31	

By E. and W. stars (at 19h. 43m.) using horizon roof No. 2,	+ 1 01 45.68	
	+ 1 01 45.68	

Result—Chronometer No. 2557, fast of sidereal time for this station (at 19h. 42m. 30s.) by 13 observations on α Coronæ Borealis, W., and 14 observations on α Andromedæ, E. - - + 1 01 45.71

By comparison—Chronometer No. 141, slow of mean solar time for this station (at 12h. 07m. mean time), - - - 4 44.58

10th. 1858, July 18th. At Chicago Observing Station No. 2.

Sidereal chronometer No. 2557, fast:

By 9 observations on α Lyræ, E. (at 15h. 58m.)	- - -	1 02 01.85
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By 14 observations on α Cygni, also E. (at 17h. 18m.)	- - -	1 02 01.75
	1 02 01.75	

By 23 observations on 2 East stars (at 16h. 38m.)	1 02 01.8	h. m. s.
By 19 observations on α Bootis, W. (at 16h. 34m.)	1 02 01.42	
	1 02 01.42	

Result—Chronometer No. 2557, fast of sidereal time for this station (at 16h. 36m.) - + 1 02 01.61

By comparison—Chronometer No. 141, slow of mean solar time for this station (at 8h. 49m.) - - - 4 43.01

11th. 1858, July 21st. At same Station, No. 2.

Sidereal chronometer No. 2557, fast:

By 7 observations on α Bootis, W. (at

16h. 37m.) using horizon roof *h. m. s.*

No. 1, - - - 1 02 17.31

By 8 observations on α Cygni, E. (at

17h. 19m.) using, also, horizon

roof No. 1, - - - 1 02 18.39

By E. and W. stars (at 16h. 59m.)

with horizon roof No. 1, + 1 02 17.85 *h. m. s.*

+ 1 02 17.85

By 8 observations on α Bootis, W. (at

16h. 50m.) with roof No. 2, - 1 02 17.68

By 8 observations on α Cygni, E. (at

17h. 02m.) also with roof No. 2, 1 02 18.03

By E. and W. stars (at 16h. 56m.)

using horizon roof No. 2, + 1 02 17.85

+ 1 02 17.85

Result—Chronometer No. 2557, fast of sidereal time

for this station (at 16h. 57m.) by 15 observa-

tions on α Bootis, west, and 16 observations on α

Cygni, east, - - - - + 1 02 17.85

By comparison—Mean solar chronometer No. 141,

slow of mean solar time for this station (at 8h.

58m. mean time) - - - - - 4 41.75

12th. 1858, September 5th. At Chicago Observing Station No. 3.

Sidereal chronometer No. 2557, fast:

By 10 observations on α Coronæ Borealis, W. (at *h. m. s.*

19h. 04m.) - - - - 1 06 53.8

By 12 observations on α Andromedæ, E. (at 20h.

25m.) - - - - 1 06 54.7

Result—Chronometer No. 2557, fast of sidereal time

for this station (at 19h. 45m.) - - - + 1 06 54.25

By comparison—Chronometer No. 141, slow of mean

solar time for this station (at 8h. 45m. mean time), - 4 28.5

13th. 1858, September 7th. Same Station, No. 3.

Sidereal chronometer No. 2557, fast:

By 9 observations on α Andromedæ, east (at 20h. 24m.) h. m. s.
- - - - - 1 07 06.7

By 15 observations on α Lyræ, W. (at 22h. 21m.) h. m. s.
- - - - - 1 07 06.51

By 8 observations on α Aquilæ, also
W. (at 22h. 23m.) - - - 1 07 06.53

By 23 observations on 2 West stars
(at 22h. 22m.) . - - 1 07 06.52

1 07 06.52

Result—Chronometer No. 2557, fast of sidereal time
for this station (at 21h. 23m.) - + 1 07 06.62

By comparison—Chronometer No. 141, slow of mean
solar time for this station (at 10h. 15m. mean time) — 4 28.36

I would have preferred α Coronæ Borealis, W. for combination with α Andromedæ, E., as they are nearly of the same north declination, but clouds in the early part of the night obscured him.

Rates of the Chronometers.

As the rates of the two chronometers are necessarily introduced into the computations, it is proper that they should be here exhibited as derived from the foregoing observations made at Chicago.

They are as follows, viz.—

1st. Rates of Sidereal Chronometer No. 2557.

1858.		Elapsed Sidereal interval.	Rate per 24 Sidereal Hours.
From	To	Days and Decimals.	Gaining.
June 20,	June 22,	1.998	s. + 6.05
June 22,	June 28,	6.000	+ 6.14
June 28,	June 30,	2.162	+ 6.15
June 30,	July 3,	2.870	+ 5.66
July 3,	July 5,	2.127	+ 6.07
July 5,	July 7,	1.837	+ 5.27
July 7,	July 12,	5.000	+ 6.10
July 12,	July 15,	3.160	+ 4.91
July 15,	July 18,	2.871	+ 5.54
July 18,	July 21,	3.014	+ 5.39
September 5,	September 7,	2.079	+ 6.00

2d. Rates of Mean Solar Chronometer No. 141.

1858.		Elapsed Mean Solar interval.	Rate per 24 Mean Solar Hours.
From	To	Days and Decimals.	+ Gaining. — Losing.
June 20,	June 22,	1.992	s. + 0.37
June 22,	June 28,	5.983	+ 0.76
June 28,	June 30,	2.155	+ 0.30
June 30,	July 3,	2.860	+ 0.90
July 3,	July 5,	2.120	+ 0.54
July 5,	July 7,	1.833	+ 0.32
July 7,	July 12,	4.986	+ 0.86
July 12,	July 15,	3.152	— 0.03
July 15,	July 18,	2.862	+ 0.55
July 18,	July 21,	3.006	+ 0.42
September 5,	September 7,	2.064	+ 0.07

I will now present, in the same brief form as in the case of Chicago (I.), the observations that were made to ascertain the latitude and longitude of the other stations, following the order laid down at the beginning of this paper. It is the order in which the places occur in going from south to north.

II. MICHIGAN CITY, INDIANA.

The station occupied was on the summit of a sand hill, about 350 yards north-easterly from the rail road depot. A connection will be made by survey, as soon as convenient, between the observing station and one of the church steeples, and will be reported.

1st. Observations for the Latitude. 1858, June 21st.

By 10 observed circum-meridian altitudes of β Libræ,	
south, combined with 5 observed altitudes of Po-	
laris (α Ursæ Minoris), north; latitude (approximate)	41° 43' 25''
- - - - -	<hr/>

2d. Observations for the Time. Same Night.

Sidereal chronometer No. 2557, fast:	<i>m. s.</i>
By 13 observations on α Lyræ, east (at 15h. 36m.)	56 31.4
By 14 observations on α Bootis, west (at 16h. 08m.)	56 30.5
	<hr/>
<i>Result</i> —Sidereal chronometer No. 2557, fast of sidereal time for this station (at 15h. 52m.) -	+ 56 30.95
	<hr/>

3d. The Longitude.

This was determined the same night by chronometrical connections with the meridian of Chicago, by means of electric signals transmitted each way by the telegraph wires. The times at the two stations were derived from the above observations made this night at Michigan city, and the observations made at Chicago on the nights of the 20th and 22d inst. above given, which also determine the rates of the two chronometers for reduction to the times of the signals.

The whole operation is shown as follows, viz. —

Determination of the difference of Longitude between Chicago and Michigan City, Indiana, by electric signals for comparisons of time, June 21st, 1858.

Sidereal Chronometer No. 2557, fast, of Michigan City, sidereal time, (at 16h. 57m. sidereal time,) + 56m. 31s.22.

Rate per sidereal day, + 6s.05; or per sidereal hour, + 0s.250.

Mean solar Chronometer No. 141, slow, of Chicago, mean solar time, (at 10h. 54m. mean time,) — 4m. 53s.68.

Rate per mean solar day, + 0.37s; or per mean solar hour, + 0s.015.

1st.—Chicago signals recorded at both stations.

Times of signals given at Chicago, by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals, as noted at Michigan City by sidereal Chronometer No. 2557.	Michigan City correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal.—Michigan City east of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
11 00 00	11 04 58.68	18 04 44.5	17 08 13.23	17 05 19.45	0 02 53.78
11 18 00	11 22 58.68	18 22 47.5	17 26 16.16	17 23 22.40	0 02 53.76
12 02 30	12 07 28.67	19 07 25.	18 10 53.47	18 07 59.70	0 02 53.77
12 05 30	12 10 28.67	19 10 25.5	18 13 53.96	18 11 00.20	0 02 53.76
12 11 30	12 16 28.66	19 16 26.5	18 19 54.93	18 17 01.17	0 02 53.76
12 14 30	12 19 28.66	19 19 27.	18 22 55.42	18 20 11.66	0 02 53.76
12 17 20	12 22 18.66	19 22 17.5	18 25 45.91	18 22 52.13	0 02 53.78
12 20 40	12 25 38.66	19 25 38.	18 29 06.40	18 26 12.67	0 02 53.73

1st Mean.—Electric signals sent from Chicago to Michigan City, 0 02 53.763

2d.—Michigan City signals recorded at both stations.

Times of signals given at Michigan City, by sidereal Chronometer No. 2557.	Times of Michigan City signals as noted at Chicago, by mean solar Chronometer No. 141.	Chicago correct mean solar time of Michigan City signals.	Chicago reduced sidereal time of Michigan City signals.	Michigan City correct sidereal time of Michigan City signals.	Difference of Longitude by each signal.—Michigan City east of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
17 53 30	10 48 47.5	10 53 46.18	16 54 05.11	16 56 58.78	0 02 53.67
18 49 30	11 44 38.	11 49 36.67	17 50 04.77	17 52 58.55	0 02 53.78
18 53 00	11 48 07.5	11 53 06.17	17 53 34.84	17 56 28.53	0 02 53.69

2d Mean.—Electric signals sent from Michigan City to Chicago, 0 02 53.713

1st Mean.—Electric signals sent from Chicago to Michigan City, as above, - - - - - 0 02 53.76

Result :—Michigan City Observing Station, east in longitude of Chicago observing Station No. 2, by a mean of the two sets of signals, - - - - - 0 02 53.74

	<i>h. m. s.</i>
Brought forward,	— 0 02 53.74
Chicago observing station No. 2, west of the meridian of Greenwich, - - - -	+ 5 50 31.15

Result—Michigan city observing station, west of the meridian of Greenwich, - - - + 5 47 37.41
 Equal, in arc, to - - - - 86° 54' 21".15 W.
 Latitude (approximate) of the same station, as above, 41° 43' 25" N.

III. WAUKEGAN, ILLINOIS.

The point of observation here was 111 feet north of the parallel of, and 103 feet west of the meridian of, the dome of the Court House, = 1".1 difference of latitude; and 0s.09 in time, difference of longitude.

1st. Observations for the Latitude. 1858, June 29th.

By 3 observed circum-meridian altitudes of β Libræ, south,	42° 21' 41.6"
By 11 observed circum-meridian altitudes of α Ophiuchi, also south,	42 21 44.
Mean from 2 south stars, - - -	42° 21' 42.8"
By 10 observed altitudes of Polaris (α Ursæ Minoris) north, - - - -	42 21 46.7
<i>Result</i> —Latitude of station, - - -	42 21 44.8
Reduction to the dome of the Court House, -	— 1.1
Latitude of Waukegan Court House, - -	42 21 43.7

2d. Observations for the Time.

	<i>h. m. s.</i>
Sidereal chronometer No. 2557, fast:	
By 13 observations on α Lyræ, east (at 15h. 44m.)	1 01 04.08
By 12 observations on α Bootis, west (at 16h. 19m.)	1 01 03.22

Result—Sidereal chronometer No. 2557, fast of sidereal time for this observing station (at 16h. 01m.) + 1 01 03.65

3d. *The Longitude.*

Reference must be made to the observations for the time at this place as above given, and to those of June 28th, and June 30th, at Chicago. They furnish the data for the times at each station, applied to the following telegraphic signals exchanged between Chicago and Waukegan, viz:

Determination of the difference of Longitude between Chicago and Waukegan, Illinois, by electric signals for comparison of time, June 29th, 1858.

Sidereal Chronometer No. 2557, fast of Waukegan sidereal time (at 18h. 29m. sidereal time), 1h. 01m. 04s.28.

Rate per sidereal day, + 6.15s. or per sidereal hour, + 0s.2506.

Mean Solar Chronometer No. 141, slow of Chicago mean solar time (at 11h. 58m. mean time), 04m. 53s.42.

Rate per mean solar day, + 0s.30. or per mean solar hour, 0s.0125.

1st.—Chicago signals recorded at both stations.

Times of Signals given at Chicago, by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals, as noted at Waukegan, by sidereal Chronometer No. 2557.	Waukegan correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal. Waukegan, west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
11 53 20	11 58 13.42	19 30 30	18 29 25.72	18 30 15.40	0 00 49.68
11 56 20	12 01 13.42	19 33 30.5	18 32 26.20	18 33 15.90	0 00 49.70
11 59 20	12 04 13.42	19 36 31	18 35 26.69	18 36 16.39	0 00 49.70

1st Mean.—Electric signals sent from Chicago to Waukegan, Ill. 0 00 49.69

2d.—Waukegan, Illinois, signals recorded at both stations.

Times of signals given at Waukegan, by sidereal Chronometer No. 2557.	Times of Waukegan signals, as noted at Chicago, by mean solar Chronometer No. 141.	Chicago correct mean solar time of Waukegan signals.	Chicago reduced sidereal time of Waukegan signals.	Waukegan correct sidereal time of Waukegan signals.	Difference of Longitude by each signal. Waukegan, west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
19 45 25	12 08 12.5	12 13 05.91	18 45 10.34	18 44 20.65	0 00 49.69
19 48 25.5	12 11 12.5	12 16 05.91	18 48 10.83	18 47 21.14	0 00 49.69
19 51 26	12 14 12.5	12 19 05.91	18 51 11.32	18 50 21.63	0 00 49.69
19 54 26.5	12 17 12.5	12 22 05.91	18 54 11.81	18 53 22.12	0 00 49.69

2d Mean.—Electric signals sent from Waukegan, Ill. to Chicago, 0 00 49.69

1st Mean.—Electric signals sent from Chicago to Waukegan as above, 0 00 49.69

Result:—Waukegan Station, Illinois, west in longitude of Chicago observing station No. 2, by a mean of the two sets of signals, + 0 00 49.69

	<i>h. m. s.</i>
Brought forward,	+ 0 00 49.65
Reduction to Waukegan Court House, - -	- - - 0.09
<hr/>	
Waukegan Court House, west of the meridian of Chicago observing station No. 2, -	+ 0 00 49.56
Longitude of Chicago observing station No. 2, west of the meridian of Greenwich, -	+ 5 50 31.15
<hr/>	
Longitude of Waukegan Court House, west of the meridian of Greenwich, - - -	5 51 20.71
Equal, in arc, to - - -	87° 50' 10".65 W.
Latitude, as before, - - -	42° 21' 43".7 N.
<hr/>	

Other points at Waukegan, connected with the dome of the Court House by survey, are obtained for the following table, viz.—

POSITIONS IN WAUKEGAN.	Latitude North.	Longitude West of the Meridian of Greenwich.	
		In Arc.	In Time.
1st. Dome of Waukegan Court House, - - - - -	42° 21' 43.7	87° 50' 10.65	<i>h. m. s.</i> 5 51 20.71
2d. Steeple of the Roman Catholic Church on County Street, between Water and Washington Streets, - - - - -	42 21 37.7	87 50 11.44	5 51 20.76
3d. Intersection of the middle of Genesee Street with the middle of Washington Street, - - -	42 21 41.	87 50 05.8	5 51 20.33
4th. The Light House, - - - -	42 21 29.3	87 49 59.97	5 51 20.
5th. Intersection of the middle of Madison Street with the shore of Lake Michigan, - - - - -	42 21 44.2	87 49 39.93	5 51 18.66

IV. RACINE, WISCONSIN.

The observing station here, is S. $44^{\circ} 42' 40''$ E. 100 feet from the middle of the base of the tower of Saint Luke's Church (Episcopal); and it is N. $87^{\circ} 05'$ E. and distant 297 feet from the dome of the Racine Court House, situated 100 feet west of the west margin of Main street, between 5th and 6th streets.

1st. Observations for the Latitude. 1858, September 6th.

By 11 observed circum-meridian altitudes of Altair					
(α Aquilæ) south,	-	-	-	-	42 43 46.3
By 11 observed circum-meridian altitudes of γ Cephei, north,	-	-	-	-	42 43 43.1
<i>Result</i> —Latitude of station,	-	-	-	-	42 43 44.7 N.
Reduction to the dome of the Court House,	-	-	-	-	— 0.1
Latitude of Racine Court House,	-	-	-	-	42 43 44.6

2d. Observations for the Time. Same Night.

Sidereal chronometer No. 2557, fast:

By 13 observations on α Coronæ Borealis, west (at 19h. 07m.)	-	-	-	-	-	h. m. s.
						1 07 36.69
By 9 observations on α Andromedæ, east (at 20h. 26m.)	-	-	-	-	-	1 07 37.1

Result—Chronometer No. 2557, fast of sidereal time for this station (at 19h. 46m.) - - + 1 07 36.9

3d. The Longitude.

Reference must be made to the above observations made this night for the Racine time, and to the observations before recorded, of the 5th and 7th of September, made at Chicago for the time there, and also to the following telegraphic signals, viz:

Determination of the difference of Longitude between Chicago and Racine, Wisconsin, by electric signals for comparisons of time, September 6th, 1858.

Sidereal Chronometer No. 2557, fast, of Racine, sidereal time, (at 22h. 24m. 40s. sidereal time,) 1h. 07m. 37s.55.

Rate per sidereal day, + 6s.0; or per sidereal hour, + 0s.25.

Mean Solar Chronometer No. 141, slow, of Chicago, mean solar time, (at 11h. 21m. mean time,) 4m. 28s.42.

Rate per mean solar day, + 0s.07; or per mean solar hour, + 00s.03.

1st.—Chicago signals recorded at both stations.

Times of Signals given at Chicago by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals as noted at Racine by sidereal Chronometer No. 2557.	Racine correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal.—Racine West of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
11 16 50	11 21 18.42	23 32 17.5	22 24 39.95	22 25 16.75	0 00 36.80
11 19 40	11 24 08.42	23 35 08.	22 27 30.43	22 28 07.22	0 00 36.79
11 31 40	11 36 08.42	23 47 10.	22 39 32.38	22 40 09.19	0 00 36.81
11 34 42	11 39 10.42	23 50 12.5	22 42 34.87	22 43 11.68	0 00 36.81
11 37 41	11 42 09.42	23 53 12.	22 45 34.36	22 46 11.17	0 00 36.81

1st Mean.—Electric signals sent from Chicago to Racine, 0 00 36.804

2d.—Racine signals recorded at both stations.

Times of signals given at Racine by sidereal Chronometer No. 2557.	Times of Racine signals as noted at Chicago by mean solar Chronometer No. 141.	Chicago correct mean solar time of Racine signals.	Chicago reduced sidereal time of Racine signals.	Racine correct sidereal time of Racine signals.	Difference of Longitude by each signal.—Racine West of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
23 38 08.5	11 22 40.	11 27 08.42	22 31 07.71	22 30 30.92	0 00 36.79
23 41 09.	11 25 40.	11 30 08.42	22 34 08.20	22 33 31.41	0 00 36.79
23 44 10.5	11 28 41.	11 33 09.42	22 37 09.69	22 36 32.90	0 00 36.79

2d Mean.—Electric signals sent from Racine to Chicago, 0 00 36.79

1st Mean.—Electric signals sent from Chicago to Racine, as above, 0 00 36.804

Result :—Racine observing station is west, in longitude of Chicago observing Station No. 3, by a mean of the two sets of signals, - - - - - + 0 00 36.80

	<i>h. m. s.</i>
Brought forward,	+ 0 00 36.8
Reduction to the dome of Racine Court House,	+ 0.26
Sum,	0 00 37.06
Longitude of Chicago observing station No. 3, west of the meridian of Greenwich, - -	+ 5 50 31.2
Longitude of Racine Court House, west of the meri- dian of Greenwich, - - -	5 51 08.26
Equal, in arc, to - - -	87° 47' 04''
Latitude, as above, - - -	42° 43' 44''.6

From the above, and our survey, we present the following table of positions in Racine, viz.

POSITIONS IN RACINE.	North Latitude.	Longitude West of the Meridian of Greenwich.	
		In Arc.	In Time.
1st. Dome of the Court House, -	42° 43' 44''.6	87° 47' 04''	<i>h. m. s.</i> 5 51 08.26
2d. Tower of St. Luke's Church (Episcopal), - - - - -	42 43 45.4	87 47 01	5 51 08.06
3d. Steeple of the Universalist Church of the Good Shepherd, -	42 43 44.3	87 47 00.9	5 51 08.06
4th. The Light House, - - -			

The American Almanac for the present year, and for many years past, gives Racine as being in latitude 42° 49' 33" N. Longitude west of Greenwich, 87° 40' 22" which is an error in the assigned position of this place of eight and three-fourths (8¾) miles in an azimuthal direction of N. 40° 25' east, of its true position.

V. MILWAUKEE, WISCONSIN.

This is the second city in magnitude, population and commerce, on Lake Michigan, being next to Chicago. It is also the largest city in the State of Wisconsin. Its population is now near fifty thousand (50,000) souls. It is very important that its position should be correctly laid down on the maps of our country.

I was obliged to occupy three different stations in the course of the observations made here, for reasons which will be stated in turn. The observations at each were reduced to the position of the tall and conspicuous steeple of the Roman Catholic Church on Jackson street, between Oneida and Biddle streets. This church is of permanent structure, and was therefore selected as a monument for reference.

1858, June 23d. At Milwaukee Station No. 1.

This station is in a vacant lot near the north-east corner of Milwaukee and Mason streets. The intersection of the middle lines or axes of these two streets, is 115 feet south of the parallel, and 107 feet west of the meridian of this observing station No. 1.

The middle point of the base of the tall steeple of the Roman Catholic Church on Jackson street, is by horizontal measurement, 545 feet = $5''.38$ of arc in latitude north of the parallel, and 557 feet = $7''.5$ of arc = $0s.5$ of time east of the meridian of this observing station No. 1.

The observations made this night, for the latitude at this station, were not conclusive. I obtained here 14 circum-meridian altitudes of the star β Libræ, culminating south of the zenith, but clouds prevented observations on α Ursæ Minoris (Polaris) north; therefore those on β Libræ were rejected, although they gave the latitude of this station only $4''.6$ less than it was afterwards made by a reduction to this point, of satisfactory observations at stations Nos. 2 and 3, as will presently appear.

1. Observations for the Time at Milwaukee Station No. 1.

Sidereal chronometer No. 2557, fast:

By 10 observations on α Lyræ, east (at 15h. 42m.	<i>h.</i>	<i>m.</i>	<i>s.</i>
sidereal time) - - - -	1	00	43.5
By 15 observations on α Bootis, west (at 16h. 08m.			
sidereal time) - - - -	1	00	42.52

Result—Chronometer No. 2557, fast of sidereal time

for this station (at 15h. 55m. sidereal time, June

23d) - - - - - + 1 00 43.

2d. The Longitude.

The above determination of the time for this Milwaukee station, and the time at Chicago, derived from the observations of June 22d and 28th, already given, together with the comparisons of time for the two places by the following telegraphic signals, give us the data for the difference of longitude.

The elapsed time between the two periods of observation at Chicago, fixing the rate of mean solar chronometer No. 141, was greater than I would have wished, but I could not diminish it.

Determination of the difference of Longitude between Chicago and Milwaukee, by electric signals for comparisons of time, June 23d, 1858.

Sidereal Chronometer No. 2557, fast, of Milwaukee, sidereal time, (at 17h. 39m. sidereal time,) 1h. 00m. 43s.46.

Rate per sidereal day, + 6s.14; or per sidereal hour, + 0s.251.

Mean Solar Chronometer No. 141, slow, of Chicago, mean solar time, (at 11h. 32m. mean time,) 4m. 57s.51.

Rate per mean solar day, + 0s.76; or per mean solar hour, + 0s.0317.

1st.—Milwaukee signals recorded at both stations.

Times of signals given at Milwaukee by sidereal Chronometer No. 2557.	Times of Milwaukee signals as noted at Chicago by mean solar Chronometer No. 141.	Chicago correct mean solar time of Milwaukee signals.	Chicago reduced sidereal time of Milwaukee signals.	Milwaukee correct sidereal time of Milwaukee signals.	Difference of Longitude by each signal.—Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
18 40 00.	11 27 07.5	11 32 05.01	17 40 23.35	17 39 16.54	0 01 06.81
18 43 00.	11 30 07.	11 35 04.51	17 43 24.34	17 42 16.53	0 01 06.81

1st Mean.—Electric signals sent from Milwaukee to Chicago, 0 01 06.81

2d.—Chicago signals recorded at both stations.

Times of signals given at Chicago by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals as noted at Milwaukee by sidereal Chronometer No. 2557.	Milwaukee correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal.—Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
11 48 00.	11 52 57.50	19 00 56.	18 00 12.47	18 01 19.27	0 01 06.80
12 15 00.	12 19 57.49	19 28 00.5	18 27 16.85	18 28 23.69	0 01 06.84
12 18 00.	12 22 57.49	19 31 01.	18 30 17.33	18 31 24.19	0 01 06.86
12 23 50.	12 28 47.48	19 36 52.	18 36 08.31	18 37 15.14	0 01 06.83
12 30 00.	12 34 57.48	19 43 03.	18 42 19.28	18 43 26.15	0 01 06.87
12 35 50.	12 40 47.47	19 48 54.	18 48 10.26	18 49 17.10	0 01 06.84
12 38 40.	12 43 37.47	19 51 44.5	18 51 00.75	18 52 07.57	0 01 06.82

2d Mean.—Electric signals sent from Chicago to Milwaukee, 0 01 06.83

1st Mean.—Electric signals sent from Milwaukee to Chicago, as above, - - - - - 0 01 06.81

Result.—Milwaukee Station No. 1, west, in longitude of Chicago observing Station No. 2, by a mean of the two sets of signals, + 0 01 06.82

	<i>h. m. s.</i>
Brought forward,	+ 0 01 06.82
Reduction to the steeple of the Roman Catholic Church on Jackson street, Milwaukee,	- — 0.5
<hr/>	
Steeple of this church is west of the meridian of Chicago station No. 2,	- + 0 01 06.32
Longitude of Chicago station No. 2, west of the meridian of Greenwich,	- + 5 50 31.15
<hr/>	

Determination 1st.

Longitude of the steeple of the Roman Catholic Church on Jackson street, Milwaukee, west of the meridian of Greenwich,	- + 5 51 37.47
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It will be seen that the coincidence in the results from the seven electric signals sent from Chicago to Milwaukee, in the above series, is not so close as those previously given in the cases of Waukegan and Racine, or as those which follow, for subsequent dates, as given from Chicago to Milwaukee.

There is an extreme difference in the results derived from the seven sent on the 23d of June from Chicago to Milwaukee, of seven one-hundredths ($\frac{7}{100}$) of a second of time. This I attribute to the little practice which the telegraph operator at Chicago had had, at that date, in this species of experiments.

On the afternoon of June 30th, I received information which made it necessary that I should go again to Milwaukee on public business. The journey afforded another opportunity to try the difference of longitude between that place and Chicago, by two new sets of observations entirely independent of those from which the above result is derived.

On the night of June 30th (being the night before I started on my second visit to Milwaukee), and on the night of my return to Chicago, namely, July 3d, I made, at Chicago, the observations already given under those two dates. They, combined with the following observations made at Milwaukee, and the telegraphic signals passed on the the night of July 1st, and in the day of July 3d, give the two additional determinations mentioned.

*Observations for the Time at Milwaukee Station No. 2,
July 1st, 1858.*

This station was more convenient to my lodgings than No. 1. It is the centre, or point of intersection of the public walks, of the Court House Square.

From this point, if we run due east 235 feet, and then due north 29 feet, it will bring us perpendicularly under the apex of the steeple of the Roman Catholic Church on Jackson street. Hence, this steeple is $0''.29$ north of the parallel, and $3''.165$ of arc = $0s.21$ of time east of the meridian of this observing station No. 2.

A point perpendicularly under the middle of the dome of the court house is due north 123 feet = $+ 1''.2$ of latitude from this station No. 2.

The night was not very favourable for observations for the time. Passing clouds frequently obscured the stars which I desired to observe near the east and west prime vertical for that object. I could only get a single observation on α Andromedæ in the east, to balance against 5 observations on α Bootis, and 8 on α Coronæ Borealis, both in the west, for computing the time this night.

The sky to the north and the south was clearer, and hence more favourable to the observations for the latitude.

1858, July 1st. At Milwaukee Station No. 2.

Sidereal chronometer No. 2557, fast:

By 5 observations on α Bootis, west *h. m. s.*
(at 18h. 36m.) - - 1 01 33.

By 8 observations on α Coronæ Bo-
realis, also west (at 19h. 03m.) 1 01 32.7

	<i>h. m. s.</i>
By 13 observations on 2 west stars (at 18h. 50m.)	+ 1 01 32.85
By 1 observation on α Andromedæ, east (at 20h. 56m.)	+ 1 01 33.31
	+ 1 01 33.08

Result—Chronometer No. 2557, fast of sidereal time

for this station (at 19h. 53m.) - - + 1 01 33.08

The following telegraphic signals were passed, before the observations for the time were made here. The weather was so cloudy, that no observations on the stars could be made previous to the time of night at which the telegraph was at our command for the signals. We had first to pass the signals, and take the chances of getting the time from observation afterwards.

Determination of the difference of Longitude between Chicago and Milwaukee, by electric signals for comparisons of time, July 1st, 1858.

Sidereal Chronometer No. 2557, fast, of Milwaukee, sidereal time, (at 17h. 18m. 48s. sidereal time,) 1h. 01m. 32s.47.

Rate per sidereal day, + 5s.66 ; or per sidereal hour, + 0s.236.

Mean Solar Chronometer No. 141, slow, of Chicago, mean solar time, (at 10h. 40m. 12s. mean time,) 4m. 52s.27.

Rate per mean solar day, + 0s.90 ; or per mean solar hour, + 0s.0375.

1st.—Chicago signals recorded at both stations.

Times of signals given at Chicago by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals as noted at Milwaukee by sidereal Chronometer No. 2557.	Milwaukee correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal.— Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
10 35 20.	10 40 12.27	18 20 20.5	17 18 48.03	17 19 54.56	0 01 06.53
10 38 20.	10 43 12.27	18 23 21.	17 21 48.52	17 22 55.05	0 01 06.53
10 41 40.	10 46 32.27	18 26 41.5	17 25 09.01	17 26 15.60	0 01 06.59
10 44 10.	10 49 02.27	18 29 12.	17 27 39.50	17 28 46.01	0 01 06.51

1st Mean.—Electric signals sent from Chicago to Milwaukee, 0 01 06.54

2d.—Milwaukee signals recorded at both stations.

Times of signals given at Milwaukee by sidereal Chronometer No. 2557.	Times of Milwaukee signals as noted at Chicago by mean solar Chronometer No. 141.	Chicago correct mean solar time of Milwaukee signals.	Chicago reduced sidereal time of Milwaukee signals.	Milwaukee correct sidereal time of Milwaukee signals.	Difference of Longitude by each signal.— Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
18 35 25.	10 50 22.	10 55 14.25	17 34 59.01	17 33 52.47	0 01 06.54
18 38 25.5	10 53 22.	10 58 14.25	17 37 59.50	17 36 52.96	0 01 06.54
18 41 26.	10 56 22.	11 01 14.25	17 40 59.99	17 39 53.44	0 01 06.55
18 44 26.5	10 59 22.	11 04 14.25	17 44 00.48	17 42 53.93	0 01 06.55

2d Mean.—Electric signals sent from Milwaukee to Chicago, 0 01 06.545

1st Mean.—Electric signals sent from Chicago to Milwaukee, as above, - - - - - 0 01 06.540

Result.—The centre of the Court House Square at Milwaukee, is west, in longitude of Chicago, observing Station No. 3, by a mean of the two sets of signals, - - - - - + 0 01 06.54

	<i>h. m. s.</i>
Brought forward,	+ 0 01 06.54
Reduction to the steeple of the Roman Catholic Church on Jackson street, Milwaukee, -	- 0.21
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Steeple of the Roman Catholic Church, Milwaukee, west of the Chicago observing station No. 3,	+ 0 01 06.33
Longitude of Chicago station No. 3, west of the me- ridian of Greenwich, - - - -	+ 5 50 31.2
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Determination 2d.

Longitude of the steeple of the Roman Catholic Church on Jackson street, Milwaukee, west of the meridian of Greenwich, - - - -	5 51 37.53
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My duties detained me at Milwaukee until the afternoon rail road train of July 3d. The night of the 2d was cloudy, and part of it rainy, and not a star could be seen.

The 3d was clear, so I determined to try the result of a third series of telegraphic signals for the difference of longitude between the two places, which should rest for the Milwaukee time, on a set of equal altitudes of the sun observed with the sextant and artificial horizon, A. M. and P. M. The signals were passed by telegraph between the periods of the forenoon and afternoon observations.

I could not observe in the day time, either in the court house yard, or at station No. 1 of June 23d, because there were so many carriages, drays and persons on foot, constantly passing near by, that the artificial horizon of quicksilver was, I found while at those stations during the day, kept constantly agitated.

I was obliged therefore, to seek a more quiet position than either of those two. This I found in a vacant lot at the north east corner of Jackson and Martin streets.

The position here occupied I call Milwaukee Station No. 3. It is 890 feet north of the parallel, and 38 feet east of the meridian of the steeple before mentioned. Hence the reduction from this station No. 3, to the said steeple is $- 8''.8$ in latitude, and $+ 0''.512$ of arc = $+ 0s.034$ of time, in longitude.

The equal altitudes of the sun we accordingly observed as follows, viz:

Equal altitudes of the Sun, A. M. and P. M.

Observed double altitudes of the Sun's upper and lower limbs.	Times by sidereal Chronometer No. 2557 of equal altitudes of the Sun.		Elapsed sidereal time.	Equation of equal altitudes, in sidereal time.	Time by Chronometer of apparent noon.	Sidereal time of apparent noon.	Chronometer fast of sidereal time at apparent noon.
	A. M.	P. M.					
Up. limb, 106° 09' 50"	<i>h. m. s.</i> 5 18 55.8	<i>h. m. s.</i> 10 23 45.6	<i>h. s.</i> 5 05	<i>s.</i> + 2.03	<i>h. m. s.</i> 7 51 22.73	<i>h. m. s.</i> 6 49 42.19	<i>h. m. s.</i> 1 01 40.54
Up. limb, 106 58 10	5 21 17.9	10 21 23.8	5 00	+ 2.00	7 51 22 85	" " "	1 01 40.66
Lo. limb, 110 23 10	5 34 34.4	10 08 07.6	4 33	+ 1.93	7 51 22.97	" " "	1 01 40.78
Up. limb, 115 28 10	5 46 56.8	9 55 45.9	4 09	+ 1.89	7 51 23.24	" " "	1 01 41.05
Lo. limb, 115 28 10	5 50 12.3	9 52 29.6	4 02	+ 1.85	7 51 22.80	" " "	1 01 40.61

Result:—Chronometer No. 2557, fast, of sidereal time for the Milwaukee Observing Station No. 3, at apparent noon (say at 6*h.* 50*m.* sidereal time) of July 3d, 1858, by a mean of 5 pairs of equal altitudes of the Sun,

+ 1 01 40.73

Determination of the difference of Longitude between Chicago and Milwaukee, by electric signals for comparisons of time, July 3d, 1858.

Sidereal Chronometer No. 2557, fast, of Milwaukee, sidereal time, (at 8h. 00m. 47s. sidereal time,) 1h. 01m. 41s.01.

Rate per sidereal day, + 5s.66; or per sidereal hour, + 0s.236.

Mean Solar Chronometer No. 141, slow, of Chicago, mean solar time, (at 1h. 15m. 51s. mean time,) 4m. 51s.06.

Rate per mean solar day, + 0s.90; or per mean solar hour, + 0s.0375.

1st.—Chicago signals recorded at both stations.

Times of signals given at Chicago by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals as noted at Milwaukee by sidereal Chronometer No. 2557.	Milwaukee correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal.— Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
1 11 00.	1 15 51.06	9 02 28.5	8 00 47.49	8 01 53.76	0 01 06.27
1 14 30.	1 19 21.06	9 05 59.	8 04 17.98	8 05 24.33	0 01 06.35
1 17 10.	1 22 01.06	9 08 39.5	8 06 58.47	8 08 04.77	0 01 06.30
1 20 00.	1 24 51.06	9 11 30.	8 09 48.95	8 10 55.23	0 01 06.28

1st Mean.—Electric signals sent from Chicago to Milwaukee, 0 01 06.30

2d.—Milwaukee signals recorded at both stations.

Times of signals given at Milwaukee by sidereal Chronometer No. 2557.	Times of Milwaukee signals as noted at Chicago by mean solar Chronometer No. 141.	Chicago correct mean solar time of Milwaukee signals.	Chicago reduced sidereal time of Milwaukee signals.	Milwaukee correct sidereal time of Milwaukee signals.	Difference of Longitude by each signal.— Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
9 17 35.	1 26 04.	1 30 55.05	8 17 00.22	8 15 53.93	0 01 06.29
9 20 35.5	1 29 04.	1 33 55.05	8 20 00.71	8 18 54.42	0 01 06.29
9 23 36.	1 32 04.	1 36 55.05	8 23 01.20	8 21 54.91	0 01 06.29
9 26 36.5	1 35 04.	1 39 55.05	8 26 01.69	8 24 55.40	0 01 06.29

2d Mean.—Electric signals sent from Milwaukee to Chicago, 0 01 06.29

1st Mean.—Electric signals sent from Chicago to Milwaukee, as above, - - - - - 0 01 06.30

Result.—Milwaukee observing Station No. 3 is west, in longitude of Chicago observing Station No. 3, by a mean of the two sets of signals, - - - - - + 0 01 06.3

	<i>h. m. s.</i>
Brought forward,	+ 0 01 06.30
Reduction to the said steeple, - - -	+ 0.03
<hr/>	
Steeple, west of the meridian of Chicago observing station No. 3, - - -	+ 0 01 06.33
Longitude of Chicago station No. 3, - -	+ 5 50 31.20
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Determination 3d.

Longitude of the said steeple, west of the meridian of Greenwich, - - - -	5 51 37.53
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Here are three singular coincidences in the determination of the difference of longitude between two places derived from time observations made with a sextant and an artificial horizon. We will present a fourth and then a summary of the whole.

I will first remark, that the time was obtained at Chicago afresh on my return hither on the night of the same day (July 3d); that the equal altitudes of the sun were observed and the signals passed, as will be seen by reference to the preceding record of the Chicago observations.

Late in the afternoon of July 5th, I was again summoned to go to Milwaukee on business connected with the harbour improvement there. I determined to make the journey the occasion of a fourth trial of the difference of longitude, by a set of observations that should render it entirely independent of the other three. Accordingly on the night of the 5th, I made the observations at Chicago given under that date in the preceding record.

My business in regard to the harbour improvement occupied me at Milwaukee all day of the 6th, and until the time for the afternoon train of cars to start for Chicago on the 7th. By that train I reached Chicago in time to make the observations already given under that date. They, and those of the 5th, gave a short run for the rate of the mean solar chronometer No. 141, at Chicago, and they also gave the absolute time for the meridian of Chicago within $21\frac{1}{2}$ hours of the mean period of the telegraphic signals of the 6th.

After the duties of the day for the 6th were over at Milwaukee, I made the following observations for the time at station No. 3.

Two sets of time observations were made at that station this night, one set before exchanging the telegraphic signals with Chicago, and another set after those signals.

The mean of the two results was adopted for the mean period of the two sets, which corresponds very nearly (within half an hour) with the mean period of the signals, and thus leaves but that length of run of the sidereal chronometer between the period of getting its error from observation, and the mean period of the signals.

1858, July 6th. *Observations for the Time at Milwaukee Station No. 3.*

1st Set. Before the Telegraphic Signals.

Sidereal chronometer No. 2557, fast:	<i>h. m. s.</i>
By 12 observations on α Lyræ, east (at 15h. 39m.)	1 02 01.19
By 13 observations on α Bootis, west (at 16h. 04m.)	1 02 00.15
<i>1st Result—Before the Signals—Chronometer No. 2557, fast of sidereal time for Milwaukee station No. 3 (at 15h. 52m.)</i>	
- - - - -	+ 1 02 00.67
	<hr/>

2d Set. After the Signals.

Sidereal chronometer No. 2557, fast:	<i>h. m. s.</i>
By 5 observations on α Coronæ Borealis, west (at 20h. 03m.)	1 02 01.83
By 5 observations on α Andromedæ, east (at 20h. 22m.)	1 02 00.94

<i>2d Result—After the Signals—Chronometer fast of sidereal time for this station (at 20h. 15m.)</i>	
+ 1 02 01.38	
Do. do. (at 15h. 52m.) before the signals, as above,	+ 1 02 00.67
	<hr/>

<i>Result adopted—Chronometer No. 2557, fast of sidereal time for Milwaukee station No. 3 (at 18h. 03m.) July 6th,</i>	
- - - - -	+ 1 02 01.
	<hr/>

The above result for the time at Milwaukee, combined with the Chicago time-observations of July 5th and 7th, and applied to the following telegraphic signals, give us a fourth determination of the difference of longitude between Chicago and Milwaukee, entirely independent of the other three, as follows, viz.

Determination of the difference of Longitude between Chicago and Milwaukee, by electric signals for comparisons of time, July 6th, 1858.

Sidereal Chronometer No. 2557, fast, of Milwaukee, sidereal time, (at 17h. 03m. 22s. sidereal time,) 1h. 02m. 00s.78.

Rate per sidereal day, + 5s.27; or per sidereal hour, + 0s.22.

Mean solar Chronometer No. 141, slow, of Chicago, mean solar time, (at 10h. 05m. mean time,) — 4m. 49s.1.

Rate per mean solar day, + 0.32s; or per mean solar hour, + 0s.0133.

1st.—Chicago signals recorded at both stations.

Times of signals given at Chicago, by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signals, as noted at Milwaukee by sidereal Chronometer No. 2557.	Milwaukee correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal.— Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
10 00 20	10 05 09.1	18 05 23.	17 03 22.22	17 04 28.42	0 01 06.20
10 03 20	10 08 09.1	18 08 23.5	17 06 22.71	17 07 28.91	0 01 06.20
10 06 20	10 11 09.1	18 11 24.	17 09 23.20	17 10 29.41	0 01 06.21
10 09 20	10 14 09.1	18 14 24.5	17 12 23.69	17 13 29.90	0 01 06.21
10 12 10	10 16 59.1	18 17 15.	17 15 14.18	17 16 20.37	0 01 06.19

1st Mean.—Electric signals sent from Chicago to Milwaukee, 0 01 06.202

2d.—Milwaukee signals recorded at both stations.

Times of signals given at Milwaukee by sidereal Chronometer No. 2557.	Times of Milwaukee signals as noted at Chicago, by mean solar Chronometer No. 141.	Chicago correct mean solar time of Milwaukee signals.	Chicago reduced sidereal time of Milwaukee signals.	Milwaukee correct sidereal time of Milwaukee signals.	Difference of Longitude by each signal.— Milwaukee west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
18 23 15.	10 18 09.	10 22 58.09	17 22 20.34	17 21 14.15	0 01 06.19
18 26 15.	10 21 08.5	10 25 57.59	17 25 20.33	17 24 14.14	0 01 06.19
18 29 16.	10 24 09.	10 28 58.09	17 28 21.32	17 27 15.13	0 01 06.19
18 32 16.5	10 27 09.	10 31 58.09	17 31 21.82	17 30 15.62	0 01 06.20
18 35 17.	10 30 09.	10 34 58.09	17 34 22.31	17 33 16.11	0 01 06.20

2d Mean.—Electric signals sent from Milwaukee to Chicago, 0 01 06.194

1st Mean.—Electric signals sent from Chicago to Milwaukee as above, - - - - - 0 01 06.202

Result:—Milwaukee Station No. 3, west in longitude of the meridian of Chicago observing Station No. 3, by a mean of the two sets of signals this night, - - - + 0 01 06.20

	<i>h. m. s.</i>
Brought forward,	+ 0 01 06.20
Reduction to the church steeple as before (see Determination 3d) - - - - -	+ 0.03
<hr/>	
Steeple, west of the meridian of Chicago observing station No. 3, - - - - -	+ 0 01 06.23
Longitude of Chicago observing station No. 3, - - - - -	5 50 31.20
<hr/>	

Determination 4th.

Longitude of the said steeple, west of the meridian of Greenwich, - - - - -	5 51 37.43
<hr/>	

SUMMARY. Longitude of this steeple:

By Determination 1st, of June 23d, 1858, - - - - -	5 51 37.47
By Determination 2d, of July 1st, ,, - - - - -	5 51 37.53
By Determination 3d, of July 3d, ,, - - - - -	5 51 37.53
By Determination 4th, of July 6th, ,, - - - - -	5 51 37.43
<hr/>	

Mean, giving each determination an equal weight.

Longitude of the steeple of the Roman Catholic Church on Jackson street, Milwaukee, west of the meridian of Greenwich, - - - - -	5h. 51m. 37s.5
Equal, in arc, to - - - - -	87° 54' 22".5
<hr/>	

I confess I was surprised, when the several computations were completed, at the very close coincidence of these four determinations. They may be due, in some measure, to a fortunate concurrence of circumstances of which I am altogether unconscious. No one can expect such results, always, from observations with a sextant of the ordinary size, depending on the steadiness of the hand for its support; yet I do not hesitate to say, from long experience in observing with astronomical instruments—both portable and those permanently mounted on stone pillars—that the correct time may be obtained by a practised observer, with a good sextant and artificial horizon, within a small fraction of a second, by twenty or thirty minutes time spent in observing on two stars of nearly the same declination, whose places, as given in the catalogues, are well determined—the one to be

VI. MADISON, THE CAPITAL OF WISCONSIN.

On the 24th of June I went from Milwaukee to Madison, intending to observe there in the evening, and, if possible, to exchange telegraphic signals with Chicago for determining the difference of longitude. The night was, however, cloudy and rainy, and no observations could be made, either for the time or the latitude.

On the 25th the weather remained somewhat cloudy, and was unsettled until a late hour of the night; so much so, that no signals could be passed by the telegraphic wires. The following observations were, however, made during three-fourths of an hour, at intervals of clear sky, in the early part of the evening, for the time, and after the weather had cleared, at a late period of the night, for the approximate latitude, viz.

1st. Observations for the Time. Station No. 1.

At a point 95 feet = + 0".94 of latitude north of the parallel, and 175 feet = — 0s.16 of time east of the meridian of the centre of the dome of the State Capitol.

1858, June 25th.

Sidereal chronometer No. 2557, fast:	h. m. s.
By 13 observations on α Lyrae, east (at 15h. 43m.)	1 06 50.41
By 15 observations on α Bootis, west (at 16h. 08m.)	1 06 50.43
<hr/>	
<i>Result</i> —Chronometer No. 2557, fast of sidereal time for this station (at 15h. 56m.)	+ 1 06 50.42
<hr/>	

2d. Observations for the Latitude of Station No. 1. Same Night.

By 19 observed circum-meridian altitudes of α Ophiuchi, south,	° ' "
- . - . - . - . - .	43 04 40.9
By 21 altitudes of α Ursæ Minoris (Polaris) north,	43 04 41.5
<hr/>	
<i>Result</i> —Latitude of station No. 1 (approximate)	43 04 41.2
Reduction to the dome of the Capitol,	— 0.9
<hr/>	
<i>Result</i> —Latitude of the State Capitol at Madison, Wisconsin (approximate),	43 04 40.3 N.
<hr/>	

Owing to unfavourable weather, the only result of this visit to Madison was the obtaining of the approximate latitude as above given.

On the 19th of July I made another visit to Madison, and returned to Chicago on the evening of the 21st.

Observations for the time, at the Chicago Station No. 2, on the 18th and 21st, will be found among the preceding records.

The night of the 19th was not very favourable for observations at Madison. I was enabled to observe nine altitudes of α Lyrae, east, for the time, but the sky was so cloudy the rest of the night that no observations could be made on a star west for eliminating any small errors that might appertain to the partial result obtained from α Lyrae.

Telegraphic signals were, however, exchanged with Chicago, with a view to obtaining an approximate result for the longitude of Madison in case I should not be able to get a more satisfactory set of time-observations before leaving that place.*

Fortunately such an opportunity occurred on the next night, when, occupying a station (No. 2) immediately in rear of the Baptist church, on Carroll street, between Washington and Morris streets, the following observations were made: From this station, to a point perpendicularly under the apex of the steeple of this church, is N. 45° E. 90 feet; from thence to a point perpendicularly under the centre of the dome of the State Capitol, we ran, first, N. 45° E. 268 feet, and then due north 320 feet. Hence the reduction from this Madison Station No. 2 to the dome of the State Capitol, is, in latitude, + 5'' .68, and in longitude—3'' .41 in arc, =—0s.23 in time.

*Observations for the Time at Madison Station No. 2. Approx.
Latitude, 44° 04' 33''.1 N. 1858, July 20th.*

Sidereal chronometer No. 2557, fast:

By 8 observations on α Aquilæ (Altair) east (at 17h.	<i>h.</i>	<i>m.</i>	<i>s.</i>
05m.)	1	09	12.95
By 13 observations on α Bootis, west (at 17h. 37m.)	1	09	15.05

Result—Chronometer No. 2557, fast of sidereal time
for this station, No. 2 (at 17h. 21m.)

+ 1 09 14.

The above result for the time at Madison, combined with the time-observations at Chicago on the nights of July 18th and 21st, and the telegraphic signals passed on the night of the 20th, gives the longitude of Madison as follows, viz.

* *Note.* The approximate time, computed from those observations on α Lyrae, on the night of the 19th, and the telegraphic signals of that night, give, as the approximate longitude of the State Capitol, west of Greenwich, 5h. 57m. 32s.5, which is 0s.75 greater than the result adopted from the observations and signals of the night of July 20th —J. D. G.

Determination of the difference of Longitude between Chicago and Madison, Wisconsin, by electric signals for comparisons of time, July 20th, 1858.

Sidereal Chronometer No. 2557, fast of Madison sidereal time (at 18h. 16m. sidereal time), + 1h. 09m. 14s.2.

Rate per sidereal day, + 5s.39. or per sidereal hour, + 0s.22.15.

Mean Solar Chronometer No. 141, slow of Chicago mean solar time (at 10h. 25m. mean time), 104m. 42s.16.

Rate per mean solar day, + 0s.42. or per mean solar hour, + 0s.017.

1st.—Chicago signals recorded at both stations.

Times of Signals given at Chicago, by mean solar Chronometer No. 141.	Correct Chicago mean solar time of Chicago signals.	Times of Chicago signal, as noted at Madison, Wis. by sidereal Chronometer No. 2557.	Madison correct sidereal time of Chicago signals.	Chicago reduced sidereal time of Chicago signals.	Difference of Longitude by each signal. Madison west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
10 23 40.	10 28 22.16	19 25 10.5	18 15 56.30	18 22 57.12	0 07 00.82
10 26 40.	10 31 22.16	19 28 11.	18 18 56.79	18 25 57.61	0 07 00.82
10 29 40.	10 34 22.16	19 31 11.5	18 21 57.28	18 28 58.10	0 07 00.82
10 32 30.	10 37 12.16	19 34 02.	18 24 47.77	18 31 48.57	0 07 00.80
10 35 40.	10 40 22.16	19 37 12.5	18 27 58.25	18 34 59.08	0 07 00.83

1st Mean.—Electric signals sent from Chicago to Madison, Wis., 0 07 00.818

2d.—Madison, Wisconsin, signals recorded at both stations.

Times of signals given at Madison by sidereal Chronometer No. 2557.	Times of Madison, Wis. signals, as noted at Chicago, by mean solar Chronometer No. 141.	Chicago correct mean solar time of Madison signals.	Chicago reduced sidereal time of Madison signals.	Madison correct sidereal time of Madison signals.	Difference of Longitude by each signal. Madison west of the meridian of Chicago.
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
19 46 15.	10 44 41.	10 49 23.15	18 44 01.56	18 37 00.72	0 07 00.84
19 49 15.5	10 47 41.	10 52 23.15	18 47 02.05	18 40 01.21	0 07 00.84
19 52 16.	10 50 41.	10 55 23.15	18 50 02.54	18 43 01.70	0 07 00.84
19 55 15.5	10 53 40.	10 58 22.15	18 53 02.03	18 46 01.19	0 07 00.84
19 58 15.5	10 56 39.5	11 01 21.65	18 56 02.02	18 49 01.18	0 07 00.84

2d Mean.—Electric signals sent from Madison, Wis. to Chicago, 0 07 00.84

1st Mean.—Electric signals sent from Chicago to Madison, Wisconsin, as above,

0 07 00.818

Result:—Madison Station No. 2, west, in longitude, of Chicago observing station No. 2, by a mean of the two sets of signals, + 0 07 00.83

	<i>h. m. s.</i>
Brought forward,	+ 0 07 00.83
Reduction to the dome of the State Capitol,	— 0.23
<hr/>	
Dome of State Capitol, west of Chicago Station No. 2,	0 07 00.6
Longitude of Chicago station No. 2, - -	5 50 31.15
<hr/>	

Result—Longitude of the dome of the State Capitol
at Madison, Wisconsin, west of the meridian of
Greenwich, - - - - - 5 57 31.75

Equal, in arc, to - - - - 89° 22' 56".25

Latitude of the same point (approximate) as before
given, - - - - 43° 04' 40".3 N.

This being a State Capital, the above determination will be verified by further observations, when an opportunity shall occur.

In all the computations of the observations for the time and the latitudes, the Apparent Right Ascensions and Declinations of the Stars have been taken from the British Nautical Almanac for the year 1858.

J. D. GRAHAM,

Member of the Society.

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