

ANTOINE BRUN: FOUNDER OF THE AFOEV

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Abstract

An account is given of the life and astronomical work of Antoine Brun (1881-1978), founder of the Association Française des Observateurs d'Étoiles Variables (AFOEV), written at the request of Janet Mattei, AAVSO Director.

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Antoine Brun is one of those remarkable persons that one can never learn enough about. Not at all vain, he always avoided publicity, to such an extent, indeed, that his immense amount of work remains relatively unknown. And yet this man should be an example to everyone in his capacity for work, his disinterestedness, and his lifelong desire to give others the benefit of his knowledge and to inspire in them his own thirst for learning.

All that is generally known about Brun is that he founded the Association Française des Observateurs d'Étoiles Variables in 1921 and that he was the author of an **Atlas Photométrique des Constellations** (**Photometric Atlas of the Constellations**). This summary is utterly inadequate to do justice to this personality, but to include everything would take far too many pages, so I shall limit myself to astronomical aspects.

I came into contact with Antoine Brun in 1974. When buying a copy of his **Atlas Photométrique des Constellations**, I discovered that our two villages had the same name and that they were only 120 km apart, which is not very far, so I went there on the first available occasion. It was the beginning of a friendship that did not last long (Brun died in 1978), but which has continued with his daughter Marguerite Brun and now with his son-in-law Gabriel Emery and his grand-daughter Denise Emery. I never cease to discover something new about this person, who was completely out of the ordinary.

When Brun died, at 97, he had been for many years the last of his generation. None of his contemporaries, or even his younger friends, were therefore able to help his daughter Marguerite Brun. She asked me to list his optical equipment, to catalogue his astronomical books, and to sort through certain papers, among which were Harvard reprints, publications from all over, photographs from Mount Palomar, letters from illustrious astronomical names of the period, etc.

At that time I never thought that I would want to recall these memories, so I kept no notes; I shall try to be accurate and also to select recollections from those who knew Brun. I shall not treat things in chronological order, but shall group them around Brun's major astronomical activities.

Brun was born in 1881 of very poor parents. (They were wine-growers from Auvergne, who were ruined by phylloxera. [This disease, introduced from the United States, wiped out vines all over France in

the 1870's and 1880's. -Trans.]) His only future was to be a farm hand, or perhaps rather better, a servant at the local chateau. Fate decided otherwise, fate in this case taking the form of a perceptive teacher, who noted, whilst Brun was still a child, that he had distinct potential that it would be a shame to leave dormant. He was encouraged to take up the profession into which young, intelligent, hard-working people were encouraged at that time: he was to become one of the veritable army that was to wipe illiteracy from France - he became a primary-school teacher. It was during his training for this job that he discovered astronomy, but a telescope was far beyond the means of a teacher, so he turned to botany, specializing in the study of lichens, one species of which (*Lecidea bruneri*) is named after him.

The study of lichens is not without its drawbacks, especially if you collect them. Lichens grow on wood and on stones, and collecting them soon leads to the accumulation of tons of rocks. Astronomy is less obtrusive, and he went back to it, perhaps encouraged by his wife!

He started with the type of telescope that all penniless beginners have: a spectacle glass and a cardboard tube. His first true telescope was given to him by a local aristocrat, Baron Vita. This telescope had a Dollond objective, which remains with his descendants. Then he had a 16-cm refractor, lent to him by the Paris Observatory.

He soon became aware of the fascination of observing variable stars, and above all of the importance of the contribution that could be made by the amateur, even with modest equipment.

He started in this specific field at the turn of the century, but the real trigger was Nova Persei 1901. He was encouraged by Harlow Shapley, with whom he was in correspondence, and who sent him the Harvard Photometry. In France encouragement came from Flammarion, who put him in touch with Luizet, Mascart, and Grouiller - in short, with the future early core of the AFOEV. Before 1914, he sent his observations to the German journal *Astronomische Nachrichten*, then during the First World War to the Societe Astronomique de France, and finally to the AFOEV. It is worth remark that despite taking an exemplary part in the 1914-18 War (he was twice wounded, was promoted to captain on the battlefield, and received some very telling decorations: Verdun medal, Croix de Guerre with palms and two stars, and Chevalier of the Legion d'Honneur), Brun observed on every possible occasion during that sad time. He had a small refractor that he used at quiet moments, even in the front line. (Brun used to describe how during the day this telescope allowed him to see the smoke from the chimneys of the steelworks in the Briey basin, which was occupied by the Germans. [Briey is about 40 km from Verdun. -Trans.]])

One of the first of his scientific results was the discovery on 4 December 1913 of the variable SZ Cephei. This discovery was published in *Astronomische Nachrichten*, vol. 202, in 1916, when Brun was in the trenches at Verdun. He also discovered the peculiar nature of the variable Z Cam, after a long series of observations that started on 25 January 1914, and continued until 23 January 1923, the results being published in 1923. Until then Z Cam had been thought to be a Mira-type star. Another important and famous piece of work was his study of the variables in the Orion Nebula in 1933-34. This study remained a standard reference until 1952, when another study (by Parenago) appeared, in which the stars suspected of being variable by Brun are also found. One of "his" variables was given a final designation in the "68th Name-List of Variable Stars" in September 1987.

Under normal circumstances, Brun observed from his garden at the school in Le Breuil and then, after 1934, from his property at La Peyriere. He started with refractors of different sizes, and then worked with several successive reflectors, whose mirrors were 16, 30,

34, 42, and finally, 54 cm in diameter. Some remains of the framework of the last two instruments are still to be found, and I shall mention later what became of the mirrors.

I do not know if anyone has ever counted the number of observations that he made, but they must amount to tens of thousands.

With increasing age, his lungs did not allow him to spend the night outside, so towards the end of the 1950's he started to work from photographs, especially those taken by his friend Roger Weber.

Although Brun became interested in variables at the turn of the century, he did not have access to any suitable star atlas. In order to get around this difficulty, Brun drew his own, based on the Harvard Photometry.* It includes about 15,000 stars, all with their magnitudes on the Harvard system, as well as numerous nebulae, double stars, and other interesting objects. You only have to plot 30 or 40 stars on a chart, starting from a catalogue, to realize what a painstaking task that represents. He finished it in 1910, but Brun had no taste for publicity, and still less for commercial enterprise; he was content to use his Atlas himself until, in about 1946, it was noticed by Andre Danjon, the Director of the Paris Observatory, who urged him to publish it. The first edition of 500 copies on fine, thick paper, some of which were bound, was published in 1948. This printing was exhausted in a few years, but from time to time, Brun had further copies printed onto the type of paper used for plans. This is where I came in. I felt that the copy of the Atlas that I had bought was too good to take outside at night. So I started to trace it sheet by sheet, star by star. When I finished, some considerable time after, I had a "forged copy" in good condition on good-quality tracing-paper, and I wrote to Brun, saying that it was available if he wanted to use it. The courteous response that I had, and still retain, was a refusal: he was 94 and had other things to concern him. He thanked me for my suggestion and would be very pleased to see me if I would like to show him what I had done. It is this "forgery" approved by Brun that is still distributed by the AFOEV.

Brun used his Atlas for all the AFOEV "A" charts, and himself drew many other charts for the AFOEV, amounting to about 700, some of which are still in use. He also drew 139 charts of the Mount Wilson Selected Areas, 206 of the Harvard Selected Areas in collaboration with Vehrenberg, and finally a **Photometric and Spectrometric Atlas of the Southern Sky**. We should not forget his work with Michel Petit on the catalogue and atlas of eruptive variables that was published in Moscow in 1959.

Brun's work on variable stars caused him to be elected as a co-opted member of the IAU, an honor rarely accorded to an amateur. As such, and as a specialist on variable stars, he was one of the French delegation to the IAU General Assembly at Zurich in 1948, at Rome in 1952, and at Moscow in 1958, where thanks to his grand-daughter Denise Emery, a teacher of Russian, he was able to talk to the best-known Russian astronomer of the day, Professor Ambartsumian.

As soon as he knew that one could make mirrors oneself, Brun realised that here was the only way of obtaining large reflectors cheaply. His first attempts were at the beginning of the 1930's, and luckily at that time the first printing of the famous **Amateur Telescope Making** appeared; a copy is still in his house. He made a large number of mirrors, both for himself and for others. Thanks to Brun's inheritors, I have been entrusted with the 34-cm on loan, and the 54-cm is in use by Michel Verdenet at Bourbon-Lancy. These mirrors are still being used for the study of variable stars, which was Brun's dearest wish.

On one occasion Brun told me about his difficulties with a troublesome mirror. For a whole evening he had struggled to eliminate a central hump without success, so he decided to go to bed. The next day there was a hollow at the same spot - he had forgotten to allow the mirror to cool before testing the results of his figuring. In helping Mlle Marguerite Brun to tidy up, I came across this same mirror, the centre of which still shows, under the Foucault test, the effects of Brun's thumb, which has left a shape like a flower in the centre.

Brun was the first amateur in France to work Schmidt mirrors and corrector plates. That was in 1939, with his pupil Henri Bigay. He made two for a private observatory, the owner of which has since made a name for himself: Gerard de Vaucouleurs.

The taste for making fast spherical mirrors never left him: at 70, he made a 53-cm, f/0.85, and at 85 he undertook to make a 25-cm mirror of the same sort, but his declining strength did not allow him to finish it.

Brun was in correspondence with some of the greatest astronomers of his time: Harlow Shapley, Cecilia Payne-Gaposchkin, Andre Danjon, Kukarkin, and many others, without mentioning figures prominent today who were then just starting.

He was always pleased to see young people, and he freely encouraged them. These young people have grown up, but have never changed their feelings towards him; those who were at IAU Colloquium 98 in June 1987 will recall the respect with which Jean-Claude Pecker mentioned the name of Brun at the end of the paper given by Dominique Proust.

He took on the task of giving talks in the schools in the area, and his action bore fruit. Many astronomers are among his old pupils, including Henri Bigay who was to be Director of the Lyon Observatory. He also wrote numerous scientific or stimulating articles in the *Journal of the Société Astronomique de France*, of which he was an active and faithful member.

These extensive activities caused him to be nominated for awards by various societies, including the Société Astronomique de France, which honoured his work on variables with the Henri Rey Award (1926) and the Camille Flammarion Centenary Plaque (1964), and his optical work with the Viennet-Damien Award (1959).

Urged on by Harlow Shapley, and encouraged by the example of the American Association of Variable Star Observers, Brun founded the Association Française des Observateurs d'Étoiles Variables in 1921. He put all he had into it, and defended it "tooth and nail" at times of difficulty, in particular just after the war and at the beginning of the 1960's, and finally, a bit later, with his friend Maurice Duruy, when there was a dreadful confrontation with variable-star observers with exaggerated claims. The AFOEV continues, thanks to the initial zeal of Brun, whose spirit still lives on in its members and officers. The links between the AFOEV and AAVSO, its elder by 10 years, are still as firm as they always were, and there is no reason to think that they are likely to change.

All this would have been more than enough to occupy an ordinary man, but Antoine Brun was also a talented botanist, a competent geologist, a respected entomologist, and a great lover of literature. He also found time to devote a lot of energy to the secluded Bourbonnais village where he lived, and to other more general organizations - all whilst following his "calling" of a country school-teacher. One could also mention his exemplary conduct in the Second World War and many other things, but we must draw a line somewhere, and

I doubt if some facts that mean a lot to us would have the same significance for readers of the **AAVSO Journal**.

He was a scholar, and at over 90, and under the rather disapproving eye of his daughter Marguerite, he ordered the **Larousse Encyclopedia** in 20 volumes. He then wrote numerous letters to the publisher about articles that he did not like. (Brun was a dedicated rationalist, and took the editors to task for articles that he felt were written obscurely in places.)

When he greeted you he had a way of saying, "How happy I am to see you again", which meant exactly that. The last letter I have from him, in the beautiful handwriting that he had been taught in the 19th century, told me that he was sure that he would not live to complete his 97th year. That was in December 1977, and he died on 6 January 1978, still an upright figure, and in possession of all his faculties.

In speaking of Brun, we must not forget his daughter Marguerite. She looked after Brun with an energy that her frail frame belied, and literally carried him to his great age, with quite exemplary love and care. After Brun's death, she embarked on collecting his mementos, sorting his papers, and collating a remarkable correspondence between Brun and his wife during the 1914-18 War. She never had time to complete these tasks. In effect, once her father was dead, she felt herself to be of no further use, and life seemed to hold nothing for her. One cannot say that she let herself die, but she did not make any great effort to overcome her ill health, and she died, very peacefully, almost exactly 5 years after her father. They are both buried in the family vault at Le Breuil.

Acknowledgements: the accompanying photographs have been reproduced thanks to the kindness of Denise Emery and her father Gabriel Emery. Many of the numerical and chronological details have been provided by Emile Schweitzer and Michel Verdenet, President and General Secretary of the AFOEV, respectively.

*Ed. note: The author sent a copy of Brun's **Atlas Photometrique des Constellations de +90° à -30°** to Janet Mattei for the AAVSO library. He inscribed the copy, "To Janet A. Mattei as a token of esteem and respect and as a remembrance of the unfailing friendship between the American Association of Variable Star Observers and the Association Française des Observateurs d'Étoiles Variables 'depuis la nuit des temps.'"



Photograph 2. Antoine Brun at his observing site.



Photograph 1. Antoine Brun, 1881 - 1978.