

PROCEEDINGS
OF THE
AMERICAN PHILOSOPHICAL SOCIETY.

VOL. I. MAY, JUNE & JULY, 1840. No. 12.

Stated Meeting, May 1.

Present, twenty-one members.

Mr. DU PONCEAU, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

- Archives du Muséum d'Histoire Naturelle, publiées par les Professeurs-Administrateurs de cet Établissement. Tom. I. 4to. Paris, 1839.—*From the Professors.*
- Journal of the Asiatic Society of Bengal, edited by the Acting Secretaries, and circulated gratis to the Members of the Society. Nos. 88 and 89, for April and May, 1839.—*From the Society.*
- Report of the Committee of Physics and Meteorology of the Royal Society, relative to the Observations to be made in the Antarctic Expedition, and in the Magnetic Observatories. 8vo. London, 1840.—*From the Royal Society.*
- Fifty-third Annual Report of the Regents of the University of the State of New York, made to the Legislature, March 2, 1840. 8vo. Albany, 1840.—*From the Regents.*
- Transactions of the Medical Society of the State of New York. Vol. IV. In Three Parts. 8vo. Albany, 1838–9–40.—*From the Society.*
- C. Cornelii Taciti quæ extant, Marcus Zuerius Boxhornius recensuit, et Animadversionibus illustravit, &c. &c. 24mo. Amstelodam. 1664.—*From Mr. Du Ponceau.*
- Joannis Seldeni Mare clausum, seu de Dominio Maris, Libri duo. 24mo. Londini. 1636.—*From the same.*

- Juris et Judiciï Fecialis sive Juris inter Gentes, et Quæstionum de eodem Explicatio, qua quæ ad Pacem et Bellum inter diversos Principes aut Populos spectant, ex Præcipuis Historico-jure-peritis exhibentur. Opera R. Z. (Ricard. Zouch) Auctoris Elementorum Jurisprudentiæ. 24mo. Hagæ Comitum, 1669.—*From the same.*
- Kong Christian den Femtes Danske Lov paa nye oplagt ved Casper Peter Rothe, efter Kongl. Allernaadigst meddelt Privilegium, 1753. *From the same.*
- Litteratur des gesammten sowohl natürlichen als positiven Völkerrechts. Von Diedr. Heinr. Ludw. Freyherrn von Ompteda, Königl. Grosbritt. Churfürstl. Braunschweig, Lüneb. Comitial-Gesandten bey der Reichsversammlung zu Regensburg, u. s. w. 2 Theil. 8vo. Regensburg, 1785.—*From the same.*
- Saggio di Poesie Alemann erenate in versi Italiani da Antonio Bellati. Edizione nuovissima. 12mo. Milano, 1832.—*From the same.*
- Minshæi Emendatio, vel à Mendis Expurgatio, seu Augmentatio sui Ductoris in Linguas. The Guide into Tongues. Cum illarum Harmonia et Etymologiis, Originationibus, Rationibus et Derivationibus in omnibus his novem Linguis, viz.—1. Anglica; 2. Belgica; 3. Germanica; 4. Gallica; 5. Italica; 6. Hispanica; 7. Latina; 8. Græca; 9. Hebræa, &c. &c. &c. Opera, Studio, Industria, Labore et Sumptibus Johannis Minshæi in lucem editum et impressum, 22 Julii, Anno, 1625. 2da Editio, folio. London, 1627.—*From Mr. Vaughan.*
- A Memoir of William Rawle, LL.D., President of the Historical Society, &c. By T. I. Wharton, Esq. Read at a Meeting of the Council, held on the 22d day of February, 1837, and printed by order of the Society; with a Letter from Peter S. Duponceau, Esq., to the Author, containing his Recollections of Mr. Rawle's Life and Character. 8vo. Philadelphia, 1840.—*From Mr. Wharton.*
- The Magazine of Natural History. New Series. Conducted by Edward Charlesworth, F. G. S. &c. Jan. and Feb. 1840. London.—*From the Editor.*
- Fourteenth Annual Report of the Board of Managers of the Prison Discipline Society, Boston, May, 1839. 8vo. Boston, 1839.—*From Mr. J. P. Davis.*
- Answer to the Whig Members of the Legislature of Massachusetts, constituting a Majority of both Branches, to the Address of His Excellency, Marcus Morton, delivered in the Convention of the

- two Houses, Jan. 22, 1840. 8vo. Boston, 1840.—*From the same.*
- Abstract of the Return of the Overseers of the Poor in Massachusetts, for 1839; prepared by the Secretary of the Commonwealth. 8vo. Boston, 1840.—*From the same.*
- Third Annual Report of the Board of Education, together with the Third Annual Report of the Secretary of the Board. 8vo. Boston, 1840.—*From the same.*
- Seventh Annual Report of the Trustees of the State Lunatic Hospital at Worcester, December, 1839. 8vo. Boston, 1840.—*From the same.*
- Abstract of the Massachusetts School Returns for 1838-9. 8vo. Boston, 1840.—*From the same.*
- Report of the Geologists of the State of New York. In Assembly. January 24, 1840. 8vo.—*From Mr. Vanuxem.*
- Review of Morton's Crania Americana, from the American Journal of Science and Arts, No. 2, Vol. 38.—*From Prof. Silliman.*
- The Farmer's Register, a monthly publication, devoted to the Improvement of the Practice and Support of the Interests of Agriculture. Edmund Ruffin, Editor and Proprietor. Vol. VII. 8vo. Petersburg, 1839.—*From the Editor.*
- Supplement to the Farmer's Register, containing the Essay on Calcareous Manures. Second edition, greatly enlarged. 8vo. Prince George County, Va.—*From the same.*
- Instruction sur la Fabrication du Sucre de Betteraves par le Procédé de Macération, à l'usage des Fabriques Rurales: par C. J. A. Mathieu de Dombasle. 12mo. Paris, 1839.—*From Mr. D. B. Warden.*
- Question des Sucres. Indemnité aux Fabricans: par C. J. A. Mathieu de Dombasle.—*From the same.*
- Société Royale et Centrale d'Agriculture. Coup d'œil sur l'Agriculture de la Sicile; par M. le Cte. de Gasparin, Pair de France. *From the same.*
- Observations Météorologiques faites à Flacq, Ile Maurice, par M. Julien Desjardins, pendant les années, 1836, 1837, 1838.—*From the Author.*
- Notice Historique sur Charles Telfair, Esq., Fondateur et Président de la Société d'Histoire Naturelle de l'Ile Maurice, &c. &c., lue à la 4me Séance Annuelle de la Société d'Histoire Naturelle de l'Ile Maurice, le Samedi, 24 Août, 1833, par M. Julien Desjar-

- dins, Secrétaire et l'un des Membres Fondateurs de cette Société, &c. &c. 4to. Port-Louis, Ile Maurice, 1836.—*From the same.*
- Liste des Membres qui composent la Société d'Histoire Naturelle de l'Ile Maurice. 1er September, 1836.—*From the same.*
- Huitième Rapport Annuel sur les Travaux de la Société d'Histoire Naturelle de l'Ile Maurice, lu à la Seance Anniversaire du Jeudi, 24 Août, 1837, par M. Julien Desjardins, &c. &c. 8vo. Maurice, 1837.—*From the same.*
- Proceedings of the Numismatic Society of London, 1837–8, containing the Address of the President, Dr. Lee. 8vo. London, 1838. *From Dr. Lee.*
- Sir James Clark's Statement of the Case of the late Lady Flora Hastings, &c. &c.—*From Dr. Dunglison.*
- The Works of Benjamin Franklin; containing several Political and Historical Tracts not included in any former edition, and many Letters, Official and Private, not hitherto published; with Notes, and a Life of the Author. By Jared Sparks. Vols. 1, 8, 9, and 10, which complete the Work. Royal 8vo. Boston, 1839–40.—*From Mr. Sparks.*
- The Orderly Book of the American Army, under the immediate Command of Gen. Washington at Valley Forge. MS.—*From Col. Hugh Mercer, of Fredericksburg, Va., through Dr. Mease.*

Mr. Vaughan, on presenting a transfer of page 524 of Schaaf's Syriac Lexicon (Leyden edition, 1717), &c., by Mr. Joseph Dixon, of Taunton, Massachusetts, on the plan of the transfer process of Mr. Dixon's invention, read sundry extracts of letters from him on the subject.

A notice of this invention was first published in the Salem Gazette, by the editor of that paper, on the 25th day of May, 1832; but the inventor has not yet made the process public.

The Committee, consisting of Mr. Walker, Dr. Patterson, and Mr. Bache, to whom was referred a paper, entitled "Observations on Nebulæ, with a Fourteen Feet Reflector, by H. L. Smith and E. P. Mason, during the year 1839, by E. P. Mason," reported in favour of publication in the Society's Transactions, which was directed accordingly.

The object of Messrs. Smith and Mason was to furnish a minute description of some of the principal nebulæ in the heavens, in order

that future changes in their appearance, should any occur, may be detected. The process employed was—1st. To prepare an accurate chart of all the stars in and about the nebula, capable of micrometrical measurement. 2dly. To fill in with the smaller stars down to the *minimum visibile*, by estimation. 3dly. To lay down the nebula on this chart with such care and precision, that the errors of its delineation may not far exceed those of original vision. The author, Mr. Mason, states at length the expedients used to effect the latter purpose, viz.—the drawing of *lines of equal brightness*, as a guide to the engraver; the examination of each portion of the nebula by several persons; and, lastly, the repeated comparison of the drawings with the original, on successive evenings, till no further improvement seemed to be practicable.

The telescope, used by Messrs. Smith and Mason, was of their own construction. It was 14 feet in length, and had 12 inches clear aperture, being a Herschelian, mounted somewhat rudely on the plan of Mr. Ramage. The difficulties experienced by Messrs. Smith and Mason, as amateur artists in casting and polishing specula at New Haven, are stated in detail. The telescope was capable of separating ζ Orionis, μ^2 Bootis, γ Virginis in 1838, λ Ophiuchi, and others of a distance of less than 1". For such purposes, however, the use of diaphragms was necessary, owing to an imperfection of the casting, and the full light of the telescope could not be employed. This circumstance directed their attention to the subject of this paper.

A cursory examination of the principal nebulae described, and, in some instances, figured by the Herschels, pointed out discrepancies between their descriptions and present appearances, which must be attributed either to a change in the nebulae themselves, or to the want of sufficient minuteness of examination on the part of the Herschels, whose object was rather the formation of a complete catalogue of the nebulae in the heavens, than the full and perfect description of any of the individuals. Thus, the paper contains a drawing of the "nebula trifida," *h.* 1991: the triple star does not occupy the same position in the cleft as given in the figure in Sir J. F. W. Herschel's paper, *Phil. Trans.* 1833, but rather adheres to the left of the three divisions; and what is more remarkable, the small star about 30' north of this triple star was surrounded with a nebula not much inferior in size and brilliancy to the "*nebula trifida*." A drawing is also furnished of the nebula, *h.* 2008, (the shape of which resembles the

capital Greek Ω) with a critical examination of Herschel's figure of the same.

The most remarkable discovery of Messrs. Smith and Mason, was that of the junction of the two nebulae, *h.* 2092 and 2093. These great nebulae, or "*milky ways*," are described on several occasions by the elder Herschel, and are also described and figured by the younger. They are distant about two-thirds of a degree from each other. Messrs. Smith and Mason, however, distinctly saw the nebulous matter extending from one to the other, making the whole one conspicuous nebula of more than a degree in length, being among the most remarkable in the heavens, and inferior only to the great nebulae of Orion and Andromeda.

Mr. Mason remarks, that it is difficult to conceive how the companion of the *nebula trífida*, and the junction of the two last mentioned, should have been overlooked by such observers as the Herschels, with instruments so far superior to his in optical capacity. The supposition that the nebulous space, noticed by Messrs. Smith and Mason, was not brought under the immediate inspection of the Herschels, seemed inadmissible. That the greater clearness of the atmosphere of New Haven should more than compensate for the inferior light of the telescope employed was hardly probable; the only remaining supposition was, that the nebulous matter, in the space examined by all these observers, has recently undergone a change in shape and brilliancy.

In making the chart of the stars to which the nebulous space is referred, Mr. Mason used the ten feet Dollond refractor, of five inches aperture, belonging to the Philosophical Department of Yale College, with a Dollond's illuminated line micrometer. With this he has determined the relative position of the stars down to the 16th magnitude, by repeated observations, and has furnished a catalogue of the correct places of 15 stars in the first chart, 30 in the second, and 182 in the third.

Dr. Dunglison stated, that the horse, with the filaria in the aqueous humour of the eye, to which allusion was made at the last meeting (See Proceedings, p. 200), was in the city, and that he had had an opportunity of verifying the statement then made. Dr. Dunglison referred to several similar cases,—most of the observers believing the entozoon to be a filaria papillosa, but some a lesser strongylus.

Dr. Hays referred to cases of entozoa found not only in the eye, but in other parts of the body, and alluded briefly to the practicability of the germs being received from without.

Dr. Chapman, as chairman of the Committee to collect documents connected with the political and historical state of the country, reported that he would be able to procure for the Society the Correspondence of Robert Morris. He farther stated his expectation to be able to present important documents from Virginia, calculated to throw valuable light on the history of the colony and the country.

Mr. Vaughan reported the death of Mr. Wm. Maclure, a member of the Society, who died in Mexico on the 23d of March last.

Dr. Dunglison, reporter, presented No. 11 of the printed Bulletin.

Stated Meeting, May 15.

Present, twenty-six members.

Mr. DU PONCEAU, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Bulletin de la Société Impériale des Naturalistes de Moscou. Nos. 2 & 3. Année, 1838. 8vo. Moscou, 1838.—*From the Society.*

Communication from the Governor, transmitting several Reports relative to the Geological Survey of the State. 8vo. New York, 1840.—*From the State.*

Proceedings of the Royal Society. Nos. 41 and 42. December 5, 1839, to March 26, 1840, inclusive.—*From the Royal Society.*

Proceedings of the Royal Astronomical Society. Vol. V. No. 4. February 14, 1840. (Annual meeting).—*From the Society.*

Public Documents, printed by order of the Senate of the United States,