HISTORY OF ASTRONOMY

Chairperson and Editor: **S. Débarbat**

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Friday, August 19, was devoted to a Joint Discussion on the History of Astronomy. The theme of the morning session was "**75 YEARS OF THE IAU**". The keynote speaker for the session was A. Blaauw, whose History of the IAU : The Birth and First Half-Century of the International Astronomical Union was just published and who had the opportunity to present this book to Queen Beatrix at the opening of the General Assembly. The afternoon session was devoted to various history projects around the world, and other "**WORKS IN PROGRESS**".

A summary of every talk is given on the following pages including remarks, comments or questions, some of them from past General Secretaries who attended the IAU historical session : J.-C. Pecker (1964-1967), E. Müller (1976-1979), P. Wayman (1979-1982), J.-P. Swings (1985-1988), D. McNally (1988-1991).

Among the posters, several were related to the IAU as a part to its history. As others, they had their summaries published in a special book, which editor was H. van Woerden. This book, available under the ISBN "90-5598001-8/CIP" has been distributed to all attendants.

75 YEARS OF THE IAU

THE BIRTH AND FIRST DECADES OF THE IAU

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This brief review is essentially limited to early organizational and political aspects; it does not attempt to describe how the Union's history reflects the continuously changing character of astronomical research.

Pre-natal phase and first decades. The IAU was born on July 28, 1919, during a meeting of the International Research Council (IRC) at Brussels. However, the history of the Union cannot be understood without reference to its pre-natal years. It was conceived during World War I (1914-1918) among the then Allied Powers, the principal ones of which were France, Great Britain, and the United States. Its birth occurred exactly one month after the Treaty of Versailles (June 28, 1919). This pre-natal phase has to a large degree determined the early character of the IAU. Of my book "History of the IAU" (Kluwer Acad. Publishers, August 1994) I have devoted about 20 percent of the space to the pre-natal period, against some 5 percent to its birth, 70 percent to the following 50 years, and 5 percent to the financial history over the full 75 years. One name stands out among those to whose initiative and drive during World War I we owe the creation of the IAU: that of George Ellery Hale, who earlier, in 1904, had initiated the creation of the International Solar Union. The IRC had a strong grip on the Scientific Unions it created. Leadership in the IRC was, in first instance, primarily a British-French affair with increasing US influence. IRC's first President was the French mathematician Emile Picard, and its first General Secretary, Arthur Schuster from Great Britain. Both men were strongly against immediate post-war resumption of scientific relations with the "Central Powers" (Germany, Austria-Hungary, Bulgaria and Turkey) and distrustful with regard to nations that had been "neutral" during the War. As a result, only a few of these became a member of the IAU at its first General Assembly in 1922 (in Rome): Czecho-Slovakia, Denmark, the Netherlands, Norway and Spain. Others followed hesitatingly. A breakthrough came when W. de Sitter, the Union's first President from a formerly neutral country, in preparation for the 1928 General Assembly invited a number of astronomers from the formerly enemy countries on a personal basis. In 1931 the IRC was transformed into the International Council of Scientific Unions (ICSU) and its statutes drastically changed. Adherence of Germany came only in 1952, that of Austria and Bulgaria in 1955.

Some Statistics of Membership and Commissions. After its first Assembly, in 1922, the IAU counted 207 members, at the end of the General Assembly in 1938 there were 554 members. After World War II the membership grew rapidly: at the conclusion of the Assemblies in 1952, 1973, and 1991, it amounted to about 800, 3200, and 7200 members, respectively. The number of its Commissions did not change much over these years: in 1922

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there were 32 Commissions, in 1938 there still were 32, in 1952, 1973, and 1991, there were 39, 40, and 40, respectively. The assignments for the Commissions did, however, change with the shifting emphasis of research and the opening of new fields, and special tasks were more and more given to sub-committees or working groups. The growth of the IAU after the Second World War has forced the General Secretary and the Executive Committee to repeatedly undertake efforts towards restructuring of the Union.

Major political issues. The Executive Committee has been confronted several times with grave political issues. In the late 1930's political purges in the Soviet Union hit astronomical institutes and removed some IAU members to unknown destiny. Enquiries by the IAU Secretariat had no effect. When in the middle 1930's anti-semitic measures in Germany deprived some astronomers from proper living and working facilities, the IAU interfered with some measure of success, and ensured that important astronomical projects would be continued elsewhere. A very grave situation arose when, soon after World War II, around the year 1950, the Executive Committee (EC) was faced with the dilemma whether or not to hold the 1951 General Assembly in Leningrad. A Soviet invitation had been accepted, but the Korean War with the consequent threat of spreading war, and political propaganda accompanying the Cold War, forced the EC to a last-minute decision to cancel this meeting. The decision was a very painful one in regard to the Soviet hosts, but what might have been feared, withdrawal of the USSR from the IAU, did not occur. Seven years later, in 1958, when political tensions had relaxed, and Assemblies had been held meanwhile in Rome (1952) and Dublin (1955), a very successful Assembly took place in Moscow. A very deplorable incident was the withdrawal of the People's Republic of China in reaction to the admission of Taiwan. This admission was formalized at the 1961 General Assembly, but the People's Republic had withdrawn earlier in reply to an EC decision in 1959. The absence of astronomers of the People's Republic from IAU activities caused growing discontent among the IAU membership. The restoration of full Chinese membership, including both the astronomers from mainland China and China-Taiwan, agreed upon at the 1979 Assembly and formally confirmed in 1982, restored the Union's fully international character.

Discussion

D.E. Osterbrock : Were there any outstanding Netherlands astronomers who were strongly connected with England or France, and if so what was there attitude towards the IAU and membership of Central countries and the Central Powers ?

A. Blaauw : Among these were :

P.J. van Rhÿin, Kapteyn's successor in 1921 and in 1919 closely associated with Kapteyn. He shared Kapteyn's feelings. His reluctant attitude with respect to IRC-IAU shows in his declining reaction to proposals to bring the committee on the Plan of Selected Areas under the IAU wings (see also my "History of the IAU", p. 81-82).

W. de Sitter [pupil and close friend of Kapteyn ; close connection with British astronomers to whom he "passed on" relativity theory during the war years, leading to their solar eclipse expedition (1919?) and Eddington's involvement] took a milder attitude than Kapteyn, was more compromissing. He became a first "neutral" Vice-President in 1922 and IAU President in 1925.

D. Polojentsev : I would like to mention one of the early participation of Russian astronomers in the IAU activity. It was unofficial participation of Prof. Boris Numerov in the Second General Assembly of the IAU in England (1925).

D. Jones : I believe that Stratton ran the IAU without either secretary or typewriter. I fear that for those years little archives exists.
P. Beer : One reason why the archives from Stratton's long period as General Secretary are so sparse is Prof. Stratton's habit to reply to nearly all letters, the same day usually, on a small postcard - written by hand (hence no copy !).
D. McNally : I can say that the EC regarded in a very favourable light Prof. Blaauw's suggestion for the use of the rendered budget for the IAU History. Perhaps Jean-Claude Pecker may be able to say more about a proposal that the IAU Archives be placed with the French National Academy for permanent retention.
J.-C. Pecker : Prospects of having IAU Archives at the "Institut de France" are being explored. The situation is "promising", but no final solution is still reached. I am working on that..
G. Wilkins : I suggest that consideration be given to asking the Cambridge University Library to hold the IAU Archives. The Library now holds the much more extensive archives of the Royal Greenwich Observatory and so a visit to Cambridge (UK) could be very productive for any historian of astronomy.
E.J. Hysom : I just wanted to support Dr. Wilkins - and to say that at Cambridge University Library they are adding about 2 kilometers of shelving each year.

"THE INTERNATIONAL UNION FOR COOPERATION IN SOLAR RESEARCH: PRELUDE TO THE IAU"

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The International Union for Cooperation in Solar Research [ISU] was the brainchild of George Ellery Hale. Its published purpose, in the words of its official constitution, was the "accomplishment of large pieces of routine work through co-operative effort." [ISU Tr vol 1, p. 5] But its actual influence lay more in the development of standards of practice, and a common set of definitions and terms, which were a critical step in the professional development not only of solar physics, but of astrophysics generally.

The ISU was created by George Ellery Hale, Arthur Schuster and H. H. Turner at the 1904 World's Exposition in St. Louis, amidst an International Congress held to celebrate the opening of the American West. The scope of the ISU was at first limited to solar research, and committees were formed there, and at subsequent meetings in Oxford (1905) and Meudon (1907), to standardize the measurement of spectral wavelengths, as well as to standardize practice in the design and use of the spectroheliograph, and in the measurement of solar radiation. There were also committees for standardizing the determination of solar rotation, the organization of eclipse expeditions, and the investigation of sun spots.

As planning progressed for the 1910 meeting of the ISU, to be held at Hale's Mount Wilson Solar Observatory, J. C. Kapteyn, Edwin Frost, Arthur Schuster and others urged that the Union expand its scope to include all of spectroscopic astrophysics, and, for Kapteyn, become a means to accommodate his "Plan of Selected Areas." For Frost, the problem was, again, standardization. In 1904, he counted up some 23 distinct systems for the spectral classification of stars, which gave him considerable headaches as the ApJ editor. A mechanism had to be found to get the growing community of astrophysicists to cooperate, and the ISU was the best place to start.

Hale knew that E. C. Pickering's cooperation was critical. No man had invested more into developing systems of stellar magnitudes and spectral