

A BIBLIOGRAPHY OF ASTRONOMICAL CATALOGUES AND THE ORGANIZATION OF STELLAR DESIGNATIONS

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ABSTRACT

A comprehensive bibliography of astronomical catalogues for the period 1951-75 inclusive containing over 2000 items and including an index of designations has shown that there is an urgent need to control the use of designation notation. It is suggested that a small data base, similar to the one created for this bibliography could serve as a useful guide to the assignment and subsequent citation of catalogued objects. This in turn would help those compiling inverted files of stellar objects such as the Catalog of Stellar Identifications.

INTRODUCTION

A computer file of astronomical catalogues covering the period 1951-75 inclusive has been constructed replacing a simple card file used by INSPEC information scientists to identify catalogue designations used in the literature. A bibliography, soon to be published from the computer data base, contains well over 2000 entries and includes a designation index. This index is believed to be the first of its kind to cover all areas of astronomical research and lists over 1200 items.

AMBIGUOUS DESIGNATIONS

That there can be so many designations in only a 25-year period suggests that we may be getting into some difficulty and indeed my designation index points to some very awkward

ambiguities that have arisen in the literature. Assuming, therefore, that the same designating letters have been used in two or more catalogues, certain things can be said. Some ambiguous cases although undesirable can to some extent be justified:

- a) when two catalogues, similarly designated, refer to completely different objects, e.g. if there was a radiource list using " P-L " for its designation then there would be confusion with the Palomar-Leiden survey of faint minor planets but the context of their use would obviously decide which P-L list was being used
- b) when the same designation is being used but the 'format' is different, e.g. P-L 1234 would almost certainly come from a different list to P-L 12-34-56, and
- c) when the authors are using a possibly ambiguous designation but state which catalogue they are using.

However, confusion arises:

- i) when authors fail to state which catalogue they are using, and
- ii) when (c) applies but somebody else takes their data out of context and uses it elsewhere!

It is this last case that I wish to consider here, particularly as it applies to the compilation of inverted files of stellar data using information appearing in the literature.

UN-DESIGNATED CATALOGUES

The catalogue without a designation is perhaps the biggest single cause of ambiguity. Subsequent papers may cite an un-designated catalogue in all sorts of ways, usually the original author's name or initials become involved, but it is not for several years that some sort of recognizable designation emerges. This period is when the confusion develops. There are additional traps. Sometimes the author does propose a designation but later realizes that it is already in use. The LkH α notation, formerly the ambiguous designation LH α , is a good example where things turned out alright in the end!

Let us look at one particular example.

In Fig. 1 the star designated W175 appears in the photometric and polarimetric study by Carrasco, Strom and Strom (1975). The star is in fact number 175 in the catalogue of stars in the young cluster M16 (NGC 6611) by Walker (1961). Now Walker did not specify how his objects should be designated so W175 is quite a reasonable label especially as Carrasco and his colleagues clearly state where their W-designated stars come from.

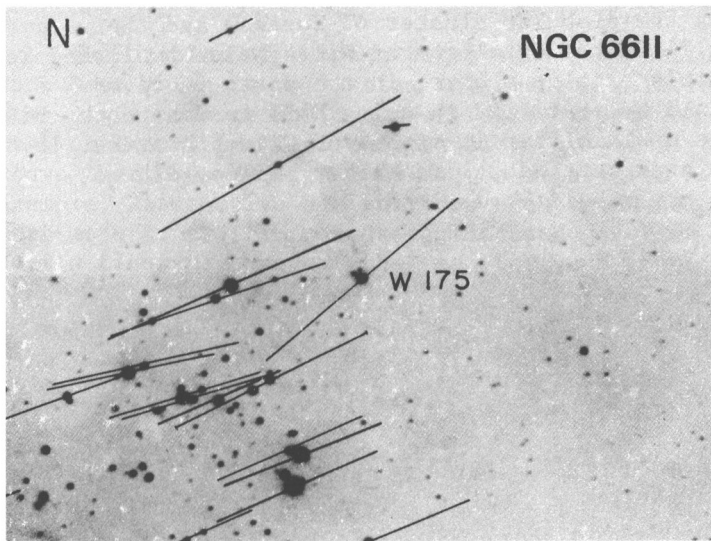


Fig. 1: W175 from Walker's catalogue of stars in NGC 6611.

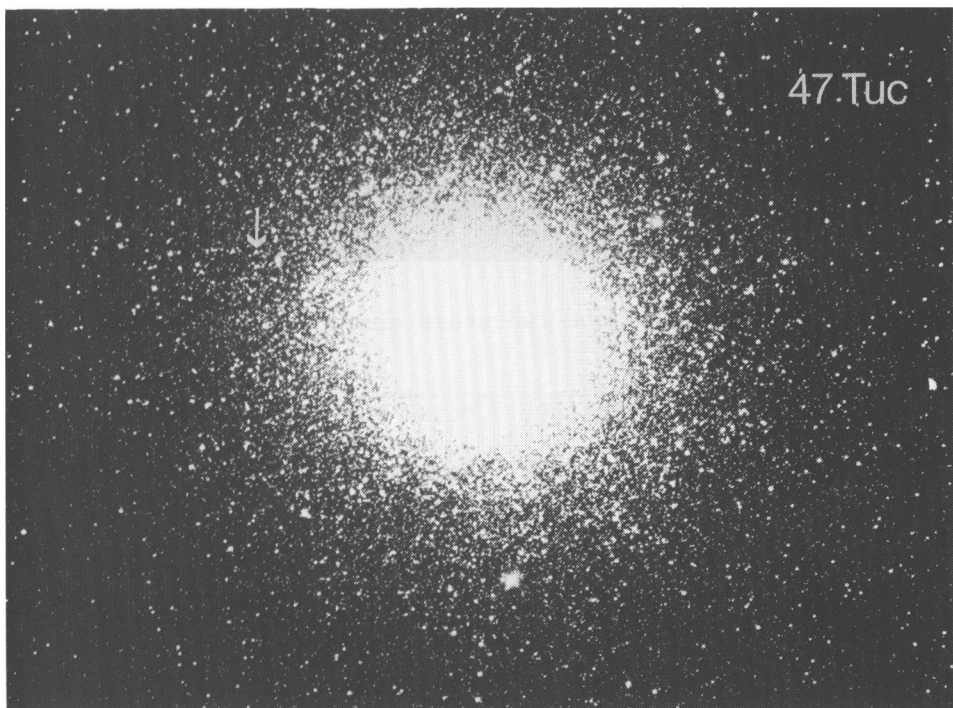


Fig. 2: The star arrowed at left of centre is W175 from Wildey's catalogue of stars in 47 Tucanae.

If we now start looking for ambiguities we have not far to look. Fig. 2 shows the globular cluster 47 Tucanae and the arrowed star is numbered 175 in the catalogue of Wildey also published in 1961. Stars from this catalogue have, in the past, received W numbers and we could be justified in using W175 to designate this object provided we explain that it is one of Wildey's stars. It should also be pointed out that, like Walker, Wildey did not specify how his stars should be designated.

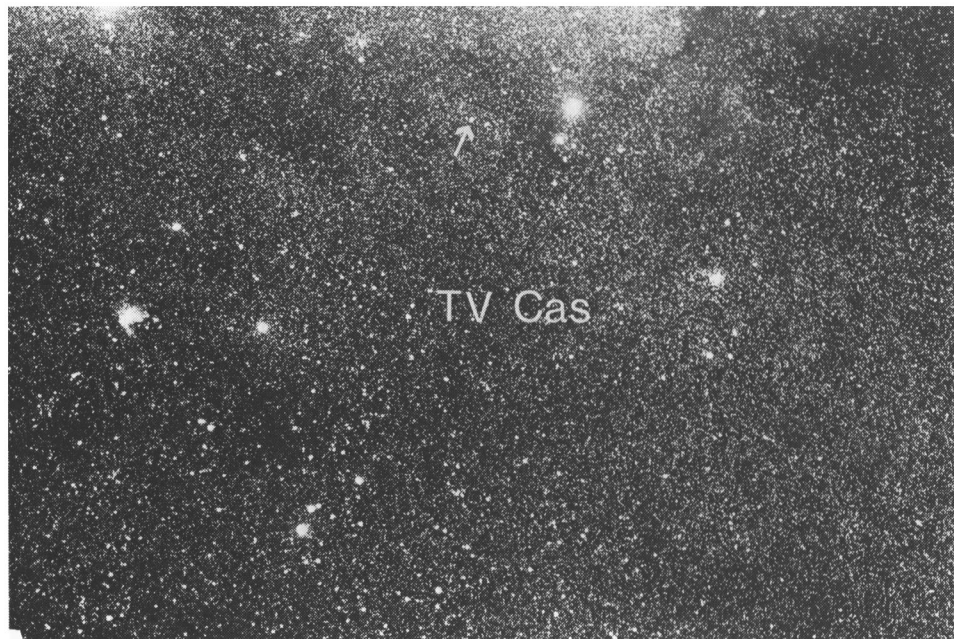


Fig. 3: The brighter of the two stars arrowed is the variable TV Cassiopeiae.

Finally let us consider TV Cassiopeiae (HD 1486) shown in Fig. 3. This star was found to be variable way back in September 1911 by Astbury but 42 years later it was listed in Wilson's 'General Catalogue of Stellar Radial Velocities' (1953) - as number 175 !! Now stars from the GCSRV have in the past also been given W numbers so we end up with three possible stars all designated or at least all with a possible chance of being designated W175.

DESIGNATION CONTROL

The problem of keeping three such designations separate on a data base which is collecting information relating to individual stars is of course obvious. Work done already on the Catalog of Stellar Identifications and the Bibliographical Star Index has shown that these ambiguities can be alleviated by using, for example, alternative designations such as HD numbers. I suggest that more control in the assignment and citation of star designations may prevent the need for such 'mopping up' operations by the data base producers. It must also be remembered that ambiguity case (a) may start to cause problems following the rapid increase in the number of stars identified with objects originally designated as radio or X-ray sources. I further suggest that a small data base, dealing only with designation use, similar to the one created for my bibliography would be enough to control the situation if it were used. Authors would be able to look at a list of designations already in use and Walker, had he had such a list back in 1961, could have suggested 'WALKER' or perhaps 'WALK' for his stars instead of running the risk of them becoming just W objects.

REFERENCES

- Carrasco, L., Strom, K.M., Strom, S.E.: 1975, *Rev. Mex. Astron. & Astrofis.* 1, 283
 Walker, M.F.: 1961, *Astrophys. J.* 133, 438
 Wildey, R.L.: 1961, *Astrophys. J.* 133, 430
 Wilson, R.E.: 1953, 'General Catalogue of Stellar Radial Velocities' Carnegie Inst. Washington Publ. no. 601 = *Pap. Mt. Wilson Obs.* 8

REFERENCES FOR FIGURES

- Fig. 1: Carrasco, Strom and Strom, 1975, *Rev. Mex. Astron. & Astrofis.* 1, 283, Plate 11
 Fig. 2: Photograph from the Mount Stromlo Observatory
 (available from the Royal Astronomical Society, Ref. no. RAS 621)
 Fig. 3: Photograph from the Lowell Observatory
 (available from the R.A.S., Ref. no. RAS 496)