

## 26. COMMISSION DES ETOILES DOUBLES

PRÉSIDENT D'HONNEUR: M. AITKEN†.

PRÉSIDENT: M. W. H. VAN DEN BOS, *Union Astronomer, Union Observatory, Johannesburg, South Africa.*

MEMBRES: MM. Aller, Arend, Baize, Mme Bonnet-Sainturier, MM. Dawson, Dick, Finsen, Hertzprung, Jeffers, Jonckheere, Kuiper, Kulikovsky, Luyten, Markarian, E. L. Martin, P. Muller, Rabe, Rossiter, Russell, Strand, Struve, Van Biesbroeck, van de Kamp, Voûte, Wallenquist, Wierzbinsky, Woolley.

In reply to a circular letter asking members of our Commission for suggestions for this Presidential Report, Finsen and Muller have followed up some points mentioned in my previous Report and during the discussion on the future and aims of Double Star Astronomy, held at the Zürich Meeting of our Commission.

They point out that the number of known pairs is now so large and the number of experienced double star observers so small, that it is not possible to keep more than a small percentage under regular observation.

The year 1927, to which the latest General Catalogues are roughly complete, is now so far behind us that it is no longer possible to rely on them in judging which pairs are in need of re-measurement. For the same reason, the value of many orbits published in recent years could have been greatly enhanced if they had been based on more complete and up-to-date observational data. The Lick and Union Observatories as well as Muller at Strasbourg are always ready to supply the required information from their card catalogues.

Muller suggests the publication of a list of pairs for which measures are particularly desirable. While this would not encroach on the observer's freedom to draw up his own programme, he could increase the value of his work by devoting, in so far as his circumstances permit, a part of his attention to such a list. As measures are published, the list could be revised from time to time.

For such a plan to work well, there should not be too long an interval between the epoch of observation and date of publication.

Finsen is of the opinion that guidance is urgently required in respect of the following aspects of double star work:

1. The problems to which answers are sought in the field of double stars. The views of specialists in other fields would be particularly welcome and an Assembly of the I.A.U. is a very suitable occasion to obtain these views.
2. The most efficient and economical approach to the solution of these problems. A clear statement as the outcome of a discussion at the meeting, may well provide the stimulus to young astronomers seeking fields of specialization which the present situation shows to be lacking in work on traditional lines.

Arend considers it to be desirable that orbit computers should give the epochs of nodal passage and the relative radial velocities at the nodes, as a guide to radial velocity observers. This information could be included in catalogues of orbits for easy reference.

Muller remarks that in publications of observational results the objects are frequently given by a single designation only, e.g. the ADS number. In case of a misprint a long search may then be required to identify the observed object. He wishes our Commission to formulate a resolution that the objects should be designated in two ways, viz. the star position for a stated epoch plus the ADS number or some other suitable identification. I agree with him, as I have often met the same difficulty.

Where differences of magnitude, etc., are concerned, the position angle or quadrant adopted should be stated. Failing this, one cannot always be sure which component is meant.

Wallenquist has started the determination of magnitude differences as well as colours of the components of double stars by photo-electric methods. For instrumental reasons only wide pairs (20" or over) could be observed so far, but he hopes to reach much closer

pairs, though not with the high accuracy customary in photo-electric photometry, on account of the difficulties involved.

At the Bosscha Observatory, Java, a programme of photographic double star observation is being actively pursued. This is welcome news, as at Johannesburg we have not been able to do much in this line in recent years and are concentrating on visual and interferometer observation.

W. H. VAN DEN BOS  
*President of the Commission*

#### PUBLICATION OF A GENERAL CATALOGUE OF DOUBLE STARS

At the meeting of Commission 26, in Zürich on 13 August 1948, the desirability of a publication of General Catalogues for the northern and southern domains, to bring the ADS and SDS up to date since 1927, was briefly discussed.

I wish to make the following suggestions, in the hope that this important question may be fully discussed at the Rome meeting.

1. In my opinion, the publication of catalogues of the type of the ADS or SDS is no longer necessary, as a result of the existence of the two Central Offices of Information at Lick and Johannesburg. The very considerable expense and work required for such publications can no longer be justified. Furthermore, such catalogues are of necessity already several years out of date when they appear; for example, the ADS, complete to 1927.0, was published in 1932.

2. It seems to me that a single General Catalogue of Double Stars covering the whole sky, but giving only the information normally required by the general astronomer as well as the double star specialist, would be of much greater use, much less expensive to print and therefore justifiable. What information exactly such a catalogue should contain, is of course a matter for discussion. It may, however, be helpful, as a guide, if I give here my own thoughts on the matter. I can best convey them by giving a specimen entry and its explanation.

04215 S2544	04174 S2558	AB $\beta$ 744	S26°1642	1891-1951 $\infty$	77y	0°50 0.56	6.5-6.7 Fo	C 0°066, 138°
		AB,C h3644		1891-1951 4	7°	3° 35'4 38'8	5.9-12	R 0°072, 144°
		AB,D h3644	S26°1643	1891-1951 6	41° 41'	44'6 44'4	5.9-8.6 Go	C 0°069, 150°

3. The first column gives the position for 2000. Following a suggestion by Dr Jeffers, this serves at the same time as a reference number. The first two figures give the hours, the next three the minutes and tenths of right ascension, N or S (or if preferred, + and -) stand for north or south declination, the next four figures give the degrees and minutes of declination.

It may be objected that, as a reference number, this is rather cumbersome, but in my opinion this drawback is more than offset by the advantages of Dr Jeffers's suggestion.

Our double stars are already encumbered by a variety of designations which convey no useful information: discoverer's number, BDS or JDS and ADS number, Durchmusterung and HD number, etc. Here we have a reference number which gives at once the 2000 position and cannot become obsolete or upset by insertion of new entries.

Entries will be in order of increasing right ascension, with those having the same right ascension (to 0.1 m.) in order of declination from north to south.

4. The second column gives the 1900 position in the same manner. For other epochs a position of sufficient accuracy for purposes of identification, for setting the telescope, etc., can thus be obtained at sight.

5. The third column gives the combination of components in a multiple star and the discoverer's number. Though the latter is of small practical use, its retention is justified for historical reasons and as a further check on identification.

6. The fourth column gives the Durchmusterung identification. As in the HD, BD from +90° to -23°, CD from -23° to -52° and CPD from -52° to -90°.