

TRANSACTIONS,

O F T H E

A M E R I C A N

PHILOSOPHICAL SOCIETY,

H E L D A T

P H I L A D E L P H I A,

F O R P R O M O T I N G

U S E F U L K N O W L E D G E.

V O L U M E I

From JANUARY 1st, 1769, *To* JANUARY 1st, 1771.

*Reprinted with the permission of the
American Philosophical Society*

KRAUS REPRINT CORPORATION
New York
1966

A second edition of this first volume was published in Philadelphia in 1789. It was printed from reset type and appeared with a different pagination. The minor corrections in the second edition involved only a few changes in the sequence of the text. In agreement with the American Philosophical Society we have reproduced the first edition which is considered to be of greater historical interest.

Printed in U.S.A.

TRANSACTIONS,

O F T H E

A M E R I C A N

PHILOSOPHICAL SOCIETY,

H E L D A T

P H I L A D E L P H I A,

F O R P R O M O T I N G

U S E F U L K N O W L E D G E.

V O L U M E I.

From JANUARY 1st, 1769, *To* JANUARY 1st, 1771.

P H I L A D E L P H I A:

Printed by WILLIAM and THOMAS BRADFORD, at the
London Coffee-House.

M.DCC.LXXI.

L I S T,

For the Y E A R 1770,

Of the OFFICERS and MEMBERS of the AMERICAN
PHILOSOPHICAL SOCIETY, held at *Philadelphia*, for
promoting useful Knowledge.---

PATRON. The GOVERNOR of the Province, for the
Time being.

OFFICERS, elected *January 5th*, 1770.

PRESIDENT. Benj. Franklin, LL.D. F.R.S. *Gott. S. Soc.*

VICE-PRESIDENTS { Joseph Galloway, Esq; Speaker
of the Assembly of Penn-
sylvania.
Dr. Thomas Bond.
Samuel Rhoads, Esq;

TREASURER. Mr. Philip Syng.

SECRETARIES. { William Smith, D. D. Provost of
the College of Philadelphia.
Mr. Charles Thomfon.
Thomas Mifflin.
George Roberts.

CURATORS. { Benjamin Rush, M. D. Professor of
Chemistry, College of Philadelphia.
Mr. Owen Biddle.
Isaac Bartram.

Honorable

A

HONORABLE William Allen, Esq; Chief Justice of Pennsylvania.

John Allen, Esq;

Andrew Allen, Esq;

James Allen, Esq;

Mr. James Alexander.

Francis Alifon, D. D. Vice-Provost of the College of Philadelphia.

Dr. James Anderfon of Maryland.

Mr. Arbo of Bethlehem, Pennsylvania.

Matthias Afpden. *

B

Samuel Bard, M. D. Profeffor of the Practice of Physic, King's College, New-York.

Thomas Barnsley, Esq; of Bucks County, Pennsylvania.

Rev. Thomas Barton, A. M. of Lancaster, Pennsylvania.

Mr. John Bartram, Botanist to the King; Acad. Reg. Suec. Soc.

Moses Bartram.

William Bartram.

Paul Bedford, Esq; of Barbadoes.

Hon. Jonathan Belcher, Esq; Chief Justice of Nova Soctia.

Mr. John Benezet

Dr. Charles Bensal, of Germantown, Philadelphia County.

Mr.

* All those Members, whose places of abode are not specified, are of the City of Philadelphia.

Mr. William Bettle.

Clement Biddle.

Edward Biddle, Esq; of Reading in Pennsylvania.

James Biddle, Esq;

Phineas Bond, M. D.

Mr. Thomas Bond.

Thomas Bradford.

Joseph Bringhurst.

George Bryan, Esq;

C

Dr. Thomas Cadwalader.

Mr. John Cadwalader.

Lambert Cadwalader.

Samuel Caldwell.

Lionel Chalmers, M. D. of Charlestown, South-Carolina.

Dr. John Chapman.

Benjamin Chew, Esq;

Dr. Gerardus Clarkfon.

Matthew Clarkfon, Esq;

Mr. Thomas Clifford.

Hon. Cadwalader Colden, Esq; Lieut. Governor of New-York.

Thomas Coombe, Esq;

D

Rev James Davidfon. A. M. Profeffor of Languages in the College of Philadelphia.

Mr. Benjamin Davis.

Rev. John Davis, A. M.

John Doas, Esq; of Charlestown, South-Carolina.

Dr. John De Normandie, of Bristol, in Pennsylvania.

Mr. James Dickinon.

John Dickinon, Esq;

Mr.

Mr. Henry Drinker.

John Drinker.

Jacob Duche, Esq;

Rev. Jacob Duche, A. M.

Mr. Edward Duffield.

Samuel Duffield, M. B.

Hon. Daniel Dulaney, Esq; of Maryland.

E.

Mr. Samuel Eldridge.

Samuel Elliot of Boston.

Dr. Cadwalader Evans.

Rowland Evans, Esq; Philadelphia County.

Capt. Ofwald Eve.

Rev. John Ewing, A. M.

F.

Rev. Frederick Farmer.

Mr. Thomas Fisher.

Paul Fooks, Esq; Professor of the French and
Spanish Languages, Coll. Philad.

Joseph Fox, Esq;

John Foxcroft, Esq;

Thomas Foxcroft, Esq;

His Excellency William Franklin, Esq; Governor
of New-Jersey.

G.

His Excellency General Gage, Commander in
Chief of his Majesty's Forces in North-America.

Benjamin Gale, M. D. of Connecticut.

Alexander Garden, M. D. of Charlestown, South-
Carolina.

Valentine Gardner, Esq; of New-York.

Sidney

Sidney George, Esq; of Maryland.

Mr. Thomas Gilpin.

George Glentworth, M. D.

Thomas Græme, M. D.

H.

Hon. James Hamilton, Esq;

Mr. David Hall.

Rev. Mr. Harding.

Dr. Robert Harris.

Mr. Joseph Harrifon. } of New-England.
Peter Harrifon. {

William Henry of Lancaster, Pennsylvania.

Gilbert Hicks, Esq; Bucks County, Pennsylvania.

Michael Hillegas, Esq;

Mr. John Himili of Charlestown, South-Carolina.

Richard Hockley, Esq;

Henry Holiday, Esq; of Maryland.

Mr. Levi Holingworth.

Edward Holyoke, LL.D. of Massachusetts-Bay.

Hon. Stephen Hopkins, Esq; of Rhode-Island.

Mr. William Hopkins.

Francis Hopkinson, Esq;

Joshua Howell, Esq;

Joseph Hutchins, A. B. of Barbados.

I.

Mr. Benjamin Jacobs, Philadelphia County.

Abel James, Esq;

David Jamefon, Esq; M. D. of York. Pennsylvania.

Hon. Sir William Johnson, Bart. of Mount Johnson,
in the Province of New-York.

John Jones, M. D. of New-York.

Isaac Jones, Esq;

Robert

Robert Strettell Jones, A. M.
 Ralph Izard, Esq; of Charles-Town, S. Carolina.
 K.

Dr. John Kearsly.
 Dr. John Kearsly, Jun.
 Rev. Ebenezer Kinnerfley, A. M. Profeffor of
 English and Oratory, Coll. Philadelphia.
 John Kidd, Esq; { Bucks County, Penn-
 Joseph Kirkbride, Esq; { sylvania.
 Adam Kuhn, M. D. Prof. Bot. & Mater. Med.
 Coll. Philad.

L.

Lynford Lardner, Esq;
 Arthur Lee, M. D. } of Virginia.
 Francis Lee, Esq; }
 Thomas Livezey, Esq; Philadelphia County.
 William Livingston, Esq; of New-York.
 William Logan, Esq;
 Dr. John Lorimer of West-Florida.
 John Lukens, Esq; Surveyor-General of Penn-
 sylvania.

M.

Thomas Mc.Kean, Esq; of Newcastle on Delaware.
 Mr. Humphrey Marshall of Chester County, Penn-
 sylvania.
 Dr. Hugh Mercer of Fredericksburgh, Virginia.
 Samuel Mifflin, Esq;
 Mr. Samuel Miles.
 Peter Miller of Ephrata, in Pennsylvania.
 Dr. Mim of York, Pennsylvania.
 Charles Moore, M. D.
 Mr. George Morgan.

John Morgan, M.D. F.R. S. Prof. Theor. & Pract.
Phyfic, Coll. Philad.

John Morris, Esq;

Mr. John Murgatroyd.

N.

Mr. Lewis Nicola of Northampton, Pennsylvania.

O.

Rev. Jonathan Odell, A. M. of Burlington, New-
Jersey.

Mr. John Francis Oberlin,	} of Bethlehem in Pennsylvania.
John Okely,	
Dr. Otto,	

Hon. Andrew Oliver, Lieut. Gov. Massachusetts
Bay. P.

Mr. Isaac Paschal.

Dr. John Paschal of Derby, Pennsylvania.

Mr. Joseph Paschal.

Stephen Paschal.

James Pearson.

James Pemberton.

Israel Pemberton.

Mr. Edward Penington.

Richard Peters, D. D. Rector of Christ Church and
St. Peters, Philadelphia.

Edmund Phyllick, Esq;

Mr. William Poole of Wilmington, Pennsylvania.

Mr. Christian Frederick Post, of the Mosquito Shore.

Mr. Thomas Potts, of Philadelphia County.

Jonathan Potts, M. B. of Philadelphia County.

Samuel Powel, Esq;

Ebenezer Prime, M.D. of New-York.

Mr. Robert Proud.

Mr.

Mr. Thomas Pryor.

Samuel Purviance, Jun.

R.

Hon. Charles Read, Esq; of Burlington, New-Jersey,

John Redman, M. D.

Joseph Reade, Esq;

Mr. John Reynell.

John Rhea.

Dr. Charles Ridgley of Dover, on Delaware.

David Rittenhouse, A. M.

Mr. Hugh Roberts.

Mr. Samuel Robinson.

John Rofs, Esq;

William Rumfey, Esq; of Maryland.

S.

Dr. Sandiford of Barbados.

John Morin Scot, Esq; of New-York.

Mr. William Scull of Reading, Pennsylvania.

John Sellers, Esq; of Chester County, Pennsylvania.

Edward Shippen, Esq; of Lancaster, Pennsylvania.

Edward Shippen, Jun. Esq;

Joseph Shippen, Jun. Esq;

Dr. William Shippen,

William Shippen, Jun. M. D. Prof. Anat. Coll.

Philad.

Samuel Shoemaker, Esq;

Mr. Pierre Eugene du Simitiere.

Williams Smibert, M. D of Boston.

Hon. Samuel Smith, Esq;

John Smith, Esq;

William Peartree Smith, Esq;

Dr. Isaac Smith,

} of the Province of
New-Jersey.

Hon. William Smith, Esq; of New-York.

Jonathan Smith, A. M.

Mr. Robert Smith.

Thomas Smith.

Dr. Peter Sonmans.

Alexander Stedman, Esq;

Right Hon. William Earl of Stirling, of Basken-
ridge, New-Jersey.

Richard Stockton, Esq; of New-Jersey.

Rev. Samuel Stillman A. M. of Boston.

Ezra Styles, D. D. of Connecticut.

Capt. Joseph Styles.

T.

James Tilghman, Esq;

Dr. John Tweedy of Newport, Rhode-Island.

W.

Nicholas Waln, Esq;

John Walker, Esq; of Virginia.

Hon. Ashton Warner, Esq; Physician. }

Hon. Thomas Warner, Esq; } of Antigua.

Samuel Warner, Esqr.

Stephen Watts, Esq;

Mr. James Webb of Lancaster, Pennsylvania.

Richard Wells of Burlington, New-Jersey.

Rev. Mr. Samuel West of New-England.

Mr. William West.

Isaac Wharton.

Samuel Wharton.

Rev. Chauncey Whittlesey, of Connecticut.

William White, A. M.

Alexander Wilcocks, Esq;

Hugh Williamson, M. D.

Thomas Willing, Esq;

James Wilton, Esq; of Carlisle, Pennsylvania.

John Winthrop, Esq; F. R. S. Hollisian Prof. Math.
at Cambridge, in New-England.

John Witherpoon, D. D. President of the College
of New-Jersey.

Mr. James Worrall.

James Wright, Esq; of Lancaster County, Penn-
sylvania.

Mr. Benjamin Wynkoop.

Omitted under Letter C.

Myles Cooper, L. L. D. President of King's Coll.
New-York.

E U R O P E A N

MONSIEUR Buffon of
Paris

Peter Bergius, M. D. Prof.
Nat. Hist. *Stockholm*

John Martin Butt, M. D. of
Bath, England.

William Cullen, M. D. Prof.
Med. University of *Edin-
burgh.*

Sir Alexander Dick, M. D.
Bart. of *Edinburgh.*

Mr. Jeremiah Dixon, *Lon-
don.*

Mr. James Fergufon, F. R. S.
London.

John Fothergill, M. D. F. R. S.
London.

Signor Famitz of *Naples.*

Dr. John Gili of *Kinsale, Ire-
land.*

Mr. William Hewfon, Prælec-
tor Anat. *London*

Richard Huck, M. D. F. R. S.
London.

M E M B E R S.

John David Hahn, M. D. Prof.
Med. and Philos. Univer-
sity of *Utrecht.*

Hon. Isaac Jamineau, Esq;
British Consul, *Naples.*

Sir Charles à Linné, M. D.
Knight of the Polar Star, First
Physician to the King of *Swe-
den,* Prof. Med & Bot. *Upsal.*

William Logan, M. D. *London.*

Mr. Charles Mason, *London.*

Christian Magee, L. L. D. of
Heidelberg.

Mr. Edward Nairne, *London.*

Richard Penn, jun. Esq; *Lon-
don.*

Sir George Saville, Bart. *York,*
in *England.*

James Span, M. D. Prof.
Mater. Med. University of
Dublin.

Mr. Benjamin West, *London.*

Charles Magnus Wrangel,
D. D. of *Sweden.*

M E M B E R S

ELECTED, *January* 18th, 1771,

Since printing the foregoing List.

A M E R I C A.

MR. John Baynton. *
Mr. Henry Bembridge.
Mr. Samuel Felsted, of Jamaica.
Dr. Archibald Gloster, of Antigua.
Mr. Henry Hill.
Dr. James Lloyd, of Boston.
Mr. Frederic Marshall, of North-Carolina.
Dr. Morton, of Jamaica.
Dr. Samuel Preston Moore.
Mr. Joseph Ottolenge, of Georgia.
William Parr, Esqr.
Dr. Thomas Preston.
Mr. Samuel Rhoads, jun.
Mr. Richard Thomas, of Chester County, Penn
sylvania.

E U R O P E.

Nevil Maskelyne, B. D. F. R. S. and Astronomer Royal, Greenwich

* Members, whose particular place of residence is not specified, are of the City of Philadelphia

C O N T E N T S.

A DESCRIPTION of an ORRERY, executed on a new plan. By D. RITTENHOUSE, A. M. Page 1

Calculation of the Transit of Venus over the Sun as it is to happen June 3d 1769, in lat 40°. N. long. 5 h West from Greenwich. By D. RITTENHOUSE, A. M. communicated June 21st 1768. p. 4

Calculation of the same for the city of Philadelphia. By Rev. JOHN EWING, A. M. Communicated June 21st, 1768. p. 5

An account of the Transit of VENUS over the SUN, June 3d, 1769, as observed at NORRITON, in Pennsylvania. By the Committee appointed for that observation. Drawn up, and communicated, in behalf of the Committee, by Rev. WILLIAM SMITH, D. D. p. 8

An account of the TRANSIT OF VENUS over the SUN, June 3d, 1769, and of the Transit of Mercury Nov. 9th, both as observed in the State-House Square, Philadelphia. By the Committee appointed for those observations. Drawn up and communicated, in behalf of the Committee, by Rev. JOHN EWING, A. M. p. 42

An account of the TRANSIT of VENUS over the Sun, June 3d, 1769, as observed near Cape Henlopen, on Delaware. By the Committee appointed for that observation. Drawn up and communicated, in behalf of the Committee, by Mr. OWEN BIDDLE. p. 89

An

xxiv C O N T E N T S.

An account of the Transit of Venus over the Sun, June 3d, 1769, as observed at Providence, New England. Drawn up by BENJAMIN WEST, A. M. and transmitted to the Society by Mr Joseph Brown. p. 97

Observations of the Transit of VENUS and Eclipse of the Sun, June 3d, 1769, made at the Royal Observatory, Greenwich. By Rev. NEVIL MASKELYNE, B.D. F.R.S. and Astronomer Royal. Transmitted by himself, and communicated to the American Philosophical Society, by WILLIAM SMITH, D.D. p. 105

Some account of the Transit of Venus and Eclipse of the Sun, as observed at the LIZZARD POINT, June 3d, 1769. By Mr. JOHN BRADLEY. Extracted from a paper of the Astronomer Royal. p. 114

A letter from Rev. NEVIL MASKELYNE, B. D. F. R. S. Astronomer Royal, to Rev. WILLIAM SMITH, D. D. Provost of the College of Philadelphia, giving some account of the Hudson's Bay and other Northern observations of the Transit of Venus, June 3d, 1769. Appendix to Astron. Papers, p. 1

An account of the terrestrial measurement between the observatories of NORRITON and PHILADELPHIA; with the difference of longitude and latitude thence deduced. By WILLIAM SMITH, D. D. Append. p. 5

Apparent time of the CONTACTS of the limbs of the SUN and VENUS; with other circumstances of most note, in the different EUROPEAN observations of the Transit, June 3d, 1769. Append. p. 12

An improvement in the construction of Godfrey's (commonly called Hadley's) Quadrant. By Rev. JOHN EWING, A. M. Append. p. 21

An essay on COMETS, and an account of their luminous appearance; together with some conjectures concerning the origin of HEAT. By HUGH WILLIAMSON, M. D. Append. p. 27
A Letter

C O N T E N T S. xxv

- Observations on the COMET of June and July, 1770; with the Elements of its Motion, and the Trajectory of its Path, in two Letters, from DAVID RITTENHOUSE A. M. to WILLIAM SMITH, D. D. Provost Coll. Philad.* Append. p. 37
- An Account of the same COMET, in a Letter from the Right Hon. WILLIAM, EARL OF STIRLING, to WILLIAM SMITH, D. D. Provost Coll. Philad.* Append. p. 45
- An easy Method of deducing the Time of the Sun's passing the Meridian per Clock, without the help of the Equation Tables, by equal Altitudes taken on two succeeding Days. By DAVID RITTENHOUSE, A. M. Communicated by WILLIAM SMITH, D. D. Provost Coll. Philad.* Append. p. 47
- An Account of the Transit of MERCURY over the SUN, Nov. 9th, as observed at NORRITON, in Pennsylvania; by the Committee appointed for that Observation. Drawn up and communicated, by Direction and in Behalf of the Committee, by WILLIAM SMITH, D. D. Provost Coll. Philad.* Append. p. 50
- The SUN'S PARALLAX deduced from a Comparison of the NORRITON Observations of the Transit of Venus, 1769; with the GREENWICH and other European Observations of the same. By WILLIAM SMITH, D. D. Provost Coll. Philad.* Append. p. 54

C O N T E N T S of SECT. II.

- An Essay on the Cultivation of the Vine, and the making and preserving of Wine, suited to the different Climates in North-America. By the Hon. * EDWARD ANTILL, Esqr. Communicated by Mr. CHARLES THOMSON.* p. 117
- d The

* Mr. ANTILL was one of his Majesty's Council for the Province of New-Jersey, and a worthy Member of the *American Philosophical Society*; but he died before the publication of the List prefixed to this Volume.

- The Method of curing FIGS; and observations on the raising and dressing of HEMP.* By Hon. EDWARD ANTILL, Esqr. p. 198
- Observations concerning the FLY-WEEVIL, that destroys the WHEAT; with some useful Discoveries and Conclusions, concerning the Propagation and Progress of that pernicious Insect, and the Methods to be used for preventing the destruction of the Grain by it.* By Colonel LANDON CARTER, of Sabine Hall, Virginia; communicated by Colonel LEE, of Virginia. p. 205
- Observations on the same Subject; by the Committee of Husbandry, &c.* p. 218
- Observations on the NATIVE SILK WORMS, of North-America; by Mr. MOSES BARTRAM.* p. 224
- A Memoir on the Distillation of PERSIMONS.* By Mr. ISAAC BARTRAM. p. 231
- Account of an OIL made from the Seeds of the Sun-Flower.* By Dr. OTTO, of Bethlehem. Communicated by Dr. THOMAS BOND. p. 234
- An Essay on the expressing of OIL from the SUN-FLOWER-SEED.* By JOHN MORGAN, M. D. p. 235
- A Letter on the Expressing of a fine Oil from BENE SEED.* By Mr. JOHN MOREL, of Georgia. Communicated by Mr. CHARLES THOMSON. p. 239
- The Method of destroying WILD GARLIC; by Mr. HENRY HOLLINGSWORTH, of Elk-Ridge.* p. 241
- A Method of preserving Pease from the Worms.* By Mr. PETER MILLER, of Ephratah. Communicated by Mr. CHARLES THOMSON. p. 243
Ar.

- An easy Method of preserving Subjects in SPIRITS.* By Mr. LEWIS NICOLA. P. 244
- A Letter from Betblehem, on making CURRANT WINE.* P. 246
- A Letter from Dr. ^rORIMER, of West-Florida, to HUGH WILLIAMSON, M. D. containing some Remarks on the Climate, vegetable Productions, &c.* P. 250
- A Catalogue of such foreign Plants as are worthy of being encouraged in the American Colonies, for the Purposes of Medicine, Agriculture, and Commerce.* P. 255
- Directions for putting up Seeds and Plants, so as to preserve them in a state of Vegetation, for being transported to distant countries.* P. 266
- An Attempt to account for the Change of Climate, which has been observed in the Middle Colonies in North-America.* By HUGH WILLIAMSON, M. D. P. 272

C O N T E N T S of SECT. III.

- An Account of the Eruption of Mount Vesuvius, in 1767; in a Letter from a English Gentleman residing at Naples, to JOHN MORGAN, M. D. Prof. Med. Coll. Philad.* P. 281
- A Description of a Self-moving or SENTINEL REGISTER; invented by Mr. WILLIAM HENRY, of Lancaster, in Pennsylvania.* P. 289
- An Account of a Machine for pumping Vessels at Sea without the Labor of Men.* By Mr. RICHARD WELLS. P. 289

- An Abstract of sundry Papers and Proposals for improving the Inland Navigation of Pennsylvania and Maryland, by opening a Communication between the Tide-waters of Delaware and Chesapeake Bay, illustrated with a Map, &c.* P. 293
- A Description of a Machine for cutting Files.* P. 300

C O N T E N T S of SECT. IV.

- An Analysis of the Chalybeate Waters of Bristol, in Pennsylvania, in two Letters from Dr. JOHN DE NORMANDIE of Bristol, to Dr. THOMAS BOND of Philadelphia, V. P. of the American Philos. Society.* P. 303
- Remarkable Case of a TETANOS and LOCKED JAW cured by amazing Quantities of Opium; by Dr. ARCHIBALD GLOSTER of Antigua; communicated by JOHN MORGAN, M. D. Prof. Physick, Coll. Philad.* P. 315
- An Account of the Effects of the STRAMMONIUM, or Thorn Apple. By BENJAMIN RUSH, M. D. Prof. Chem. Coll. Philad.* P. 318
- An Enquiry into the Nature, Cause and Cure of the ANGINA SUFFOCATIVA, or Sore Throat Distemper; by SAMUEL BARD, M. D. Prof. Physic, King's Coll. New-York; communicated by JOHN MORGAN, M. D., Prof. Phys. Coll. Philad.* P. 322
- An Account of an Aurora Borealis, from a Correspondent at Lancaster, in Pennsylvania.* P. 338
- An Account of a Horizontal Wind-mill, by Mr. THOMAS GILPIN.* P. 339
- An Account of a new Species of Grape Vines, by Mr. JOHN JONES, at Indian River, Worcester County, Maryland.* P. 340