A. Vibert Douglas

Meetings and Organizations

57.

X th International Congress

History of Science 1962

ane 1952

L. Law. — ∴ M31 as large or larger than our galaxy

Associations as distinct from star clusters.

formation of a star — MSR. vs. Gt. B.

II — young stars & old.

XII International Congress for the History of Science.

This Congress was held in Paris, August 25-31. It brought together more than 700 historians of science from thirty-eight countries of five continents. The largest delegations were from France, U.S.A., U.S.S.R., Great Britain and the two Germanies. Canadians numbered fourteen of whom nine presented papers. As there were some 400 papers in all, as many as eight sections might be going on simultaneously in morning and afternoon sessions. The Sections included Science and Philosophy (Ancient, Medieval, Renaissance; XVII and XVIII centuries) Mathematics, Physics and Astronomy, Chemistry before XVIII century, Earth sciences, Biology, Sciences of Man, Scientific Instruments.

Eight Colloquia had been organized on such topics as the origin of modern algebra, the development of the notion of structure in mathematical physics, spontaneous generation from antiquity to 1700, concepts and methods of psychological differentiation in the XIX century and at the beginning of the XX century, history of the philosophy of natural science.

The sessions were held in the spacious Conservatoire national des Arts et Métiers near Porte St Martin. The opening reception was given in its museum of science and technology. The President of the Council of Paris gave a reception in the impressive Hotel de Ville. On one afternoon bus trips were arranged to de Foquet's Château de Vaux-le-Vicomte and to Château de Chantilly. A banquet was held at the newly restored Château de Maisons, and many delegates spent the last evening at a superb Soirée de Ballets at the Opéra-Comique.

Presiding at the opening and final sessions was the distinguished French academician Jean Rostand whose eloquence will not soon be forgotten. Not for nothing is he the son of a dramatist-actor.

About 30 papers dealt with subjects of

astronomical interest. A few of these will be mentioned. J.D. North (Great Britain) discussed two astronomical treatises on the motion of the eighth sphere, based on the lost treatise of Walter of Odington, a monk of Evesham, throwing some light on the diffusion of astronomical knowledge in the middle ages. J. Dobrzycki (Poland) examined another theory of the eighth sphere, that of John Werner of Nurnberg published in 1522 and severely criticized by Copernicus two years later.

H.L. Burstyn (U.S.A.) propounded his view that the four elements of Empedocles and Aristotle — earth, water, air, fire — did not offer a theory of matter as the alchemists assumed, but rather described the geospheres of modern physical geology — lithosphere, hydrosphere, atmosphere — and postulated a region beyond the atmosphere where solar phenomena dominate over terrestrial ones, roughly corresponding to what we designate as the interplanetary medium.

Z. Dadic (Yugoslavia) discussed varying views on the figure of the earth as given by Patricius in Ferrara in 1591 and Dominis in Rome in 1624. W. Petri (W. Germany) examined an ancient Armenian treatise of Eznik de Kolb (circa 448 AD) on the physics of the cosmos, containing ~~the~~ some early Greek and also Zoroastrian ideas as well as a discussion of lunar eclipses and atmospheric optical phenomena.

Three papers related to interesting celestial globes: M. Delombes (France) on the 1533 globe of Oronce Finé, professor of mathematics at the College royal de France; E. Pognon (France) on the globes of Père Coronelli (c. 1683) ~~one~~ placed by Louis XIV first at the château de Marly, then at the Louvre and now at Versailles; H.M. Wallis (G.B.) described this Franciscan monk, Coronelli as the greatest globe maker of his age, the founder of the Academia degli Argonauti in Venice ~~where his Convento was~~ which ranks as the earliest of all geographical societies. Coronelli's celestial and terrestrial globes range from two inches

in diameter to the ~~fi~~ fifteen foot pair made for Louis XIV.

P. Collinder (Sweden) gave an account of distance evaluations in antiquity, especially the Nile-distance of Eratosthenes which he believes was most probably derived from innumerable days sailings on that most-navigated of rivers, the final result given by Cleomedes having an error of about 16 percent.

W. F. Cannon (USA) described the work of John Herschel as physicist, his investigations in the 1820's on solar radiation mark the beginning of quantitative astrophysics, his "actinometer" was the pioneer of todays pyrheliometers.

W. H. Brock (G.B.) spoke of Sir Norman Lockyer and the chemists who looked with suspicion on his postulation of an element helium, and his "working hypothesis" that stellar spectra indicated that elements were dissociated in the sun. His sternest yet most helpful critics were Crookes, Armstrong and Roscoe as is evident from the reading of unpublished correspondance.

O. Gingerich (USA) has probed into the heliocentric vs. the heliostatic in the Copernican system, concluding that the latter is true but not the former in the Copernican universe.

G. J. Whitrow (G.B.) compared and re-assessed the Nebular Hypotheses of Kant and Laplace in the light of present knowledge and ideas.

Z. Horsky (Czechoslovakia) presented a philosophical study of ideas of living matter and inert matter in the XVI and XVII centuries, with reference to Copernicus, Patricius, Bruno, Kepler and Galileo.

T. Hirosige (Japan) discussed the decline of the ether as seen by Lorentz, Einstein and Minkowski. M. Kapek (USA) examined the work of Boscovich 1755 and Stallo 1881 as critics prior to Mach of Newton's

absolute space and absolute motion.

C. D. Hellman (U.S.A.) warned against uncritical study of XVI century manuscript material on novae and comets. C. S. Rousseau (U.S.A.) examined the relation of poetry and astronomy in the English Enlightenment, 1660–1800, when the influence of astronomy was the most important among the sciences.

Two papers were given by ~~members of the~~ Curators staff of the National Maritime Museum, Greenwich. H. D. Howse described the restoration of the old Royal Observatory and D. M. Walters outlined the methods of longitude measurements from 1415 – 1767.

E. Rybka (Poland) reported on the proposal of the XIII General Assembly of the International Astronomical Union that a synthetic history of astronomy be undertaken, an international monograph based on the results of original research. It would show the interdependence of the development of astronomy and other sciences, and the influence of intellectual surrounding on the development of scientific ideas. The question arises as to whether it should come only to the beginning of the XX century, or to the contemporary epoch. Dr Rybka is Chairman of Commission 41 of the I.A.U.

Of the nine papers contributed by the delegates from Canada three have astronomical interest. Rev. Professor M. W. Burke-Gaffney (Halifax) recounted the first identification of lines in Comet 1882 II as due to iron atoms and the confirmation of this in the spectrum of Comet 1965 f. S. Drake of the Department of History (University of Toronto) discussed the origin of Galileo's ideas on circular inertia. ~~The historical significance of the planetary conjunctions of 1226-27.~~ The writer of this article presented a paper on the historical significance of the 1226-27 conjunctions making an excursion into the labyrinthine realms of astrology in order to account for ~~their~~ the significance attached to these astronomical events.

Since the conference had convened only a few days after the invasion of Czechoslovakia there was a palpable tenseness in the air and a pall of shock, indignation and sadness hung over the assembly. Delegates were present from ~~everyone~~ all ~~of~~ the eastern European countries and to the writer's knowledge some of these, even one from the U.S.S.R., apologized to a Czech delegate for what his country was doing to a fellow member of the Warsaw Pact. At the final session just before the chairman declared the Congress closed, one delegate rose to propose a vote of sympathy for 'our colleagues' the savants of Czechoslovakia. This was passed without opposition, the only abstentions being those delegates who would not or dared not be seen voting for it.

It was common knowledge that the incoming president ~~was~~ was from the U.S.S.R. and the next congress, ~~was~~ had been invited to meet in Moscow, but so great was the indignation over the crushing of Czechoslovakia's bid for some measure of freedom that the Congress ended with no decision as to the locale of the 1971 meetings.

XV INTERNATIONAL CONGRESS OF THE HISTORY OF SCIENCE

At the University of Edinburgh from 10-19 August 1977 about 900 scientists and historians of science from 39 countries met for the triennial congress of the I.U.H.P.S. It is good to see the growth of interest in Canada where instead of a mere handful we had 23 registered at this congress; and it was also good to see one delegate, each from Cuba, Zaire and Saudi Arabia.

The Pollock Halls of Residence under the shadow of Arthur's Seat afforded good accommodation, and a mile away the modern Appleton and David Hume Towers adjacent to the old George Square of the University provided a spacious reception centre and lecture theatres for the many sections of the programme. A warm tribute is due to the Organising Committee whose chairman was R.V. Jones, F.R.S., Professor of Natural Philosophy, Aberdeen, and the secretary, E.G. Forbes, Reader in History, Edinburgh.

The first of ten symposia was on Science and Human Values, chaired by Dr. Joseph Needham of Cambridge whose opening address stressing the modern suspicion of science was followed by Dr. J.R. Ravetz of Leeds who quoted Galileo, Bacon, Descartes and Popper supporting his view that the high optimism which prevailed before and throughout the Victorian era that scientific progress and human betterment went hand in hand has given place to a deep suspicion of science in this century because it is now conferring "power without responsibility".

Subsequent symposia dealt with Internal and external causation of scientific ideas; International cooperation and diffusion in science; Medicine and industrialization in history; Physics and metaphysics in the scientific revolution; Aspects of the history of thermodynamics: theory and practice; Problems of Source Materials in the history of science; Relations between theories of heredity and evolution (1880-1920); Classification and systematisation in the sciences; Cosmology since Newton; and an added symposium on Human implications of twentieth century communications

technology. All the papers at these symposia were given by invited speakers.

At the same time as many as seven other meetings might be going on to hear and discuss papers on Science and technology in antiquity, or from antiquity to 1600; and developments since 1600 in Mathematics and mechanics; Physics and Astronomy; Chemistry and Pharmacy; Biological and Medical Science; Earth sciences; Technology and engineering; History of sciences of man; Science and society; Problems of Philosophy, methodology and historiography.

Some papers of special interest to astronomers and other natural philosophers may be mentioned. The "father of algebra", Al-Khwarizmi (780-850) was the Court Astronomer at Baghdad. From the title of his work Al-Jabr comes our word algebra. He "transformed number from its arithmetical character as a finite magnitude into an element of relation and of infinite possibilities ... a step from 'being' to 'becoming'." To serve practical needs "he applied algebra to matters of inheritance, legaciers, partition, lawsuits and commerce". This paper was presented by Dr. A.A. Al-Daffa of Saudi Arabia.

Soviet perspectives on Giordano Bruno (1550-1600) which have been overlooked by western scholars were summarized by F. Hamlyn Dennis (London). These include Bruno's 1591 suggestions that there are yet other planets in the solar system than the six known ones; rotation of the sun and stars around an axis; the existence of innumerable bodies similar to our sun, and he opposed anthropocentrism.

K.D. Mathur (U.K.) discussed the origins of Indian astronomical observatories as connected with accurate determinations of time for religious ceremonies in the Vedic period, c. 1500 B.C., he spoke of and the great reconstructive activity of Jai Singh in the early 18th century under the Mogul emperor's instructions.

Fonad Aintabi (Syria) outlined the indebtedness of the first professor of astronomy at Oxford, John Greaves, to Ibn Yunus (950-1009), arab astronomer who contributed to the study of solar and lunar eclipses and to both plane and

spherical trigonometry.

Interesting papers on Soddy and Fajans and on Soddy at Oxford were given by Lawrence Badast (USA) and A.D. Quickshank (U.K.), and by N. Feather (Edinburgh) on the radioactive isotopes and isomers, so named by Soddy. Other papers on Soddy were given by M.I. Freedman (USA), M. Tanaka (Japan), T.J. Trenn (Fed. Rep. Germany), J.W. van Spronsen (Netherlands).

E.G. Forbes (Edinburgh) has located hundreds of letters from and to the first Astronomer Royal, John Flamstead (1646-1719), including correspondence with G.D. Cassini and in latin with Johannes Havelrius of Danzig. Owen Gingerich (USA), continuing his dedication to Copernicus and De Revolutionibus, discussed sixteen copies of the 1543 and 1566 editions in Scottish libraries, with special reference to the two copies in Edinburgh, one of which belonged to Adam Smith, both richly annotated in Wittenburg in the early years of publication.

V.D. and M.V. Parkadze (USSR) described relations between Georgian and British physicists after 1700. Alexander Bagrationi returned with Peter the Great from Great Britain where he had been present when Peter I conversed with Isaac Newton. Antony and D. Bagrationi subsequently made known the works of Boyle, Cavendish and Young. Exchange of students with Tbilisi and of magnetic and cosmic ray data between Abastumani and Britain continues.

K.M. Pedersen (Denmark) reviewed the 1782 paper of Patrick Wilson of Glasgow who demonstrated the constancy of stellar aberration by comparing the effect using an ordinary telescope with that of a water-filled telescope tube. S.D. Sharma (India) claimed that the Indian astronomer Ketkara made the first accurate predictions of Pluto and also predicted a smaller planet beyond Pluto basing his calculations on cometary orbits especially Halley's comet 1910, after which he wrote to Flammarion giving the positions. For the larger his distances of about 39 A.U. and period 242 yrs. agree remarkably well with the values 39.44

A.U. and 247.7 years for Pluto discovered in 1930, twenty years after Ketkara's prediction. For the smaller, planet X, his prediction was a period of 458 years and distance 59 A.U. Sharma has calculated the present position of planet X using the constants of Ketkara and some recent data used by Dr. Brady of California who is likewise interested in a transplutonian planet.

R.W. Smith (London) spoke of the 1910-30 period when speculation ran riot as to the nature of spiral nebulae with reference to the Milky Way system. In this connection letters between Ejnar Hertzsprung and Eddington written in 1916-17 and recently discovered at the University of Aarhus throw light on their thinking. In the discussion which followed this paper and the Cosmology Symposium on the following day, it seemed appropriate to remind the young speakers particularly that as early as 1914 in his Stellar Movements and the Structure of the Universe, Eddington had made his own position very clear, namely that the spirals were themselves galaxies completely outside our Galaxy; only by adopting this hypothesis did he see any prospect of progress.

M. A. Hoskin (Cambridge) opened the cosmology symposium with a review of the eighteenth and nineteenth century thinking about the solar system, the number of stars and the nature of nebulae and star clusters. J.A. Bennett (London) spoke of the part played by the great reflectors of Herschel and Rosse, which raised new questions. N.S. Hetherington (USA) carried the story into the present century with its tremendous technical developments and wealth of new knowledge, which the contributions of Shapley, Hubble, Oort and others helped to interpret. The advent of radio astronomy opened an entirely new chapter of astronomical observation, both complementing and extending what optical instruments have achieved. The interpretation of all this new knowledge was discussed by G.J. Whitrow (London) who outlined several phases of development of theoretical cosmology. The first began with Einstein in 1917, and led on to de Sitter's solution. Then in 1922 and independently in 1927 came

the models of an expanding universe of A.A. Friedmann and Georges Lemaître, developed further by H.P. Robertson from 1929-33. New avenues were opened up by E.A. Milne, Dirac and Eddington. A yet different approach was made by Hoyle, Bondi and Gold in 1948 with their "steady state" assumption. Only as observation has penetrated deeper and deeper into space in the nineteen-sixties has evidence accumulated against this and in favour of the evolutionary universe. And so the quest for a more fully satisfactory theory goes on and on, and will continue to ~~grow~~ go on as long as new knowledge poses new questions.

Two special events must be mentioned. An opening public lecture by Professor Trevor Soper (Oxford) entitled the Scottish Enlightenment drew attention to the remarkable period when the fame of great thinkers like Adam Smith, Thomas Carlyle, James Simpson and others of similar stature drew the eyes of all Europe to Scotland as the intellectual centre of the western world. On a subsequent evening in St. Cecilia's Hall, a fortunate minority of us were delighted with three compositions by Mozart, Borodin and Dvorak beautifully performed by the Edinburgh Quartet.

A. Vibert Douglas.

1977 Nov. 1

XV International Congress ~~of~~ the History of Science

At the University of Edinburgh from 18–19 August 1977 about 900 scientists and historians of science from 39 countries met for the triennial congress of the I.U.H.P.S. It is good to see the growth of interest in Canada where instead of a mere handful we had 23 registered at this congress; and it was also good to see one delegate each from Cuba, Zaire and Saudi Arabia.

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A. V. Douglas

X TH INTERNATIONAL CONGRESS HISTORY OF SCIENCE

PROGRAM

Plurality of Worlds

Ithaca — Philadelphia
August 26–September 2
1962

Plurality of Worlds

Notes made in Library.
Edinburgh University
1963 May 31

More Worlds than One

Sir David Brewster K.H., DCL.
St Andrews 1854
later Principal of the Univ. of Edinburgh

Arguments in favour of a Plurality of Worlds.

1. Ref to M Fontenelle Sec. Acad. of Sci Paris.
'Conversations on the Plurality of worlds': moon is a habitable world. The other planets are also inhabited. The fixed stars are as many Suns, each illuminating a world.
Fontenelle's 1719 Edition gives 'new thoughts which confirm those in the preceding Conversations. [written with vivacity & humour]
2. Influence of Fontenelle on Huygens 'Cosmotheoros'
3. " " " on Lalande and M Gottsched
Gottsched's annotations
4. 3 English translations made. of which one had 6 editions by 1737.

Brewster interpret scripture verses in terms of inhabited worlds.

He thought Sun had solid nucleus seen in dark sunspot centres
Though no life seen on moon he hopes new telescopes will reveal such. Extremes of temp but convection + precipitation moderate conditions
Argument from analogies of planets to earth + non-exceptional position, size &c of earth + magnificent scale of Jupiter - why? if not made for living beings?
Physical body of man is not the only conceivable "physical casket in which the diamond spirit may be enclosed". On great Jup. a Newton may be the intellect of lowest degree.

Sun may not be an inhabitable world though Dr Elliott sent a paper by his physician Dr Simmons To Roy. Soc claiming it was so + this paper was used by Dr S. as evidence that Elliott was insane in a trial of Dr S for shooting an Miss Boyde - See Edin Encyc. art, Astron ii p616 or 1787 Gentlemans Mag. P. 636.

Sir Wm. Herschel believed "sun is richly stored with inhabitants"

Solar Motion: "The mind rejects almost with indignation, the 'ignoble sentiment' that man is the only being that performs this immeasurable journey.

Religion v Sci. must not be placed in conflict 'a sci. truth must be maintained however contradictory it may appear to the most cherished doctrines of religion': actually sci. truth is religions' best auxiliary.

all this, 259 pages, in rebuttal of an Essay "Of a Plurality of Worlds - an Essay" published by Parker & Son, London 1853. ~~in the North British Review~~. in which arguments were evidently given against life other than on earth. Author of essay?? never referred to by name. Date of essay 1853 or early 1854.

N. Br. Rev. Vol 21. Feb - Aug. 1854

Art. I Of the Plurality of Worlds. An Essay 1853. May 1854. J. W. Parker & Son 1853 8vo pp 280

This seems to be also by Brewster.

The 1953 Vols. 18-20 do not appear to have The original essay by 'the author'

"The Author" is Dr Whewell (Trinity Cambridge) anonymous essay 1953.

CALL SLIP

Call Number QA3

'B27

Author Whewell

Brief Title Isaac Barrow

Math works of

Volume

Name W Douglas

Date 28 Nov 1963

L. 21-25M-2-63-H.E.

CALL SLIP

Call Number B1612

W53 P5

and W54 T6

Author Whewell

Brief Title

Philos. of inductive sciences

Volume

Name W Douglas

Date 7-8 Nov 1963

L. 21-25M-2-63-H.E.

CALL SLIP

Call Number BL 175
.B83
1833

Author Whewell

Brief Title

Astronomy etc

Volume

Name A W Douglas

Date 28 Nov 1963

L. 21-25M-2-63-H.E.

Wm Whewell by Todhunter

p. XII Plurality of worlds. (1864 - last battle with D Brewster)
chap XIII p. 184.

Book Of the Plurality of Worlds: an Essay.
anonymously pub. 1853
arguments against plurality of worlds

1854 Dialogue on P of W, being a
Supplement to the Essay in that Subject

4th Edn of Essay + Dialogue 1854
5th Edn 1859

Belief in p. of w. almost universal - exception
Coleridge in Table Talk (II. 293)

7 February 1963

I have often wanted to write you to say how much I appreciated your going to Philadelphia to give your paper last September. I handed over all the papers to Prof Guerlac and the publisher in Paris ten days ago. Tomorrow we attend the Roy Astron Soc meeting and the next day my husband and I fly back to New York. The other evening Prof. Wright was praising your Eddington book.

Sincerely,

Gloria Hellman Pepper

Miss A. Vibert Douglas
Prof. of Astronomy
Queens University
Kingston, Ontario
Canada

POST

LONDON W.1.
6 PM
7 FEB 1963

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8d
POSTAGE REVENUE

Published by A. V. FRY & Co., Ltd., London (Ren. 2134)

6

TOWER BRIDGE, LONDON.
Built between 1886 and 1894 it links South and East London. Each of the two drawbridges weigh 950 tons. Designed by Jones and Barry.

Printed in Italy

Dec 1968.

St Boniface of England
St Virgil of Ireland >400 <800 AD

"disputing in the wilds of the German forest as to whether there are other worlds than ours"

Bertrand Russell Vol II Autobiography p. 251

S. Hadley, Mass, Feb. 1. 1963

Dear Allie,

Your interesting letter came today. What an active life your fame has produced for you. I'm glad we can't match you, as we like to be coddled in our old ages, and comforts are not always available on long tours. But we envy you, and hope you will have smooth voyages in all senses.

You speak of my writing a book on violins. This is not possible because we do not know enough, having worked only 25 years (naturally at a snail's pace). Now we have the voluntary assistance of another retired man who is a shark at circuit theory as in radio and electronics. He sees a strong resemblance between a violin and an electric circuit — the bow being the source, the strings producing alternating currents which flow through the body, and the energy is radiated out with losses here and there, and resistances and impedances to be overcome. An article by this man (J. C. Schelleng) will appear in the Jour. Acoust. Soc. soon, and he has others in the making. As usual such an insight into a new region opens up new views, and suggests new experiments.

I was asked by the Editors of Jour. Ac. Soc. to write a review of the subject (my part of it) to be published in a new journal "Sound", and I enclose a copy with this letter. I am not

so active as I used to be (natural at 83) and don't expect to be able to add much more; but I have recently studied bridges and found something odd and new, which interests me, at least. My collaborator, Mrs Hutchins is off on another tack into new territory, and is getting a heap of publicity out of it, and just fame. So the work goes on, and if I have to reduce my output, others will more than fill the gap, ~~to~~ which I say QED with Euclid. (Only demonstrate is not just right).

We are looking for a flying trip of Olga, joined by Anna T in spring, which would be far off.

With best wishes,

Sincerely,

Andy S.

PROGRAM

XTH INTERNATIONAL CONGRESS

HISTORY OF SCIENCE

Ithaca — Philadelphia

August 26–September 2

1962

THE JOURNAL OF THE
ROYAL ASTRONOMICAL SOCIETY
OF CANADA

Vol. 57, No. 1 FEBRUARY 1963 Whole No. 460

TENTH INTERNATIONAL CONGRESS—HISTORY OF SCIENCE

By A. Vibert Douglas
Queen's University, Kingston, Ontario

Nearly 500 scholars from some 30 countries attended the opening of this Congress at Cornell University, Ithaca, N.Y. on August 26, 1962. On the afternoon of August 31 the Congress moved to Philadelphia and concluded with visits to the Franklin Institute, Academy of Natural Sciences and the Philadelphia Museum on September 2.

A total of 218 papers were listed in seven sections with concurrent sessions required: I, General Problems in the History of Science; Methods, Philosophy and Historiography of Science. II, History of Technology and Applied Science. III, Science in Antiquity. IV, Science in the Middle Ages and the Renaissance. V, Mathematics and the Exact Sciences after 1600. VI, Biological and Earth Sciences after 1600. VII, Sciences of Man (Psychology, Anthropology, Sociology, Linguistics).

Ten Canadians attended, of whom four presented papers: Professor Burke-Gaffney of Saint Mary's University, Halifax, on Pogson's Scale and Fechner's Law (see this Journal, p. 3); Professor R. V. V. Nichols of McGill University on Dr. Andrew Fernando Holmes, physician and naturalist, co-founder of the Montreal General Hospital and the Medical Faculty of McGill; Dr. W. E. K. Middleton of N.R.C. on Torricelli's part in the invention of the barometer; and the writer on some nineteenth-century Canadian books on scientific subjects, including what may be the first book written in Canada on astronomy, *God's Glory in the Heavens* (1862) by Principal William Leitch of Queen's University, Kingston.

A few papers of particular interest to astronomers will be mentioned. M. W. Makemson outlined old and new beliefs about the figure of the earth; Z. K. Novokshanova spoke on the construction of astronomical instruments in Russia in the nineteenth century; W. H. Venable discussed the important work of John A. Brashear (1840–1920) in producing the optical plates for Michelson's first interferometer.

In Section III, Asger H. Aaboe presented a study of the basic parameters in Babylonian astronomy referring to their computed planetary ephemerides for the last six centuries B.C. G. J. Whitrow discussed the concept of time from Pythagoras to Aristotle. In Section IV, Peng-Yoke Ho of Singapore University outlined the influence of Chinese astronomy, not only in Korea and Japan, but in Annam in the Middle Ages. S. Pines of Israel spoke on the Arabic Critique of Ptolemy's *Almagest* of Ibn al-Haytham, better known in the west as Alhazen. J. R. Ravetz examined the relations between precession of the equinoxes and the mediaeval and renaissance expression "motions of the eighth sphere". K. Yabuuti of Japan described the two Islamic books which show Greek influence (*Tables of the Seven Planets* are derived from the Almagest). These were brought into China in the thirteenth century as many Islamic astronomers settled in China following the Mongol invasion of several Asiatic countries.

C. Fischer and T. Przypkowski of Poland outlined the growth of astronomy in Slovakia from the fourteenth to the nineteenth centuries. J. W. Herivel gave an account of the development of Newton's concept of force "from its origin in the problem of collisions to its culmination in his solution to the problem of Kepler's motion". Karel Hujer discussed the history of Biela's comet and the origin of periodic meteors as first indicated by Schiaparelli in a letter to Father Secchi dated 1866.

The writings of Hevelius on sun-dials were the basis of a paper by T. Przypkowski; the work of the Turkish astronomer Taqi al Din (1575) on the orbit of the sun was compared with similar work by Tycho Brahe by Sevim Tekeli of Ankara. The two classifications of nebulae and clusters proposed by William Herschel in 1786 and 1802 were described by B. Sticker of Hamburg. The debt of classical physics to renaissance astronomers, particularly Kepler, was discussed by Edward Rosen of New York.

In order that historians of science might catch something of the "excitement of the chase" as experienced by the scientist in his search for answers to his queries, a special symposium was held at Cornell University on the discovery of the neutron and its effects upon physics. Edward Purcell (Cambridge, Mass.) gave the introduction: Nuclear physics without the neutron—Clues and contradictions. Norman Feather (Edinburgh) followed with a detailed account of the experimental discovery of the neutron. Emilio Segre (Berkeley) then delivered the George Sarton Memorial Lecture on the Influence of the Discovery of the Neutron on Nuclear Physics. Finally, as a delightful climax, a letter from Sir James Chadwick was read: Some personal notes on the search for the neutron. The concluding theme in this scientific saga was that the neutron is no longer an hypothesis but a tool—may we use it well!

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Cornell University
The Corning Glass Works Foundation
Mr. Bern Dibner
The Franklin Institute
The Gallo Wine Company
The George Sarton Memorial Foundation
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The National Science Foundation
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The Philadelphia Museum of Art
Pratt Institute
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UNESCO
The United States Steel Foundation
The University of Pennsylvania Museum
Widmer's Wine Cellars, Inc.

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Mary Moore
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William H. Stahl
Gordon B. Turner
Edgar A. Whiting
Kathleen King Whyte
Philip P. Wiener
Sylvia Williams
Leonard Wilson

THE OLIN LIBRARY, CORNELL UNIVERSITY

Members of the Congress and guests are invited to vis individually the newly established History of Science Collection in Room 215 of the John M. Olin Library, which will be ope from 9 a.m. to 5 p.m. Monday through Friday. The core o these collections is the Adelmann Collection of almost 5,00 volumes, published from the 15th century to the present day in the history of embryology and of human and comparativ anatomy. An exhibition of monuments from this collection i mounted in the room.

Group tours of the entire Olin Library, which is designe primarily as a research library to serve graduate student and members of the faculty, may be arranged. These will b given at 4:15 p.m. Monday, Tuesday, and Thursday. Member and guests should sign at the time of registration for the da they prefer, so that an adequate number of guides may b provided from the library's staff, and should assemble at th door of the library promptly at 4:15 on the day selected. Th library itself will be open from 9 a.m. to 6 p.m. Monda through Friday for study and consultation. An exhibitio entitled "Andrew D. White and the History of Science" mounted in the Gallery and the Rare Book Department on th ground floor and in the cases at the foot of the stairs on th lower level.

Members and guests are requested to wear their Congres badges when visiting the library.

Schedule of Non-Academic Events

Those marked by an asterisk (*) are primarily for women attending the Congress.

Those marked with a dagger (†) require that people sign up at the Information Desk. All Ithaca tours marked * or † start from Willard Straight Hall.

Monday, August 27

P.M.	* 2:00	†Tour of Cornell Ornithological Laboratory and Sapsucker Woods Bird Sanctuary
	* 2:00	†Tour of Co-Op Food Store, a typical American supermarket, for visitors from abroad
	* 4:00	Tea for all women guests in Dormitory Lounge, Clara Dickson Hall
	4:15	Tour of John M. Olin Library. To be repeated Tuesday and Thursday at same hour
	8:30	Reception by the President of the Congress at Andrew Dickson White Museum of Art

Tuesday, August 28

A.M.	*10:00	†Tour of Ornithological Laboratory and Sapsucker Woods (repeated)
P.M.	*1:30 - 5:00	†Walking tour in Watkins Glen with Prof. John Wells of Cornell Department of Geology. Limited to 40 people. (Thursday in case of rain).
	* 2:30	†Short cruise on Cayuga Lake and Tea at Ithaca Yacht Club. Limited to 40 people. (Thursday in case of rain)
	8:30	Concert by Rochester Chamber Orchestra in Alice Statler Auditorium

Wednesday, August 29

P.M.	12:15	Trip to Corning Glass Center and Museum. Lunch as guests of the Center. Buses will leave from IVES HALL promptly at 12:15, and return directly
		to
	5:00	Picnic at Taughannock Falls State Park. Swimming. In case of rain, dinner at Residential Hall; film, 'Raisin in the Sun', 8:00 at Willard Straight Theater.

Thursday, August 30

A.M.	* 8:30	†Trip to New York State Fair at Syracuse, returning late afternoon. This tour will be arranged if 20 or more people sign up by Tuesday noon. Admission to fair $1.00
P.M.	* 2:00	†Tour of Ornithological Laboratory and Sapsucker Woods (repeated)
	8:00	Film, 'Shane', at Willard Straight Theater.
	7:30	Lecture on Neutrons by Prof Morrison

Saturday, September 1

A.M.	*10:30	Historic walk of old Philadelphia, starting from Benjamin Franklin Hotel
P.M.	*12:30	Visit to Wanamaker Department Store from Benjamin Franklin Hotel. The store has luncheon facilities

Sunday, September 2 — *Bus Tours*, from Benjamin Franklin Hotel

A.M.	10:30	†Tour I, to Franklin Institute. Lunch at noon.
		†Tour II, to Academy of Natural Sciences. Lunch at noon.
		†Tour III, to University of Pennsylvania Museum. Lunch at noon.
P.M.	1:30	Each tour is picked up by bus and taken to Philadelphia Museum.
	2:00 - 3:00	Half bus-loads tour Art Museum while other half goes through Fairmount Park. Then the two groups interchange.
	4:00	All gather on terrace of the Art Museum for tea, and return by bus to Benjamin Franklin Hotel at 5:00

Programme des divertissements

L'étoile * indique que l'évènement est principalement pour les dames.

La croix † marque qu'il faut vous faire inscrire au bureau de renseignements.

Pour Ithaca, tous les tours marqués d'une étoile (*) ou d'une croix (†) ont Willard Straight comme point de départ.

Lundi, 27 août

*14 heures	†Tour du laboratoire ornithologique de Cornell et du Sapsucker Woods Bird Sanctuary
*14 heures	†Tour du Co-Op Food Store pour les visiteurs étrangers; un supermarket typiquement américain
*16 heures	Thé pour les dames au salon du Pavillon de Résidence, Clara Dickson Hall
16 h. 15	Tour de la bibliothèque John M. Olin. Ce tour sera répété mardi et jeudi à la même heure
20 h. 30	Réception par le Président du Congrès au Musée Andrew Dickson White

Mardi, 28 août

*10 heures	†Tour du laboratoire ornithologique et Sapsucker Woods (répété)
*13 h. 30-17 h.	†Promenade à Watkins Glen avec Professeur John Wells du département de géologie à Cornell. (En cas de mauvais temps, le tour sera reporté à jeudi). Limité à 40 personnes
*14 h. 30	†Courte croisière sur Cayuga Lake et thé au Yacht Club d'Ithaca. Limité à 40 personnes. (Jeudi en cas de mauvais temps)
20 h. 30	Concert par l'Orchestre de Chambre de Rochester, Alice Statler Auditorium

Mercredi, 29 août

12 h. 15	Excursion au Corning Glass Center et à son Musée. Le déjeuner y sera servi. Les autobus quitteront IVES HALL à exactement 12 heures 15.
17 heures	Pique-nique à Taughannock State Park. Natation. En cas de pluie, diner au Pavillon de Résidence et film 'Raisin in the Sun', théâtre à Willard Straight

Jeudi, 30 août

* 8 h. 30	†Excursion à la foire de New York State à Syracuse, retour dans la même après-midi. Cette excursion ne pourra être arrangée que s'il y a au moins 20 personnes. Le droit d'admission à la foire est de $1.00.
*14 heures	†Tour du laboratoire ornithologique et Sapsucker Woods (répété)
20 heures	Film 'Shane', théâtre à Willard Straight

Samedi, 1er septembre

*10 h. 30	Promenade aux monuments historiques de Philadelphie. Point de départ, Hotel Benjamin Franklin
*12 h. 30	Visite du grand magasin Wanamaker. Point de départ, Hotel Benjamin Franklin. Le magasin a un restaurant

Dimanche, 2 septembre — *Tours en autobus* partant de l'Hotel Benjamin Franklin

10 h. 30	†Tour I, Franklin Institute. Déjeuner à midi †Tour II, Académie des Sciences Naturelles. Déjeuner à midi †Tour III, Musée de l'Université de Pennsylvanie. Déjeuner à midi
13 h. 30	Chaque tour ira par autobus au Musée de Philadelphie.
14 h. - 15 h.	Pendant qu'une partie des Congréssistes visite le Musée d'Art, l'autre partie ira à Fairmount Park. Puis le groupe qui aura visité le Musée d'Art ira à Fairmount Park et vice-versa.
16 heures	Tous les Congréssistes se réunissent sur la terrace du Musée d'Art pour le thé et retournent par autobus à L'Hotel Benjamin Franklin à 17 heures

PROGRAM OF EVENTS

SUNDAY, AUGUST 26.

From 1:00 P.M.

Registration
Willard Straight Hall

6:00 P.M. - 8:00 P.M.

Supper - Willard Straight Cafeteria

8:00 P.M.

Informal Reception
The Memorial Room, Willard Straight Hall

MONDAY, AUGUST 27.

10:00 A.M.

Pres. Malotte (Cornell)

Formal Opening of the Xth International Congress of the History of Science. Revelle Ocean Currents (Scripps Oceanographic Inst)
Int'l Coop in Sci (i) Truth seeking (ii) Conquest of Nature.

Address by Roger Revelle, Special Assistant to the Secretary of the Interior of the United States of America

2:15 P.M.

Symposium: Aspects of Ancient Science
Alice Statler Auditorium

4:45 P.M. or Tea Dickson Hall.

General Assembly of the Division of the History of Science of the International Union of the History and Philosophy of Science

8:15 P.M.

President's Reception
The Andrew Dickson White Museum of Art

TUESDAY, AUGUST 28.

9:00 A.M.

Symposium: Science in the Renaissance
Alice Statler Auditorium

2:15 P.M.

Meeting of Sections

3:00 P.M.

Commission de Bibliographie
Ives Hall, Room 217

8:15 P.M.

Concert
The Rochester Chamber Orchestra, featuring an published symphony by Sir William Herschel
Conductor: Karel Husa
Alice Statler Auditorium

WEDNESDAY, AUGUST 29.

9:00 A.M.

Meeting of Sections Ives 118 213

12:00 Noon

Excursion by bus to the Corning Museum of Gla

6:00 P.M.

Picnic at Taughannock Falls State Park

THURSDAY, August 30.

9:00 A.M.

Colloquium: The Relations of the History and Philosop of Science
Ives Hall, Room 110

Meeting of Sections Ives 114 then

2:15 P.M.

Meeting of Sections

4:45 P.M.

Meeting: Académie Internationale d'Histoire des Sciences
Ives Hall, Room 110

8:00 P.M.

Tutorial Lecture on Concepts of Nuclear Physics by Philip Morrison, Professor of Physics, Cornell University
Rockefeller Hall, Room B

Movie: SHANE, a classic American Western directed by George Stevens with Alan Ladd, Van Heflin, Jean Arthur, Brandon de Wilde
Willard Straight Theater

FRIDAY, August 31.

9:00 A.M.

Symposium: The Discovery of the Neutron and its Effects upon Physics: A Case Study
Alice Statler Auditorium

1:00 P.M.

Move to Philadelphia

SATURDAY, September 1.

10:00 A.M.

Symposium: The International Relations of American Science
Benjamin Franklin Hotel, Ball Room, Mezzanine Floor

2:15 P.M.

Meeting of Sections

4:45 P.M.

General Assembly of the Division of the History
Science of the International Union of the History a
Philosophy of Science
American Philosophical Society, Library, Reading Roo
105 South Fifth Street

7:00 P.M.

Cocktails
Benjamin Franklin Hotel, Mezzanine

7:30 P.M.

Final Banquet; Benjamin Franklin Hotel, Ball Room, Mezzanine
Toastmaster: Henry Allen Moe, President, American Philosophical Society
Award of the George Sarton Medal
Address by Loren C. Eiseley, Professor of Anthropology University of Pennsylvania

SUNDAY, SEPTEMBER 2.

10:30 A.M.

Excursions Lunch $1.00

1:00 P.M.

Excursions

SUMMARY OF ACADEMIC MEETINGS

SYMPOSIA

Aspects of Ancient Science, Monday, August 27, 2:15 P.M.,

Alice Statler Auditorium

Science in the Renaissance, Tuesday, August 28, 9:00 A.M.,

Alice Statler Auditorium

The Discovery of the Neutron and its Effects upon Physics: A Case Study, Friday, August 31, 9:00 A.M.,

Alice Statler Auditorium

The International Relations of American Science, Saturday, September 1, 10:00 A.M.,

Benjamin Franklin Hotel, Ball Room, Mezzanine Floor,

COLLOQUIUM

The Relations of the History and Philosophy of Science, Thursday, August 30, 9:00 A.M.,

Ives Hall, Room 110

TUTORIAL SESSION

Tutorial Lecture on Concepts of Nuclear Physics, Thursday, August 30, 8:00 P.M.

Rockefeller Hall, Room B

SECTIONS

I

General Problems in the History of Science; Method
Philosophy and Historiography of Science

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 112
Wednesday, August 29, 9:00 A.M., Ives Hall, Room 110
Thursday, August 30, 9:00 A.M., Ives Hall, Room 112
Thursday, August 30, 2:15 P.M., Ives Hall, Room 117
Saturday, September 1, 2:15 P.M., Benjamin Franklin Hot
Poor Richard Room, A

II

History of Technology and Applied Science

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 114
Wednesday, August 29, 9:00 A.M., Ives Hall, Room 117
Thursday, August 30, 9:00 A.M., Ives Hall, Room 114
Thursday, August 30, 2:15 P.M., Ives Hall, Room 114
Saturday, September 1, 2:15 P.M., American Philosophic
Society, Library, Reading Room, 105 South Fifth Stree

III

Science in Antiquity

Wednesday, August 29, 9:00 A.M., Ives Hall, Room 217
Saturday, September 1, 2:15 P.M., American Philosophical
Society, Old Hall, Meeting Room, 104 South Fifth Stree

IV

Science in the Middle Ages and the Renaissance

Wednesday, August 29, 9:00 A.M., Ives Hall, Room 213
Thursday, August 30, 9:00 A.M., Ives Hall, Room 213
Thursday, August 30, 2:15 P.M., Ives Hall, Room 213
Saturday, September 1, 2:15 P.M., Benjamin Franklin Hotel,
Ball Room Foyer

V

Mathematics and the Exact Sciences after 1600

1. History of Mathematics

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 212
Thursday, August 30, 2:15 P.M., Ives Hall, Room 212

2. History of Physics and Astronomy

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 110
Wednesday, August 29, 9:00 A.M., Ives Hall, Room 215
Thursday, August 30, 9:00 A.M., Ives Hall, Room 212
Thursday, August 30, 2:15 P.M., Ives Hall, Room 217
Saturday, September 1, 2:15 P.M., Benjamin Franklin Hotel, Poor Richard Room, B

3. History of Chemistry (including Pharmacy)

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 213
Wednesday, August 29, 9:00 A.M., Ives Hall, Room 114
Thursday, August 30, 9:00 A.M., Ives Hall, Room 118
Thursday, August 30, 2:15 P.M., Ives Hall, Room 118

VI

Biological and Earth Sciences after 1600

1. Natural History and Biology (including Medical Biology)

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 215
Wednesday, August 29, 9:00 A.M., Ives Hall, Room 212
Thursday, August 30, 9:00 A.M., Ives Hall, Room 117
Thursday, August 30, 2:15 P.M., Ives Hall, Room 215
Saturday, September 1, 2:15 P.M., Benjamin Franklin Hotel, Franklin Room

2. Geography, Exploration, Geology and Oceanography

Tuesday, August 28, 2:15 P.M., Ives Hall, Room 118

VII

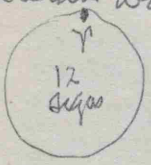
Sciences of Man (Psychology, Anthropology, Sociology, Linguistics)

Wednesday, August 29, 9:00 A.M., Ives Hall, Room 118

Horoscope of day of deluge BC 3320.
☉ in aries

Grand Conjunction planets all same long. in ♈ is a rare phenom
Cycle of grand conj is a World Year. + time of Catastrophe

BC 3102 Feb 17 a grand conj^n
Julian year of flood acc. to one Islamic writer. 3101.
Persian world year 360000 yrs. (Mighty period) 360000.



jump 3 + go to 4th + continue (20 yr period for new conjunctions in
7 based on observation
360 + 12 artificial
mesopotamian origin
360° (why?)
12 signs (why?)

Jupiter - Saturn conj
19 yr 310 d.

Conjunction astrology originated in Iran.

PROGRAM OF ACADEMIC MEETINGS

Monday, August 27, 2:15 P.M.

SYMPOSIUM

ASPECTS OF ANCIENT SCIENCE

Alice Statler Auditorium

Chairmen: Kurt Vogel (Federal Republic of Germany)
I. E. Drabkin (U.S.A.)

Papers:

1. S. Sambursky (Israel)

   Science and the Neoplatonists Classification - mathematics.

   Commentator: William H. Stahl (U.S.A.) Cicero's attitude to science put clock back —

2. E. S. Kennedy (Lebanon) Cel. sphere - horoscope - (point on East horizon of posns of ☉ ☽ + 5 planets.

   Ramifications of the World-Year Concepts in Islamic Astrology

   Commentator: A. Youschkevitch (U.S.S.R.)

3. Ludwig Edelstein (U.S.A.)

   The Graeco-Roman Concept of Scientific Progress

   Commentator: Joseph T. Clark, S.J., (U.S.A.)
   horizontal + vertical aspects of progress
   (collections) (understanding)

Tuesday, August 28, 9:00 A.M.

SYMPOSIUM

SCIENCE IN THE RENAISSANCE

Alice Statler Auditorium

Chairman: Vasco Ronchi (Italy)

Papers:

1. V. Zoubov (U.S.S.R.)

   Expérience technique et expérience scientifique à l'époque de la Renaissance

   Commentator: M. A. Hoskin (Great Britain)

2. Edward Rosen (U.S.A.)

   The Debt of Classical (newtonian) Physics to Renaissance Astronomers, particularly Kepler

   Copernicus founding mod. astron. not a physicist, but he modified a basic physical principle - Aristotle: centre of earth happens to be centre of Universe ∴ bodies fall to c. of earth. Cop. had this - new grav. law: bodies fall towards their centre - (see back) after Cop. physics recognized multiple centres of gravity (1)

   Commentator: A. Koyré (France)

3. A. C. Crombie (Great Britain) All Souls Col. Oxford.

   The 'animate and sensitive body' in Renaissance Science Galileo's phrase -

   Commentator: Luigi Belloni (Italy)

Tuesday, August 28, 2:15 P.M.

Section I. General Problems in the History of Science; Methods, Philosophy and Historiography of Scien

Ives Hall, Room 112

Chairman: Gerd Buchdahl (Great Britain)

Walter F. Cannon (U.S.A.)

The Role of the Cambridge Movement in Ear Nineteenth Century Science

G. M. Dobrov (U.S.S.R.)

Investigations on the History of Science and Techni in the Ukraine

Shuntaro Ito (Japan)

Science in Japan before the Meiji Revolution (1868)

Crizantema Joja (Rumania)

Science et histoire de la philosophie chez Hegel

Frederick G. Kilgour (U.S.A.)

Scientific Ideas of Atomicity in the Nineteenth Century

Section II. History of Technology and Applied Science

Ives Hall, Room 114

Chairman: Robert Multhauf (U.S.A.)

John J. Beer (U.S.A.)

Toward Cheap Steel - Research and Development on the Phosphorous Problem 1857-1879

Robert Brittain (U.S.A.)

River Technology and Historical Development

* Maurice Daumas (France)

Le mythe de la révolution technique

Morris Goran (U.S.A.)

The History of the High-Pressure Synthesis of Ammonia

C. Khrenov (U.S.S.R.)

History of Electric Arc Welding in the U.S.S.R.

* for printed abstract see addendum to Section V-2

Section V-1. Mathematics and the Exact Sciences after 1
History of Mathematics

Ives Hall, Room 212

Chairman: Michael Hoskin (Great Britain)

Linda Allegri (U.S.A.)

The Book II of Girolamo Saccheri's "Euclides ab omni nævo vindicatus"

J. Otto Fleckenstein (Switzerland)

L'édition bâloise des oeuvres complètes des Bernou

Akira Kobori (Japan)

On the Development of the Notion of the Infinitesim in Japanese Mathematics

Max Steck (Federal Republic of Germany)

Albrecht Dürer as a Mathematician

Section V-2. Mathematics and the Exact Sciences after 1600:
History of Physics and Astronomy

Ives Hall, Room 110

Chairman: Thomas S. Kuhn (U.S.A.)

A. T. Grigorian (U.S.S.R.)

The Contribution of Russian Scientists to the Development of Aerodynamics

Max Jammer (Israel)

The Development of Models in Theoretical Physics

Vasco Ronchi (Italy)

Evolution of the Concept of Light in Natural Philosophy

Bernhard Sticker (Federal Republic of Germany)

"Artificial" and "Natural" Classifications of Celestial Bodies in the Work of William Herschel

M. A. Tonnelat (France)

Sur le dualisme foncier ou apparent des notions de corpuscule et de milieu continu

Section V-3. Mathematics and the Exact Sciences after 1600: History of Chemistry (Including Pharmacy)

Ives Hall, Room 213

Chairman: Frank Greenaway (Great Britain)

Eduard Farber (U.S.A.)

The Proportionality between Transformation Rates and the Transformable Entities

M. Freri (Italy)

Some Comments on an Unpublished Manuscript of Amedeo Avogadro upon Atomic Volumes of the Elements

S. C. Kapoor (U.S.A.)

The Proust-Berthollet Controversy

C. A. Russell (Great Britain)

The Influence of Frankland on the Rise of the Theory of Valency

Wilson L. Scott (U.S.A.) and Eduard Farber (U.S.A.)

Complementary Views on Oxidation and Reduction

Robert Siegfried (U.S.A.)

Humphry Davy, Phlogiston, and the Atomic Theory

Section VI-1. Biological and Earth Sciences after 1600: Natural History and Biology (including Medi Biology)

Ives Hall, Room 215

Chairman: Walter Artelt (Federal Republic Germany)

B. Ben Yahia (Tunisia)

Ash-Shaïkh At-Tunisi, réviseur en chef de l'école médecine du Caire, et son dictionnaire

Lavoslav Glesinger (Yugoslavia)

Anton Mihelič (1748-1818) and his Contribution Neurophysiology

Edith Heischkel-Artelt (Federal Republic of German

The Concept of Baroque Medicine in the Developme of Medical Historiography

Lester S. King (U.S.A.)

Causality and System as Problems in Eighteenth Century Medicine

R. V. V. Nicholls (Canada)

Dr. Andrew Fernando Holmes

Section VI-2. Biological and Earth Sciences after 1600: Geography, Exploration, Geology, and Oceanography

Ives Hall, Room 118

Chairman: Carl B. Boyer (U.S.A.)

* Bruno Victorio Ferrari Bono (Argentina)

Geografia Historica

Harold L. Burstyn (U.S.A.)

Theory and Practice in Man's Knowledge of the Tides

Richard O. Cummings (U.S.A.)

Organization of the American Antarctic Expedition of 1830

I. A. Fedoseyev (U.S.S.R.)

Development of Hydrology of Continents in Pre-Revolutionary Russia

Maud W. Makemson (U.S.A.)

Old and New Beliefs about the Earth's Figure

E. L. Towle (U.S.A.)

The Myth of the Open North Polar Sea: The History of a Geographic Misconception and its Consequences, 1600-1860

Leonard Wilson (U.S.A.)

The Development of Uniformitarianism in the Mind of Sir Charles Lyell (1797-1875)

Wednesday, August 29, 9:00 A.M.

Section I. General Problems in the History of Science; Methods, Philosophy and Historiography of Science

Ives Hall, Room 110

Chairman: P. F. Russo, S. J. (France)

Gerd Buchdahl (Great Britain)

The Influence of Minimum Principles on the Phi sophies of Leibniz and Kant

David Gruender (U.S.A.)

On Distinguishing Science from Magic

Mary Hesse (Great Britain)

Bacon's Second Method

Athanase Joja (Rumania)

Le principe d'identité concrète comme fondeme logique de la science

Benjamin Nelson (U.S.A.)

"Probabilists," "Anti-Probabilists," and the Que for Certitude in the Sixteenth and Seventeenth Cen turies: Traditional Themes and New Perspective in the Origin of Modern Philosophy and Scienc

Dudley Shapere (U.S.A.)

Descartes and Plato

Waldemar Voisé (Poland)

L'universalisme épistémologique et l'émancipation des sciences au XVIe siècle

Section II. History of Technology and Applied Science

Ives Hall, Room 117

Chairman: Melvin Kranzberg (U.S.A.)

Karlis I. Ators (U.S.A.)

Periodization of the History of Technology

Rudolf E. Heymann (Israel)

An Approach to Early Art from the Psychology of Technical Drawing

Eugeniusz Olszewski (Poland)

The Scope of the History of Technology and its Place among other Sciences

S. V. Shuhardin (U.S.S.R.)

The Problem of the Motive Forces of Technical Development

Frederick A. White (U.S.A.)

The Role of Instrumentation in the Evolution of Modern Physics

Section III. Science in Antiquity

Ives Hall, Room 217

Chairman: Margaret Bancroft (U.S.A.)

Asger H. Aaboe (U.S.A.)

On the Basic Parameters in Babylonian Astronomy

P. Collinder (Sweden)

Dicaearchus and the 'Lysimachian' Measurement of the Earth

Charles H. Hapgood (U.S.A.)

The Discovery of an Alexandrian Map

Loren MacKinney (U.S.A.)

Isonomia in Greek Medicine

Merc

A. Leo Oppenheim (U.S.A.)

Cuneiform Tablets on the Making of Glass in
potamia

* Ling Wang (Australia)

Jeud

The Date of the Sun Tzu Suan Ching and the Ch
Remainder Problem

G. J. Whitrow (Great Britain)

The Concept of Time from Pythagoras to Ari

Section IV. Science in the Middle Ages and the Renaissan

Ives Hall, Room 213

Sam

Chairman: J. M. Millás-Vallicrosa (Spain)

** Paul Ghalioungui (U.A.R.)

Ibn al-Haytham, an XIth Century Physicist

Ho Peng-Yoke (Singapore) Sumerian Astr 3000 BC
Chinese 1500 BC

Din

Influence of Chinese Astronomy in Medieval An

intellective - realm of theology
ratio - matter knowledge (disciplinaletter)
imaginatio
sensus (Basic)

Thomas P. McTighe (U.S.A.)

Nicholas of Cusa as a Forerunner of Modern Scie

a science of weight & measures, construction not knowledge of real essence
Cusa - Platonism + math. physics
Contrast Galileo who was not a Platonist.

Olaf Pedersen (Denmark)

The "Theorica planetarum" Literature of the Mid
Ages

S. Pines (Israel)

Ibn al-Haytham's Critique of Ptolemy

* for printed abstract see addendum to Section III
** no abstract available

A. I. Sabra (U.A.R.)

Explanation of Optical Reflection and Refraction: Ibn al-Haytham, Descartes, Newton

Aydin Sayili (Turkey)

Al Kûhî's Trisection of the Angle

William A. Wallace, O.P. (U.S.A.)

Theodoric of Freiberg on the Structure of Matter

Section V-2. Mathematics and the Exact Sciences after 1600: History of Physics and Astronomy

Ives Hall, Room 215

Chairman: Vasco Ronchi (Italy)

Otto Blüh (U.S.A.)

Newton and Spinoza — Huygens.

Milic Capek (U.S.A.) Voltaire Gassendi Gassendi's influence on Boyle - yes? or No?

Was Gassendi a Predecessor of Newton?

Joseph T. Clark, S.J. (U.S.A.)

A Note on Gassendi's 19 January 1634 Letter to Galileo

J. W. Herivel (Great Britain)

The Development of Newton's Concept of Force

R. A. Horne (U.S.A.)

Atomism: Eng. — Begins with Bruno's visit (an eccentric) to English - esp. Oxford: 1. Burton - This offended the Oxfordians - Melancholy, eccentric - believed in Democritus - book 1601

The Atomic Tradition in England, 1600-1800

3. Francis Bacon - 4. Rob Boyle (a corpuscularian)
2 Traditions - Democritus (3 + 4). Cambridge Platonists (Henry More, Ralph Cudworth, Jonathan Edwards in New World, H. More influenced Barrow & hence Newton.

2. Roger Burton (Anatomy of Melancholy) admires Democritus but did not advocate atomic

Irving Polonoff (U.S.A.)

Newtonianism in Kant's Cosmogony

Newton an atomist with reservations. Dalton from Newton.
Question? Bruno at Oxford.

Section V-3. Mathematics and the Exact Sciences after 1600: History of Chemistry (including Pharmacy)

Ives Hall, Room 114

Chairman: Maurice Daumas (France)

Arturo Alcalde-Mongrut (Peru)

The Metallurgical Expedition of Baron Nordenflicht to Peru (1787-1812)

Uno Boklund (Sweden)

A Manuscript from Scheele's Brown Book

Frank Greenaway (Great Britain)

The Historical Continuity of the Tradition of Assaying

Aaron J. Ihde (U.S.A.)

Alchemy in Reverse: Robert Boyle on the Degradation of Gold

Andrew Kent (Great Britain)

Dr. Matthew Dobson, M.D., F.R.S. (1727-1784)

Robert Multhauf (U.S.A.)

The Ancient Natural Philosopher as a Chemist

W. A. Smeaton (Great Britain)

P. J. Macquer's Course of Chemistry at the Jardin du Roi

Section VI-1. Biological and Earth Sciences after 1600: Natural History and Biology (including Medical Biology)

Ives Hall, Room 212

Chairman: Everett Mendelsohn (U.S.A.)

Walter Artelt (Federal Republic of Germany)

The "Theatrum rerum naturalium Brasiliae" of 1660 of the Former Preussische Staatsbibliothek

Marc Klein (France)

Le mémoire de Thomas Lauth, "Sur les frères Lambert, vulgairement nommés hommes porc-épics" (1802)

J. Lorch (Israel)

"True" and "False" and the Origins of Imposed Morphology

M. J. S. Rudwick (Great Britain)

Problems in the Recognition of Fossils as Organic Remains

Geneva Sayre (U.S.A.)

Publication Dates of Early Botanical Books

Peter W. van der Pas (U.S.A.)

The Ingenhousz-Jenner Correspondence

Section VII. Sciences of Man (Psychology, Anthropology, Sociology, Linguistics)

Ives Hall, Room 118

Chairman: John C. Greene (U.S.A.)

M. W. Burke-Gaffney, S. J. (Canada)

Pogson's Scale and Fechner's Law

astron at Oxford

Ptolemy 16 magnitudes betw m=1 & m=6

Erling Eng (U.S.A.)

The Significance of the Self-Portrait and the Mirro as a Metaphor in Renaissance Developments in Psy chology

Ernest Harms (U.S.A.)

General Historical Trends in the Science of Psy chiatry

Dell H. Hymes (U.S.A.)

Toward a History of Amerindian Linguistic Classifi cation

George Mora (U.S.A.)

The Historiography of Psychiatry and its Basic Problems: A Re-evaluation

Bogdan Suchodolski (Poland)

Les problèmes de "l'essence" et de "l'existence" dan la connaissance de l'homme

Thursday, August 30, 9:00 A.M.

COLLOQUIUM

THE RELATIONS OF THE HISTORY AND PHILOSOPHY OF SCIENCE

Ives Hall, Room 110

Chairman: Maurice Mandelbaum (U.S.A.)

Papers:

✓ 1. Robert Cohen (U.S.A.)

Is Philosophy of Science Germane to History of Science?: The Work of Emile Meyerson and Joseph Needham

Commentator: N. R. Hanson (U.S.A.)

2. Stephen Toulmin (Great Britain) read by N. R. Hanson

Philosophy and the History of Science

Commentator: Gerd Buchdahl (Great Britain)

3. Joseph Agassi (Hong Kong)

The Confusion between Physics and Metaphysics in the Standard Histories of Physics

Section I. General Problems in the History of Science; Methods, Philosophy and Historiography of Science

Ives Hall, Room 112

Chairman: Robert E. Schofield (U.S.A.)

A. G. Drachmann (Denmark)

How to Write a Paper on Ancient Technology

B. Kouznetsov (U.S.S.R.)

L'histoire des sciences sous le jour de la science actuelle

Wyndham D. Miles (U.S.A.)

Usefulness of Oral History in Writing the Story of a Large Scientific Project

* R. Taton (France)

Projet de publication des registres des séances de l'Académie Royale des Sciences de Paris (1666-1793)

* for printed abstract see close of Section V-2

K. D. C. Vernon (Great Britain)

The Royal Institution's Collection of Manuscripts

J. Zemplén (Hungary)

Some Problems Concerning the History of Physics in Hungary

Section II. History of Technology and Applied Science

Ives Hall, Room 114

Chairman: John Beer (U.S.A.)

Sidney M. Edelstein (U.S.A.)

Dyestuffs and Dyeing in the Sixteenth Century

Bertrand Gille (France)

Plan de recherches collectives pour l'histoire des techniques médiévales

W. E. Knowles Middleton (Canada)

Torricelli's Part in the Invention of the Barometer

Ladislao Reti (Brazil)

Francesco di Giorgio Martini's Treatise on Engineering and its Plagiarists

Section IV. Science in the Middle Ages and the Renaissance

Ives Hall, Room 213

Chairman: Olaf Pedersen (Denmark)

Mohamed Yahia Haschmi (Syria)

Ion Exchange in Arabic Alchemy

J. M. Millás-Vallicrosa (Spain)

Transmissions cosmographiques et nautiques de la Catalogne à la technique atlantique

Derek J. de Solla Price (U.S.A.)

Mechanical Water Clocks of the Fourteenth Century in Fez, Morocco

Jerome R. Ravetz (Great Britain)

The Precession of the Equinoxes

* Sevim Tekeli (Turkey)

Solar Parameters and Certain Observational Methods of Taqî al Dîn and Tycho Brahe

Kurt Vogel (Federal Republic of Germany)

Byzantium's Role as Intermediary in the Transmission of Ancient and Arabic Mathematics to the West

K. Yabuuti (Japan)

Islamic Astronomy in China

Section V-2. Mathematics and the Exact Sciences after 1600: History of Physics and Astronomy

Ives Hall, Room 212

Chairman: Ernst Zinner (Federal Republic of Germany)

Charles Fischer (Czechoslovakia) and
Tadeusz Przypkowski (Poland)

Astronomy in Slovakia

* for printed abstract see Section V-2

Roger Hahn (U.S.A.)

The Chair of Hydrodynamics in Paris, 1775-1791: A Creation of Turgot

Karel Hujer (U.S.A.)

On the History of Biela's Comet and the Origin of Periodic Meteors

Shigeru Nakayama (Japan)

Hsiao-Chang Method (Variation of Tropical Year Length) in Medieval Chinese Astronomy and its Observational Basis

Tadeusz Przypkowski (Poland)

Gnomonics of John Hevelius (1611-1687)

Hiroto Saigusa (Japan)

On the Theory of Ri-Ki (or Li-Chki): One of the Most Important Problems in the History of Natural Science in Japan

R. Šviedrys (Colombia)

Was José Francisco de Caldas (1771-1816) an Independent Inventor of Hipsometry?

Section V-3. Mathematics and the Exact Sciences after 1600: History of Chemistry (including Pharmacy)

Ives Hall, Room 118

Chairman: Aaron Ihde (U.S.A.)

Maurice Crosland (Great Britain)

The Development of the Concept of the Gaseous State as a Third State of Matter

Allen G. Debus (U.S.A.)

The Concept of the Aerial Niter in the Sixteenth and Early Seventeenth Centuries

Mel Gorman (U.S.A.)

Stereochemical Concepts in the Molecular System of Joseph Bayma

Erwin N. Hiebert (U.S.A.)

The Concept of Chemical Affinity in Thermodynamics

Włodzimierz Hübicki (Poland)

The Theory of Michael Sendivogius - Its Origin and Significance

Section VI-1 Biological and Earth Sciences after 1600: Natural History and Biology (including Medical Biology)

Ives Hall, Room 117

Chairman: Conway Zirkle (U.S.A.)

Walter Baron (Federal Republic of Germany)

Evolutionary Ideas in the Writings of J. F. Blumenbach (1752-1840)

George Basalla (U.S.A.)

Darwin's Orchid Book

Ralph W. Dexter (U.S.A.)

The Salem Secession of Agassiz Zoologists

M. D. Grmek (Yugoslavia)

Contribution of Tesla to Medicine

John L. Heller (U.S.A.)

The Prehistory of Binomial Nomenclature

* J. Joaquin Izquierdo (Mexico)

Sources indiennes et européennes de la botanique mexicaine moderne

* Jean Leroy (France)

Les relations botaniques entre le France et l'Amérique du Nord

Otakar Matoušek (Czechoslovakia)

The Response of Purkinje, Barrande, and Mendel and their Circles to Darwin's "Origin of Species"

Thursday, August 30, 2:15 P.M.

Section I. General Problems in the History of Science; Methods, Philosophy and Historiography of Science

Ives Hall, Room 117

Chairman: Harry Woolf (U.S.A.)

Frederick Kreiling (U.S.A.)

Kant and Eighteenth Century Science

Mihailo Marković (Yugoslavia)

The Continuum of Deterministic Methods

Josef Mayerhöfer (Austria)

Ernst Mach as a Professor of the History of Science

Francis Seaman (U.S.A.) Principal of Inertia Kepler Galileo mach

Mach's Principle of Continuity

photons & neutrons can carry various energies

E. J. Sternglass (U.S.A.) electron & proton can now be annihilated by anti-particle.

proton + anti-proton not unique!

The Elementary Particle Concept in Modern Physical Theory electron + positron the only ultimate elem. particle.

an electron-positron pair in mutual rotation gives a mesotron model 216 × mass of electron

neutrino carries $\frac{h}{2}$ energy of mesotron

W. Yourgrau (U.S.A.)

On the Logical Status of So-Called Thought-Experiments

Section II. History of Technology and Applied Science

Ives Hall, Room 114

Chairman: Thomas Hughes (U.S.A.)

Silvio A. Bedini (U.S.A.)

Giuseppe Campani, Pioneer Optical Inventor

Samuel N. Kramer (U.S.A.)

Sumerian Literature and the History of Technology

Mario Loria (Italy)

Galileo Ferraris, the Rotating Magnetic Field and the Polyphase Asynchronous Induction Motor

Z. K. Novokshanova (U.S.S.R.)

Construction of Astronomical and Geodetic Instruments in Russia in the Nineteenth Century

Frederic Schuler (U.S.A.)

The Ancient Assyrian Glassmaking Texts

Section IV. Science in the Middle Ages and the Renaissance

Ives Hall, Room 213

Chairman: A. C. Crombie (Great Britain)

Guy Beaujouan (France)

Manuscrits scientifiques médiévaux de la Bibliothèque Colombine de Seville

Francis J. Collingwood (U.S.A.)

Thomas Aquinas' Notion of a Physical Science

I. E. Drabkin (U.S.A.)

G. B. Benedetti and Galileo's "De Motu"

Edward Grant (U.S.A.)

Aristotle's 'Shiphaulers' and Medieval Criticisms of his Law of Motion

A. Rahman (India)

Some Problems of Source Material in the History of Science in Mediaeval India

Section V-1. Mathematics and the Exact Sciences after 1600: History of Mathematics

Ives Hall, Room 212

Chairman: René Taton (France)

Carolyn Eisele (U.S.A.)

The Quincuncial Map-Projection of Charles S. Peirce

George Goe (U.S.A.)

Kästner, Forerunner of Gauss, Pasch, Hilbert

Luboš Nový (Czechoslovakia)

Remarque concernant l'étude des fondements de l'analyse mathématique au XIXe siècle

G. B. Petrosyan (U.S.S.R.) and A. G. Abramyan (U.S.S.R.)

Newly Found Armenian Text of Euclidian Geometry

A. P. Youschkevitch (U.S.S.R.)

L'école mathématique de Pétersbourg

Section V-2. Mathematics and the Exact Sciences after 1600: History of Physics and Astronomy

Ives Hall, Room 217

Chairman: R. P. Pierre Costabel (France)

Maria Luisa Bonelli (Italy)

Unpublished Letters on Campani's and Divini's Spectacles

Gerald Holton (U.S.A.)

Thematic and Phenomenic Hypotheses: Conceptions for Re-evaluating Historic Stages in Physical Science

W. James King (U.S.A.)

The Quantification of Electricity and Magnetism in the First Half of the Nineteenth Century

Martin J. Klein (U.S.A.)

The Origins of Ehrenfest's Adiabatic Principle

V. F. Lenzen (U.S.A.)

Charles S. Peirce and Die Europäische Gradmessung

A. E. Woodruff (U.S.A.)

Absolute Frames and Action at a Distance in Nineteenth Century Electrodynamics

Section V-3. Mathematics and the Exact Sciences after 1600: History of Chemistry (including Pharmacy)

Ives Hall, Room 118

Chairman: Uno Boklund (Sweden)

Charles Bedel (France)

Quelques étapes dans la connaissance des substances organiques

Alex Berman (U.S.A.)

The Problem of Science in Nineteenth Century French Pharmaceutical Historiography

W. D. M. Paton (Great Britain)

The Growth of Pharmacology with Special Reference to its Dependence on the Advance in Chemical Knowledge

Ernst W. Stieb (U.S.A.)

Robert Boyle's "Medicina Hydrostatica" and the Detection of Drug Adulteration

Jaime V. Vozza (Argentina)

Pharmacy in the Virreynato del Rio de la Plata during the Fifteenth, Sixteenth, and Seventeenth Centuries

Section VI-1. Biological and Earth Sciences after 1600: Natural History and Biology (including Medical Biology)

Ives Hall, Room 215

Chairman: Johannes G. Steudel (Federal Republic of Germany)

Walter Feder (U.S.A.)

Electrode Polarization and its Influence on Mutual Developments in Electrochemistry and Bioelectricity during the Nineteenth Century

M. Florkin (Belgium)

Manuscrits inédits de Théodore Schwann

Everett Mendelsohn (U.S.A.)

Schwann's Mistake

Desiderio Papp (Argentina)

Une expérience galvanique de Swammerdam

Alexander Rytel (U.S.A.)

Marceli Nencki - Pioneer of Polish Biochemistry

Alexander Weinstein (U.S.A.)

The Reception of Mendel's Paper by his Contemporaries

Thursday, August 30, 8:00 P.M.

Philip Morrison, Professor of Physics, Cornell University
Tutorial Lecture: Concepts of Nuclear Physics

Rockefeller Hall, Room B

Friday, August 31, 9:00 A.M.

SYMPOSIUM

THE DISCOVERY OF THE NEUTRON AND ITS EFFECTS UPON PHYSICS: A Case Study

Alice Statler Auditorium

Chairmen: M. A. Tonnelat (France)
Gerald Holton (U.S.A.)

Papers:

1. Edward M. Purcell (U.S.A.)

   Nuclear Physics without the Neutron: Clues and Contradictions

   Commentator: Samuel A. Goudsmit (U.S.A.)

2. Norman Feather (Great Britain)

   The Experimental Discovery of the Neutron

   Commentators: Théo Kahan (France)
   Gerald J. Whitrow (Great Britain)

3. Emilio Segrè (U.S.A.)

   George Sarton Memorial Lecturer

   Influence of the Neutron Discovery on Nuclear Physics

   Commentator: Samuel Devons (U.S.A.)

4. Sir James Chadwick (Great Britain)

   Some Personal Notes on the Search for the Neutron

Saturday, September 1, 10:00 A.M.

SYMPOSIUM

THE INTERNATIONAL RELATIONS OF AMERICAN SCIENC

Benjamin Franklin Hotel, Ball Room, Mezzanine Floor

Chairmen: I. Bernard Cohen (U.S.A.)
A. T. Grigorian (U.S.S.R.)

Papers:

1. Whitfield J. Bell, Jr. (U.S.A.) Am. Phil. Soc

   The American Philosophical Society (1743) as a National Academy of Science: 1783-1846

   Commentator: John C. Greene (U.S.A.)

2. Donald Fleming (U.S.A.) Harvard. (New England Puritans Knowledge for use and in light.)

   Science in the United States, Canada, and Australia: Some Comparative Remarks

   Commentator: Dean Lloyd Stevenson (Canada)

3. Masao Watanabe (Japan)

   Early American Influence on Japanese Science

   Commentator: Eri Shizume (Japan)

Saturday, September 1, 2:~~15~~ 00 P.M.

Section I. General Problems in the History of Science; Methods, Philosophy and Historiography of Science

Benjamin Franklin Hotel, Poor Richard Room, A

Chairman: Nathan Reingold (U.S.A.)

A. V. Douglas (Canada)

Early Scientific Writing in Canada

J. Z. Fullmer (U.S.A.)

Humphry Davy's Weltanschauung

Michael G. Hall (U.S.A.)

The Introduction of Modern Science into Seventeenth Century New England: Increase Mather

Patrick Romanell (U.S.A.)

Locke as a Medical Pragmatist

W. J. Sparrow (Great Britain) B'ham

The Break between Count Rumford and the Royal Institution

Section II. History of Technology and Applied Science

American Philosophical Society, Library, Reading Room, 105 South Fifth Street

Chairman: Derek J. de Solla Price (U.S.A.)

Douglas Chalmers (U.S.A.)

Breakthroughs in American Rubber Technology 1940-1950

Rocco F. Ficcki (U.S.A.)

The Early Electric Circuit Breaker

Anthony N. B. Garvan (U.S.A.)

Slide-Rule and Sector: A Study in Theory, Technology and Society

John B. Rae (U.S.A.)

Technology and Entrepreneurship in the American Aircraft Industry

Philip Morrison Rice (U.S.A.)

The American Engineer: Progenitor of Progress - An Early Nineteenth-Century View

William Henry Venable (U.S.A.) and William H. Venable, Jr. (U.S.A.)

John A. Brashear (1840-1920)

Reynold M. Wik (U.S.A.)

Henry Ford's Interest in Science

Section III. Science in Antiquity

American Philosophical Society, Old Hall, Meeting Room, 104 South Fifth Street

Chairman: S. Sambursky (Israel)

S. Bochner (U.S.A.)

Aristotle's Notion of Place (Topos) in Physics

M. B. Lal (India)

Anthelmintics in Ancient India

Anderson Nettleship (U.S.A.)

The Problem of Symbolism in Medicine - Primitive and Greek Era Symbols in Relationship to Modern Scientific Medicine

* R. K. Pal (India)

The Concept of Health and Disease in the "Rig Veda"

S. N. Sen (India)

Study of Indeterminate Analysis in Ancient India

A. C. Ukil (India)

History of Indian Medicine prior to 1200 A.D.

Ernest Wickersheimer (France)

Le médecin Justus, contemporain de Galien, et les écrits parus sous son nom

* no abstract available

Section IV. Science in the Middle Ages and the Renaissance

Benjamin Franklin Hotel, Ball Room Foyer

Chairman: V. Zoubov (U.S.S.R.)

E. R. N. Grigg (U.S.A.) and Masaaki Nishida (Japan)

Medical Imagery in Twelfth Century Scrolls

Thomas N. Haviland (U.S.A.)

Preparation of the Human Skeleton in the Sixteenth Century

Martin Levey (U.S.A.)

Some Studies in Medieval Arabic Pharmacology

M. Plessner (Israel)

Dāwūd al-Antākī's Sixteenth Century Encyclopædia on Medicine, Natural History and Occult Sciences

Emmanuel Poulle (France)

Les manuscrits scientifiques d'Arnaud de Bruxelles

Edward H. Schafer (U.S.A.)

The Conservation of Natural Resources in Medieval China

Section V-2. Mathematics and the Exact Sciences after 1600: History of Physics and Astronomy

Benjamin Franklin Hotel, Poor Richard Room, B

Chairman: George W. Corner (U.S.A.)

Brooke Hindle (U.S.A.)

David Rittenhouse's Theory of Magnetic Dipoles

D. F. Musto (U.S.A.)

The Development of American Astronomy during the Early Nineteenth Century

G. E. Pavlova (U.S.S.R.)

J. J. Lalande and the Petersburg Academy of Sciences

Robert E. Schofield (U.S.A.)

Electrical Researches of Joseph Priestley

Josef Smolka (Czechoslovakia)

B. Franklin, P. Diviš et l'invention du paratonnerre

Charles Süsskind (U.S.A.)

Observations of Electromagnetic-Wave Radiation before Hertz

Section VI-1. Biological and Earth Sciences after 1600: Natural History and Biology (including Medical Biology)

Benjamin Franklin Hotel, Franklin Room

Chairman: Loren C. Eiseley (U.S.A.)

F. Jaguaribe de Mattos (Brazil) WITHDRAWN

L'histoire naturelle du Maranhäo, due à Frère Christoväo de Lisboa

Raymond N. Doetsch (U.S.A.)

Studies on Biogenesis by Sir William Roberts (1830-1899)

Joseph Ewan (U.S.A.)

John Banister and his Natural History of Virginia, 1679-1692

Walter B. Hendrickson (U.S.A.)

Naturphilosophie in the United States

B. D. Petrov (U.S.S.R.)

M. V. Lomonosov and Questions of Medicine

Jean Théodoridès (France)

Le séjour aux Etats-Unis de deux savants européens du XIXe siecle: Alexander von Humboldt et Victor Jacquemont

PARTICIPANTS

It is a pleasure to welcome the Participants to the Xth International Congress of the History of Science.

The following list was compiled from the attendance records available when this Program went to press.

A mimeographed supplementary list, showing additional registrations and withdrawals, will be available after the start of the Congress.

Aaboe, Prof. Asger H., Yale University, New Haven, Conn., U.S.A.
Abrahamsen, Dr. Samuel, Bronx Community College at the City Univ. of N.Y., U.S.A.
Agassi, Dr. Joseph, Chairman, Philosophy Dept., Hong Kong University, Hong Kong
Alcalde-Mongrut, Dr. Arturo, Escuela Militar de Chorrillos, Lima, Peru
Allegri, Prof. Linda, Hunter College of the City of New York, U.S.A.
Andrews, Dr. Philip J., Institute of History of Medicine, Johns Hopkins University, Baltimore, Maryland, U.S.A.
Applebaum, Mr. Wilbur, U.S.A.
Artelt, Prof. Walter, Prof. of the History of Medicine, University of Frankfort, Germany
Ators, Mr. Karlis I., Society for the History of Technology, U.S.A.

Badash, Mr. Lawrence, Yale University, New Haven, Conn., U.S.A.
Bahous, Prof. Carolyn R., Lynchburg College, Lynchburg, Virginia, U.S.A.
Bancroft, Prof. Margaret, Associate Prof. of Ancient History, Columbia University, New York City, U.S.A.
Baron, Dr. Walter, Institut für Geschichte der Naturwissenschaften, University of Hamburg, Germany
Basalla, Dr. George, Harvard University, Cambridge, Mass., U.S.A.
Bates, Dr. Donald G., Institute of the History of Medicine, The Johns Hopkins University, Baltimore, Maryland, U.S.A.
Beaujouan, Prof. Guy, Conservateur aux Archives Nationales, Paris, France
Bedel, Prof. Charles F. C., Faculté de Pharmacie, Professeur Honoraire, University of Paris, France
Bedel, Madame Charles, Paris, France
Bedini, Mr. Silvio, Curator, Smithsonian Institution, Washington, D.C., U.S.A.
Beer, Prof. John J., Dept. of History, University of Delaware, Newark, Delaware, U.S.A.
Belloni, Prof. Luigi, Institute for the History of Medicine, University of Milan, Italy
Ben Yahia, Prof. Boubaker, Maître de Recherches à l'Université de Tunis, Tunisia
Berman, Prof. Alex, College of Pharmacy, The University of Texas, Austin, Texas, U.S.A.
Berman, Mrs. Hortense, Austin, Texas, U.S.A.
Blake, Dr. John B. National Library of Medicine, Washington, D. C., U.S.A.
Blake, Mr. Whitney, Editor, Oxford University Press, U.S.A.
Blüh, Mrs. Margaret, Nashville, Tenn., U.S.A.
Blüh, Dr. Otto, Vanderbilt University, Nashville, Tenn., U.S.A.
Blüh, Miss Pamela, Nashville, Tenn., U.S. A.
Bochner, Prof. Salomon, Dept. of Mathematics, Princeton University, Princeton, New Jersey, U.S.A.
Boek, Dr. Walter E., Institute for Advancement of Medical Communication, New York, N.Y., U.S.A.
Boek, Dr. Jean K., Bank Street College of Education, New York, N.Y., U.S.A.
Boklund, Mrs. Gunhild E., Upsala, Sweden
Boklund, Dr. Uno J., University of Upsala, Sweden
Bonelli, Prof. Maria Luisa, Museum of the History of Science, Florence, Italy
Bordzol, Mr. Leonard, La Salle College, Philadelphia, Pa., U.S.A.
Boyer, Prof. Carl B., Dept. of Mathematics, Brooklyn College, Brooklyn, New York, U.S.A.
Boyer, Dr. Marjorie N., Brooklyn College, Brooklyn, New York, U.S.A.
Brahdy, Dr. Leopold, New York, New York, U.S.A.
Brieger, Dr. Gert, Institute of the History of Medicine, The Johns Hopkins Univ., Baltimore, Maryland, U.S.A.
Brittain, Jeremy, England
Brittain, Jonathan, England
Brittain, Mrs. Mary Z., England
Brittain, Dr. Robert E., England and U.S.A.
Bromberg-Boilen, Mrs. Joan L., Tufts University, Medford, Mass., U.S.A.
Buchdahl, Dr. Gerd, Whipple Science Museum, University of Cambridge, England
Buck, Prof. Roger C., Dept. of History and Logic of Science, Indiana University, Bloomington, Indiana, U.S.A.
(1) Burke-Gaffney, Father Michael W., Saint Mary's University, Halifax, Canada
Burstyn, Mr. Harold L., Woods Hole Oceanographic Institution, Brandeis University, Waltham, Mass., U.S.A.
Bush, Dr. George P., The American Univ., Washington, D.C., U.S.A.
Byrne, Prof. Paul M., Dept. of Philosophy, Marquette University, Milwaukee, Wisconsin, U.S.A.

Cannon, Dr. Walter F., Smithsonian Institution, Washington, D. C., U.S.A.
Capek, Prof. Milic, Dept. of Philosophy, Boston University, Boston, Mass., U.S.A.
Cassina, Mrs. Caterina, Milan, Italy
Cassina, Prof. Ugo G., University of Milan, Italy
Caswell, Prof. John E., Chairman, Division of Social Sciences, Stanislaus State College, Turlock, California, U.S.A.
Chalmers, Mr. Douglas, President, Golden Star Rubber & Latex Corp., Gardena, California, U.S.A.
Clagett, Prof. Marshall, Institute for Research in the Humanities, University of Wisconsin, Madison, Wisconsin, U.S.A.
Clark, Rev. Joseph T., Canisius College, Buffalo, New York, U.S.A.
Clarke, Prof. Edwin S., History of Medicine, Yale University, New Haven, Conn., U.S.A.
Cohen, Prof. I. Bernard, Professor of History of Science, Harvard University, Cambridge, Mass. U.S.A.
Cohen, Mrs. Frances, Cambridge, Mass., U.S.A.
Cohen, Prof. Robert S., Chairman, Dept. of Physics, Boston University, Boston, Mass., U.S.A.

(2) Wm Clarke - U.N.B. (Q 51) MA Hist & Econ - Can

Cole, Mr. William A., Los Angeles City Board of Education, Los Angeles, California, U.S.A.
Coleman, Prof. William, The Johns Hopkins Univ., Baltimore, Maryland, U.S.A.
Collinder, Mrs. Ingeborg, Upsala, Sweden
Collinder, Dr. P., Swedish Society of History of Science, Sweden
Collingwood, Prof. Francis, Dept. of Philosophy, Marquette University, Milwaukee, Wisconsin, U.S.A.
Collins, Mr. Edward J., Harvard University, Cambridge, Mass., U.S.A.
Collyns, Mr. C. Napier, England
Corn, Miss Joyce-Ruth, American Museum of Natural History, New York, N.Y., U.S.A.
Corner, Dr. George W., American Philosophical Society, Philadelphia, Pa., U.S.A.
Corner, Mrs. George W., Philadelphia, Pa., U.S.A.
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Whitrow, Mrs. Magda, London, England
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Whyte, Mr. Lancelot L., London, England
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Zemplén, Dr. Jolán, Technical University, Budapest, Hungary
Zinner, Mrs. Agnes S., Bamberg, Germany
Zinner, Prof. Ernst, Dr. Rer. Nat. H. C., Bamberg, Germany
Zirkle, Dr. Conway, Botanical Laboratory, University of Pennsylvania, Philadelphia, Penna., U.S.A.
Zoubov, Dr. Vassili P., Academy of Sciences, U.S.S.R.

E. Rosen: Two aim.
Cop.: "Math is written for mathematicians" (i.e. not for theologians - ∴ never destroy Bible into a handbook of sci.
pre Cop. physics was a sublunar ∴ phys. sci free of the restrictions
post " " " universal (2)

(4) pre Cop. Comets thought to be sub lunar i.e. meteorological.
post Tycho Brahe 1577 comet was celestial object not sublunar.
T Braha nova 1572-74 fallacy of changelessness
Astron indebted to G. Bruno "the unscientific poet" demanded an infinite Uni
J Kepler - founded modern optics - (Ronchi's book)
In Newtonian - planetary globes must be material in nature & otherwise
They did not move - (They would stand still if not drawn forwa
i.e. force He coined term 'inertia'
JK. universe is finite (influence of Bruno's fate)
JK. dream "Concerning a trip to the moon" propelling free ends & body continues
toward moon - later note 77 he says attraction, magnetic, of moon
over - + a pt between earth & moon was a 'no force' centre
JK. tides - attractive powers of moon + earth. earths attra greater ∴ water
~~Coperm~~ not rise up + move to moon -
Note 202: a force similar to magnetism - sun + moon pull
waters + earth pulls back.
Earth + moon attraction also Sun attracts both earth + moon -
Gravity same for Earth + moon - but prop. to 'size' of earth + moon
i.e. 53
Debt of Newton to JK. + Cop.

Cohen Newton in Principia - debt to Galileo re inertia
in his own copy a marginal note ref. to contrast between Kepler's ma
of rest + his own of rest or continuance of motion in st

R.S. Cohen: physicist. synthesis (collection + interpretation
analysis (critical exam of general theories &c.

E. Myerson + Joseph Needham
physchem biologist, hist of sci in china.

Myerson - rationalism accompanied by non-rational
"irrecusable nature of thought"
Needham: matter energy - + organization. (the creative irreversibility of
tolerance - study other systems - philos must study hist + v.v. &c.
accuracy is a duty, not a virtue.

S. Toulmin - Matter + non matter - meet in developing.
all but solids + liquids were not understood until 1850± when the "incorp
fall out of scientific talk. i.e., vapours, calorifics, spirits
Aristotle's metaphysics (1) dictionary of terms (2) survey of all theories fr
Thales to his own times.

Hanson. quotes J M Keynes - importance of the relata
Scientific advance + strict logic do not always walk arm in arm. hence the
intellectual excitement of sci. advance

Cohen - Phil helps in crises (wh. are frequent)
Historian of sci helps the philosopher of sci more than v.v.


BENJAMIN FRANKLIN
HOTEL
PHILADELPHIA

XTH INTERNATIONAL CONGRESS OF THE HISTORY OF SCIENCE

26 AUGUST TO 2 SEPTEMBER

1962

Dr. Henry Guerlac; *President*
Dr. C. Doris Hellman; *Secretary*

Cornell University
Ithaca, N. Y., U. S. A.

Participants' List

Addendum

Annett, Miss Eleanor K.
Librarian, Andrew Warde H.S.
U.S.A.

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U.S.A.

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Traylor, Stephen
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Wallace, Dr. James
Duke University
U.S.A.

Watkins, Prof. René
Ithaca, New York

Van Proosdy, Dr. Boricus A.
Leiden, the Netherlands

International Conference on the History and Philosophy of Science.

The recently awakened interest in the history of science is growing rapidly in Canada as evidenced by the registration of over 170 Canadians at the ~~International~~ conference of the IUHPS at Concordia University in Montreal, 25-29 August 1980. Delegates came from a dozen countries as wide spread as Australia, U.S.S.R., Czechoslovakia, Venezuela and western Europe. The Canadians were predominantly from French-speaking Canada, though most provinces were represented from Saskatchewan to Nova Scotia.

Three days were largely given up to Medicine Psychiatry, ~~and~~ Biology and related topics with special interest in Darwin and ~~his~~ methodology.

Paul Weingartner of University of Salzburg gave a paper on The Ideal of Mathematization of all Sciences in Descartes, Pascal and Leibnitz. ~~both~~ The commentators were from Czechoslovakia, West Germany and Canada.

Peter Harmann of the University in Lancaster, U.K. spoke on Force and Inertia: Euler and Kant's Metaphysical Foundations of Science. ~~both~~ Kathleen Okruhlik of University of Western Ontario was the ~~as~~ commentator.

J. E. McGuire (U.S.A) gave a long and interesting paper on Space, Geometry and Infinity: Newton and Descartes on the Indefiniteness of Extension. John North of Groningen (Netherlands) was the commentator.

PTO

Maurice Clavelin of the Sorbonne read a paper on Galilée et les Mathematiques with William Shea of McGill as commentator (in French).

Of the eleven papers, only four were limited to half a session. All the other seven were exhaustive treatments of their respective subjects followed by lengthy comments and ~~the~~ a ~~short~~ discussion period, the ~~whole~~ one topic occupying a full morning or afternoon session. My personal view is that the programme adopted at the ~~five~~ ~~earlier~~ previous conferences of the I.U.H.P.S. which I have attended was greatly preferable. ~~Short~~ OK resulted in ~~much~~ shorter papers by more speakers on a very ~~much~~ much wider range of topics, as my previous reports to the J.R.A.S.C. have recorded.

To J.R.A.S.C.
AWD Nov/80