

THE WORK OF THE VARIABLE STAR SECTION, ROYAL ASTRONOMICAL SOCIETY OF NEW ZEALAND

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Abstract

Programs and activities of the Variable Star Section of the Royal Astronomical Society of New Zealand are described.

1. Introduction

The guiding objectives of the Variable Star Section (VSS) of the Royal Astronomical Society of New Zealand (RASNZ) are:

- (1) International cooperation in variable star research;
- (2) Monitoring, on a regular basis, as many southern variables as possible;
- (3) Publishing the observations in a form that is acceptable and useful to the astronomical community;
- (4) Encouraging youngsters to develop an interest in astronomy and to take up serious observing.

The frequent references to our observations and the use of our light curves by professionals in papers published in journals such as the *Monthly Notices of the Royal Astronomical Society* and *Astronomy & Astrophysics* are proof of our success in the first objective. That is also shown in our mutual cooperation with both the AAVSO and BAA.

The second objective I will enlarge on shortly. Publication is not always as prompt as I would like as it depends to a great extent on finance, but all requests for data in advance of publication have been met.

The fourth objective has paid handsome dividends as there are very few amateurs in New Zealand who did not get their first interest in serious observing with the VSS. Additionally, at the last count, 51 of our former members have either become professional astronomers or graduated to allied fields. I have also supplied graduates in the Netherlands, West Germany, and the United Kingdom with data for their PhD theses.

2. Current Programs

Current programs include all classes of variables except the short-period eclipsing type. Programs are always kept fluid so that additions can be made as professional interest changes or objects warranting monitoring are discovered.

Our main interest is in cataclysmic variables (CV's). We started a program of closely monitoring all dwarf novae brighter than 13.5 at maximum in the 1950's. That was at a time when there was very little professional interest in such objects. That program has been expanded over the years to include fainter objects and a more diverse range of CV's.

Two years ago I added a number of S Dor variables and allied types to our observing

programs, although Eta Car had been on our lists for six decades. Rather to my surprise there was an immediate professional request for these results. In addition, this year we have supplied several groups of professionals with data on dwarf novae and R CrB variables, others with observations of recent novae and a range of interesting variables such as IX Vel, AR Pav, V818 Sco, and V725 Sgr. We have also contributed to the HIPPARCOS program.

However, the large-amplitude red variables - Miras and semiregulars - have a low priority on our programs apart from unusual objects such as BH Cru and those southern examples about which little is known.

Typical examples of the type of coverage we achieve are:

VW Hyi: I published a memoir on this star (Bateson 1977) . This covers 22 years of observations. Joe Smak re-examined this data and concluded that in that interval there was a possibility that two outbursts may have passed unobserved.

RY Lup: Stockholm collected all the known observations of this rapidly changing variable. These included 717 visual and photographic observations by Hoffmeister, 428 recent photoelectric observations from various sources, and 4981 visual observations by the VSS, covering the years 1952 to 1987. It was the New Zealand data that enabled them to show that the maximum magnitude and amplitude had both declined with time (Stockholms Observatorium Preprint No. 6, 1988).

3. Discoveries

The VSS has an impressive number of discoveries ranging from independent discovery of Nova Puppis 1942 (CP Pup) by A. G. Crust and N. Dickie to that of SN1987A by Albert Jones, who was also responsible for detecting the recent outburst of V3890 Sgr. They also include the first detection of outbursts of several recurrent novae, discovery of several hitherto unknown variables, three LMC novae and even the odd comet which happened to drift into a variable star field.

We were also the first amateur organization to commence a service of alert notices.

4. Membership

Everyone in the VSS is a volunteer, be they an observer or engaged in computer processing or chart work. The sole exception is that when we have funds I do employ a part-time secretary. That is becoming more and more essential because correspondence is running at between 4,500 and 5,000 letters per annum.

Finally, I should mention that (a) it was mainly due to the international standing of the VSS that professional astronomy was started in New Zealand, and (b) I have fostered public interest in astronomy and space research writing popular articles for three New Zealand newspapers for the past 30 years. I have now given up lecturing, but for many years I lectured throughout the country at the popular level as well as conducting courses at all levels for the University of Waikato.

References

Bateson, F. M. 1977, *New Zealand J. Sci.*, **20**, 73-122.