

41. COMMISSION DE L'HISTOIRE DE L'ASTRONOMIE

PRÉSIDENT: Professor Dr E. Rybka, Director, Astronomical Observatory of Cracow University, Cracow, Poland.

VICE-PRÉSIDENT: Professor Dr B. Sticker, Direktor des Instituts für Geschichte der Naturwissenschaften, Hartungstrasse 5, Hamburg 13, West Germany.

COMITÉ D'ORGANISATION: H. Dingle, A. V. Douglas, O. J. Gingerich, V. L. Tchenakal, K. Yabuuti.

MEMBRES: Abetti, Ashbrook, Baehr, Beer, Birkenmajer, Collinder, Dick, Dijksterhuis†, Erpylew, Evans (D. S.), Felber, Ferrari d'Occhieppo, Filliozat, Fleckenstein, Hellman, Hirose, Kamieński, King (H. C.), Kulikowsky, Link, Michel, Michkowitch, Nielsen, Norlind, Nørlund, Omer, Ovenden, Pelseneer, Perel†, Petri, Pogo, Samaha, Slavenas, Whitrow, Zagar, Zinner.

MEMBRES CONSULTANTS: Burke-Gaffney, Daumas, Drake, Forbes, Freiesleben, Hartner, Horsky, Hoskin, Kennedy, Maddison, Millas-Vallicrosa, Musto, Needham, Pedersen, Price, Przypkowski, Ronan, Ronchi, Russel, Santillana, Thorndike†, Waerden van der, Woolf, Wright.

I. INTRODUCTION

After the XIIth General Assembly of IAU in Hamburg (1964) a new category of consulting members has been constituted. Commission 41 has 24 consulting members. We suffered a loss by the death of the active member of our Commission, Ju. G. Perel (U.S.S.R.), who died 28 November 1964.

The investigations on the history of astronomy in the years 1964–66 concerned all branches of this division of science, viz. the history of astronomy in different countries, the historical development of the astronomical problems, history of calendar, history of observatories and societies, history of astronomical instruments and auxilliary apparatus and so on. The results were presented at congresses and symposia and were published in papers and books. Very many papers and books appeared on the occasion of 400th anniversary of Galilei.

The present draft report contains information, besides those from members, on the results of international conferences, which were held independently of IAU.

II. GENERAL HISTORY OF ASTRONOMY

According to Resolution 3 of the Commission, adopted at the Meeting of 26 August 1964 in Hamburg, a tentative scheme of the four-volume international monograph has been drawn up by the President. The scheme was discussed at the enlarged meeting of the Organizing Committee on 28 August 1965 during the International Congress of the History of Science in Kraków. A detailed plan has been drawn up for Volumes I and II of the proposed monograph, namely, Vol. I—Antiquity and the Middle-Ages till the Renaissance; Vol. II—Astronomy of the Renaissance epoch and the following centuries till Newton. Volume III is planned generally for the astronomy of the XVIIIth and XIXth centuries, and Volume IV—for the astronomy of the XXth century (up to the Second World War).

Remarks expressed by the Vice-President Dr B. Sticker, who could not attend the Congress of the History of Science in Poland in August 1965, as well as those sent by J. Veselovsky from Leningrad, and the remarks expressed by the participants of the meeting of 28 August 1965 in Kraków, have been taken into account in the plan published in the Information Circular of Commission 41 No. 10 (October 1965). In 1966 the President received by mail

further remarks, which have been published in the Information Circular of the Commission 41 No. 12 (October 1966).

A further discussion on the plan of the international monograph on the history of astronomy is planned during the XIIIth General Assembly of IAU in Prague (August 1967). It would be very desirable that the national committees of the history of astronomy in countries, where they exist, expressed their opinions on the proposed elaboration of the general history of astronomy.

III. CONGRESSES AND SYMPOSIA

A. Just before the XIIth General Assembly of IAU, an international symposium on the history of astronomy was held in Hamburg (22–24 August 1964), organized by the International Union for the History and Philosophy of Sciences (IUHPS), in cooperation with Commission 41 of the IAU. Two groups of problems were discussed at the symposium: (1) the relations between the instrumental and scientific progress of astronomy, (2) the practical and fundamental problems of the astronomical historiography. More than 50 participants took part from 16 countries. The exhibition 'Documenta Astronomica' was opened on 23 August 1964 in the Hamburg Museum for ethnology and prehistory. Twenty-five contributions were presented together on the meetings of the Symposium. Their titles were published in the Information Circular No. 7 of Commission 41 (December 1964) and additional information was given in the Information Circular No. 8 (February 1965). The contributions will appear in Vol. 9 of *Vistas in Astronomy* (Pergamon Press, London) in 1967.

B. The XIth International Congress for History of Science was held in Poland (Warszawa—Kraków) from 24 to 29 August 1965. The history of astronomy formed a part of section 3 of the Congress as a separate sub-section. E. Rybka was the president of the sub-section. Twenty-eight contributions from different branches of the history of astronomy were delivered at the meetings (Warszawa—Kraków) of the sub-section of the history of astronomy. The titles of the contributions were printed in the Information Circular No. 11 of Commission 41 (December 1965). Besides the meetings of the sub-section of the history of astronomy a symposium was held in Toruń (26–27 August 1965) on the 'Traditional and Innovatory Elements in the Cosmology of Nicolaus Copernicus'. The symposium assembled about 150 participants from 36 countries.

C. The symposium 'The classical antiquity and the beginning of the modern science' was organized during the International Congress 'Antiquitas Graeco-Romana ac tempora nostra' (12–16 April 1966, Brno, Czechoslovakia). Seven contributions on the history of astronomy were delivered on the symposium. Their titles were published in the Information Circular No. 13 of Commission 41 (November 1966).

IV. BIBLIOGRAPHY

Dr P. G. Kulikowsky (Moscow), former President of Commission 41, continued the preparation and publication of the bibliography of books and papers on the history of astronomy, according to Resolution No. 2 of Commission 41 (Hamburg 1964). Three issues of the bibliography were published in 1965 and 1966: (1) the bibliography for the year 1964, (2) the bibliography for the first half of the year 1965, (3) the bibliography for the second half of the year 1965. The bibliography for the year 1966 is in preparation and is intended to be published at the beginning of 1967. In this work, Dr P. G. Kulikovsky has been aided by Mrs N. Lavrova.

Serious obstacles have been encountered by Dr P. G. Kulikovsky in his work on the bibliography. In spite of his frequent request to all members of the Commission, he did not receive necessary information on new publications concerning the history of astronomy, which made it impossible to compile a complete bibliography. Dr P. G. Kulikovsky could not

edit two issues of the bibliography for the year 1966. He intends to edit this bibliography in one issue at the beginning of 1967. The problem of the compilation of the bibliography on the history of astronomy will be discussed at a meeting of Commission 41 in Prague (August 1967). *Note:* The Bibliography edited by Dr Kulikovsky will be denoted hereafter by: *Bib. Kul.*

V. INFORMATION CIRCULAR

The President continues the publication of the Information Circular, which was commenced by the former President P. G. Kulikovsky. The circular is printed in Kraców under the auspices of the Committee of the History of Sciences and Techniques of the Polish Academy of Sciences. From December 1964 till the end of 1966 seven issues of the circulars (Nos. 7 to 13) have been distributed to members of the Commission. The circulars contained news on the history of astronomy, information on congresses and symposia, anniversaries, correspondence, a discussion on the general history of astronomy, personal notes, etc.

VI. REPORTS FROM MEMBERS

The President requested all members and consultants to send him information on their activity in the history of astronomy. Twenty-eight answers have been received, which are summarized in this section. The reports have been arranged according to countries, in alphabetical order. The complete bibliography has not been compiled because it has been done in the *Bib. Kul.* The following reports have been based on letters and on reprints received by the President. In the selected bibliography there are quoted generally any papers omitted in the *Bib. Kul.* 1967-65.

1. Austria

K. Ferrari d'Occhieppo has undertaken a reinvestigation of the 'Star of Magi' by going back to the Greek and even the old Syrian texts of the gospels compared with all information available from cuneiform tablets and other sources of that age. Three papers have been published on this problem (*Bib. Kul.* 1965 II, p. 5), (1, 2). Besides, K. Ferrari d'Occhieppo has written articles on Austrian astronomers and representatives of allied sciences for the 'Oesterr. Biographisches Lexikon' edited by the Oesterr. Akademie d. Wissenschaften and for the 'Neue deutsche Biographie' now edited by the Bayerische Akademie d. Wissenschaften, Munich. His activity concerns also the studies on the life and activities of the Austrian astronomer Franz Ritter von Schaub (1817-71).

2. Belgium

H. Michel (Bruxelles) is working on the problems concerning the history of astronomical instruments. Three books, which appeared in 1965-66, concerned the problems of the scientific instruments in art and history, the measures of time and sundials. Two books are intended to be published still in 1966 (3, 4, 5, 6, 7).

3. Canada

Many articles on the history of astronomy were printed in the *Journal of the Royal Astronomical Society of Canada*. Their authors were: A. D. Thackeray, A. V. Douglas, R. M. Petrie, P. v. de Kamp, I. C. McLennan, J. Low and J. J. Ruiz. The titles have been cited in *Bib. Kul.* for the years 1964-65 and 1966. Besides, M. W. Burke-Gaffney (Halifax) published the Biography of Boutet de Saint Martin (8). A. V. Douglas (Kingston) wrote on the scientific writings (9). She informs that the Royal Astronomical Society of Canada is undertaking to compile the history of astronomy in Canada.

4. *Czechoslovakia*

K. Fischer (Prague) published articles on astrological illustrations (10) and on mathematico-physical instruments in Bratislava (11). Z. Horsky (Prague) published a paper on the famous Prague clock (Orloj) (12), and on the astronomical sextant of Bürgi (13).

F. Link (Prague) in the second part of his paper 'Observations et Catalogue des aurores boréales en Occident 1601-1700' gives the contents of observations of more than 200 aurorae (14). The third part comprising the XVIIIth century is in preparation.

5. *Denmark*

Axel V. Nielsen (Aarhus) continues his studies on Ole Roemer. The paper 'Ole Roemer and his Meridian Circle' is intended to appear in *Vistas in Astronomy*.

6. *Germany*(a) *Democratic Republic*

K. Biermann (Berlin) wrote on C. F. Gauss, T. Clausen and F. W. Bessel (*Bib. Kul.* 1965 I, p. 5).

J. Dick (Berlin) published three papers on the history of Berlin Observatory (*Bib. Kul.* 1964, p. 1 and 4) and (15).

J. Felber (Berlin) published a comprehensive volume containing W. Foerster's correspondence on the reform of Easter (*Bib. Kul.* 1965 II, p. 8).

(b) *Federal Republic*

U. Baehr (Heidelberg) published a biography of F. K. Ginzel (16). He took part in the publication concerning the Aztec text of Chimalpahin (17) edited by G. Zimmermann. He also wrote on the reform of calendar (18).

Ch. Schmidt-Schönbeck wrote the book on the history of physics and astronomy in Kiel University (see below, § VIII, ref. 10).

B. Sticker (Hamburg) worked on general problems from the history of natural science. The titles are given in the Supplementary Bibliography (19, 20, 21, 22, 23, 24, 25, 26). There are in press: Volume 9, *Vistas in Astronomy* containing the contributions from Hamburg Symposium on the History of Astronomy (1964) and a paper on Galilei (Firenze - Symposium 1964). He prepares the texts for the history of the World-conception.

B. Sticker informs that Encyclopaedia Medii Aevi (Editor A. Bruckner, Basel) is in preparation. There are planned the history of mathematics, of exact sciences and of natural philosophy under the guidance of J. O. Fleckenstein.

E. Zinner (Bamberg) published the astronomical bibliography in Germany from the Renaissance epoch (*Bib. Kul.*, 1964, p. 3), and a continuation of the list of old manuscripts in many European libraries (27).

7. *Italy*

G. Abetti (Arcetri) writes:

'An extensive work on the "Astronomy" of Dante Alighieri's Divina Commedia has been published in various numbers of the Italian Review *Physis* for 1965 by Professor Ideale Capasso of Genova. It is the history and explanations of the astronomical observations made by Dante in his journey through Inferno, Purgatorio and Paradiso.'

He wrote four articles on the history of astronomy (28, 29, 30, 31).

V. Ronchi (Firenze) studied many problems from the history of Lionardo da Vinci, Della Porta, Kepler, Galilei, Torricelli, Boscovich, Amici. His studies concerned the lenses and

telescopes. He wrote a comprehensive paper on the history of the telescope (32) and three papers from the history of optical research (33, 34, 35). Besides, V. Ronchi wrote a contribution concerning Newton (36).

See also *Bib. Kul.*, 1965 II, p. 19–20.

F. Zagar (Milano) edited the first volume of the correspondence of G. V. Schiaparelli on Mars (37). Vol. II is in press.

8. Japan

H. Hirose (Mitaka, Tokyo) discussed the ancient determinations of winter solstice with the use of a gnomon (38, 39). His paper (40) contains the comparison of ancient lunar eclipse observations made in Yedo-Period with Oppolzer's Canon der Finsternisse and discusses the accuracy of time keeping. The paper (41) deals with the comparison of the text of Nigi-Ryakusetu (brief lecture on Earth and Heaven) prepared by K. Kobayashi before 1715, with that of Pedro Gomez's 'De Sphaera'. The author concludes that the text of Nigi-Ryakusetu may be considered as an ancient translation of the Latin original of 'De Sphaera' into Japanese. Gomez's text is now available in printed form as a supplement to the Japanese translation by S. Obara S.J. (*Kirishitan Kenkyu*, No. 10, 1965, Tokyo). Hirose's paper (42) contains a brief discussion on the European influence on astronomical and geodetic instruments made in old Japan together with brief descriptions of some old instruments still preserved in Japan. The paper (43) deals with the discussion of the meridian observations of the Sun made at the old observatory of Tokugawa Shogunate during 1798–1843, before the introduction of modern or European technique.

In (44) H. Hirose discusses the background of *Kwansei* Calendar Reform of Japan in connection with the importation of European astronomy into Japan. Relations between court astronomers and people of 'new theory' are also investigated in the paper. The main part of the small book (45) is devoted to the Japanese translation of chapters 1 to 10 of Book I of 'De Revolutionibus' and to the diffusion of the geocentric theory into ancient Japanese people.

K. Yabuuti (Kyoto) has sent the following general information on the progress of the research on the history of astronomy led in Japan in 1964–1966. 'Although there are not so many scholars who are working actively on the researches of history of astronomy they always contact each other and are studying mostly in the field of Japanese and Chinese astronomy. Between 1964 and 1966 three exhibitions concerning the history of astronomy were held. The first one (1964) has been an exhibition of telescopes, which memorialized the 400th anniversary of Galileo Galilei. The second one (1965) has been an exhibition for the memory of the famous astronomer H. Sibukawe on the occasion of the 250th anniversary of his death. Both exhibitions were opened at the Tokyo National Science Museum. The third one (1966) was opened at the Osaka Municipal Art Museum for the 150-th anniversary of the death of the Japanese astronomer S. Hazama.

'On the request of the International Union of the History of Sciences a survey of scientific instruments of historical interest in Japan has been carried on by Japanese Committee on the History of Sciences and K. Yabuuti is taking charge of the part of astronomical instruments.'

Several monographs and catalogues (46, 47, 48, 49, 50, 51) have been published in Japanese. K. Yabuuti wrote two articles (52, 53). Besides the articles of H. Hirose and K. Yabuuti those of I. Imai (54), S. Nakayama (Tokyo) (55, 56), K. Saito and S. Sinozawa (Tokyo) (57), T. Watanabe (Tokyo) (58, 59) and K. Yamada (Kyoto) (60) should be mentioned.

9. Poland

J. Dobrzycki (Warszawa) published a paper on the theory of precession in the mediaeval astronomy (*Bib. Kul.* 1965 II, p. 4) and worked on Copernicus.

M. Kamiński (Warszawa) published a paper on Halley's Comet (*Bib. Kul.* 1965 II p. 7).

T. Przyrkowski (Jędrzejów) published a paper on the Gnomonics of Hevelius (61). A second paper (62) is in press. He prepared for the 'History of Astronomy in Poland' its section since the middle of XVIth century till the middle of XVIIIth century.

E. Rybka (Kraków) published his contribution held at the Hamburg Symposium 1964 (63).

10. *South Africa*

D. S. Evans (Cape), assisted by B. M. Evans, T. J. Deeming and S. Goldfarb, is editing for publication the diaries of Sir John Herschel at the Cape of Good Hope (1833–38).

11. *Sweden*

P. Collinder (Uppsala) has elaborated a bibliography of astronomical literature printed in Sweden in 1881–98 with historical notes. He continued his research on the accuracy of astronomical observation in Antiquity and published the paper on Dicaearchus (*Bib. Kul.* 1965 II p. 3).

12. *Switzerland*

J. O. Fleckenstein-Gallo (Basel) published a book on science and politics (64) and papers on papyrology (65) and the Galilean phases of Venus (66).

B. L. van der Waerden (Zurich) published a book on the beginning of astronomy (*Bib. Kul.* 1965 II p. 3).

13. *United Kingdom*

E. G. Forbes (Edinburgh) worked on the history of Nautical Almanac (67), on Bradley's observations (68) and on history of chronometers (69). A paper on Tobias Mayer's Lunar Tables is in press.

M. A. Hoskin (Cambridge) has been working in two main fields:

(a) A study of Thomas Wright of Durham, who is often falsely credited with the view that the Sun belongs to a system of stars which is disk-shaped. M. A. Hoskin plans to publish a large quantity of supplementary material, recently rediscovered, prepared by Wright for a second edition of his 'An Original Theory'.

(b) A study of the history of ideas of nebulae and galaxies between 1822 and 1925.

He published three papers (70, 71, and 72).

H. C. King (London) published two books which deal with aspects of the history of astronomy. The book 'Exploration of the Universe' (*Bib. Kul.* 1965 II p. 2) is a survey of the development of knowledge of the astronomical universe from earliest times to the present. The book 'The world of the Moon' contains sections on early ideas and a history of selenography (73).

J. Needham (Cambridge) continues his investigations on the history of astronomy in China and Korea. He published three papers (74, 75, 76) with his collaborators. Two articles are in press (77, 78).

G. J. Whitrow (London) published a paper on Galilei (*Bib. Kul.* 1965 I p. 7) and wrote a paper 'Kant and the Extragalactic Nebulae' (a lecture at the meeting of the Royal Astronomical Society, September 1960). He is engaged in preparing a new edition of W. Hastie's translation into English of Kant's 'Allgemeine Naturgeschichte und Theorie des Himmels'.

14. U.S.A.

O. Gingerich (Cambridge, Mass.) has continued searching for applications of high-speed computers to the history of astronomy. This has resulted in various tables of planetary or lunar positions, such as the extensive computation of Lunar positions, and the extensive computation of Lunar Visibilities in Ancient Babylon. He has recomputed all the planetary tables from Kepler's 'Rudolphine Tables' and his conclusions concerning the high accuracy of this work were reported at the XIth Congress for History of Science (Poland, August 1965). He has currently undertaken detailed computer investigations of the 'Alphonsine Tables' and the 'Prutenic Tables'.

In addition he has begun a translation and commentary of Kepler's 'Astronomia Nova'. Also he is preparing a reprint edition with coloured illustrations of Tycho Brahe's 'Astronomiae Instauratae Mechanica'. He published three papers (79, 80, 81). Two papers 'Applications of high-speed computers to the history of astronomy' and 'A study of Kepler's Rudolphine tables' are in press.

C. D. Hellman (New York) is at work on a Tycho Brahe source book and encyclopaedia articles on Tycho Brahe and Renaissance astronomy. She published three contributions at symposia or congresses (82, 83, 84) and three encyclopaedia articles. She wrote seven reviews of books.

D. M. Musto (New Haven) continued his work in the general area of the rise of American Astronomy. He is making a detailed study of John Quincy Adams who as President of United States and as a private citizen was a great promotor of astronomy in the United States.

D. J. de Solla Price (New Haven) has written with A. Aaboe the paper on the Qualitative Measurements in Antiquity (85).

H. Woolf (Baltimore, Maryland) has been working on the history of astrophysics (86, 87, 88).

15. U.S.S.R.

Extensive investigations have been carried out on the history of astronomy in U.S.S.R. The list compiled by P. G. Kulikovsky (Moscow) for the years 1965-66, sent to the President, contains 64 titles of books and papers. The activity has been concentrated on the following branches of the history of astronomy.

1. *General works* (A. I. Eremeeva, B. V. Kukarkin, P. G. Kulikovsky, N. I. Nevskaja, K. F. Ogorodnikov).
2. *Antique Astronomy* (V. M. Brabitch, B. E. Tumanian, I. N. Veselovsky).
3. *Astronomy in XVIth-XVIIIth centuries* (N. I. Nevskaja, Yu. G. Perel).
4. *Astronomy in particular countries* (A. G. Abramian, T. N. Klado, Yu. H. Kopelevich, V. K. Kuzakov, P. K. Prüller, D. O. Svyatsky).
5. *Asiatic Astronomy* (L. S. Baranovskaja, U. Iliasov, T. M. Kary-Niazov).
6. *History of the astronomical problems* (O. D. Dokuchaeva, A. E. Medunin, Z. S. Parshina, V. N. Pipunirov, R. B. Shatzova, F. A. Shibanov, I. P. Spitzberg, N. I. Suvorov, B. M. Tcherniagin).
7. *History of observatories* (A. A. Mikhailov, P. Miursepp, I. Rabinowitch, G. A. Zhelmin).
8. *History of instruments* (G. G. Georgobiani, P. G. Kulikovsky, P. Miursepp, I. M. Tabinovich, V. P. Shtcheglov, V. L. Tchenakal, B. E. Tumanian).
9. *Biography and Personal Notes* (V. K. Abalakin, A. F. Bogorodsky, Yu. N. Efremov, T. N. Klado, S. N. Korytnikov, P. G. Kulikovsky, B. Yu. Levin, O. A. Melnikov, N. N. Michelson, P. V. Miursepp, Yu. G. Perel, L. N. Radlova, Z. K. Sokolovskaja-Novokshanova, V. L. Tchenakal, N. A. Tchernega, I. A. Tiulina, G. A. Zhelmin).

V. L. Tchenakal (Leningrad) reports that he has been working on M. V. Lomonosov and Russian astronomy in XVIIIth century, on astronomical instruments and sundials of U.S.S.R. peoples and other problems.

The titles of the books and papers with bibliographical details have been given in the Bibliography edited by P. G. Kulikovsky (*Bib. Kul.*) in Moscow for the years 1964–66.

The edition of the 'Istorikoastronomitcheskije issledovania' (Historic-astronomical investigations) have been continued (editor P. G. Kulikovsky). In 1966, Vol. IX of this publication has been issued. It contains a comprehensive paper of D. O. Svyatsky 'Essays on the History of Astronomy in ancient Russia' and many other articles, as:

B. V. Kukarkin 'First steps in the development of astronomy', P. K. Prüller 'Estonian people's astronomy', W. Petri (DBR) 'Astronomical contents of the first book of the Kalachakra tantra', Yu. G. Perel 'On the problem about the time of the recognition of Copernicus in Russia', O. D. Dokuchaeva 'Contradiction in the estimation of first photographs of celestial bodies', A. F. Bogorodsky, N. A. Tchernega 'Robert Filipp Fogel (1859–1929)', F. A. Shibanov 'From the history of practical astronomy, geodesy and cartography in Russia', K. A. Zvonerev 'V. U. Kavraysky', V. Z. Tchenakal 'New data on the system of telescopes by Short', V. P. Shtcheglov 'Reflector by James Short No 1341', V. M. Brabitch 'On the imprint of Zodiacal circle on the Roman contorniates', V. L. Tchenakal 'Jan Baptist Sniadecki and Johann Elert Bode', Letters by M. O. Nyrén to D. J. Dubiago.

16. Yugoslavia

V. V. Michkovitch (Beograd) continues his work on the development of astronomy in Serbia. He published a paper on the unification of the calendar (89).

VII. GENERAL REMARKS

M. W. Burke-Gaffney (Halifax, Canada) writes:

'During recent years I have noticed in History of Science Societies (and Academies) an increase in the number of papers on the Philosophy of the History of Science. I am one of those who hold that we should not philosophize until we have the facts. I would wish to see Commission 41 continue adhering to facts, as it has done in the past. I am of opinion that in this way we shall not be doing just the same work as, say, the History of Astronomy branch of the International Union of History of Sciences and that the need of Commission 41 may become more apparent, as others branch out into speculations.'

B. Sticker (Hamburg) remarks that the Resolution no. 7 (concerning instruments of historical interest) should be reminded at the General Assembly 1967. Perhaps all older observatories (for example those founded before 1900) should be requested, with the aid of IAU, to give attention to the resolution. It is desirable that the most important old instruments be registered. The observatories ought to be requested for information on what is being done for the preservation of and care on the old instruments of historical interest.'

D. F. Musto (New Haven, U.S.A.) writes:

'I would suggest the study of comparative development of astronomy in various nations. This would be more possible than with other sciences because the building of observatories, their records and support are more obtainable than in such disciplines as chemistry, medicine, etc. Also, the History of Astronomy is the longest permitting comparisons with the development in advance.'

E. Forbes (Edinburgh) puts his attention on the microfilming of documents preserved in the Royal Greenwich Observatory. He writes:

'A problem which in my opinion merits international persuasion, if not cooperation, is

that of microfilming for the purpose of general distribution the valuable and unique documents presently preserved in the Record Room of the Royal Greenwich Observatory, Herstmonceux Castle. A complete list of these has recently been issued, for information and research only, by the Public Record Office in London. The papers contain original manuscript observations etc.* by the Astronomers Royal, John Flamsteed, Edmond Halley, James Bradley, Nevil Maskelyne, John Pond and George Airy together with a great deal of personal and private correspondence—Airy's in particular being remarkably comprehensive, covering a wide range in astronomy and general science during a period of great industrial and economic development.

'In addition to the above-mentioned data, there is a wealth of information on 18th century astronomical developments contained in the Board of Longitude papers at the Royal Greenwich Observatory.'

VIII. ANY BOOKS ON THE HISTORY OF ASTRONOMY

1. Abetti, G. 1964, *Storia dell' astronomia*. Firenze, Vallecchi.
2. Bernal, J. 1965, *Science in history*. 3rd edition, London, Watts.
3. 1963–65, *A general history of the Sciences*. Vol. 1 to 4 (translated from French). London, Thames and Hudson.
4. Crombie, A. C. 1964, *Von Augustinus bis Galilei. Die Emanzipation der Naturwissenschaft*. Aus der Engl., Köln.
5. King, H. C. 1964, *Exploration of the Universe*. London, Secker and Warburg.
6. Koyré, Alexandre 1964, *Mélanges publiés à l'occasion de son soixante-dixième anniversaire*. Vol. I: *L'aventure de la science*, Vol. II: *L'aventure de l'esprit*. Paris, Hermann.
7. Ley, W. 1965, *Die Himmelskunde. Eine Geschichte der Astronomie von Babylon bis zum Raumzeitalter*. Übers. aus dem Engl., Düsseldorf–Wien, Econ–Verl.
8. Peuckert, W. E. 1965, *L'astrologie. Son histoire, ses doctrines*. Trad. de l'allemand. Paris.
9. Reichen, Ch. A. 1964, *Histoire de l'astronomie*. Paris, Levallois–Perret (Seine).
10. Schmidt-Schönbeck, Ch. 1965, *300 Jahre Physik und Astronomie an der Kieler Universität*. Verlag Ferdinand Hirt, Kiel.

IX. CONCLUDING REMARKS

This report does not comprise all problems on the history of astronomy from the years 1964–66, but also those in which the members of our Commission have been engaged and results of their investigations communicated to the President.

Concerning the further development of the organization of works on the history of astronomy, it is very desirable to organize national committees for the research of the history of astronomy in particular countries. The preservation and care on astronomical documents and the instruments of historical interest seems an urgent problem. Therefore the organization of museums, where the instruments may be preserved and investigated, is very desirable.

There is a need for a further collaboration with the International Union for the History and Philosophy of Sciences and other organizations which are interested in the History of Astronomy.

It would be desirable to organize under the auspices of IAU the edition of the General History of Astronomy.

X. PROPOSED AGENDA

1. Adoption of Draft Report and discussion on the policy of Commission 41.
2. Discussion on the need of Annual Bibliography.
3. Discussion on the need of Information Circular.
4. Discussion on the scheme of the General History of Astronomy.

5. A discussion on the instruments of historical interest.
6. Microfilming of documents on the history of astronomy.
7. Communications on the development of studies on the history of astronomy.
8. Proposed resolutions.
9. Membership of the Commission.

A SUPPLEMENTARY BIBLIOGRAPHY

Austria

1. Ferrari d'Occhieppo, K. Der Messias-Stern unter neuer astronomischen und archäologischen Gesichtspunkten. *Vierteljahrsschrift Wiener Kath. Akad.*, **15**, 3-19.
2. Ferrari d'Occhieppo, K. 1966, *Die Rolle des Mars bei der grossen Konjunktion im Jahre 7 v. Ch.*

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