

VARIABLE STAR OBSERVING AROUND THE WORLD

The following are summaries of the histories and activities of some of the variable star observing groups around the world. These reports were presented by either the author or an AAVSO Council member at the AAVSO 75th Anniversary meeting in Cambridge, Massachusetts, on August 7, 1986. The history and activities of the Royal Astronomical Society of New Zealand were described by Dr. Frank Bateson at this meeting, but the text of his talk does not appear here.

THE FRENCH ASSOCIATION OF OBSERVERS OF VARIABLE STARS - AFOEV

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The French Association of Observers of Variable Stars (AFOEV) was founded in 1921, but the influence upon its origins date back to the beginning of this century.

In 1901 in the Bourbonnaise region, a young country school teacher, who had become a dedicated amateur astronomer after having read the works of Camille Flammarion, was able to admire the magnificent nova, GK Perseus, visible in the spring skies. This event was the beginning of the career of Antoine Brun as a variable star specialist. Only a few hundred of these stellar objects were known at this time and very little was understood about them and the phenomena behind the variations in their luminosity. There were practically no identification charts or sequences of calibrated comparison stars as we know them today. Antoine Brun contacted Harvard College Observatory, the astronomical institute most interested in variable stars at the time, and met with Professor Pickering, and more importantly, with Harlow Shapley, who provided him with much documentation, principally Volumes 45 and 50 of the **Annals of the Harvard College Observatory**. Using these documents, Brun drew by hand his famous **Photometric Atlas of the Constellations**, from which the charts of the AFOEV were taken.

In 1907, Brun sent his first observational data on R And, R UMa, and W Cyg to Camille Flammarion, who in turn transmitted them to Michel Luizet at the Observatory of Lyon to determine their value. At this time, Luizet was the only professional French astronomer interested in variable stars. This marked the beginning of a long correspondence.

Brun, who was already in contact with the English amateur observers of the Variable Star Section of the British Astronomical Association, got in touch with the AAVSO when it was formed in 1911. This led to a number of stimulating exchanges with the AAVSO and its leaders, principally Leon Campbell.

1914-1918 marked the Great War years and Antoine Brun, like hundreds of thousands of his comrades, experienced the horrors of World War I at Verdun. But in spite of the shell bursts, machine-gun fire, and mud-filled trenches, he continued observing with a refractor. Injured in 1917, destiny sent him to the hospital in Lyon, where, after his convalescence, he went to the Observatory of Lyon at Saint-Genis-Laval to meet Michel Luizet, who unfortunately was to die the following year.

After the war, Brun kept in touch with the Observatory of Lyon, whose Director, Jean Mascart, asked a young assistant, Henri Grouiller, to specialize in variable stars, thus continuing the tradition started by Charles Andre and developed by Michel Luizet. The idea of an

association of variable star specialists was forming. S. C. Hunter, assistant to Leon Campbell, Recorder of AAVSO, went to make a joint effort to lay the groundwork of a truly international organization dedicated to the collaboration of amateurs of variable stars. Henri Grouiller and Antoine Brun decided to create the French Association of Observers of Variable Stars, which was first called the "French Group of Observers of Variable Stars." Its first observational data were published in May of 1921, but the organization officially came into existence only in 1927, when it was duly registered as an organization.

AFOEV grew rapidly, not only in France and French-speaking countries, but also in numerous foreign countries. In 1930, AFOEV had observers in more than 20 countries on 5 continents.

AFOEV was in a period of full development when World War II broke out in 1939. This date marked a rupture in all of its activities. The Secretary-General of the Association, Henri Grouiller, died an early death due to illness during the occupation. But his work had been crucial; he had practically sacrificed his professional career for the demanding and sometimes thankless task of collating the observations of amateurs in order to have them published.

After the liberation of France, most of these observers disappeared. In spite of Miss Bloch, the Treasurer of the Association, J. H. Bigay, M. Petit, and A. Terzan, coupled with an unsuccessful attempt to constitute a "European Group of Observers of Variable Stars," AFOEV did not resume activities again until the late 1960's. This was due to efforts made by Maurice-Victor Duruy and Patrick de Saevsky, who was succeeded by Emile Schweitzer as Editor of the Association's *Bulletin* in 1974. The Headquarters, established at the Observatory of Lyon and whose Director was named President by the Association's Statutes, were transferred to Strasbourg in 1986 in order to comply with the Rules of Procedure and for reasons of efficiency.

AFOEV is run by an Administrative Council of nine members, three of whom are professional astronomers. The President (Emile Schweitzer) is assisted by a Vice-President (Paul Vedrenne), a Secretary-General (Michel Verdenet), an Assistant Secretary-General in charge of scientific problems (Dominique Proust, Observatory of Meudon), and a Treasurer (Joel Minois). AFOEV receives no official grants and is financed entirely by membership dues and contributions. The University of Strasbourg has graciously agreed to publish the quarterly *Bulletin de l'AFOEV* for the printing cost only.

In spite of the name, "French Association," AFOEV is not limited by geographical boundaries. Among its 120 members, many foreign countries are represented, including Belgium, Spain, Italy, and the Netherlands. There are also associated observers in Hungary, East Germany, Algeria, and Zimbabwe. Many renowned people have participated in AFOEV's activities since its creation in 1921: Ahnert, Jacchia, Kukarkin, Kopal, Parenago, and the French astronomers Marle Bloch, Bigay, Dufay, Grouiller, and Terzan. Among the amateur astronomers, there are Arturo Bernard from Portugal, who gave his name to a comet in 1923, the Italian, Epe Loreta, who discovered the eruption of the recurrent nova RS Ophiuchi in 1933 and the nova CP Lacertae in 1936, Maurice Duruy, who observed for more than 60 years, and Michel Verdenet, winner of the Prix de la Vocation and co-discoverer of the nova V1668 Cygni in 1978.

In 1921, AFOEV's program included 48 stars. In 1927, there were 164. This figure fell to 133 in 1953, rose to 149 in 1967, 266 in 1970, and is presently at 1123. In the beginning, the program included some Cepheids and Algol-type stars, but was then reduced to long period variables and cataclysmic variables. The present program includes long period, semiregular, and irregular variables, RV Tauri and R CrB stars, cataclysmic variables, symbiotic stars, and novae and supernovae.

The charts and sequences used are almost identical to those used by AAVSO and by most associations of variable star observers created after 1945. In the past these charts were drawn by Antoine Brun; today they are drawn by Emile Schweitzer. The original sequences were obtained from the **Stellarum Variabilium Atlas**, prepared by the Fathers Esch and Hagen, SJ, of the Vatican Observatory, and from photoelectric photometry done at the Harvard and Yerkes Observatories (**Ann. Harvard Coll. 37, 57, and 63**). These sequences were revised and new ones established by Mitchell and Wirtanen at the Leander McCormick Observatory of the University of Virginia. New charts and sequences are established for AAVSO by photographic photometry with the 60-cm telescope at Stamford Observatory or by photoelectric photometry. AAVSO has authorized AFOEV to use this material.

All of the observational data compiled by AFOEV members were published between 1921 and 1931 in the **Bulletin of the Observatory of Lyon** (Lyon Bull), between 1931 and 1954 in the **Bulletin de l'AFOEV**, first series (BAF), and between 1954 and 1967 in the internal circulars and in the **Journal des Observateurs** (JO). Since 1967, they have been published in the **Bulletin de l'AFOEV**, second series (BAFOEV). At the end of 1985, these observations totalled 731,344. The curve in Figure 1 shows the annual total of observations. The stagnation during the war and post-war years is evident. The impressive rise after 1981 is mainly due to contributions made by Hungarian and Dutch colleagues, and efforts made by several French observers.

The sorting of data by stars and the collation was done manually until 1979. Beginning in January, 1980, these data were stored in a Honeywell Bull Mini 6, used by our colleague Jean Gunther. The data entry was first done on punch cards and later on paper tape by Emile Schweitzer. As of January, 1984, the data entry is carried out at the Centre de Données Stellaires at the Observatory of Strasbourg, whose consoles are hooked up directly to the IBM 3081 D at the Centre de Calcul at Strasbourg-Cronenbourg. Entry of backlogged data is in progress and as of December 31, 1985, 277,019 observations have been entered and are available by listing them on magnetic tape or disk. Observational data are filed by year and star.

Visual observations of AFOEV are presently used by professional astronomers, particularly in correlation with radio observations. AFOEV is currently preparing an observation program which will be carried out in the near future by the astrometrical satellite Hipparcos (High Precision Parallaxes Collecting Satellite). The Association has and will continue to participate in several visual observation programs and observations carried out by satellite instruments (IUE, IRAS, etc.) aimed at cataclysmic variable stars. A list of past observations of stars can be provided on request.

AFOEV maintains excellent relations with a large number of similar associations throughout the world. Its relations with AAVSO have been particularly profitable. As do all associations of variable star specialists, AFOEV sends a monthly account of its observations to its American sister association, AAVSO. Our organization holds an important place in the statistics compiled by our American counterpart: for 1983-84, AFOEV is first after the United States with more than 30,000 observations, and its Secretary-General, Michel Verdenet, is second on the list of observers and first with regard to inner sanctum observations.* AFOEV is particularly proud of its work - a joint effort made by variable star gazers whose principles and origins date back to 1921.

*Ed. Note: In 1983, AFOEV member Paul Vedrenne made the 5,000,000th observation recorded in the AAVSO data files.

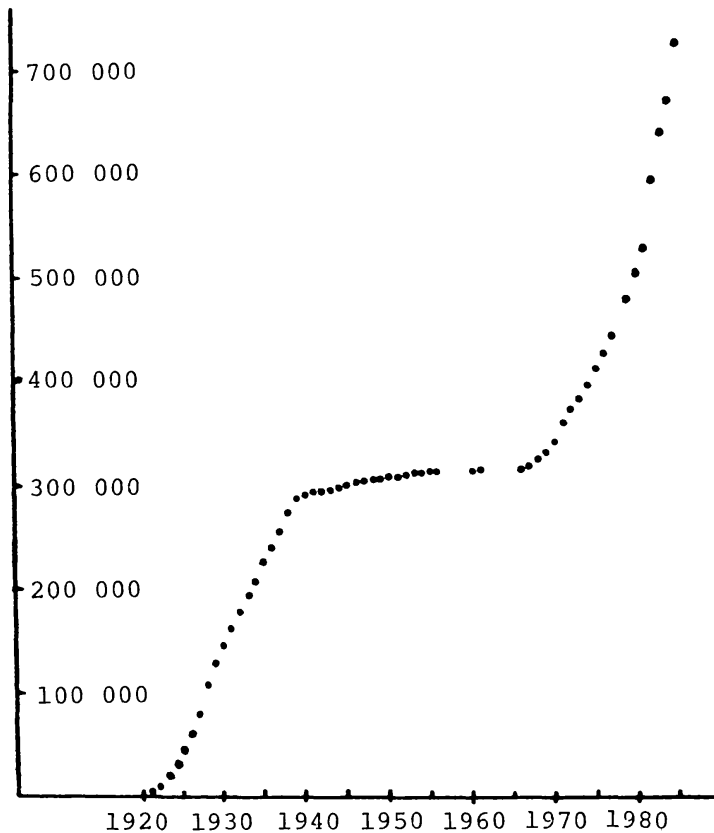


Figure 1. Observations received annually by AFOEV.

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VARIABLE STAR OBSERVING IN THE NETHERLANDS

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The Werkgroep Veranderlijke Sterren (WVS, i.e., Variable Star Section) of the Netherlands Association for Astronomy and Meteorology was founded in 1960. Until 1980 the observations (3000 to 8000 per year) were published in Reports, which were published by the Kapteyn Astronomical Laboratory of Groningen University. Since 1981, observations are sent to the AAVSO.

The Netherlands (not Holland, because, strictly speaking, that refers to the provinces North and South Holland in which the major cities of Amsterdam, the Hague, and Rotterdam are located) is a small country between Germany and England and has a climate that is strongly influenced by the Atlantic Ocean. As a result of this, we have a climate that is not suitable for observing. Furthermore, the large cities and their surroundings are heavily light polluted. Although we have three observers living in Amsterdam, the bulk of the observations are made in less polluted areas, notably in the north (the provinces Groningen and Friesland). The poor climate notwithstanding (we have only 1500 sun-hours per year), the sky can be quite good, especially when we have air coming from high northern latitudes. Because we do not have many observing nights, the observation of Mira stars is rewarding.