

# This Week's Citation Classic®

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Johnson H L, Mitchell R I, Iriarte B & Wiśniewski W Z. UBVRJJKL photometry of the bright stars. *Commun. Lunar Planetary Laboratory* 4:99-243, 1966.  
[Lunar and Planetary Laboratory, University of Arizona, Tucson, AZ]

This paper is the final publication of the results of a program begun in 1950 to provide astronomers with a firm photometric foundation for their work in the analyses of the radiation from celestial bodies. [The *SCI*® indicates that this paper has been cited in over 560 publications, making it the most-cited paper for this journal.]

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This paper, which contains precision photometric data over the range of wavelength from the ultraviolet to the intermediate infrared, is the culmination of a program begun in 1950.<sup>1</sup> This has been an international effort with many of the observations taken at the Tonantzintla Observatory in Mexico. The purposes of this program were to establish a consistent and acceptable photometric system and to observe a large number of representative, mostly bright, stars over as large a range of wavelength as possible. If this work were done properly, the resulting data would serve as the fundamental basis upon which many other scientific endeavors could be built.

The fact that this one paper has been so often cited indicates that these efforts were not in vain. While our hindsight permits us to see now many ways in which this work could have been done better (these points were not obvious years ago), apparently the data have satisfied reasonably well the needs of many astronomers.

It is interesting that the photometric system defined in this paper has received the supreme compliment of being so uni-

versally accepted that many authors who use the system in their work and their publications feel no need to make explicit reference to the source. For example, in the September 15, 1978, issue of *Astrophysical Journal*, 11 papers used data or measures based explicitly upon the UBVRJJKL filter system for photometry (each letter stands for a filter), but only 1 cited the paper defining the system, while 1 other indirectly cited it through another paper. Clearly, if all authors cited this paper when they used its photometric system, the number of citations would be considerably larger than was actually counted.

During the 1950s and the early 1960s there was little difficulty in obtaining support, financial and otherwise, for such fundamental work; but by the middle 1960s the climate had begun to change. Nowadays, fundamental work of this kind receives little support, largely, I suppose, because such programs are not highly visible and do not produce final results in less than one year. Today, it is practically impossible to obtain financial support for a project unless it meets these two conditions.

There is one other significant comment that may be made about this paper: In these days when most scientists consider a paper to have been properly published only if it has been published in a "prestige," "100 percent refereed" journal, a paper that was *not* refereed before publication and that was published in an essentially *private magazine* actually turned out to be one of the most-cited items in its field. How much real value does the highly regarded refereeing process actually have?

(See reference 2 for a recent review in this field.)

[Editor's note: Dr. Johnson, known as the founder of the UBVR photometric system that is universal in astronomy today, died in 1980 while this commentary was in process. We thank Roger Thompson for his recent help in finalizing it for publication.]

1. Johnson H L. The color-magnitude array for the galactic cluster NGC 2362. *Astrophysical J.* 112:240-7, 1950.  
2. Griffin R F. Spectroscopic orbits for 16 more binaries in the Hyades field. *Astronomy J.* 90:609-42, 1985.