

A. Vibert Douglas

Meetings and Organizations

International Astronomical
Union

58.

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Box 2

File 23

1. A.U

Oldest of intl scientific unions ^{of which there are now 13} ~~now~~ coordinated under ICSU with an annual subvention of \$175,000 from Unesco.

- 1919 July Brussels 11 allied nations formed the IAU.
- 1922 First IAU Congress Rome. { Commission 1 Relativity AS Ed.
- M Bailland Paris - Pres.
 Alfred Fowler - Sec.
- 1958 Tenth IAU Congress Moscow - 32 Commissions, 38 Countries, 344 Commissions, 600 astronomers

Only man who has attended every one of these meetings Prof. F. J. M. Stratton DSO
Corpus Col. Cambridge

④ at I Cambridge & Boston 1932: Stellar Atmospheres - new developments in interpretation of spectroscopic features of rarefied stellar atmospheres.

③ → 2. Expanding Universe: Sir Arthur Eddington a new breakthrough by G. Lemaitre*
~~of Relativity & Cosmology~~

~~W. W. R. 1948~~ ~~... ..~~ ~~... ..~~ ~~... ..~~ ~~... ..~~ ~~... ..~~
Edd mentioned Einstein (Ger) de Sitter (Neth) Lemaitre (Belg) Sen (India) Slipher & Hubble (USA) Hertzsprung (Den) de Boogie (France)
"My subject (the expanding Universe) disperses the galaxies but unites the earth! Space is a vast archipelago of more than a million islands - island galaxies. [Shapley had been advocating our galaxy the continent.] Edd opposed this - our galaxy not all important - This is contrary to our middle class pride - we do not want to be among the aristocracy! [Time has vindicated his view] developed his first relations between cosmic & microscopic constants of nature

$$\frac{R}{VN} = \frac{e^2}{m c^2} \quad N \approx 10^{79}$$

- 2. Commins 14 on X. Cd 643.4703
- 3. " 29. Overabundance of H in the atmospheres of Stars
- 4. " " Spectra of 10000 Red stars - Reals expansion Edlin NIV NFO OVI OVI higher range than prev known C IV C IV also

II Seventh Congress - Zurich 1948

- 1) hoped more obs on Sun constant + solar mag field 5 gauss ±
some conflicting evidence - try polarization of sun's radio emission
near poles during an eclipse
- 2) Shapley still arguing for uniqueness of Our Galaxy
Red shift of distant galaxies - True Doppler?
or were early stars red giants
- 3) p. 63. read - CO₂ on Mars
H₂O frost (with CO₂ ice) martian caps.
lichens not chlorophyll. green patches of Mars
Saturn's 5 minor satellites ice?
This was 'hot news' - now in every textbook
- 4) more on Wolf Rayet stars (Beals) + Zanzibar's temps
70,000 to 100,000 °C
- 5) H now recognized as predominant throughout whole star
Hoyle, Minnow, Menzel. Edd, Russell
- 6) origin of elements & their isotopes - Klein.
- 7) Radio Astronomy - a new Commission 40
- 8) Lyot's polarimeter + importance of flares
+ V2 rocket for solar u-v.
- 9) USSR successful use of photo electric recording of
transits of bright stars.

IV Tenth General Assembly - Dublin 1955

1) 21-cm Radio wave of neutral hydrogen mapping Milky way - spiral arms. Leiden + Australia
1420 Mc/sec.

J. L. Pawsey: "a mere 3 years of obsⁿ with the 1420 Mc/sec line has given us a knowledge of the distribⁿ of H throughout the galaxy comparable with the knowledge of stellar distribⁿ obtained optically throughout the whole history of astronomy."

1a) Infrared photography of stars near c. of galaxy.

2) Great heating of the corona may be due to motions originating in the convective zone leading to turbulence, shock waves, spicules, magnetohydrodynamic waves.

3) Life history of oldest stars Pop II
Hoyle & Schwarzschild on passage from main sequence to giant branch on H-R diagram & back towards left on a horizontal path

4) Possibility & cosmological significance of a rapidly rotating solar core - against Laplace type theory since it could.

V

Tenth Gen. Assembly, Moscow - 1958

1. Artificial Satellites, Rockets & Balloons

just 11 mos. from Sputnik 1.

The Soviet astronomers reported on the Sputnik data on Cosmic rays, meteors, ~~meteoric dust~~ P

Ionosphere studies by 3rd + all foil diaphragms to measure

Rapid increase in electron density up to 300 km + slow decline at 1/5 rate above that.

1 per cm³ at 2000 km boundary of earth's atmosphere -

Rocket tests on small animals to cosmic up.

2) Andromeda Dollfus + Dr. Blackwell in balloon to 6000 meters = 19000 ft to get photographs of solar granulations

3) USA reports on unmaned balloons up to 80 000 ft cellular appearance of sun λ 3000 - λ 2085 with strong Mg II doublet at 2795 Å

on the Sputnik data on Cosmic rays, properties of the ionosphere.

Sputniks with fluorescent ZnS (Ag) screens measure corpuscular fluxes.

density up to 300 km + slow decline

Calc. of neutral particle density as to 3000 km \therefore call this the

atmosphere -

animals to cosmic up.

well in balloon to 6000 meters = 19000 ft

solar granulations

unmaned balloons up to 80 000 ft

granules 1500 km - 150 km diam

λ 3000 - λ 2085 with strong

Mg II doublet at 2795 Å vs Hoyle (+Urey + USSR)

2 - Birth of stars Kuiper

3 - Luminosities of Cepheids

4 - Radio Astronomy - problems of structure of galaxy.

Age of clusters - metal rich - young.

M41 0.25% metallic \approx 10 atoms

metal poor - old glob cl. - M13, M92 with 1/1000 of metallic elements as in M41. < 0.01 metallic

5. Radio Astron - nucleus of galaxy

Centre of galaxy - Sag A.?

- i. "a most interesting new phenomenon" spiral arm near Galactic Centre apparently in rapid motion outward from 21-cm H₂O emission.
- ii. Leiden & Sydney completed outline of spiral structure + where thickness to half density in 250 pc. concentrated - v. flat within 6 kpc of centre. but central flat region extends further out. appears to give a sound ref. plane for dynamical + structural details of galaxy.

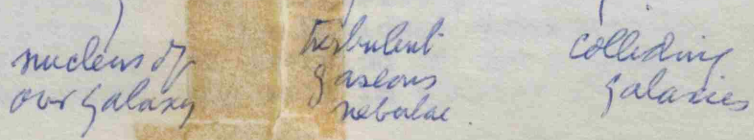
Appointment of sub Commission 336 at Moscow IAU
to define a new system of galactic coordinates

Our practical pole - ecl. eq. system has no
universal significance whatsoever

Optical astron had placed it in Constelln of Sag.
near Ophiuchus by

- a) star counts
- b) c. of gravity of the glob. clusters
- c) dynamical calc. of rotation of gal.

Then Radio Astron. 1952 to date - & discreet sources
such as Sag. A Cas A, Cygnus A



10 days ago 5 papers in MNRAS giving final
report of this sub-com. 336 Vol 121-2-1960 p. 127.

- 2 papers from Groningen
- 2 " " Sydney, Australia
- 1 " " Leiden

$$327^{\circ}.70 \pm 0.10$$

$$-1.46 \pm 0.05$$

Height of Sun above plane of galaxy 4 ± 12 pc.

Posn of Sag A $327^{\circ}.68$ or $2 \ 17^{\text{h}} \ 42^{\text{m}} \ 37^{\text{s}}$
 -1.45 $\delta \ -28^{\circ} \ 57' \ (1950)$

New system c.g. δ long. δ lat $17^{\text{h}} \ 42^{\text{m}} \ .4 \ 24^{\text{s}}$
 $\delta \ -28^{\circ} \ 55' \ (1950)$

82- PPI VAI old system

$$327^{\circ}.69$$

$$-1^{\circ}.40$$

North Gal Pole $12^{\text{h}} \ 49^{\text{m}}$
 $+27^{\circ}.4 \ (1950)$

Cornell
 California
 11th Aug 1961
 11th Jan 1961
 D.O

NATIONAL COMMITTEE FOR CANADA
INTERNATIONAL ASTRONOMICAL UNION

Minutes of meetings held in Toronto, March 3 and 4, 1967.

1. The following members were present at the March 3 meeting:

Batten, Burke-Gaffney, Fernie, Halliday, Heard, Locke, MacRae, Tanner, Thomson, van den Bergh, Wehlau, Wright.

In addition to those listed above Drs. Beals and Hodgson attended the March 4 meeting.

2. Minutes of the previous meetings held in Fenticton, B. C. on October 21 and 22, 1966, were approved.

3. Dr. J. L. Locke reported on the work of the committee on revision of the statutes. The National Committee was asked for expressions on opinion on such matters as the most desirable number of National Committee members, revisions of the election procedures and eligibility of non-members of the I.A.U. The concensus of the National Committee will be incorporated in a proposed revision of the statutes which will be mailed to the membership well in advance of the Prague meetings.

4. Invitations from Queen's University and Carleton University have been received for the National Committee meeting which must follow within ten months the I.A.U. meetings in Prague.

5. The following resolution, which had been proposed by Galt and seconded by Batten was approved:

Whereas the use of the metric system in reporting scientific results has become practically universal and,

Whereas the executive committee of the IAU is recommending the consistent use by astronomers all over the world of the metric system,

Be it resolved that this committee urges all Canadian astronomers to use metric units exclusively in their publications.

6. Dr. K. Seaquist was appointed reporter for the scientific sessions.

7. Dr. K. O. Wright presented the report of the Membership Committee. The following persons were recommended for membership in the Union:

Mr. D. H. Andrews, Dr. E. B. F. Brosterhus, Mr. N. W. Broten,
Dr. J. L. Climenhaga, Dr. L. H. Herzberg, Dr. L. A. Higgs,
Dr. B. A. McIntosh, Mr. L. R. McNarry, Mr. W. J. Medd,
Dr. S. C. Morris, Dr. R. C. Roeder, Dr. H. van der Laan
and Dr. A. Wohlauf.

Invitations to attend the Prague meetings of the I.A.U. will be issued by the National Secretary to:

Dr. R. Allen,
Dr. S. P. S. Anand, Dr. E.B.F. Brosterhus, Mr. N. W. Broten,
Dr. W. H. Clarke, Dr. J. L. Climenhaga, Miss C. Coutts,
Mr. D. Crampton, Dr. L. H. Doherty, Mr. J. M. Fletcher,
Mr. P. Hagen, Dr. R. N. Hendriksen, Dr. L. H. Herzberg,
Dr. K. Imanen, Dr. B. A. McIntosh, Dr. R. C. Roeder,
Dr. E. R. Seagquist, Mr. A. Sendquist, Dr. H. van der Laan,
Dr. A. Wohlauf and Prof. B. G. Wilson.

A proposal to accept the report of the Membership Committee was made by Wright, seconded by Batten and adopted by the Committee.

8. The following slate of representatives at the Prague I.A.U. meetings was proposed by Thomsen and seconded by Ferial:

Voting Representative: K. O. Wright
Representative on Finance Committee: I. Halliday
Representative on Nominating Committee: D. A. MacRae.

The proposed nominations were adopted by the Committee.

9. The Committee reluctantly accepted the resignation of Dean Harrower effective September 1, 1967.
10. The next meeting of the National Committee will take place at the Prague meetings of the I.A.U.

Double space
one top + one
copy please
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MEMORANDUM

542-7007

To (A):

History of Astronomy at the I.A.U.
Commission 41 of the International Astronomical Union met several times during the XIV General Assembly at the University of Sussex last August. Fewer papers than usual were presented, possibly because of the forthcoming meetings in Moscow in 1971 of the International Union for the History of Science.

Dr. A. Beer of Cambridge University spoke about the efforts being made at the Hamburg Planetarium to compile an exhibition of models or photographs of astronomical instruments installed in observatories during the period 1930-70.

Dr. J. O. Fleckenstein of Switzerland outlined his study of astronomical records at the University of Basle where Euler carried out his work in theoretical astronomy. The library contains

From (De):

Name

Nom.....

Registered Number

Numéro d'Inscription.....

MEMORANDUM

To (A):

manuscripts
 / by Tycho Brahe / ^{and by Rheticus} ~~manuscript~~ and a rich collection
 of 16th century incunabula and manuscripts
 taken from monasteries at their dissolution at
 the time of the Reformation. In one of these
 a monk gave a remarkable explanation of
 the rainbow colours. Basle had the distinction
 of having on its faculty a professor (1544-98) who
 had the courage to be a follower of Copernicus.
 Lagrange made use of astronomical data
 compiled at Basle. Other names associated
 with this old university are Lambert, the
 young Bernoulli, Huber, Balmer, and also
 the telescope maker Scheer.

Dr. D. J. Schove of Great Britain spoke on
 time cycles of natural phenomena, mentioning
~~the sun, the moon and various periods and~~
 the need for more early references to comets.

Dr. T. Kiang (Ireland) is particularly interested
 in Halley's comet and the search for references

From (De):

Name

Nom.

Registered Number

Numéro d'Inscription

MEMORANDUM

To (A):..... 3

To its appearance in far-off B.C. years.

The chairman called upon the writer to report on the progress of an investigation of the influence on Canadian astronomy of the closing down of the St Helena Observatory.

The Commission then went into committee on the forthcoming celebrations of the 400th anniversary of the birth of Johannes Kepler, 1571-1630. Three scientific symposia are planned for August 1971. (1) Tübingen (G.F.R.) when Kepler specialists will discuss special papers on Kepler previously published. (2) Linz (Austria) where the university will be renamed the Kepler University ~~and~~ public lectures of a less ~~to~~ specialized character will be given. (3) Leningrad (USSR) where the main symposium will concern itself with the

From (De):

Name

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Registered Number

Numéro d'Inscription.....

MEMORANDUM

To (A): 4

Consequences of Kepler's achievements upon the development of modern science.

The writer recalls that after the ^{3rd} I.A.U. Assembly in Leiden in 1928 many of the astronomers went to Heidelberg for the Astronomische Gesellschaft and thence to Weil-der-Stadt, the birthplace of Kepler to place a wreath upon his monument. Eddington was called on to pay tribute and eloquently spoke about that "strange erratic genius, guided by a sense of mathematical form, an aesthetic instinct for the fitness of things". Astronomers of ~~probably more~~ ~~than forty~~ many lands and historians of science from far and near will pay their tributes to Johannes Kepler next year. ~~Kepler was one of the giants upon whose shoulders Isaac Newton stood.~~

From (De):

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MEMORANDUM

To (A):

5

an important ~~another~~ anniversary will occur in 1973 for which preparations are already being formulated. ~~to mark~~ Copernicus ^{was born} ~~in~~ 1473 ~~just after~~ the ~~publication of De Revolutionibus~~ ~~Orbis~~ and the 500th anniversary will be marked by the I.A.U. (following its XV General Assembly in Sydney, Australia) in Poland under the general title "In the steps of Copernicus". In Torun, his birth place, three symposia will be held - historical ^{and} cosmological and ~~on~~ the repercussions of his life-work. Further celebrations will take place in Cracow, where he lived as a student of that ancient university, ^{from 1496 to 1498, and} ~~in~~ ~~1498~~ ~~in~~

From (De):

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MEMORANDUM

To (A):..... *by*

Frankenburg near ~~Danzig~~ Danzig where
~~he~~ he was Canon of the Cathedral, ~~and~~
~~he~~ lived for 37 years as administrator,
 physician and astronomer. The celebration
 in honour of this great and versatile
 genius will conclude in Warsaw.

Kepler and Copernicus were two
 of the giants upon whose shoulders
 Isaac Newton stood.

A. Vibert Douglas

21/9/70

From (De):

Name

Nom.....

Registered Number

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to R.A.S.C.
Nov 14
1966

Interim Report on Commission 41 - I.A.U.

Since ^{the} General Assembly of the I.A.U. in Hamburg in August 1964, further issues of the Bibliography of books and papers on the History of Astronomy have been prepared by Mrs N.B. Lavrova (Sternberg Astr. Inst., Moscow) and produced in Moscow ^{under the direction} ~~by courtesy~~ of Dr. P.G. Kalitkoosky, ~~past~~ ^{President} Chairman of Comm. 41.

The issue for the year 1964 contains over 270 items ~~and it~~ includes ^{also} a few references of earlier date omitted from ^{the four} previous lists. ~~The sixth~~ ^{Subsequent} issues continue this policy. ^{The sixth} ~~list contains~~ ^{contains} Over 100 items published ⁱⁿ the first half of 1965. The seventh issue covering the second half of 1965 lists some 280 items. In these three issues there are respectively one, five, and one references to ^{papers which appeared in} the Journal, R.A.S.C.

The present chairman of Comm. 41, Dr. E. Rybka ~~has~~ in his Information Circular, February 1965 drew special attention to a book published in 1964 in Erevan, ~~Armenia~~ on the history of Armenian astronomy by B.E. Tumanyan. It is written in Armenian with Russian and English abstracts and covers the period since the VII Century B.C. to the beginning of the XIX Century A.D. It includes descriptions of the Armenian calendar and the rich collection of astronomical instruments to which ~~I made~~ ^{reference} was made in my report on the Hamburg meeting of Comm 41. in the Journal R.A.S.C. vol 59. No. 1. 1965.

One meeting of this Commission has been held since Hamburg. The occasion was the triennial meeting of the

The next meeting will, of course, be in Prague in Aug. 1967. The President of IAU 41 is gratified to learn that the Canadian National Committee has in taken action to ensure that the history of astronomy in Canada will be recorded.

XI International ^{Congress} ~~Union~~ for History and Philosophy of Science ~~in 1965, ~~the~~ ~~April~~ ~~in~~~~ Warsaw and Cracow in August

Great appreciation was felt for the generosity of the astronomical Council of the Academy of Sciences of the U.S.S.R. which has ~~continued~~ made possible the continuation of the publication and distribution of the current Bibliography ~~on the history of astronomy~~ - a most valuable contribution to the work of ^{all} astronomers ~~in all countries~~ who are interested in the history of astronomy.

The Congress classified its contributions under five headings: general science problems, science concerned with man, ^{earth} sciences, biological sciences, techniques and technical sciences. Of five symposia those were of particular interest to astronomers: Traditional and Innovative Elements in Cosmology of Nicolaus Copernicus (held in Torun, where Copernicus was born and where the new Copernicus University and Observatory were established after the Second world war); The work of Albert Einstein (held in Warsaw); The Past and Future of Science (held in Cracow where the 600th anniversary of the University had recently ^{been celebrated}).

Amongst the large number of papers ^{were} 27 ~~was~~ dealing with astronomical topics, 10 in the field of ancient and mediaeval astronomy and 17 dealing with modern ~~(Copernicus onward)~~ and contemporary astronomy. In the last category was the report by D.W. Watters on the restoration of the old Royal Observatory Greenwich (1675-1939), an historic site well known, probably, to many Canadian astronomers, first visited by the writer in 1922 when Sir Frank Dyson was the general astronomer Royal and Dr John Jackson ~~was~~ the friendly and humorous first assistant.

HISTORY OF ASTRONOMY

I.A.U. Commission 41

During the General Assembly of the International Astronomical Union, held in Grenoble in August, 1976, Commission 41 held four long sessions. An excellent varied programme had been arranged by the returning president, Dr. Owen Gingerich and the organizing committee, who merit special commendation.

The first morning was divided between invited papers on the Role of Observations in Ancient and Medieval Astronomy and the Presidential Address following a brief business meeting. Dr. W. Hartner of Frankfurt, G.F.R. stressed the efforts of Ptolemy to obtain accurate observations of planetary positions as a test of the validity of accepted theory. Kepler abandoned circular orbits because of his acceptance of Tycho Brahe's observational data and he urged Galileo to get more and more accurate observations. In China in the Mongol dynasty great importance was placed on observations. The extent of Islamic science is a subject not yet thoroughly explored.

Dr. K.P. Moesgaard of Denmark spoke of observations made three centuries before Ptolemy on eclipses and the measurement of the solar motion with accuracy of 0.5 min. Ptolemy placed emphasis on these observations of Hipparchus which were not superseded until the publication of Tycho Brahe's catalogue.

Dr. Mohavik of Iran described excavations under way in his country disclosing an observatory, dated 1259, which had a mural quadrant of 18 metres diameter and a library of some 400,000 books.

In his address on Tycho Brahe's Cosmology, Dr. Gingerich stressed the evidence for a much wider readership of the first three editions of De Revolutionibus than had been realized. Notations in Tycho's handwriting are on three copies of the 1st and one copy of the 2nd Edn., on the Vatican copy, The Prague, The Liège and

the Leningrad copy. Recognizable notations by contemporary scholars are found on the ^{Yale copy and several others.} Tycho's eventual rejection of real crystalline spheres marks a deep psychological change, a change which Copernicus was unable to accept so he rejected Tycho's model and concentrated on a sun-centred system.

Kepler recognized as a great achievement Tycho's smashing the crystalline sphere concept. Grotius saw that the observations necessitated a variation of planetary velocities with the radii of their orbits and this may have suggested his third law to Kepler.

The second session was devoted to the importance of preserving the history of modern astronomy. This was introduced by Dr. M.A. Hoskin of Cambridge, U.K. Dr. B. Strömngren stressed the importance and special interest of what he termed the periods of hesitation, when thought wavered between conflicting theories. Examples of this were given by Professors McCrea and Cowling. The former mentioning the introduction by Bondi, Gold and Hoyle of their Steady State Universe, and Professor Cowling pointing ^{ed} to the uncertainty as to the hydrogen content of stellar atmospheres with Eddington and Strömngren participating in the elucidation.

One session was given to reports on their collections of Rare Books in the libraries of observatories in Paris, Pulkovo, Uppsala and The Crawford Collection in Edinburgh. Dr. Giergerich gave the results of the Census of Copernicus De Revolutionibus (1543 and 1566). Now located are 227 copies of each edition and ^{he} has himself examined 165 of the 1543 edition and 159 of the 1566 edition, finding ^{the} Tycho annotations in the Vatican and Leningrad copies while Professor R. Westman identified Tycho marginal notes in the Liège copy. These are all 1st edition and only identified in the last few years, whereas notations in the Prague copy of the 2nd edn. have been recognized for many years as by Tycho Brahe.

The session which drew the largest number of members of other Commissions

was on "Megalithic Astronomy: Fact or Speculation". Dr. D. Heggie of Great Britain set the tone of the entire session by warning against uncritical acceptance of claims to have found precise astronomical alignments in megalithic monuments, whether Stonehenge, Carnac, or other sites in Europe or the Americas.

Dr. J. Dobryzcki reported on 11 stone circles in Northern Poland with what appears to be 110 alignments to the horizon. It is believed these may date to 4000 B.C. The practical importance of lunar observations for time keeping was pointed out. Some observers have claimed that the extreme azimuths of the moon were known and corrections made for upper and lower limb positions, and a variation of 3.5 min. of arc in the diameter of the Moon. The speaker cautioned against acceptance of such claims before all measurements have been checked by an impartial observer.

Dr. J. Eddy of Boulder, U.S.A. showed slides of stone bas-reliefs found in New Mexico depicting various relative positions of the crescent moon and a star. In Wyoming and Montana are several stone circles. One is on a flat shoulder high up on a 10,000 ft. snow capped mountain, only accessible as an observation site at and near the summer solstice. Slides showed a large circle with 28 spokes and 6 small circles just beyond the rim of the large circle. Some alignments were found by long exposure before dawn to agree with the rising points of Aldebaran, Rigel and Sirius. The beautiful colour photos appeared to be very convincing but the warning against immediate acceptance was reiterated. He told of having his students construct a stone circle with specific alignments. They found that marking out the ground positions was one thing, but setting up rough rocks on these marks to maintain the accurate alignments presented a difficult problem.

With a National Geographic Society grant, Dr. Eddy flew over parts of Alberta and Saskatchewan spotting several sites where a central pile of rocks had stone-marked spokes radiating from it. These he afterwards visited finding

artifacts beneath the central pile indicating dates as ancient as 3000 B.C. On one small plateau he found a mound with spokes which seemed to be aligned to the summer solstice horizon points of sunrise and sunset, and to the rising points of Rigel and Sirius, posing the question: are these intentional or chance alignments? About 40 miles south of Regina he examined a site where the central cone had 5 spokes, 4 as found at the previously mentioned site and a fifth apparently directed towards the rising point of Aldebaran. The date given to this site is 1500 A.D. which seems to imply a continuity over four millenia of some social or religious significance associated with these astronomical phenomena.

At the Business Meeting, Dr. J. Dobryzcki (Poland) was elected as President of Commission 41, and Dr. M.A. Hoskin (U.K.) as Vice-President. The announcement was made that the Hungarian Academy of Sciences together with the Hungarian Association for Physics will commemorate the 500th anniversary of the death of Regiomontanus (see J.R.A.S.C., vol. 70, no. 2, May 1976, p. 79) in two lectures, one on Regiomontanus as an astronomer, the other on his significance in the context of cultural history. The Indian National Science Academy has planned for a four-session seminar in 1976 to celebrate the 1500th anniversary of the birth of Aryabhata. These will consider his contribution to the development of Indian astronomy and mathematics and the part played by the Aryabhatan Schools in these and other cultural areas. The centenary of the birth of Henry Norris Russell will be marked in 1977. A symposium (proposed for IAU sponsorship) on the H-R diagram is being planned for September in Albany, N.Y.

A unanimous vote of thanks was passed in appreciation of the continued publication in Moscow at the Institute for the History of the Sciences and Technology of the Bibliography of Books and Papers published (annually) on the History of Astronomy. It is hoped that in future this valuable record will be supported financially with IAU funds.

A. Stewart Douglas
1976 Oct-12

XV GENERAL ASSEMBLY IAU SYDNEY 1973

History of Astronomy I.A.U. Commission 41

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Dr J. Dobryzcki reported on 11 stone

circles in northern Poland with what appear to be 110 alignments to the horizon. It is believed these may date to 4000 B.C. The practical importance of lunar observations for time keeping was pointed out. Some observers have claimed that the extreme azimuths of the moon were known and corrections made for upper and lower limb ~~app~~ positions, and a variation of 3.5 min. of arc in the diameter of the moon. The speaker cautioned against acceptance of such claims before all measurements have been checked by an impartial observer.

Dr J. Eddy of Boulder, U.S.A. showed slides of stone bas reliefs found in New Mexico depicting various relative positions of the crescent moon and a star. In Wyoming and Montana are several stone circles. One is on a flat shoulder high up on a 10,000 ft snow capped mountain, only accessible as an observation site at and near the summer solstice. Slides showed a large circle with 28 spokes and 6 small circles just beyond the rim of the large circle. Some alignments were found by long exposure before dawn to agree with the rising points of Aldebaran, Rigel and Sirius. The beautiful colour photos appeared to be very convincing but the warning against immediate acceptance was reiterated. He told of having his students construct a stone

circle with specific alignments. They found that marking out the ground positions was one thing, but setting up rough rocks on these marks to maintain the accurate alignments ~~was~~ ^{presented} a difficult problem.

With a National Geographic Society grant, Dr Eddy flew over parts of Alberta and Saskatchewan spotting several sites where a central pile of rocks had stone-marked spokes radiating from it. There he afterwards visited finding artifacts beneath the central piles indicating dates as ancient as 3000 BC. On one small plateau he found a mound with spokes which ~~seemed to be~~ ^{seemed to be} aligned to the summer solstice horizon points of sunrise and sunset, and to the rising points of Rigel and Sirius, posing the question: are these intentional or chance alignments? About 40 miles south of Regina he examined a site where the central cone had 5 spokes, 4 as ^{found at the} previously mentioned site and a fifth apparently directed towards the rising point of Aldebaran. The date ~~associated with this~~ ^{given to} site is 1500 A.D. which seems to imply a continuity over four ^{millennia} ~~centuries~~ of some social or religious significance associated with these astronomical phenomena.

at the Business Meeting Dr J. Dobrzycki (Poland) was elected as President of Commission 41, and Dr M. Atkinson (U.K.) as Vice-President. The announcement was made that the Hungarian

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Academy of Sciences together with the Hungarian Association for Physics will commemorate the 500th anniversary of the death of Regiomontanus (see J.R.A.S.C. vol 70, no. 2, May 1976, p. 79) in two lectures, one on Regiomontanus as an astronomer, the other on his significance in the context of cultural history. The Indian National Science Academy has planned for a four-session seminar in 1976 to celebrate the 1500th anniversary of the birth of Aryabhata. These will consider his contribution to the development of Indian astronomy and mathematics and the part played by the Aryabhata Schools in ~~these~~ ^{these and other} cultural areas.

The centenary of the birth of Henry Norris Russell will be marked in 1977. A symposium (proposed for IAU sponsorship) on the H-R Diagram is being planned for September in Albany, N.Y.

A unanimous vote of ~~appreciation~~ ^{thanks} was passed in appreciation of the continued publication in Moscow at the Institute for the History of the Sciences and Technology of the Bibliography of Books and Papers published (annually) on the History of Astronomy. It is hoped that in future this valuable record will be supported financially with IAU funds.