

THE CATALOGUE OF STELLAR IDENTIFICATIONS

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1. DESCRIPTION OF THE CATALOGUE

Collecting all the data and references for a given star is generally a very time-consuming task, because the star may have many identifications. It is therefore a very first need to know the various identifications which may be used in the primary literature concerning a given star, in order to retrieve the whole set of information about the star.

The Catalogue of Stellar Identifications (CSI), which tries to solve this problem of cross-identifications, is therefore the fundamental file of the Stellar Data Center. It was created five years ago by J. Jung (1971), who was the first Director of the Center, with the help of Madame Bischoff and Madame Morin. The CSI was first a merging of some fundamental catalogues: SAO, HD, AGK2, CPC (Cape Photographic Catalogue for 1950), YZ (Yale Zone Catalogue), and GC. For each star, the information was the following:

- 1950 coordinates, rounded to $2^{-20} * 360^\circ$ (roughly 1"3)
- magnitudes, visual and photographic (precision: 0.01)
- spectral type taken from HD
- DM identification (BD, CoD or CPD)
- identifications in HD, AGK2, CPC, YZ, GC.

During the course of this task, errors in the fundamental catalogues were detected and corrected, and correspondences between DM identifications in the zones -22° and -40° to -52° were established.

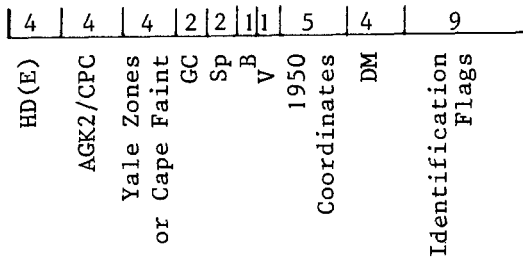


FIGURE 1. Description of a logical record of the CSI.

New catalogues were then connected to the CSI. Many difficulties arose in the course of this merging task, always related to the stellar identifications, especially with the Index Catalogue of Visual Double Stars. To avoid the difficulties encountered with a very large data base of varying-length records, only a 1-bit flag indicates that a given star belongs to one given catalogue; a secondary file provides the identification of the star in the catalogue concerned.

Fig. 1 describes the structure of the main index, the CSI. For each star, the information is stored in 36 bytes records. HDE identification is provided when the star is listed in vol. 100 or plotted in vol. 112 of Harvard Annals; this identification work was achieved by R. Bonnet (1975). The magnitudes were homogenized to (UBV) (Ochsenbein, 1974). The coordinates are not homogeneous; the majority of them are taken from SAO, but for about 40 000 stars, the precision is about 1' (HD coordinates). The DM identification, which represents actually the keyword of the star, has been extended to non-DM stars. It can be seen that up to 72 catalogues can be flagged in the CSI; at present, the number of connected catalogues is now roughly 30; Table 1 lists these catalogues.

The CSI itself now contains roughly 440 000 stars and is thought to be complete up to 9^m5 visual.

For the present time, the data base is developed on the INAG computer located at the Meudon Observatory, to which the Stellar Data Center has a remote access.

2. FACILITIES PROVIDED BY THE CENTER

The general structure of the data base is described in Fig. 2. The fundamental catalogue, the CSI, is connected to the secondary files; all these files are on direct-access devices. These secondary files are:

TABLE 1. Catalogues connected to the CSI.

Catalogue	Data	Number of Objects	
SAO AGK2/3 Yale Zones GC	Proper motion	360 000	
FK4			2 000
N30			5 300
GC Trig Par.			5 800
Blanco et al. Mermilliod	UBV UBV	26 000	
Geneva	7 color phot	5 000	
Hauck et al.	uvby β	9 600	
Infrared Sky Survey	2 u phot	5 600	
Celescope	UV	5 700	
Variable stars		3 000	
HD	Sp. types	260 000	
Jaschek et al. Kennedy	MK Sp. t.	23 000	
Wilson Abt and Biggs			Rad vel
Uesugi and Fukuda Bernacca	V sini	4 000	
Luminous stars			9 000
HR		9 100	
ADS/IDS		40 000	
Batten	Sp. bin. orb.	730	

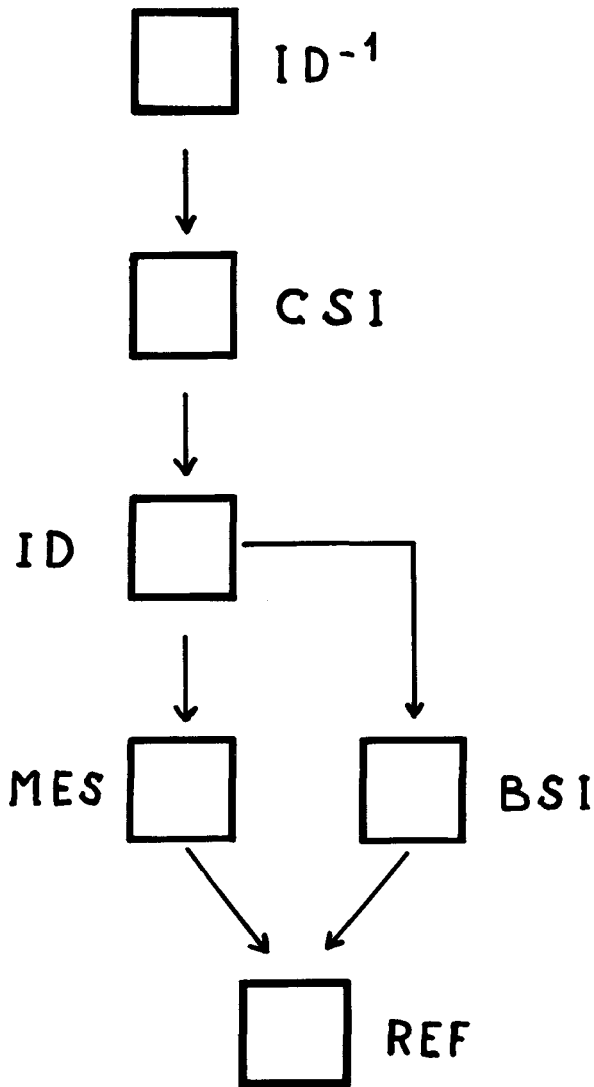


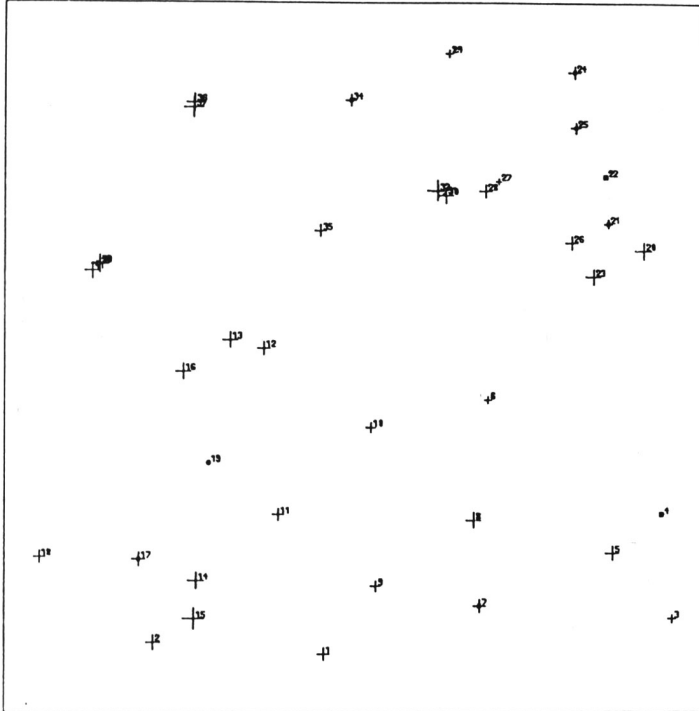
FIGURE 2. Schematic description of the data base.

- ID : provides the identifications of the stars which are flagged in the CSI
- ID^{-1} : provides the DM identification from the identification taken from one of the connected catalogues - the reverse file of ID

\perp B= 1 \perp B= 4 \perp B= 7 \perp B=10 . B>13 . B inconnu
 . B< 0.0 . B>23.5 . coordonnees imprecises

Echelle= 40.0 arc.sec/mm

2 X 2 DEGREES MAP FROM THE C.S.I.



7 24.3 +13 41

FIGURE 3. Example of a plot of CSI stars (field 2 x 2 degrees, centered at $\alpha_{1950}=7^h 24^m 3$, $\delta_{1950}=+13^\circ 41'$).

- MES: provides some of the data which are known about the stars
 - in (UBV), (uvby), Geneva photometries
 - in MK classification
 - in infra-red photometry (2 microns sky survey)
 - in trigonometric parallaxes
 - in radial velocities
- BSI - Bibliographical Star Index - which will be described by F. Spite later on and provides the bibliographic references for each star

- REF: bibliographical references, listing the titles of the papers

On this scheme, the following facilities have been developed:

- a - Retrieval of all the information for a given set of stars defined by any identifiers
- b - Creation of a subset of the CSI on the basis of given criteria, such as position in the sky, magnitudes, spectral type, or combinations of data requirements. This facility is especially suited for statistical analysis, which requires the whole information known at present for a combination of data.
- c - Plot of the stars lying in a given field of the sky; this is especially suited to the identification of stars on a chart or the preparation of observations. Fig. 3 illustrates this facility.

For each of these facilities, all informations (identifications, coordinates, magnitudes, spectral type, data taken from the catalogues, bibliographic references) are provided.

3. FUTURE DEVELOPMENTS

- The possible future extensions of the CSI will probably be:
- the extension of the connected catalogues, since many of the catalogues are updated regularly by the specialists (photometric catalogues at the Lausanne-Geneva Observatories, radial velocities at Marseille); we try also to include the whole HDE;
 - the number of connected catalogues, for example Michigan spectral survey, catalogues of measurements in other photometric systems;
 - the data which can be accessed directly (proper motions selected by A. Fresneau);
 - possibilities of sampling on the basis of the data.

We hope that the CSI will also become useful to people outside our Data Center, because about five years of effort have been put into it. We would be very thankful for all suggestions for the improvement of the CSI.

REFERENCES

- Bonnet R. and Ochsenbein F. (1975) Inf. Bulletin Strasbourg Center 8, 8.
 Jung J. (1971) Inf. Bulletin Strasbourg Center 1, 3.
 Ochsenbein F. (1974) Astron. Astroph. Supp. 15, 215.