Observing variable stars, novae and supernovae

by Gerald North & Nick James

Cambridge University Press, 2004. Pp ix + 230 + CD-ROM. ISBN 0-521-82047-2 (hbk), £30.00.

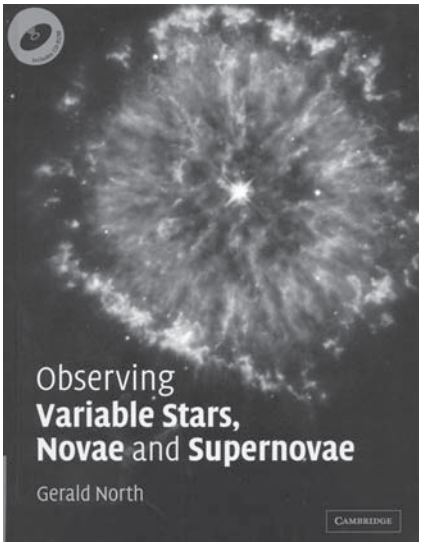
I was most interested when I received this book because some years ago when I was teaching a beginners' course on astronomy, I recommended one of Gerald North's books to my students as a good basic, understandable introduction to astronomy without frills. What was North going to make of my specialist subject? Once again, his clear concise style has shown through and this is another book I can recommend.

The book is intended not just for the visual observer, although this is perhaps its prime aim, but for the CCD imager as well who may be thinking they'd like to do something a little more serious and useful with their new (or not so new) toy. It will especially suit those not liking mathematics as the maths is limited to just a few formulae.

The book commences with some basic principles before moving onto information about telescopes, with quite a bit of space spent on collimation, which was nice to see, and finally binoculars. The section closes with information on finding the variable and making the light estimate.

The following chapter will be of great interest to those considering using a CCD to image and measure variable stars. All the basic information on how to do it is covered in sufficient detail for you to decide if this is for you. However, North states very strongly that you should not use a CCD with antiblooming if you wish to carry out photometry. Whilst I agree that antiblooming is to be avoided if possible, I think enough good photometry has now been done with CCDs that incorporate antiblooming to show that it is possible if the correct procedure is followed (basically, don't expose beyond about 50% saturation).

We then move on to the meat of the book with an introduction to how stars (and the Sun in particular) have evolved and will continue to do so. North describes how the Sun will one day become a variable star – surely reason enough to study these objects? Then following the outline of stellar evolution, first for single stars and then for binaries, North explains how each type of variable comes about. This concentrates on those stars most likely to produce variations which can be seen with the eye and is where we first start to make use of the CD-ROM which is included with the book. The majority of the charts and light curves of both the BAAVSS and *The Astronomer* have been brought together (by Nick James) and North directs us to the appropriate chart/light curve that he is referring to. This brings the book very much more 'alive' and makes for interesting browsing.



Following a description of the type of variable, in each section there is a list of those charts and light curves to be found on the CD-ROM. I noted one or two inaccuracies here – UV Per is categorised as an EB, for example. The book closes with sections on supernovae and active galactic nuclei.

One little thing I didn't like is the author's use of the term 'astrovariable' to cover all similar things variable such as stars, galaxies and even gamma-ray bursts. But perhaps I am just old fashioned.

There are some inaccuracies in the text – on page 121 John Goodricke is described as a Dutchman for example. He may have been born in Holland of a Dutch mother, but his father was English, and he was brought up, firstly in Scotland from a very early age and then in England. Another incorrect statement is that on page 129 when referring to Hertszprung that 'the nearest Cepheids ... distances were known from parallax measures'. Not until the Hipparcos satellite they weren't.

Sections I particularly liked were the physics of stellar pulsation (pp.123–7) and that on dwarf novae formation (pp.173–4). The CD-ROM also includes a list of all the types of variable star categorised by the General Catalogue of Variable Stars, images of cataclysmic variables in outburst, gamma-ray bursts and even a couple of movies as well as most of the TA supernovae images. There is a glossary, a list of various resources including books, organisations and useful web addresses and finally an index.

Roger Pickard

Roger Pickard is Director of the Variable Star Section.