

International Astronomical Union.

THE meeting of the International Astronomical Union at Rome on May 2-10 must be considered an unqualified success. The unique interest of the selected meeting-place was doubtless a useful auxiliary in drawing together so large a number of delegates; upwards of 100 were present, representing England, France, Italy, Spain, Holland, Belgium, Denmark, Norway, Sweden, Poland, Egypt, S. Africa, Australia, New Zealand, Canada, United States, Japan, etc.

The inaugural meeting of the Union at Brussels in July 1919 was mainly occupied with questions of procedure; the way was thereby cleared for more purely astronomical discussions on the present occasion. The main aim underlying these was the co-ordination of various branches of observation and computation, so as to obtain as large an output as possible without waste of energy through unnecessary duplication; there was also consideration of methods of observation and reduction, and of the unification of notation. Much of the credit of the success obtained is due to the presidents of the various committees, who had drawn up careful and thorough programmes, after correspondence with their members; these served as a basis for discussion, and were in most cases endorsed with small changes.

The opening meeting was held in the Campidoglio in the presence of the King of Italy; it was addressed by the Mayor of Rome, the Minister of Public Instruction, the president of the organising committee (Prof. Volterra) and by the presidents of the astronomical and geophysical unions (MM. Baillaud and Lallemand). The subsequent meetings were in the beautiful rooms of the Reale Accademia dei Lincei, Palazzo Corsini. The Union met in full conference at the beginning and end of the meeting; the more important discussions were carried on in separate committees, the conclusions of which were reported to the final meeting of the Union.

A summary of the more important conclusions may be of interest. In the matter of notation the Harvard system of spectra was considerably amplified; the prefixes *c, g, d* are used to denote super-giants, giants, and dwarfs; *e* to denote the presence of emission lines; *p, q* to denote peculiarities tending in the direction of Nova spectra; *s, n* denote that the spectral lines are sharp and diffused respectively (*n* was used by Rowland to denote nebulous lines in the solar spectrum); *r* denotes reversal, *i.e.* bright lines with a dark centre; *k* denotes stationary calcium lines.

It is proposed to use *M₀, M₃, M₈* instead of *Ma, Mb, Mc*, and to drop *Md*, it being suspected that the underlying spectrum in the latter case is not of *M* type; similarly *No* and *N₃* replace *Na* and *Nb*. *S* is used for a new type of red stars, to which *R Cygni* and *R Andromedae* belong; *Q* is used as before for Nova spectra; they are subdivided by the suffices, *a, b, c, u, x, y, z*, in which the absorption spectrum grows progressively weaker, and the bright-line spectrum stronger; in general a star traverses these types in the above order in the weeks or months succeeding the outburst.

Another point of notation decided was that the constellations should be given their Latin names, which has been done in England but not in France. As regards the Carte du Ciel, special votes of thanks were passed to Cardinal Maffi and to the Nizam of Hyderabad for their great assistance in carrying out the astrographic work at the Vatican Observatory and at Hyderabad. Representations were sent to the respective governments concerned, urging the completion of the work of photography and of printing at the observatories of Catania, Melbourne, and

Sydney. The progress of work at the other observatories is good or hopeful, though it was much retarded by the war. Prof. Turner reported that the maps of the lunar surface had been completed, and the list of crater-names prepared, but not yet inserted on the maps. M. Lecoq announced that the Uccle Observatory would not continue the distribution of astronomical telegrams after the end of 1922. The offer of M. Strömberg to send them from Copenhagen (as he did for some years after the outbreak of war) was accepted.

The variable star committee met under the chairmanship of Prof. H. Shapley; it is in this section, above all, that co-ordination of work is imperative. It was decided to print several appendices, giving bibliographies of variables, lists of those needing observation, and determining centres of publication for various classes of stars; the Cracow Observatory undertook the preparation of ephemerides of eclipsing variables; attention was also directed to the useful reprints of Father Hagen's charts of the fields of several variables. Regarding the nomenclature of Novae, it was recommended to use the constellation name followed by the year of discovery; the method of giving numbers 1, 2, 3, etc., to the Novae in each constellation leaves a doubt as to which early observations to include; their status as Novae is sometimes doubtful.

It was decided to continue to give the grants in aid of the distribution of wireless time-signals, at least for the next three years. Prof. Sampson, the president of the committee, spoke in support of the great value of these signals both for longitude determinations and for checking the time determinations at different observatories; he discussed these recently, finding that each observatory had frequently a large discordance that remained nearly constant for some time. These discordances were the subject of an interesting debate between the astronomers and geodesists; the latter stated that they did not find these discordances in their field work, and ascribed them to irregularities of refraction due to the walls surrounding the observing room.

The committee on calendar reform reported in favour of continuing the Gregorian calendar, and of omitting one day in each year (two in leap-years) from the weekly reckoning; however, the latter point was not adopted by the general meeting of the Union.

The committee on stellar parallaxes expressed the hope that workers would photograph each parallax field at ten years' interval, in order to determine the proper motions in each element of the comparison stars.

Great praise is due to the Italian astronomers for their excellent arrangements for the meeting, and the help they afforded to the visitors; mention may be made in particular of Prof. Abetti, who showed great skill as an interpreter.

The next meeting was fixed for 1925 (probably in August) at Cambridge, with Prof. W. W. Campbell as president. The Geodetic and Geophysical Union will meet in Madrid in 1924.

The members of the Astronomical Union were received in audience by the Pope on May 10, being individually introduced to him by Prof. Pio Emanuelli, secretary of the Vatican Observatory. The Pope briefly addressed them, expressing the hope that the meeting of so many nations for a common object would tend to the pacification of the world, and that their studies of the marvellous structure of the heavens would lead to increased knowledge of and reverence towards the Creator.

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