THE MEETING OF THE INTERNATIONAL ASTRONOMICAL UNION

THE second triennial meeting of the International Astronomical Union was held at Cambridge, England, from July 14 to July 22, 1925. The meeting was formally welcomed to Cambridge in the Senate House of the university on the afternoon of July 14. At that time the chancellor of the university, Lord Balfour, welcomed the delegates on behalf of the university; Dr. Jeans, on behalf of the Royal Society and the Royal Astronomical Society, and Sir Frank Dyson, the Astronomer Royal, on behalf of the Greenwich Observatory. The reply to the various addresses of welcome was given by the President of the Union, Dr. W. W. Campbell, president of the University of California.

The arrangements for the Cambridge meeting had been most admirably and efficiently handled by Professor A. Fowler, the general secretary of the union, and a local committee. Due to the energy and insistence of Professor Fowler, all the twenty-seven standing committees of the union had prepared full reports, and printed copies of these awaited the delegates. The local committee had arranged for the housing of the more than two hundred delegates and guests so that all were very comfortable. The delegates who were unaccompanied by ladies were the guests of the various colleges in Cambridge and were housed in the dormitories, while the others lived in various private homes and hotels in the town.

The social side of the meeting had been taken care of by the local committee. Evening receptions were tendered the delegates by St. John's College, Sidney Sussex College and Queen's College. A formal dinner was given in their honor by Trinity College, the college of Sir Isaac Newton. An afternoon reception was given by the vice-chancellor of the university, Professor A. C. Seward, of Downing College, and a garden party at the observatory by Professor and Mrs. Newall and Professor and Miss Eddington. Trips were arranged to visit the Ely Cathedral and the plant of the Cambridge Instrument Works. A meeting of the Cambridge Philosophical Society was held at which Sir J. J. Thompson spoke on the "Nature of Light" and Professor Eddington on the "Interior of a Star." A special meeting was held at which the various delegates were given the opportunity for showing lantern slides and briefly describing their individual fields of research. In connection with the meeting a special convocation of the university was held at which the honorary degree of Sc.D. was conferred upon Professors W .W. Campbell and Frank Schlesinger, of the United States; Professor de Sitter, of Holland; M. Baillaud, of the Paris Observatory; and Professor Nagaoka, of Japan.

The first session of the general assembly of the union was held in the Arts School on the morning of July 15. At this meeting Dr. Campbell delivered the presidential address. In this he emphasized the value of international cooperation in so far as it was necessary or useful. He also indicated that too much cooperation might be dangerous in that it might interfere with the initiative of individuals. He was very careful to assure the delegates that the union had no such cooperation in mind. A warning was given against the danger of the union entering lightly upon extensive programs which might involve a great deal of international cooperation and organization. In this connection Dr. Campbell pointed to the Astrographic Catalogue which was started nearly forty years ago and which, in spite of tremendous effort and sacrifice on the part of some of the participating observatories, is still far from complete due to the failure of certain nations to fulfil their obligations.

Following the opening address came the report of the executive committee in which Professor Fowler indicated the growth and progress of the union since the meeting in Rome in 1922. At the Cambridge meeting over two hundred delegates were present from twenty different nations, while at the Rome meeting only about half as many delegates represented fifteen countries. The new countries to be represented were Norway, Spain, Portugal and Switzerland, which have formally joined the union, and Sweden which has formally expressed the intention of joining.

After the report of the executive committee had been accepted a number of resolutions were introduced to the general assembly which indicated the more important questions that were to face the delegates. The first of these questions dealt with the complete internationalization of the union. All the delegates had hoped that the question relating to the admission of Germany and the central powers to the union would have been settled at the meeting of the International Research Council at Brussels, just previous to the meeting of the union. Since no action had been taken at Brussels it was at once evident that the union must act for itself. President Campbell very wisely deferred the consideration of this delicate question until after the delegates had had opportunity to talk the matter over informally. In this way it was felt that a decision might be reached which would both accomplish the desired end of complete internationalism and still would not impair the harmony and success of the present meeting.

A second important question facing the union was that occasioned by the recent change in the practice

of the various national ephemerides in commencing the astronomical day at midnight instead of at noon. This change has brought about great confusion in the publication of results by different astronomers. The discussion on this question, and the related one concerning the time of beginning of the Julian Day, was referred to a special committee under the chairmanship of Professor de Sitter.

After a short meeting of the general assembly on the morning of July 16, the various committees began their work on their reports. Since there were twenty-seven standing committees and four special committees appointed by the president to act upon the resolutions introduced at the first meeting of the general assembly, and since each one of these committees held from one to four meetings each lasting from one to three hours, it is obviously impossible to give anything approaching a complete account of their proceedings in this article. The complete reports will be published in the *Transactions* of the International Astronomical Union and will form a most valuable and complete summary of the work that has been done in the various fields of astronomy during the last three years. From the preliminary reports and recommendations of the various committees the following more important items have been gathered.

The committee on notations, units, etc., proposed several minor modifications of the list approved at the Rome meeting. The following units were adopted:

(1) Distance: (a) The kilometer for the sun, planets, etc.; (b) the astronomical unit for the solar system; (c) the light year for popular accounts of interstellar distances; (d) the parsec for scientific studies of interstellar distances.

(2) Absolute magnitude: The magnitude of a star at a distance of 10 parsecs.

(3) Heat: The Joule or, when more convenient, the calory.

(4) Wave length: The international angstrom (I.A.).

(5) Pressure: the bar = 10^6 dynes per square centimeter.

(6) System of units: The C.G.S. system.

A sub-committee of this committee was formed to consider the revision of the boundaries of the constellations with the view of eliminating some of the multiple names of stars. The changes of boundary are to be made so as to avoid the changing of the name of any known variable star.

A suggestion was forwarded by the committee on ephemerides to the various national ephemerides that the rectangular geocentric coordinates of the various observatories be published so as to include the altitude of the observatory.

The committee on bibliography expressed the immediate and fundamental need for a complete international bibliography of astronomy. They suggested that, until the complete scheme becomes possible, each nation prepare progressively and as rapidly as possible a catalogue of the astronomical works in its own publications.

In several committees the favorable opposition of Eros in 1930–31 was discussed and plans were made for the various observations. The committee on meridian astronomy reported that observatories at the Cape, in Germany, at Greenwich and at Washington were ready to cooperate in the observing of the position of comparison stars. The committee on minor planets, comets, etc., reported that steps had already been taken for the accurate determination of the path of Eros during the opposition.

The committee on solar physics recommended that a solar observatory be established in Japan to bridge the gap now existing between the Mt. Wilson and Kodaikanal Observatories. It was pointed out that such an observatory would make continuous observations of the sun possible.

The following Neon lines were adopted by the committee on wave lengths as secondary standards: $\lambda = 6929.466$, 7173.938, 7245.165 and 7535.785 I. A. An exact specification was also adopted for the construction of the lamp in the production of the primary standard cadmium line $\lambda = 6438.4696$ I. A.

The results of the recent observations made at the Mt. Wilson Observatory on the equatorial velocity of rotation of the sun were discussed in the report of the committee on solar rotation. It was pointed out that, while for the last five years the velocity had been very constant, there is a distinct drop in value over that found in the previous five years. Dr. St. John pointed out that such an effect might be produced by the change in the magnetic polarity of sun spots because this would influence to a considerable extent the currents in the upper atmosphere of the sun.

The committee on the physical observations of planets, comets, etc., recommended two types of observation. First they urged the micrometric observations of surface features of the planets and second that the photometric observations of the minor planets be increased. This committee also recommended the study of the spectrum of the eclipsed moon with the view of determining more regarding the character of the upper atmosphere of the earth.

The probable errors of longitudes as determined by wireless were carefully discussed by the committee on that subject. These errors appear to be so small that the committee felt justified in recommending a world-wide survey by this method.

The committee on the astrographic catalogue reported the progress made to date by the various cooperating observatories. The committee voted to send special requests to several observatories where progress has been slow urging the pressing of their share of the work to an early completion.

The reports of the committees on stellar photometry and variable stars contain lists of variable stars and discussions of methods of observing that will prove of inestimable value to any observers of variable stars.

The parallax committee reported the progress made in their field in the last three years and announced that three new twenty-four inch telescopes would soon be engaged in this work. The new instruments are the Yale instrument at Johannesburg and the telescopes at Lembang and at the Cape Observatory.

A new catalogue of nebulae and star clusters was urged as a fundamental need by the committee in this field of astronomy. Until such a catalogue is available all observers are urged to list objects under the N.G.C. or I.C. numbers.

The committee on stellar radial velocities announced that a catalogue of all stars with well-determined radial velocities would shortly be published. They appointed a sub-committee to prepare a catalogue of standards for radial velocity determinations. The stars in this catalogue are to be so selected that they will be all of thoroughly well-determined radial velocities and be so distributed that on any given half night at least one star of each spectral class will be available for observation.

At the meeting of the general assembly on July 21, the reports of the various standing committees were adopted with a minimum amount of discussion. It was realized that all the doubtful points in the various reports had been best settled in the long discussions in the small committee groups.

The special committee appointed at the first meeting of the general assembly to consider the vexing question concerning the designation of Greenwich time commencing at midnight reported that they could reach no definite agreement. They merely recommended that for the next three years astronomers reporting observations should be very careful and explicit in stating just what kind of time they were using. This committee did recommend that the Julian day be considered as beginning at noon, as was the case prior to the adoption of the recent changes in the various national ephemerides. This recommendation was adopted by the general assembly after considerable discussion.

Nearly every country represented at the meeting had prepared resolutions regarding the admission of Germany and the central powers to future meetings of the union and to membership on the various standing committees. It would be futile to give all these resolutions, but two of them may be of interest as representing the general opinion of the delegates. The American delegation stated that in their view the time had come when the removal of restrictions as to nationality were essential to the success of the union, and that they were not prepared to recommend the participation of astronomers from the United States in a future congress until the statutes permitted astronomers of all countries to take part. Belgium, France, Great Britain and several other nations subscribed to the opinion that the International Research Council should not block the admission of the central powers after they became members of the League of Nations. It was voted by the general assembly that copies of the various resolutions should be placed in the hands of Sir Frank Dyson, the representative of the union on the International Research Council, for transmission to that body.

Upon the nomination of the executive committee the following officers were elected:

President: (elected for a term of three years) Professor de Sitter of Holland.

Vice-presidents: (elected for a second term of three years), Professors Cerulli (Italy), Deslandres (France) and Hirayama (Japan).

Vice-presidents: (elected for a term of six years), Professors Schlesinger (United States) and Eddington (England).

General Secretary: Mr. F. J. M. Stratton (England).

The invitation of the Dutch government that the meetings for 1928 be held in Holland was conveyed to the general assembly by Professor de Sitter. This invitation was unanimously accepted by the general assembly.

After the adjournment of the meeting in Cambridge many of the delegates went to London to attend the various ceremonies in connection with the 250th anniversary of the founding of the Royal Observatory at Greenwich. Special meetings of the Royal Astronomical Society and the British Astronomical Association were held in honor of the visiting astronomers, as well as a special Conversazione of the Royal Society. At the time of the visitation of the Royal family to the Greenwich Observatory several astronomers were honored with presentation to the King and Queen.

The final trip arranged for the delegates was to Oxford University, where they were the guests of Professor Turner and the staff of the Radcliffe Observatory.

WARREN K. GREEN
AMHERST COLLEGE OBSERVATORY
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