

BOOK REVIEWPhotoelectric Photometry of Variable Stars

Douglas S. Hall and Russell M. Genet, I.A.P.P.P., Fairborn, OH, 1982. 272 pages. \$17.95, softcover, spiral bound.

Astronomical Photometry

Arne A. Henden and Ronald H. Kaitchuck, Van Nostrand Reinhold Co., New York, NY, 1982. 392 pages. \$29.95, hardcover.

Software for Photoelectric Astronomy

Silvano Ghedini, Wilmann-Bell, Inc., Richmond, VA, 1982. 221 pages. \$26.95, paperbound.

Photoelectric Photometry of Variable Stars, by Hall and Genet, is subtitled "A Practical Guide for the Smaller Observatory." This subtitle describes the book exactly. Until now, the only similar book available to the amateur was Photoelectric Astronomy for Amateurs, by F. B. Wood. Published in 1963, it is not only twenty years old but also difficult to obtain. The Hall and Genet book brings amateurs up to date on equipment and observing projects. It should be noted that the foreword is even written by Dr. Wood. Chapter I is an introduction. Chapter II is written by Gerald E. Kron and gives an interesting history of photometry. Chapter III covers the observatory and telescope. Most amateur photometry is done with telescopes of 14" aperture or smaller, and the most important part of the telescope by far is the mount, while the optics are well back in second place. Chapters IV to VII deal with equipment for photoelectric photometry. Everything from building your own photometer head to DC amplifier and photon-counting electronics is discussed. Much useful and practical information is included. These chapters should be especially helpful to the beginner. Chapter VIII gives examples of various amateur observatories. Chapters IX through XIV deal with data reduction and ways to improve the usefulness of the data. It would be very helpful in future editions if some examples with typical values were included, as few beginners know what the values for extinction and transformation coefficients should be. Chapters XV and XVI conclude with discussions on observing programs.

Although this book has a table of contents, it has no index. Some of the topics are poorly organized and difficult to follow. For example, to learn about dead-time one finds it mentioned first on pages 5-24 and 5-25, but just as one begins to follow it the discussion ends. Page 12-18 adds more information but still stops short. Finally, page 13-16 concludes the dead-time information. There are no references among these sections so one is left to find the rest of the discussion by random searching. Similarly confusing, pages 12-16 and 13-14 are both titled, "Determining Your Transformation Coefficients." Also, pages 12-13 and 13-11 are both titled, "Determining K' on a Given Night." If the second edition of this book contains an index, straightens out the organization of some of the material, uses printed text in place of typed, cleans up the art work, and offers a hardbound version, it will not only be a first rate book but also a classic. Even with its shortcomings Photoelectric Photometry of Variable Stars is a very valuable book for the amateur interested in photometry.

Astronomical Photometry, by Henden and Kaitchuck, is an excellent book on photometry. It is well written and organized, and covers just about all aspects of photometry. In addition, it has appendices which list first-order and second-order extinction stars, UB_V standard stars, and miscellaneous information, plus some FORTRAN subroutines. It

appears to be presented more as a University textbook than a book for the amateur. However, it will function nicely for either purpose. The book follows the same basic outline as Hall and Genet but approaches topics from different angles. Thus, the two books tend to complement each other. Having both books would be a definite asset. The only fault I found with the book was the section on equipment, which is much more complicated than need be. The photometer head described is more suitable for a professional observatory than an amateur one. The electronics presented lack many of the component-saving devices that have become available over the last few years. The INTERSIL ICM 7226A counter chip and LeCROY MVL100 amplifier/comparator are just two examples of these devices which could have simplified the electronics considerably. I think Astronomical Photometry is an excellent reference book on photo-electric photometry and is a "must" for every serious amateur interested in the subject.

Software for Photometric Astronomy, by Ghedini, is entirely different from the other two. This book deals strictly with the mathematical aspect of photometry and the software used to support it. It contains 23 chapters, with each chapter dedicated to a particular piece of software. The chapters include some very useful algorithms for Julian Date, Sidereal Time, hour angle, air mass, and heliocentric corrections. The remaining chapters are more for the very advanced amateur or professional, discussing topics such as Fourier Waveform Analysis and Non-Periodic Phenomena in Variable Stars. Ghedini does not use any flow charts, which I feel would be helpful in translating his programs to other computers and other languages. Instead, he relies on written explanations plus algorithms. These explanations are helpful and important because the programs are written in BASIC designed for Hewlett-Packard computers. HP BASIC is different from that found on most personal computers and the programs may require modification. Although the book is useful to the real enthusiast, I feel its value to the average amateur is very limited. Also, the price of \$26.95 for a 221-page paperbound book is rather steep. Finally, all of the most useful algorithms can be found in the other two books, and the software is fairly easy to write.

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