

YALE UNIVERSITY OBSERVATORY

---

# CATALOGUE OF BRIGHT STARS

Containing data compiled through 1962

Third Revised Edition

by Dorrit Hoffleit

YALE UNIVERSITY OBSERVATORY



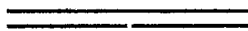
# CATALOGUE OF BRIGHT STARS

Containing data compiled through 1962

Third Revised Edition

by Dorrit Hoffleit

WITH APPENDICES GIVING INDICES TO  
CONSTELLATION DESIGNATIONS AND  
NAMED STARS



New Haven, Connecticut  
1964

## 出版说明

本表列出全天 9091 个亮星的位置、亮度、光谱分类、自行、视差等有关资料。

本表选星所取的最暗界限值为目视星等 6.55(少数特选的更暗星除外)。虽然是二十世纪初的星等系统(和现代星等系统有显著差异),但表中收集了大批现代光电星等和二元光谱分类资料,很有用。

1964 年本表出版以后,天文学包括空间研究获得了迅速的发展,大批亮星有了许多方面的更精确更合理的新资料,亮星中新发现了许多双星、变星,一系列亮星(如大陵五)的射电辐射、x 射线等许多新现象、新规律的研究也进展很快。本星表在编目时已作部分更正,但一些新资料、新数据并不能完全包括进去,虽然这样,在没有更好的星表出版以前,本书仍是天体物理研究、数学和天文普及工作所需要的基本工具书。



## INDEX

|                                                |     |
|------------------------------------------------|-----|
| Introduction                                   | 4   |
| The Catalogue                                  | 6   |
| Compilation of Remarks                         | 375 |
| Appendix 1: Index to Bayer and Flamsteed Stars | 400 |
| Appendix 2: Index to Star Names                | 415 |

## INTRODUCTION

The second edition of the Yale Bright Star Catalogue (1940) included all except 19 of the 9110 stars first listed in Harvard Annals, Vol. 50, 1908, the "HR" catalogue whose numbering was exactly taken over in the Yale Bright Star Catalogue. The present tabulation omits the same 19 objects and also omits the additional fainter stars that had been added in the second edition. These stars were companions to bright stars. In the present edition such companions are adequately described in the Remarks or in the columns representing double stars. The number of stars thus actually tabulated in this edition is 9091, although the last star number is 9110.

A great wealth of data on the stars brighter than 6.5 visual magnitude had accumulated since the second edition was issued in 1940. For example, new spectral classes on the Morgan-Keenan two-dimensional system have become available for some 40 per cent of the Bright Stars. The General Catalogue of Radial Velocities became available in 1953 with velocities included for 6404 of the Bright Stars. In 1952 Miss Louise Jenkins published her General Catalogue of Trigonometric Parallaxes which included over 30 per cent of these stars; and in 1963 a supplement yielding 94 more of the parallaxes included here. Through correspondence and a wide search of the literature, guided largely by consultation of the "Jahresbericht" of the Astronomische Gesellschaft, a variety of other relevant data have been compiled. These are incorporated in all of the categories of information represented in the body of the catalogue, as well as in the material collected in the Remarks which follow the tabular material. The search for material, while extensive, has by no means been exhaustive, largely because of limitation of time allotted to the completion of the project, which was activated early in 1962.

A great deal of the compilation has been accomplished with IBM equipment. Since 1959 the U.S. Naval Observatory and Yale University Observatory have collaborated on the task of putting most of the existing extensive astronomical catalogues on punched cards. Relevant card catalogues from this library that have been used in the preparation of the 3rd Edition of the Bright Star Catalogue comprise the following:

- Benjamin Boss, General Catalogue of 33242 Stars for the Epoch 1950 (1937)
- L. F. Jenkins, General Catalogue of Trigonometric Stellar Parallaxes (1952)
- B. V. Kukarkin *et al.*, General Catalogue of Variable Stars (1958) and Supplement (1961)
- H. N. Russell and C. Moore, General Catalogue of Dynamical Parallaxes (In "The Masses of the Stars," 1940)
- F. Henksinger and L. F. Jenkins, Catalogue of Bright Stars, 2nd Ed., 1940
- R. E. Wilson, General Catalogue of Stellar Radial Velocities (1953)

In addition to these already available card catalogues, various supplementary lists of data were punched, in particular, data and identifications for the double stars in the BS. The basic source for double star identification is Aitken's catalogue (1932). Stars not found there were searched successively in Rossiter's "Southern Double Stars" (Michigan Pub., Vol. 9, 1955) and Innes, "Southern Double Star Catalogue" (1927). Data from other miscellaneous sources were then added from publications by Finsen, Kuiper, van Biesbroeck, van den Bos and others. Each double is represented by its designation in only one of these sources.

Putting the new spectral and luminosity classes on punched cards offered something of a challenge. In view of the complexity of some spectra, it became necessary to allot 43 punch-card columns to the spectral classes in order to differentiate between upper and lower case letters, and Arabic and Roman numerals, and also to allow for composite spectra. As the cards are now punched, it will be possible to carry out statistical sorting according to ordinary (temperature) class and by luminosity class.

New photoelectric magnitudes and colors have become available for nearly 50 per cent of the Bright Stars. Dr. A. Klemola has made a compilation of all of the major published series of such determinations and reduced them to a common system. This compilation has not been restricted to the Bright Stars and a separate general catalogue of magnitudes and colors on the UBV system will be published by him. The values of V and B-V for the Bright Stars are extracted from his larger compilation.

Dr. Eugeniusz Rybka of the Cracow Observatory, Poland, furnished his precise revisions of HR magnitudes for over 1100 northern stars, reduced to the V system. These are included in the Catalogue wherever direct photoelectric determinations are not yet available. The original HR magnitudes are retained for stars for which neither Klemola nor Rybka furnished new values.

Following the Catalogue proper is a collection of Remarks. The bulk of this material refers to double stars, spectroscopic binaries and variable stars. Other notes include data on apparent association of the stars with clusters or moving systems. This particular type of information (in addition to notes transcribed from the previous edition) was gleaned largely from publications by O. Eggen (various papers in the Monthly Notices of the Royal Astronomical Society and Royal Observatory Bulletin No. 51, 1962, "Space Velocity Vectors for 3483 Stars").

Exact counts of stars with various categories of information have not been carried out. However, samplings suggest the following order of percentages of stars of each category:

|                                     |      |
|-------------------------------------|------|
| BS with known proper motions        | 100% |
| radial velocities                   | 75%  |
| revised spectral classes            | 75%  |
| luminosity classes                  | 40%  |
| photoelectric magnitudes and colors | 50%  |
| trigonometric parallaxes            | 35%  |

|                                                                                          |                                             |
|------------------------------------------------------------------------------------------|---------------------------------------------|
| BS that are components of visual double or multiple stars                                | 25%                                         |
| visual double stars with orbits determined                                               | 6% of the tabulated doubles                 |
| spectroscopic binaries                                                                   | 10%                                         |
| spectroscopic binaries with periods determined                                           | 40% of the tabulated spectroscopic binaries |
| confirmed variable stars                                                                 | 3%                                          |
| suspected variable stars                                                                 | 5%                                          |
| members of clusters or associations                                                      | 9%                                          |
| Number of visual double stars in the BS of which one component is a spectroscopic binary | 303                                         |
| eclipsing variable                                                                       | 26                                          |
| intrinsic variable                                                                       | 43                                          |
| suspected variable                                                                       | 283                                         |

The last of these numbers, 283 suspected variables among the components of double stars, amounts to 40% of all of the unconfirmed but suspected variable stars among the Bright Stars. This suggests that a large number of such objects may be spurious variables, the apparent variability being attributable to observations of close doubles under varying atmospheric or other conditions.

Two appendices are given in this Edition of the Bright Star Catalogue. The first gives the BS numbers corresponding to the Bayer and Flamsteed designations. The second appendix, which is Appendix 5 of the second Edition, gives the BS numbers of named bright stars.

Many astronomers have contributed generously toward the compilation of this Catalogue. Dr. William Bidelman of Lick Observatory (now at the University of Michigan) furnished spectral classes, for the most part on the Morgan-Keenan system, for approximately 50% of the stars. Dr. J. Allen Hynek of the Dearborn Observatory volunteered to compile radial velocities for stars not included in the Wilson radial velocity catalogue. In addition to compiling results found in published literature, he solicited by correspondence many results not previously published. Thus he furnished some 400 radial velocities, more than half of which had not previously been entered on manuscript lists at Yale. Before the publication of her Supplement to the General Catalogue of Trigonometric Parallaxes, Miss Louise Jenkins graciously contributed a list of those relevant to the Bright Star Catalogue.

Dr. Morris Davis of the Yale Computer Center generously made available both IBM facilities and programmers and gave valuable counsel on many aspects of the work. Mrs. Theresa Park carried through the conversions from the 1900 coordinates given in previous editions, to the galactic coordinates, and to equatorial coordinates for the year 2000, precessed from 1900 and corrected for centennial proper motion. Miss Susan Flory is primarily responsible for the elaborate IBM 709 program necessary for merging some dozen card catalogues into the required tapes. Modifications in the program and the final card output were carried out by Frank O'Neill. Mrs. Inge Colacino did much preliminary card sorting. Key-punch operators included Barbara Person, Inge Colacino, Mary Mullally and Judith Zyskowski. Among those who assisted in the transcription of data from miscellaneous published catalogues and a search of the literature for relevant data are Mr. W. G. Cleaver, Mr. James Reese, Mrs. Mary Mullally and especially Mrs. Sheila Bishop.

Major contributions by non-Yale staff members were made by Drs. Bidelman, Hynek and Rybka, as already

stated above. Numerous other individuals furnished a great variety of unpublished data or valuable suggestions, namely, Drs. R. H. Stoy, of the Royal Observatory at the Cape of Good Hope, A. D. Thackeray of the Radcliffe Observatory; B. J. Bok and staff members at Mt. Stromlo; P. van de Kamp, Swarthmore; Vera Rubin, Georgetown University Observatory; G. Mumford III, Tufts College; and S. van den Bergh, David Dunlap Observatory.

This third Edition of the Bright Star Catalogue is available in three forms: the printed catalogue, on magnetic tape, and on punched cards. There are two sets of punched cards, one corresponding to the left, the other to the right-hand printed pages. The left-hand pages contain mainly cross-reference numbers, the right pages mainly astronomical data as such.

During the preparation of the catalogue, Dr. Davis, especially, took into consideration a variety of possible methods for printing directly from IBM cards or tapes, including photographic typesetting techniques. The method finally adopted, PHOTON, involving printing directly from tapes, was recommended by Neil Block of the Jet Propulsion Laboratory. Mr. Block personally and voluntarily furnished a considerable part of the necessary editing program and also instructed Michael Hooven of the Yale Observatory in the techniques involved in interspersing complete editing instructions on tapes between the data to be printed. The magnetic tapes produced at Yale were then converted to the necessary paper tapes by Mr. Block.

So much new and experimental work with IBM equipment was involved in the planning and programming of the catalogue that it is probable that the catalogue would have been produced more expeditiously by old-fashioned manual techniques. However, the experience gained in the coding and handling of massive amounts of input will prove invaluable in the publication of other types of catalogues at Yale.

The considerable help received in the preparation of this edition from the numerous people already mentioned is deeply appreciated. Thanks are due Dr. Dirk Brouwer for instigating the project. In addition, it is only fitting to pay respect to past astronomers upon whose foundations this catalogue has grown: E. C. Pickering (1846-1919) whose Harvard Revised Photometry is the earliest edition of the catalogue; and F. Schlesinger (1871-1943) who increased its scope and value in his first edition of the more comprehensive Bright Star Catalogue.

The typing for photo-offset of the Introduction, Remarks and Appendices was carried out by Mrs. Betsy Young and Mrs. Sheila Bishop, respectively.

## LEFT-HAND PAGE

- Column 1 BS number = HR number
- 2 Name. Generally the Bayer or Flamsteed designation taken from the 2nd Ed.
- 3 DM number. For stars north of  $-23^\circ$  (1855) the numbers refer to the Bonn Durchmusterung;  $-23^\circ$  to  $-52^\circ$  (1875), to the Cordoba Durchmusterung; and  $-52^\circ$  to the South Pole, to the Cape Photographic Durchmusterung (1875).
- 4 HD. The number in the Henry Draper Catalogue
- 5 GC. The number in the Boss General Catalogue
- 6 The number in the General Catalogue of Trigonometric Parallaxes, and, when followed by a decimal, in the 1963 Supplement
- 7 The number in the Wilson General Catalogue of Stellar Radial Velocities
- 8 Double star designation. No letter before the number indicates the number in Aitken's Catalogue of Double Stars; a letter R preceding the number, Rossiter's Catalogue of Southern Double Stars; other catalogues or lists, unnumbered, are represented by letters: I, Innes; F, Finsen; K, Kuiper; B, either van Biesbroeck or van den Bos
- 9 Variable Star designation from the General Catalogue of Variable Stars, 1958, or the 1961 Supplement. Suspected variables that have not been sufficiently confirmed to be assigned variable star names are represented by the notation VAR?
- 10 The Right Ascension for 1900
- 11 Declination for 1900
- 12 Galactic Longitude and Latitude for 1900 referred to the pole and center of the galaxy adopted by the IAU in 1958: Pole, R. A.  $12^h 46^m .6$ , Dec.  $+27^\circ .40$  (1900) and center at Sgr A,  $17^h 39^m .3$ ,  $-28^\circ 54'$  (1900)
- $12\ 49\ .0,$        $+27\ .24$  (1950)       $17\ 42\ .4,$   $-28\ 55$  (1950)



## THE CATALOGUE

### RIGHT-HAND PAGE

Column 1 BS = HR

- 2 Right Ascension for the year 2000, based on precession and proper motion corrections to the 1900 positions
- 3 Difference in R. A. (2000 - 1900)
- 4 Declination for the year 2000
- 5 Difference in declination (2000 - 1900)
- 6 Visual magnitude, V. If no suffix is given the magnitude is a photoelectric determination on the UBV system; the letter R indicates HR magnitudes reduced by Rybka to the V system; H indicates that the original HR visual magnitude has been retained. B indicates blended images.
- 7 The color (B - V) on the UBV system
- 8 Spectral Class
- 9 Annual proper motion in right ascension and declination
- 10 Parallax. Unless otherwise designated, the trigonometric parallax. A suffix D indicates a dynamic parallax. A dynamic parallax is given only in the absence of a trigonometric value.
- 11 Radial Velocity. No differentiation is made between the values from the Wilson catalogue and later determinations.
- 12 Double stars. a. Difference between two components of a visual binary, or the difference between the two brightest components of a multiple system listed in a double star catalogue. The magnitudes used here are usually the ones given in the double star catalogue, which may be inconsistent with the values given in column 6 or in further data found in the collection of Remarks following the tables.
  - b. The maximum observed separation of the same two components according to the particular catalogue cited
  - c. The number of components having lettered designations in the catalogue of double stars. Many of these components prove to be optical and are so designated in the Remarks.
- 13 Remark alert. The symbols used in this column give an indication of the category of the remark. Numbers refer to the following comments, for which no further elucidation is given
  - 1 The companion is optical
  - 2 Visual binary
  - 3 Common proper motion components
  - 4 Fixed-separation companion
  - 5 Two spectra are indicated on the radial velocity plates
  - 6 The star is a spectroscopic binary
  - 7 Magnitude and color given in columns 6 and 7 refer to the combined light of two or more stars.

When the above symbols are inadequate to cover the information at hand, letters or an asterisk call attention to the compilation of Remarks that follow the Catalogue. They refer to the following categories of information:

- D Double star data
- G Cluster, group, aggregate or association membership
- M Comments on magnitude or color, except data on known variable stars
- N The name of a bright star
- R Radial velocity comments, including data on spectroscopic binaries
- S Comments on Spectra
- V Remarks on variable stars other than the data from the General Catalogue of Variable Stars and its Supplement, which are abstracted in the Remarks for all stars with named variable star designations
- \* This symbol is used for any combination of the above categories and for other comments not falling under any of those categories

For further remarks on the contents of the collected Remarks, see the page preceding the compilation itself

| BS<br>HR | NAME |                | DM        | HD   | GC  | PAR<br>CAT | RAD VEL<br>CAT | DOUBLE<br>STAR CAT | VARIABLE<br>STAR CAT | RA<br>(1900) | DEC<br>(1900) | GALACTIC |        |
|----------|------|----------------|-----------|------|-----|------------|----------------|--------------------|----------------------|--------------|---------------|----------|--------|
|          |      |                |           |      |     |            |                |                    |                      |              |               | LONG     | LAT    |
| 1        |      |                | +44 4550  | 3    | 54  |            | 35             | 46                 |                      | h m s        | +44 40        | 114 26   | -16 53 |
| 2        |      |                | - 1 4525  | 6    | 51  |            | 32             |                    |                      | 0 0 2        | - 1 3         | 98 19    | -61 8  |
| 3        | 33   | PSC            | - 6 6357  | 28   | 59  | 2.         | 36             |                    |                      | 23 59 56     | - 6 16        | 93 44    | -65 56 |
| 4        | 86   | PEG            | +12 5063  | 87   | 75  |            | 42             |                    |                      | 0 0 13       | +12 50        | 106 10   | -47 59 |
| 5        |      |                | +57 2865  | 123  | 88  | 7.         | 44             | 61                 |                      | 0 0 34       | +57 53        | 117 1    | - 3 55 |
| 6        |      |                | -49 14337 | 142  | 92  | 8.         | 47             | 1                  |                      | 0 1 2        | -49 38        | 321 38   | -66 22 |
| 7        | 10   | CAS            | +63 2107  | 144  | 94  |            | 48             |                    |                      | 0 1 8        | +63 38        | 118 3    | + 1 44 |
| 8        |      |                | +28 4704  | 166  | 95  | 9.         | 51             |                    |                      | 0 1 14       | +28 28        | 111 14   | -32 50 |
| 9        |      |                | -23 4     | 203  | 98  |            | 53             |                    |                      | 0 1 25       | -23 40        | 52 8     | -79 8  |
| 10       |      |                | -18 6428  | 256  | 103 |            |                |                    |                      | 0 1 43       | -17 57        | 74 18    | -75 54 |
| 11       |      |                | - 3 2     | 315  | 114 |            | 57             |                    |                      | 0 2 12       | - 3 6         | 98 0     | -63 17 |
| 12       |      |                | -23 13    | 319  | 116 |            |                | 89                 |                      | 0 2 36       | -23 4         | 55 30    | -79 4  |
| 13       |      |                | -34 17    | 344  | 120 |            |                |                    |                      | 0 2 40       | -34 5         | 355 56   | -78 40 |
| 14       |      |                | - 3 3     | 352  | 124 |            | 60             |                    |                      | 0 2 58       | - 3 0         | 98 20    | -63 14 |
| 15       | 21   | $\alpha$ AND   | +28 4     | 358  | 127 | 12.        | 62             | 94                 |                      | 0 3 5        | +28 32        | 111 43   | -32 51 |
| 16       |      |                | - 9 5     | 360  | 126 |            | 61             |                    |                      | 0 3 13       | - 9 23        | 91 46    | -69 3  |
| 17       |      |                | +35 8     | 400  | 131 | 13.        | 65             |                    |                      | 0 3 11       | +36 4         | 113 26   | -25 28 |
| 18       |      |                | -18 3     | 402  | 129 |            |                |                    |                      | 0 3 32       | -18 8         | 74 39    | -76 15 |
| 19       |      |                | +24 3     | 417  | 138 |            | 66             |                    |                      | 0 3 27       | +24 54        | 110 57   | -36 26 |
| 20       |      |                | +78 1     | 431  | 149 | 15.        | 70             | 102                |                      | 0 3 42       | +79 10        | 120 59   | +17 0  |
| 21       | 11   | $\beta$ CAS    | +58 3     | 432  | 147 | 16.        | 69             | 107                |                      | 0 3 48       | +58 36        | 117 31   | - 3 16 |
| 22       | 87   | PEG            | +17 7     | 448  | 144 |            | 68             |                    |                      | 0 3 50       | +17 39        | 108 58   | -43 31 |
| 23       |      |                | -54 19    | 469  | 148 |            |                | 1                  |                      | 0 3 53       | -54 34        | 316 16   | -62 0  |
| 24       |      | $\kappa^1$ SCL | -28 16    | 493  | 155 | 18.        | 72             | 111                |                      | 0 4 0        | -28 33        | 25 11    | -80 37 |
| 25       |      | $\epsilon$ PHE | -46 18    | 496  | 158 | 19.        | 75             |                    |                      | 0 4 15       | -46 18        | 324 22   | -69 35 |
| 26       | 34   | PSC            | +10 8     | 560  | 167 |            | 79             | 122                |                      | 0 4 20       | +10 35        | 106 51   | -50 26 |
| 27       | 22   | AND            | +45 17    | 571  | 169 | 20.        | 80             |                    |                      | 0 4 54       | +45 31        | 115 31   | -16 13 |
| 28       |      |                | +56 11    | 584  | 176 |            |                |                    |                      | 0 5 7        | +56 36        | 117 22   | - 5 17 |
| 29       |      |                | - 6 11    | 587  | 171 |            | 81             |                    |                      | 0 5 15       | - 5 48        | 96 58    | -66 1  |
| 30       |      | $\gamma^3$ OCT | -82 4     | 636  | 173 |            | 82             |                    |                      | 0 5 12       | -82 47        | 304 38   | -34 46 |
| 31       |      |                | -13 13    | 645  | 181 |            | 89             |                    |                      | 0 5 30       | -13 8         | 87 39    | -72 36 |
| 32       |      |                | -73 4     | 661  | 184 |            |                | 1                  |                      | 0 5 35       | -73 47        | 306 59   | -43 34 |
| 33       | 6    | CET            | -16 17    | 693  | 190 | 24.        | 92             |                    |                      | 0 5 44       | -16 1         | 82 12    | -75 3  |
| 34       |      | $\kappa^2$ SCL | -28 26    | 720  | 197 |            | 95             |                    |                      | 0 6 10       | -28 21        | 26 18    | -81 8  |
| 35       |      | $\theta$ SCL   | -35 42    | 739  | 202 |            | 98             |                    |                      | 0 6 30       | -35 42        | 347 9    | -78 19 |
| 36       |      |                | +47 21    | 743  | 204 |            | 99             |                    |                      | 0 6 39       | +47 36        | 116 9    | -14 12 |
| 37       |      |                | -18 14    | 787  | 214 | 28.        | 100            |                    |                      | 0 6 45       | -18 30        | 76 15    | -77 6  |
| 38       |      |                | +36 12    | 829  | 228 |            | 102            |                    |                      | 0 7 4        | +37 8         | 114 32   | -24 33 |
| 39       | 88   | $\gamma$ PEG   | +14 14    | 886  | 238 | 33.        | 105            |                    | $\gamma$ PEG         | 0 7 39       | +14 38        | 109 25   | -46 41 |
| 40       |      |                | +26 13    | 895  | 243 |            | 107            | 161                |                      | 0 8 5        | +26 25        | 112 33   | -35 8  |
| 41       | 23   | AND            | +40 29    | 905  | 244 | 34.        | 109            |                    |                      | 0 8 13       | +40 29        | 115 16   | -21 16 |
| 42       |      |                | -26 56    | 942  | 249 |            |                |                    |                      | 0 8 19       | -26 35        | 38 11    | -81 29 |
| 43       |      |                | -26 57    | 943  | 250 |            |                |                    |                      | 0 8 38       | -26 51        | 36 25    | -81 32 |
| 44       |      |                | +32 21    | 952  | 256 |            | 114            |                    |                      | 0 8 40       | +32 39        | 113 59   | -29 1  |
| 45       | 89   | $\chi$ PEG     | +19 27    | 1013 | 270 | 38.        | 122            |                    |                      | 0 8 51       | +19 39        | 111 17   | -41 50 |
| 46       |      |                | - 8 26    | 1014 | 265 | 37.        | 120            | 180                | VAR?                 | 0 9 26       | - 8 20        | 96 50    | -68 45 |
| 47       |      |                | -85 2     | 1032 | 257 |            |                |                    |                      | 0 9 21       | -85 33        | 303 55   | -32 3  |
| 48       | 7    | CET            | -19 21    | 1038 | 272 | 39.        | 123            |                    | VAR?                 | 0 9 32       | -19 29        | 75 5     | -78 13 |
| 49       |      |                | +21 13    | 1048 | 281 |            | 126            |                    |                      | 0 9 34       | +21 43        | 111 54   | -39 49 |
| 50       | 35   | PSC            | + 8 19    | 1061 | 287 |            | 127            | 191                | UU PSC               | 0 9 45       | + 8 16        | 107 51   | -52 59 |

## BRIGHT STAR CATALOGUE

9

| BS=<br>HR | RA<br>(2000) |       | $\Delta\alpha$<br>100 YR |        | DEC<br>(2000) |        | $\Delta\delta$<br>100 YR |  | VISUAL<br>MAG | B-V | SPECTRAL<br>CLASS | PROPER MOTION |        | PAR    | RADIAL<br>VELOCITY | DOUBLE STARS |      |    | R |
|-----------|--------------|-------|--------------------------|--------|---------------|--------|--------------------------|--|---------------|-----|-------------------|---------------|--------|--------|--------------------|--------------|------|----|---|
|           | h            | m s   | m s                      |        | °             | '      | '                        |  |               |     |                   | RA            | DEC    |        |                    | $\Delta m$   | SEP  | NO |   |
| 1         | 0            | 5 11  | + 5 9                    | +45 13 | +33           | 6.46 R |                          |  | A0            |     | -0.016            | -0.017        | "      | km/s   |                    | 2.9          | 21.5 | 3  |   |
| 2         | 0            | 5 4   | + 5 8                    | - 0 30 | +33           | 6.30   | +1.10                    |  | gG9           |     | +0.039            | -0.055        |        | - 18   |                    |              |      |    |   |
| 3         | 0            | 5 20  | + 5 7                    | - 5 42 | +34           | 4.62   | +1.04                    |  | K1III         |     | -0.016            | +0.096        | +0.009 | + 14   |                    |              |      |    | R |
| 4         | 0            | 5 42  | + 5 8                    | +13 23 | +33           | 5.48 R |                          |  | gG5           |     | +0.041            | +0.002        |        | - 6V   |                    |              |      |    |   |
| 5         | 0            | 6 16  | + 5 14                   | +58 26 | +33           | 5.94 R |                          |  | dG4           |     | +0.261            | +0.034        | +0.039 | + 2V?  |                    |              |      |    |   |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        | - 12   |                    | 1.1          | 2.1  |    | D |
| 6         | 0            | 6 19  | + 5 11                   | -49 5  | +33           | 5.69   | +0.52                    |  | G1IV          |     | +0.560            | -0.037        | +0.043 | + 1    |                    | 5.9          | 5.7  |    | * |
| 7         | 0            | 6 26  | + 5 12                   | +64 11 | +33           | 5.44 R | -0.02                    |  | B8            |     | +0.009            | +0.004        |        | - 0    |                    |              |      |    |   |
| 8         | 0            | 6 36  | + 5 11                   | +29 1  | +33           | 6.14   | +0.75                    |  | K0V           |     | +0.376            | -0.180        | +0.069 | - 8    |                    |              |      |    |   |
| 9         | 0            | 6 50  | + 5 7                    | -23 7  | +33           | 6.17   | +0.38                    |  | dA7           |     | +0.099            | -0.039        |        | - 2    |                    |              |      |    |   |
| 10        | 0            | 7 18  | + 5 6                    | -17 24 | +33           | 6.18   | +0.14                    |  | A3            |     | -0.023            | +0.041        |        |        |                    |              |      |    |   |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 11        | 0            | 7 43  | + 5 7                    | - 2 33 | +33           | 6.44   | -0.15                    |  | A0n           |     | +0.021            | +0.003        |        | + 13   |                    |              |      |    |   |
| 12        | 0            | 7 46  | + 5 6                    | -22 31 | +33           | 5.93   | +0.14                    |  | A3V           |     | +0.048            | -0.041        |        | - 9V   |                    | 6.6          | 2.2  |    | D |
| 13        | 0            | 8 3   | + 5 5                    | -33 32 | +33           | 5.71 H |                          |  | gK1           |     | -0.046            | +0.004        |        |        |                    |              |      |    |   |
| 14        | 0            | 8 12  | + 5 7                    | - 2 27 | +33           | 6.06   | +1.38                    |  | gK2           |     | +0.003            | -0.004        |        | + 1V   |                    |              |      |    | R |
| 15        | 0            | 8 23  | + 5 10                   | +29 5  | +33           | 2.02   | -0.10                    |  | B9p           |     | +0.134            | -0.161        | +0.024 | - 12V  |                    | 9.2          | 76.2 |    | * |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 16        | 0            | 8 17  | + 5 6                    | - 8 50 | +33           | 6.00   | +1.03                    |  | gG8           |     | -0.058            | -0.028        |        | + 20   |                    |              |      |    |   |
| 17        | 0            | 8 41  | + 5 9                    | +36 37 | +33           | 5.97 R |                          |  | dF4           |     | -0.105            | -0.145        | +0.046 | - 14   |                    |              |      |    |   |
| 18        | 0            | 8 33  | + 5 6                    | -17 35 | +33           | 6.37 H |                          |  | M1            |     | -0.004            | -0.020        |        |        |                    |              |      |    |   |
| 19        | 0            | 8 52  | + 5 10                   | +25 27 | +33           | 6.23   | +0.97                    |  | K0III         |     | +0.110            | +0.003        |        | + 15   |                    |              |      |    |   |
| 20        | 0            | 9 20  | + 5 32                   | +79 43 | +33           | 6.12 R |                          |  | A3            |     | +0.104            | -0.023        | -0.001 | + 1    |                    | .3           | .8   |    | * |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 21        | 0            | 9 10  | + 5 20                   | +59 9  | +33           | 2.25   | +0.35                    |  | F2IV          |     | +0.527            | -0.178        | +0.072 | + 12   |                    | 11.7         | 23.7 |    | * |
| 22        | 0            | 9 2   | + 5 9                    | +18 12 | +33           | 5.48 R |                          |  | gG9           |     | +0.133            | -0.024        |        | - 23   |                    |              |      |    |   |
| 23        | 0            | 9 3   | + 5 3                    | -54 1  | +33           | 6.32   | +0.74                    |  | G4IV          |     | +0.047            | +0.016        | .009D  | + 1    |                    | 2.1          | .7   |    | D |
| 24        | 0            | 9 21  | + 5 6                    | -28 0  | +33           | 5.40   | +0.42                    |  | dF2           |     | +0.065            | -0.001        | +0.017 | + 9    |                    | .2           | 1.5  |    | 2 |
| 25        | 0            | 9 24  | + 5 4                    | -45 45 | +33           | 3.87   | +1.02                    |  | K0III         |     | +0.124            | -0.179        | +0.059 | - 9    |                    |              |      |    |   |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 26        | 0            | 10 2  | + 5 8                    | +11 8  | +33           | 5.47 R | -0.06                    |  | B8V           |     | +0.035            | +0.000        | .017D  | + 14   |                    | 4.5          | 8.0  |    | D |
| 27        | 0            | 10 19 | + 5 12                   | +46 4  | +33           | 5.05   | +0.42                    |  | F2II          |     | +0.000            | -0.001        | -0.006 | - 5    |                    |              |      |    |   |
| 28        | 0            | 10 30 | + 5 15                   | +57 9  | +33           | 6.47 R | -0.08                    |  | B8            |     | +0.022            | +0.009        |        |        |                    |              |      |    |   |
| 29        | 0            | 10 19 | + 5 7                    | - 5 15 | +33           | 5.85   | +0.98                    |  | gG9           |     | +0.031            | -0.027        |        | + 24   |                    |              |      |    |   |
| 30        | 0            | 10 2  | + 4 32                   | -82 14 | +33           | 5.27   | +1.05                    |  | gG8           |     | -0.016            | -0.015        |        | + 15   |                    |              |      |    |   |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 31        | 0            | 10 42 | + 5 7                    | -12 35 | +33           | 5.94 H |                          |  | dK1           |     | +0.152            | -0.032        |        | + 4    |                    |              |      |    |   |
| 32        | 0            | 10 38 | + 4 54                   | -73 14 | +33           | 6.63   | +0.38                    |  | A +G          |     | +0.126            | +0.016        |        | - 14   |                    | 1.5          | 1.0  |    | D |
| 33        | 0            | 11 15 | + 5 5                    | -15 28 | +33           | 4.88   | +0.49                    |  | F6V           |     | -0.082            | -0.263        | +0.060 | + 15   |                    |              |      |    |   |
| 34        | 0            | 11 35 | + 5 5                    | -27 48 | +33           | 5.56 H |                          |  | K5III         |     | +0.003            | +0.023        |        | - 6    |                    |              |      |    |   |
| 35        | 0            | 11 44 | + 5 5                    | -35 8  | +34           | 5.24   | +0.44                    |  | F4V           |     | +0.160            | +0.127        |        | - 2    |                    |              |      |    |   |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 36        | 0            | 11 59 | + 5 14                   | +48 9  | +33           | 6.16 R |                          |  | gK4           |     | +0.054            | +0.018        |        | + 16   |                    |              |      |    |   |
| 37        | 0            | 12 10 | + 5 6                    | -17 57 | +33           | 5.28   | +1.46                    |  | K5III         |     | +0.051            | -0.026        | -0.020 | - 8V?  |                    |              |      |    |   |
| 38        | 0            | 12 51 | + 5 12                   | +37 41 | +33           | 6.52 R |                          |  | B2V           |     | +0.023            | -0.010        |        | - 9    |                    |              |      |    |   |
| 39        | 0            | 13 14 | + 5 9                    | +15 11 | +33           | 2.83   | -0.23                    |  | B2IV          |     | -0.001            | -0.010        | -0.004 | + 4V   |                    |              |      |    | G |
| 40        | 0            | 13 23 | + 5 10                   | +26 58 | +33           | 6.23 R |                          |  | F5            |     | -0.012            | -0.044        | .006D  | - 13   |                    | 1.4          | .8   | 3  | D |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 41        | 0            | 13 31 | + 5 12                   | +41 2  | +33           | 5.60 R |                          |  | dA7           |     | -0.122            | -0.144        | +0.024 | - 29V? |                    |              |      |    |   |
| 42        | 0            | 13 42 | + 5 4                    | -26 2  | +33           | 5.93   | +1.55                    |  | K2            |     | +0.020            | -0.066        |        |        |                    |              |      |    |   |
| 43        | 0            | 13 44 | + 5 4                    | -26 18 | +33           | 6.41 H |                          |  | K5            |     | -0.025            | +0.014        |        |        |                    |              |      |    |   |
| 44        | 0            | 14 3  | + 5 12                   | +33 12 | +33           | 6.03 R | +0.02                    |  | A1V           |     | -0.015            | -0.021        |        | + 1    |                    |              |      |    |   |
| 45        | 0            | 14 37 | + 5 11                   | +20 12 | +33           | 4.80   | +1.58                    |  | M2III         |     | +0.089            | +0.003        | -0.007 | - 46   |                    |              |      |    |   |
|           |              |       |                          |        |               |        |                          |  |               |     |                   |               |        |        |                    |              |      |    |   |
| 46        | 0            | 14 28 | + 5 7                    | - 7 47 | +33           | 5.12   | +1.60                    |  | gM4           |     | +0.054            | +0.009        | +0.002 | - 2    |                    | 6.0          | 3.4  |    | * |
| 47        | 0            | 13 19 | + 3 47                   | -85 0  | +33           | 5.76   | +1.72                    |  | gK6           |     | +0.008            | +0.031        |        |        |                    |              |      |    |   |
| 48        | 0            | 14 39 | + 5 5                    | -18 56 | +33           | 4.42   | +1.64                    |  | gM1           |     | -0.028            | -0.063        | +0.026 | - 23   |                    |              |      |    |   |
| 49        | 0            | 14 56 | + 5 11                   | +22 16 | +33           | 6.03 R | -0.01                    |  | A0V           |     | +0.061            | -0.010        |        | - 15   |                    |              |      |    |   |
| 50        | 0            | 14 59 | + 5 9                    | + 8 49 | +33           | 5.87 H |                          |  | sgA9          |     | +0.090            | -0.024        | .017D  | + 1V   |                    | 1.6          | 11.8 |    | * |

| BS=<br>HR | NAME     | DM  | HD  | GC   | PAR<br>CAT | RAD VEL<br>CAT | DOUBLE<br>STAR CAT | VARIABLE<br>STAR CAT | RA<br>(1900) | DEC<br>(1900) | GALACTIC |        |
|-----------|----------|-----|-----|------|------------|----------------|--------------------|----------------------|--------------|---------------|----------|--------|
|           |          |     |     |      |            |                |                    |                      |              |               | LONG     | LAT    |
|           |          | °   |     |      |            |                |                    |                      | h m s        | ° ' "         | ° ' "    | ° ' "  |
| 51        |          | -10 | 30  | 1064 | 283        |                |                    |                      | 0 9 48       | -10 8         | 95 1     | -70 27 |
| 52        |          | +30 | 26  | 1075 | 290        |                | 130                |                      | 0 9 55       | +30 59        | 113 55   | -30 42 |
| 53        |          | +26 | 23  | 1083 | 291        | 40.            | 131                | B                    | 0 9 59       | +26 44        | 113 5    | -34 54 |
| 54        |          | -35 | 65  | 1089 | 289        |                |                    |                      | 0 9 55       | -35 28        | 345 47   | -78 58 |
| 55        |          | +76 | 5   | 1141 | 303        |                | 133                | 207                  | 0 10 33      | +76 24        | 120 53   | +14 13 |
| 56        |          | +42 | 41  | 1185 | 310        |                | 135                | 215                  | 0 11 6       | +43 3         | 116 14   | -18 49 |
| 57        |          | -32 | 72  | 1187 | 306        |                |                    |                      | 0 11 5       | -32 0         | 1 33     | -81 10 |
| 58        |          | -76 | 19  | 1221 | 307        |                |                    |                      | 0 11 20      | -76 28        | 305 47   | -41 1  |
| 59        | 36 PSC   | +7  | 27  | 1227 | 315        |                | 138                |                      | 0 11 26      | +7 41         | 108 16   | -53 38 |
| 60        |          | +60 | 21  | 1239 | 329        |                | 145                | 222                  | 0 11 35      | +60 59        | 118 50   | -1 4   |
| 61        |          | -21 | 24  | 1256 | 324        |                |                    |                      | 0 11 38      | -20 46        | 72 4     | -79 28 |
| 62        |          | +47 | 50  | 1279 | 335        |                |                    |                      | 0 11 52      | +47 24        | 117 0    | -14 32 |
| 63        | 24 θ AND | +37 | 34  | 1280 | 334        | 47.            | 147                |                      | 0 11 52      | +38 8         | 115 37   | -23 42 |
| 64        |          | -79 | 7   | 1324 | 337        |                |                    |                      | 0 12 22      | -79 20        | 305 5    | -38 12 |
| 65        | AO CAS   | +50 | 46  | 1337 | 345        |                | 153                | AO CAS               | 0 12 25      | +50 53        | 117 35   | -11 5  |
| 66        |          | -19 | 30  | 1343 | 343        |                |                    |                      | 0 12 28      | -19 37        | 77 7     | -78 47 |
| 67        |          | +1  | 28  | 1367 | 346        |                | 155                |                      | 0 12 39      | +1 8          | 105 52   | -60 4  |
| 68        | 25 σ AND | +35 | 44  | 1404 | 362        | 51             | 164                | VAR?                 | 0 13 6       | +36 14        | 115 35   | -25 37 |
| 69        |          | +10 | 25  | 1419 | 363        |                | 166                |                      | 0 13 8       | +10 39        | 109 59   | -50 50 |
| 70        | 26 AND   | +42 | 48  | 1438 | 376        |                | 171                | 254                  | 0 13 26      | +43 14        | 116 42   | -18 41 |
| 71        |          | +30 | 35  | 1439 | 373        |                | 170                |                      | 0 13 25      | +30 58        | 114 47   | -30 50 |
| 72        |          | -8  | 38  | 1461 | 378        | 52.            |                    |                      | 0 13 33      | -8 36         | 99 15    | -69 24 |
| 73        |          | -43 | 64  | 1483 | 381        |                |                    |                      | 0 13 44      | -43 47        | 323 14   | -72 35 |
| 74        | 8 ι CET  | -9  | 48  | 1522 | 388        | 53.            | 177                |                      | 0 14 20      | -9 23         | 98 57    | -70 12 |
| 75        |          | +39 | 56  | 1527 | 394        |                | 178                |                      | 0 14 26      | +40 10        | 116 27   | -21 45 |
| 76        |          | +48 | 79  | 1561 | 400        |                | 184                |                      | 0 14 46      | +48 18        | 117 38   | -13 42 |
| 77        | ξ TUC    | -65 | 13  | 1581 | 401        | 54.            | 185                |                      | 0 14 52      | -65 28        | 308 24   | -51 52 |
| 78        |          | +30 | 42  | 1606 | 408        |                | 186                | VAR?                 | 0 15 11      | +30 23        | 115 7    | -31 28 |
| 79        |          | +32 | 45  | 1632 | 414        |                | 192                |                      | 0 15 32      | +32 21        | 115 32   | -29 32 |
| 80        | 41 PSC   | +7  | 36  | 1635 | 413        |                | 190                | VAR?                 | 0 15 27      | +7 38         | 109 53   | -53 54 |
| 81        |          | +10 | 32  | 1663 | 419        |                | 194                | 287                  | 0 15 45      | +10 25        | 110 55   | -51 11 |
| 82        | 27 ρ AND | +37 | 45  | 1671 | 425        | 55.            | 197                |                      | 0 15 51      | +37 25        | 116 22   | -24 31 |
| 83        | π TUC    | -70 | 12  | 1685 | 420        | 56.            | 195                |                      | 0 16 1       | -70 11        | 306 53   | -47 15 |
| 84        | ι SCL    | -29 | 86  | 1737 | 433        | 58.            | 198                |                      | 0 16 30      | -29 32        | 15 31    | -83 8  |
| 85        | γ CET    | -20 | 50  | 1760 | 437        |                | 200                | T CET                | 0 16 43      | -20 37        | 77 26    | -80 12 |
| 86        | 42 PSC   | +12 | 25  | 1796 | 446        |                | 204                | 303                  | 0 17 15      | +12 56        | 112 11   | -48 47 |
| 87        |          | -78 | 9   | 1801 | 439        |                |                    |                      | 0 17 13      | -77 59        | 305 3    | -39 34 |
| 88        | 9 CET    | -13 | 60  | 1835 | 452        | 62.            | 208                |                      | 0 17 44      | -12 46        | 97 17    | -73 39 |
| 89        |          | -31 | 138 | 1909 | 461        |                |                    |                      | 0 18 12      | -31 36        | 358 50   | -82 41 |
| 90        | R AND    | +37 | 58  | 1967 | 472        |                | 214                | R AND                | 0 18 45      | +38 1         | 117 4    | -22 0  |
| 91        |          | +51 | 62  | 1976 | 476        |                | 217                | 328                  | 0 18 52      | +51 28        | 118 41   | -10 38 |
| 92        |          |     |     |      |            |                |                    |                      |              |               |          |        |
| 93        | 12 CAS   | +61 | 69  | 2011 | 481        | 65.1           | 222                |                      | 0 19 16      | +61 17        | 119 47   | -0 53  |
| 94        |          | -3  | 49  | 2023 | 480        |                | 221                |                      | 0 19 23      | -2 46         | 107 15   | -64 16 |
| 95        |          |     |     |      |            |                |                    |                      |              |               |          |        |
| 96        |          | +52 | 61  | 2054 | 488        |                |                    | VAR?                 | 0 19 42      | +52 30        | 118 55   | -9 37  |
| 97        | 44 PSC   | +1  | 57  | 2114 | 496        |                | 228                |                      | 0 20 16      | +1 23         | 109 42   | -60 16 |
| 98        | β HYI    | -77 | 16  | 2151 | 503        | 69.            | 232                | VAR?                 | 0 20 30      | -77 49        | 304 51   | -39 46 |
| 99        | α PHE    | -42 | 116 | 2261 | 519        | 71.            | 237                |                      | 0 21 21      | -42 51        | 320 3    | -73 59 |
| 100       | κ PHE    | -44 | 101 | 2262 | 516        | 72.            | 236                |                      | 0 21 17      | -44 14        | 318 27   | -72 40 |

## BRIGHT STAR CATALOGUE

11

| BS=<br>HR | RA<br>(2000) | $\Delta\alpha$<br>100 YR | DEC<br>(2000) | $\Delta\delta$<br>100 YR | VISUAL<br>MAG | B-V   | SPECTRAL<br>CLASS | PROPER MOTION |        | PAR   | RADIAL<br>VELOCITY | DOUBLE STARS |      |    | R |
|-----------|--------------|--------------------------|---------------|--------------------------|---------------|-------|-------------------|---------------|--------|-------|--------------------|--------------|------|----|---|
|           |              |                          |               |                          |               |       |                   | RA            | DEC    |       |                    | $\Delta m$   | SEP  | NO |   |
|           | h m s        | m s                      | ° ' "         | ' "                      |               |       |                   | "             | "      | "     | km/s               |              | "    |    |   |
| 51        | 0 14 54      | + 5 6                    | - 9 35        | +33                      | 5.74          | -0.08 | B9                | +0.022        | -0.005 |       |                    |              |      |    |   |
| 52        | 0 15 7       | + 5 12                   | +31 32        | +33                      | 6.42 R        |       | K5                | +0.031        | -0.004 |       | + 2                |              |      |    |   |
| 53        | 0 15 10      | + 5 11                   | +27 17        | +33                      | 6.24 R        | -0.02 | A1V               | +0.017        | -0.028 | +006  | - 7V?              | 6.8          | 29.2 |    |   |
| 54        | 0 14 58      | + 5 3                    | -34 55        | +33                      | 6.29 H        |       | K0                | +0.066        | -0.021 |       |                    |              |      |    |   |
| 55        | 0 16 14      | + 5 41                   | +76 57        | +33                      | 6.19 R        | -0.07 | B9                | +0.020        | +0.001 | .013D | - 8                | .5           | .9   |    | 2 |
| 56        | 0 16 21      | + 5 15                   | +43 36        | +33                      | 6.00 R        |       | A0                | +0.038        | -0.029 |       | + 3                | 2.7          | 9.4  |    | 3 |
| 57        | 0 16 8       | + 5 3                    | -31 27        | +33                      | 5.66          | +1.35 | K5III             | +0.129        | -0.029 |       | + 26               |              |      |    |   |
| 58        | 0 15 55      | + 4 35                   | -75 55        | +33                      | 6.48          | +0.99 | gG8               | -0.010        | +0.009 |       |                    |              |      |    |   |
| 59        | 0 16 34      | + 5 8                    | + 8 14        | +33                      | 6.08 R        |       | gG6               | -0.030        | -0.010 |       | + 1                |              |      |    |   |
| 60        | 0 16 57      | + 5 22                   | +61 32        | +33                      | 5.68 R        |       | gG4               | -0.001        | +0.003 |       | - 4                | 6.0          | 20.3 |    | 4 |
| 61        | 0 16 42      | + 5 4                    | -20 13        | +33                      | 6.50 H        | -0.14 | B8                | +0.008        | -0.010 |       | + 33V              |              |      |    |   |
| 62        | 0 17 9       | + 5 17                   | +47 57        | +33                      | 5.79 R        | -0.09 | B9                | +0.008        | +0.017 |       |                    |              |      |    |   |
| 63        | 0 17 6       | + 5 14                   | +38 41        | +33                      | 4.61          | +0.06 | A2V               | -0.055        | -0.018 | +017  | + 1                |              |      |    |   |
| 64        | 0 16 48      | + 4 26                   | -78 47        | +33                      | 6.76          | +0.46 | F5                | +0.086        | -0.038 |       |                    |              |      |    |   |
| 65        | 0 17 43      | + 5 18                   | +51 26        | +33                      | 6.05 R        | +0.03 | O9III             | -0.008        | -0.002 |       | - 35V              |              |      |    | R |
| 66        | 0 17 32      | + 5 4                    | -19 4         | +33                      | 6.44          | +0.38 | F0                | +0.011        | +0.007 |       |                    |              |      |    |   |
| 67        | 0 17 47      | + 5 8                    | + 1 41        | +33                      | 6.22 R        |       | gG6               | +0.082        | +0.010 |       | - 9                |              |      |    |   |
| 68        | 0 18 20      | + 5 14                   | +36 47        | +33                      | 4.53          | +0.05 | A2V               | -0.065        | -0.036 | +015  | - 8V               |              |      |    | G |
| 69        | 0 18 17      | + 5 9                    | +11 12        | +33                      | 6.09 R        |       | K0III             | -0.041        | -0.035 |       | + 9                |              |      |    |   |
| 70        | 0 18 42      | + 5 16                   | +43 47        | +33                      | 6.06 R        | -0.08 | B9                | +0.015        | -0.002 |       | + 7                | 3.7          | 6.2  |    | 3 |
| 71        | 0 18 38      | + 5 13                   | +31 31        | +33                      | 5.74 R        | -0.01 | A1V               | +0.060        | -0.001 |       | - 5                |              |      |    |   |
| 72        | 0 18 42      | + 5 9                    | - 8 3         | +33                      | 6.45          | +0.68 | G0                | +0.408        | -0.134 | +046  |                    |              |      |    |   |
| 73        | 0 18 43      | + 4 59                   | -43 14        | +33                      | 6.32          | +1.22 | gG9               | +0.049        | +0.012 |       |                    |              |      |    |   |
| 74        | 0 19 26      | + 5 6                    | - 8 50        | +33                      | 3.56          | +1.22 | K2III             | -0.018        | -0.029 | +010  | + 19               |              |      |    |   |
| 75        | 0 19 42      | + 5 16                   | +40 43        | +33                      | 6.27 R        |       | K1III             | -0.031        | -0.008 |       | - 38               |              |      |    |   |
| 76        | 0 20 5       | + 5 19                   | +48 51        | +33                      | 6.38 R        |       | A0                | +0.000        | -0.016 |       | - 2V?              |              |      |    |   |
| 77        | 0 20 4       | + 5 12                   | -64 53        | +35                      | 4.22          | +0.58 | G2V               | +1.708        | +1.163 | +134  | + 9                |              |      |    |   |
| 78        | 0 20 25      | + 5 14                   | +30 56        | +33                      | 5.82 R        | -0.10 | B6IV              | +0.017        | +0.005 |       | + 4                |              |      |    |   |
| 79        | 0 20 46      | + 5 14                   | +32 54        | +33                      | 5.80 R        |       | K5                | -0.029        | -0.013 |       | - 36               |              |      |    |   |
| 80        | 0 20 36      | + 5 9                    | + 8 11        | +33                      | 5.42 R        |       | gK3               | -0.007        | +0.014 |       | + 16               |              |      |    |   |
| 81        | 0 20 54      | + 5 9                    | +10 58        | +33                      | 6.55 R        |       | A0                | -0.051        | -0.024 | .005D | - 18               | .9           | .5   |    | 2 |
| 82        | 0 21 7       | + 5 16                   | +37 58        | +33                      | 5.10 R        |       | F5IV              | +0.061        | -0.036 | +015  | + 9                |              |      |    |   |
| 83        | 0 20 39      | + 4 38                   | -69 38        | +33                      | 5.50          | -0.05 | B9                | -0.014        | -0.001 | +007  | + 12               |              |      |    |   |
| 84        | 0 21 31      | + 5 1                    | -28 59        | +33                      | 5.17          | +1.00 | gG8               | +0.033        | -0.071 | +021  | + 21               |              |      |    |   |
| 85        | 0 21 47      | + 5 4                    | -20 4         | +33                      | 5.2 H         |       | M5-6Se            | +0.068        | -0.001 |       | + 29               |              |      |    |   |
| 86        | 0 22 25      | + 5 10                   | +13 29        | +33                      | 6.22 R        |       | gK2               | +0.057        | +0.029 |       | + 3                | 3.9          | 31.7 |    | 1 |
| 87        | 0 21 29      | + 4 16                   | -77 26        | +33                      | 5.96          | +1.40 | K0                | +0.009        | -0.005 |       |                    |              |      |    |   |
| 88        | 0 22 51      | + 5 7                    | -12 13        | +33                      | 6.44 H        |       | dG2               | +0.388        | +0.066 | +042  | - 7                |              |      |    | G |
| 89        | 0 23 12      | + 5 0                    | -31 3         | +33                      | 6.66 H        |       | B9                | +0.022        | +0.000 |       |                    |              |      |    |   |
| 90        | 0 24 2       | + 5 17                   | +38 34        | +33                      | 6.0 H         |       | S6ee              | -0.012        | -0.022 |       | - 11               |              |      |    |   |
| 91        | 0 24 15      | + 5 23                   | +52 1         | +33                      | 5.59          | -0.11 | B5IV              | +0.010        | -0.002 | .004D | - 12V              | 2.5          | .2   |    | G |
| 92        |              |                          |               |                          |               |       |                   |               |        |       |                    |              |      |    |   |
| 93        | 0 24 47      | + 5 31                   | +61 50        | +33                      | 5.36 R        | +0.01 | B8                | +0.011        | +0.003 | +015  | - 6                |              |      |    |   |
| 94        | 0 24 30      | + 5 7                    | - 2 13        | +33                      | 6.08          | +1.22 | gK1               | -0.039        | -0.032 |       | + 15               |              |      |    |   |
| 95        |              |                          |               |                          |               |       |                   |               |        |       |                    |              |      |    |   |
| 96        | 0 25 7       | + 5 25                   | +53 3         | +33                      | 5.67 R        | -0.06 | B9                | +0.021        | -0.004 |       |                    |              |      |    |   |
| 97        | 0 25 24      | + 5 8                    | + 1 56        | +33                      | 6.02 R        |       | gG5               | -0.019        | -0.011 |       | - 4                |              |      |    | G |
| 98        | 0 25 45      | + 5 15                   | -77 15        | +34                      | 2.79          | +0.62 | G2IV              | +2.223        | +0.326 | +153  | + 23               |              |      |    | G |
| 99        | 0 26 17      | + 4 56                   | -42 18        | +33                      | 2.39          | +1.08 | K0III             | +0.198        | -0.395 | +035  | + 75V?             |              | .1   |    | * |
| 100       | 0 26 12      | + 4 55                   | -43 41        | +33                      | 3.93          | +0.17 | A7Vn              | +0.102        | +0.030 | +066  | + 9                |              |      |    |   |

| BS=<br>HR | NAME             | DM  |     | HD   | GC  | PAR<br>CAT | RAD VEL<br>CAT | DOUBLE<br>STAR CAT | VARIABLE<br>STAR CAT | RA<br>(1900) | DEC<br>(1900) | GALACTIC |        |
|-----------|------------------|-----|-----|------|-----|------------|----------------|--------------------|----------------------|--------------|---------------|----------|--------|
|           |                  |     |     |      |     |            |                |                    |                      |              |               | LONG     | LAT    |
| 101       | 10 CET           | — 0 | 63  | 2273 | 523 |            | 239            |                    |                      | h m s        | ° ' "         | ° ' "    | ° ' "  |
| 102       |                  | —26 | 138 | 2363 | 530 |            |                |                    |                      | 0 21 30      | — 0 36        | 109 29   | —62 16 |
| 103       | 47 TV PSC        | +17 | 55  | 2411 | 543 | 73.        | 250            |                    | TV PSC               | 0 22 14      | —26 6         | 47 45    | —84 21 |
| 104       |                  | +43 | 92  | 2421 | 546 | 74.        | 252            |                    |                      | 0 22 50      | +17 20        | 115 5    | —44 38 |
| 105       | $\eta$ SCL       | —33 | 152 | 2429 | 544 | 75.        | 251            |                    | VAR?                 | 0 22 51      | +43 50        | 118 34   | —18 18 |
|           |                  |     |     |      |     |            |                |                    |                      | 0 22 58      | —33 34        | 342 21   | —82 13 |
| 106       | 48 PSC           | +15 | 63  | 2436 | 548 |            | 253            |                    |                      | 0 23 1       | +15 54        | 114 53   | —46 4  |
| 107       |                  | + 9 | 47  | 2454 | 550 | 76.        | 254            |                    |                      | 0 23 10      | + 9 39        | 113 36   | —52 15 |
| 108       |                  | —21 | 57  | 2475 | 554 |            |                | R 63               |                      | 0 23 20      | —20 53        | 83 49    | —81 24 |
| 109       |                  | —40 | 93  | 2490 | 558 | 77.        | 256            |                    |                      | 0 23 31      | —40 28        | 321 58   | —76 21 |
| 110       |                  | +36 | 66  | 2507 | 563 |            | 258            |                    |                      | 0 23 38      | +36 21        | 117 56   | —25 45 |
| 111       |                  | —51 | 113 | 2529 | 564 |            |                |                    |                      | 0 23 53      | —51 5         | 311 56   | —66 12 |
| 112       |                  | +76 | 10  | 2589 | 588 | 80.        | 267            |                    |                      | 0 24 29      | +76 28        | 121 44   | +14 11 |
| 113       |                  | +59 | 68  | 2626 | 586 |            | 266            | 412                |                      | 0 24 45      | +59 25        | 120 17   | — 2 48 |
| 114       | 28 AND           | +28 | 75  | 2628 | 583 | 81.        | 264            | 409                | VAR?                 | 0 24 51      | +29 12        | 117 25   | —32 54 |
| 115       |                  | —15 | 84  | 2630 | 579 |            |                |                    |                      | 0 24 48      | —15 25        | 99 31    | —76 45 |
| 116       |                  | —32 | 154 | 2632 | 580 |            |                |                    |                      | 0 24 52      | —32 40        | 344 57   | —83 9  |
| 117       | 12 CET           | — 4 | 54  | 2637 | 584 |            | 265            | 410                |                      | 0 24 56      | — 4 31        | 109 32   | —66 17 |
| 118       |                  | —24 | 179 | 2696 | 590 | 83.        | 271            |                    |                      | 0 25 23      | —24 20        | 66 50    | —84 11 |
| 119       |                  | —41 | 116 | 2724 | 594 |            |                |                    |                      | 0 25 35      | —41 30        | 318 59   | —75 31 |
| 120       |                  | —48 | 102 | 2726 | 593 |            | 272            |                    |                      | 0 25 36      | —48 46        | 312 33   | —68 31 |
| 121       | 13 CAS           | +65 | 67  | 2729 | 609 |            | 278            |                    |                      | 0 25 40      | +65 58        | 120 56   | + 3 43 |
| 122       |                  | +32 | 80  | 2767 | 611 |            | 279            |                    |                      | 0 26 7       | +33 2         | 118 9    | —29 6  |
| 123       | 14 $\lambda$ CAS | +53 | 82  | 2772 | 618 | 87.        | 283            | 434                |                      | 0 26 15      | +53 58        | 120 3    | — 8 15 |
| 124       |                  | +52 | 92  | 2774 | 614 | 85.        | 281            |                    |                      | 0 26 13      | +52 17        | 119 54   | — 9 56 |
| 125       | $\lambda^1$ PHE  | —49 | 115 | 2834 | 619 | 88.        | 284            | R 81               |                      | 0 26 36      | —49 21        | 311 47   | —67 59 |
| 126       | $\beta^1$ TUC    | —63 | 50  | 2884 | 625 | 90.        | 287            | IB                 |                      | 0 26 58      | —63 31        | 306 47   | —54 1  |
| 127       | $\beta^2$ TUC    | —63 | 50  | 2885 | 626 |            | 288            | IA                 |                      | 0 26 58      | —63 31        | 306 47   | —54 1  |
| 128       |                  | +42 | 99  | 2888 | 634 |            | 295            |                    |                      | 0 27 3       | +42 57        | 119 17   | —19 14 |
| 129       |                  | +70 | 24  | 2904 | 648 |            | 303            |                    |                      | 0 27 21      | +70 26        | 121 26   | + 8 10 |
| 130       | 15 $\kappa$ CAS  | +62 | 102 | 2905 | 645 |            | 301            |                    | VAR?                 | 0 27 19      | +62 23        | 120 50   | + 0 8  |
| 131       | 52 PSC           | +19 | 79  | 2910 | 641 | 90.1       | 298            | 452                |                      | 0 27 20      | +19 45        | 116 56   | —42 21 |
| 132       | 51 PSC           | + 6 | 64  | 2913 | 636 |            | 296            | 449                |                      | 0 27 14      | + 6 24        | 114 32   | —55 37 |
| 133       |                  | +26 | 76  | 2924 | 640 |            | 297            |                    |                      | 0 27 19      | +27 2         | 117 49   | —35 6  |
| 134       |                  | +27 | 84  | 2942 | 647 | 91.        | 302            | 455                |                      | 0 27 33      | +27 44        | 117 57   | —34 25 |
| 135       |                  | +54 | 101 | 2952 | 650 |            | 304            |                    |                      | 0 27 37      | +54 21        | 120 17   | — 7 53 |
| 136       |                  | —63 | 52  | 3003 | 651 | 93.        | 306            | I                  |                      | 0 28 10      | —63 35        | 306 33   | —53 58 |
| 137       | 16 CAS           | +65 | 70  | 3038 | 671 |            | 313            |                    |                      | 0 28 35      | +66 12        | 121 15   | + 3 56 |
| 138       |                  | —30 | 156 | 3059 | 665 |            |                |                    |                      | 0 28 44      | —30 7         | 359 56   | —85 23 |
| 139       | $\theta$ TUC     | —71 | 20  | 3112 | 667 |            | 310            |                    |                      | 0 29 9       | —71 49        | 305 1    | —45 47 |
| 140       |                  | —53 | 117 | 3158 | 683 | 96.1       | 315            |                    |                      | 0 29 42      | —52 56        | 309 0    | —64 32 |
| 141       |                  | +12 | 57  | 3166 | 689 |            |                |                    |                      | 0 29 45      | +12 49        | 116 46   | —49 19 |
| 142       | 13 CET           | — 4 | 62  | 3196 | 696 | 97.        | 321            | 490                | VAR?                 | 0 30 6       | — 4 9         | 112 51   | —66 9  |
| 143       | 14 CET           | — 1 | 68  | 3229 | 701 |            | 322            |                    |                      | 0 30 25      | — 1 3         | 114 6    | —63 6  |
| 144       |                  | +53 | 102 | 3240 | 708 |            | 326            |                    |                      | 0 30 34      | +53 37        | 120 40   | — 8 39 |
| 145       |                  | +12 | 59  | 3268 | 707 |            | 325            |                    |                      | 0 30 44      | +12 40        | 117 6    | —49 29 |
| 146       |                  | +59 | 84  | 3283 | 717 |            | 331            |                    |                      | 0 30 46      | +59 47        | 121 4    | — 2 29 |
| 147       | $\lambda^2$ PHE  | —48 | 121 | 3302 | 706 |            | 324            |                    |                      | 0 30 55      | —48 33        | 310 17   | —68 54 |
| 148       |                  | —55 | 117 | 3303 | 705 |            |                |                    | VAR?                 | 0 30 53      | —55 22        | 307 51   | —62 9  |
| 149       |                  | +26 | 91  | 3322 | 722 |            | 333            |                    |                      | 0 31 3       | +26 42        | 118 48   | —35 30 |
| 150       |                  | —15 | 109 | 3325 | 716 |            |                |                    |                      | 0 31 2       | —15 32        | 105 42   | —77 20 |

## BRIGHT STAR CATALOGUE

13

| BS=<br>HR | RA<br>(2000)<br>h m s | $\Delta\alpha$<br>100 YR<br>m s | DEC<br>(2000)<br>° ' " | $\Delta\delta$<br>100 YR<br>" " | VISUAL<br>MAG | B-V   | SPECTRAL<br>CLASS | PROPER MOTION |        | PAR    | RADIAL<br>VELOCITY<br>km/s | DOUBLE STARS |       |    | R |
|-----------|-----------------------|---------------------------------|------------------------|---------------------------------|---------------|-------|-------------------|---------------|--------|--------|----------------------------|--------------|-------|----|---|
|           |                       |                                 |                        |                                 |               |       |                   | RA            | DEC    |        |                            | $\Delta m$   | SEP   | NO |   |
| 101       | 0 26 38               | + 5 8                           | - 0 3                  | +33                             | 6.40 H        |       | gG4               | +0.068        | +0.004 | "      | - 23                       |              |       |    |   |
| 102       | 0 27 15               | + 5 1                           | -25 33                 | +33                             | 5.95 H        |       | G5                | +0.022        | -0.015 |        | - 3                        |              |       |    |   |
| 103       | 0 28 3                | + 5 13                          | +17 53                 | +33                             | 6.9 H         |       | M3III             | +0.113        | +0.021 | +0.13  | + 6                        |              |       |    | G |
| 104       | 0 28 14               | + 5 23                          | +44 23                 | +33                             | 5.09 R        |       | A2                | +0.093        | -0.010 | +0.009 | + 2V                       |              |       |    | R |
| 105       | 0 27 55               | + 4 57                          | -33 1                  | +33                             | 4.96 H        | +1.64 | gM4               | -0.025        | -0.046 | -0.18  | + 11                       |              |       |    |   |
| 106       | 0 28 13               | + 5 12                          | +16 27                 | +33                             | 5.18 R        |       | gK5               | +0.010        | -0.015 |        | - 7                        |              |       |    | 6 |
| 107       | 0 28 20               | + 5 10                          | +10 12                 | +33                             | 5.99 R        |       | F2V               | +0.028        | -0.205 | +0.033 | - 10                       |              |       |    |   |
| 108       | 0 28 21               | + 5 1                           | -20 20                 | +33                             | 6.42          | +0.59 | G0                | -0.116        | -0.105 | .0340  |                            | .0           | .2    |    |   |
| 109       | 0 28 27               | + 4 56                          | -39 55                 | +33                             | 5.42          | +1.57 | gK5               | +0.124        | -0.034 | +0.010 | + 32                       |              |       |    |   |
| 110       | 0 28 57               | + 5 19                          | +36 54                 | +33                             | 6.29 R        |       | gG5               | -0.016        | +0.004 |        | + 10                       |              |       |    |   |
| 111       | 0 28 43               | + 4 50                          | -50 32                 | +33                             | 6.39 H        |       | K0                | +0.144        | -0.001 |        |                            |              |       |    |   |
| 112       | 0 30 55               | + 6 26                          | +77 1                  | +33                             | 6.22          | +0.84 | K0IV              | +0.338        | -0.022 | +0.021 | + 19                       |              |       |    | 6 |
| 113       | 0 30 20               | + 5 35                          | +59 58                 | +33                             | 5.89          | +0.01 | B9                | +0.017        | -0.008 | .0020  | - 20                       | 3.8          | .7    | 3  | D |
| 114       | 0 30 8                | + 5 17                          | +29 45                 | +33                             | 5.17 R        |       | A m               | +0.037        | -0.053 | -0.002 | - 10                       | 6.1          | 142.4 | 3  | D |
| 115       | 0 29 52               | + 5 4                           | -14 52                 | +33                             | 6.13          | +0.38 | F2                | +0.136        | -0.026 |        | + 2                        |              |       |    |   |
| 116       | 0 29 49               | + 4 57                          | -32 7                  | +33                             | 6.63 H        |       | K0                | -0.011        | -0.050 |        |                            |              |       |    |   |
| 117       | 0 30 2                | + 5 6                           | - 3 58                 | +33                             | 6.04 H        |       | M0III             | +0.006        | -0.006 |        | + 5                        | 4.8          | 9.9   |    | 1 |
| 118       | 0 30 23               | + 5 0                           | -23 47                 | +33                             | 5.18          | +0.13 | A3V               | -0.030        | +0.019 | +0.012 | + 1V?                      |              |       |    |   |
| 119       | 0 30 28               | + 4 53                          | -40 57                 | +33                             | 6.18          | +0.34 | dF2               | -0.008        | +0.023 |        |                            |              |       |    |   |
| 120       | 0 30 26               | + 4 50                          | -48 13                 | +33                             | 5.68          | +0.36 | dF1               | +0.123        | -0.087 |        | + 2                        |              |       |    |   |
| 121       | 0 31 25               | + 5 45                          | +66 31                 | +33                             | 6.11 R        |       | B5                | +0.024        | -0.001 |        | - 10                       |              |       |    |   |
| 122       | 0 31 26               | + 5 19                          | +33 35                 | +33                             | 5.85 R        |       | K1III             | +0.044        | -0.019 |        | + 9V?                      |              |       |    |   |
| 123       | 0 31 46               | + 5 31                          | +54 31                 | +33                             | 4.84 R        | -0.10 | B8                | +0.042        | -0.008 | +0.028 | - 12V?                     | .3           | .6    |    | 2 |
| 124       | 0 31 42               | + 5 29                          | +52 50                 | +33                             | 5.60          | +1.15 | K2III             | -0.056        | -0.018 | +0.005 | - 52                       |              |       |    | 6 |
| 125       | 0 31 25               | + 4 49                          | -48 48                 | +33                             | 4.76          | +0.02 | A0V               | +0.134        | +0.024 | +0.019 | - 5V                       | 8.6          | 30.3  |    | * |
| 126       | 0 31 33               | + 4 35                          | -62 58                 | +33                             | 4.36          | -0.07 | B8V               | +0.089        | -0.054 | +0.030 | + 10V                      | .0           | 37.7  | 6  | * |
| 127       | 0 31 33               | + 4 35                          | -62 58                 | +33                             | 4.53          | +0.15 | A2V               | +0.100        | -0.056 |        | + 10                       | .0           | 37.7  | 6  | D |
| 128       | 0 32 27               | + 5 24                          | +43 30                 | +33                             | 6.58 R        |       | A0si              | +0.014        | -0.009 |        | - 21V                      |              |       |    |   |
| 129       | 0 33 19               | + 5 58                          | +70 59                 | +33                             | 6.31 R        |       | A0                | +0.038        | +0.004 |        | - 10                       |              |       |    |   |
| 130       | 0 33 0                | + 5 41                          | +62 56                 | +33                             | 4.15          | +0.15 | B1Ia              | +0.004        | +0.000 |        | - 2V                       |              |       |    |   |
| 131       | 0 32 35               | + 5 15                          | +20 18                 | +33                             | 5.40 R        | +1.07 | gK0               | +0.128        | -0.045 | +0.034 | - 13                       | 6.2          | 44.5  |    |   |
| 132       | 0 32 24               | + 5 10                          | + 6 57                 | +33                             | 5.60 R        |       | A0                | +0.031        | +0.011 |        | + 19                       | 4.0          | 27.7  |    | 3 |
| 133       | 0 32 35               | + 5 16                          | +27 35                 | +33                             | 6.49 R        |       | A0                | -0.021        | -0.013 |        | + 2                        |              |       |    |   |
| 134       | 0 32 50               | + 5 17                          | +28 17                 | +33                             | 6.28 R        |       | K0III             | -0.009        | +0.010 | +0.002 | - 12                       | 4.0          | 8.7   | 3  | * |
| 135       | 0 33 10               | + 5 33                          | +54 54                 | +33                             | 5.99 R        |       | K0III             | +0.069        | -0.039 |        | - 35                       |              |       |    |   |
| 136       | 0 32 43               | + 4 33                          | -63 2                  | +33                             | 5.16 H        |       | A2                | +0.080        | -0.037 | +0.035 | + 5                        | .4           | .1    | 6  | D |
| 137       | 0 34 25               | + 5 50                          | +66 45                 | +33                             | 6.37 R        | -0.08 | B9                | +0.022        | +0.005 |        | - 21V                      |              |       |    | 6 |
| 138       | 0 33 41               | + 4 57                          | -29 34                 | +33                             | 5.54          | +1.27 | K2III             | -0.034        | -0.034 |        |                            |              |       |    |   |
| 139       | 0 33 23               | + 4 14                          | -71 16                 | +33                             | 6.12          | +0.24 | A4m?              | +0.074        | -0.020 |        | + 2                        |              |       |    |   |
| 140       | 0 34 27               | + 4 45                          | -52 23                 | +33                             | 5.56          | +0.47 | dF6               | +0.217        | +0.032 | +0.043 | + 35                       |              |       |    |   |
| 141       | 0 34 56               | + 5 11                          | +13 22                 | +33                             | 6.48 R        |       | K0                | -0.093        | -0.054 |        |                            |              |       |    |   |
| 142       | 0 35 15               | + 5 9                           | - 3 36                 | +33                             | 5.20          | +0.56 | F8V               | +0.410        | -0.020 | +0.058 | + 9V                       | .8           | .3    | 3  | * |
| 143       | 0 35 33               | + 5 8                           | - 0 30                 | +33                             | 5.94          | +0.44 | dF2               | +0.133        | -0.057 |        | + 6                        |              |       |    |   |
| 144       | 0 36 8                | + 5 34                          | +54 10                 | +33                             | 5.15 R        |       | B8V               | +0.019        | +0.003 |        | + 1                        |              |       |    |   |
| 145       | 0 35 55               | + 5 11                          | +13 13                 | +33                             | 6.36 R        |       | F5                | -0.146        | -0.186 |        | - 25                       |              |       |    |   |
| 146       | 0 36 27               | + 5 41                          | +60 20                 | +33                             | 5.82 R        |       | A2n               | -0.001        | +0.002 |        | - 9                        |              |       |    |   |
| 147       | 0 35 41               | + 4 46                          | -48 0                  | +33                             | 5.52 H        |       | dF7               | +0.037        | -0.103 |        | + 8                        |              |       |    |   |
| 148       | 0 35 33               | + 4 40                          | -54 49                 | +33                             | 6.05          | +1.00 | g?K0              | +0.022        | -0.052 |        |                            |              |       |    |   |
| 149       | 0 36 20               | + 5 17                          | +27 15                 | +33                             | 6.30 R        | -0.08 | A si              | +0.008        | -0.013 |        | + 1                        |              |       |    |   |
| 150       | 0 36 3                | + 5 1                           | -14 59                 | +33                             | 6.56 H        |       | K0                | -0.087        | -0.074 |        |                            |              |       |    |   |

| BS =<br>HR | NAME      | DM       | HD  | GC   | PAR<br>CAT | RAD VEL<br>CAT | DOUBLE<br>STAR CAT | VARIABLE<br>STAR CAT | RA<br>(1900)    | DEC<br>(1900)   | GALACTIC       |                 |
|------------|-----------|----------|-----|------|------------|----------------|--------------------|----------------------|-----------------|-----------------|----------------|-----------------|
|            |           |          |     |      |            |                |                    |                      |                 |                 | LONG           | LAT             |
| 151        |           | °<br>-23 | 220 | 3326 | 719        |                |                    |                      | h m s<br>0 31 8 | ° ' "<br>-23 24 | ° ' "<br>82 56 | ° ' "<br>-84 29 |
| 152        |           | +43      | 113 | 3346 | 726        | 99.            | 335                |                      | 0 31 20         | +43 56          | 120 10         | -18 19          |
| 153        | 17 ζ CAS  | +53      | 105 | 3360 | 727        | 100.           | 337                |                      | 0 31 24         | +53 21          | 120 46         | - 8 55          |
| 154        | 29 π AND  | +32      | 101 | 3369 | 729        | 101.           | 339                | 513                  | 0 31 32         | +33 10          | 119 28         | -29 4           |
| 155        | 53 PSC    | +14      | 76  | 3379 | 728        |                | 338                |                      | 0 31 35         | +14 41          | 117 41         | -47 30          |
| 156        |           | +23      | 84  | 3411 | 735        |                | 341                |                      | 0 31 51         | +23 28          | 118 44         | -38 45          |
| 157        |           | +34      | 86  | 3421 | 738        |                | 343                |                      | 0 32 0          | +34 51          | 119 42         | -27 23          |
| 158        |           | +81      | 13  | 3440 | 760        | 103.           | 351                |                      | 0 32 12         | +81 56          | 122 32         | +19 37          |
| 159        |           | -25      | 225 | 3443 | 741        | 104.           | 345                | 520                  | 0 32 12         | -25 19          | 68 21          | -86 1           |
| 160        |           | -65      | 58  | 3444 | 733        |                |                    |                      | 0 32 13         | -65 41          | 305 28         | -51 55          |
| 161        |           | + 2      | 80  | 3457 | 744        |                | 346                |                      | 0 32 22         | + 2 35          | 116 2          | -59 33          |
| 162        |           | -55      | 130 | 3488 | 745        |                |                    |                      | 0 32 39         | -54 57          | 307 25         | -62 36          |
| 163        | 30 ε AND  | +28      | 103 | 3546 | 759        | 106.           | 350                |                      | 0 33 16         | +28 46          | 119 34         | -33 29          |
| 164        |           | +48      | 192 | 3574 | 770        |                | 355                | 546                  | 0 33 38         | +48 48          | 120 52         | -13 29          |
| 165        | 31 δ AND  | +30      | 91  | 3627 | 774        | 108.           | 357                | 548                  | 0 33 59         | +30 19          | 119 51         | -31 56          |
| 166        | 54 PSC    | +20      | 85  | 3651 | 778        | 110.           | 358                |                      | 0 34 10         | +20 43          | 119 11         | -41 31          |
| 167        | 55 PSC    | +20      | 87  | 3690 | 784        | 113.           | 361                | 558                  | 0 34 40         | +20 53          | 119 21         | -41 22          |
| 168        | 18 α CAS  | +55      | 139 | 3712 | 792        | 114.           | 364                | 561                  | 0 34 50         | +55 59          | 121 25         | - 6 19          |
| 169        |           | -73      | 42  | 3719 | 777        |                |                    |                      | 0 34 45         | -73 41          | 304 13         | -43 57          |
| 170        | Z SCL     | -34      | 224 | 3735 | 789        | 115.           |                    |                      | 0 35 3          | -34 30          | 322 14         | -82 44          |
| 171        |           | -45      | 201 | 3750 | 788        |                |                    |                      | 0 35 6          | -45 21          | 309 41         | -72 10          |
| 172        |           | -17      | 109 | 3794 | 798        |                |                    |                      | 0 35 27         | -17 4           | 108 51         | -79 6           |
| 173        |           | -24      | 263 | 3795 | 799        | 117.           | 368                |                      | 0 35 31         | -24 21          | 85 33          | -85 51          |
| 174        |           | - 5      | 101 | 3807 | 804        |                | 370                |                      | 0 35 37         | - 4 54          | 116 2          | -67 5           |
| 175        | 32 AND    | +38      | 90  | 3817 | 812        |                | 374                |                      | 0 35 42         | +38 55          | 120 45         | -23 22          |
| 176        |           | -60      | 46  | 3823 | 801        | 120.           |                    |                      | 0 35 44         | -60 1           | 305 36         | -57 36          |
| 177        |           | +65      | 83  | 3856 | 825        |                | 379                |                      | 0 36 5          | +65 36          | 121 59         | + 3 17          |
| 178        |           | +23      | 94  | 3883 | 822        |                | 377                |                      | 0 36 18         | +24 5           | 120 5          | -38 11          |
| 179        | 19 ξ CAS  | +49      | 164 | 3901 | 828        |                | 381                |                      | 0 36 29         | +49 58          | 121 24         | -12 20          |
| 180        | μ PHE     | -46      | 180 | 3919 | 823        | 121.           | 378                |                      | 0 36 36         | -46 38          | 308 20         | -70 56          |
| 181        |           | +57      | 132 | 3924 | 837        |                | 385                |                      | 0 36 46         | +58 12          | 121 46         | - 4 7           |
| 182        |           |          |     |      |            |                |                    |                      |                 |                 |                |                 |
| 183        | ξ PHE     | -57      | 143 | 3980 | 830        |                | 382                | I                    | 0 37 13         | -57 3           | 305 40         | -60 34          |
| 184        | 20 π CAS  | +46      | 146 | 4058 | 856        | 127.           | 392                |                      | 0 37 56         | +46 29          | 121 31         | -15 49          |
| 185        | λ¹ SCL    | -39      | 175 | 4065 | 849        |                |                    | I                    | 0 37 54         | -39 1           | 311 35         | -78 30          |
| 186        |           | -60      | 49  | 4088 | 853        |                |                    |                      | 0 38 12         | -60 49          | 304 56         | -56 49          |
| 187        | ρ TUC     | -66      | 47  | 4089 | 851        | 131.           | 391                |                      | 0 38 12         | -66 1           | 304 26         | -51 38          |
| 188        | 16 β CET  | -18      | 115 | 4128 | 865        | 134.           | 396                |                      | 0 38 34         | -18 32          | 111 13         | -80 41          |
| 189        |           | +47      | 181 | 4142 | 874        |                | 401                |                      | 0 38 53         | +47 19          | 121 43         | -13 0           |
| 190        |           | -12      | 126 | 4145 | 869        |                |                    |                      | 0 38 48         | -12 33          | 115 48         | -74 46          |
| 191        | η PHE     | -58      | 42  | 4150 | 866        | 137.           | 397                | I                    | 0 38 52         | -58 1           | 305 5          | -59 37          |
| 192        | 21 YZ CAS | +74      | 27  | 4161 | 891        |                | 407                | 624                  | 0 39 2          | +74 26          | 122 33         | +12 6           |
| 193        | 22 σ CAS  | +47      | 183 | 4180 | 882        |                | 404                | 622                  | 0 39 9          | +47 44          | 121 46         | -14 35          |
| 194        | 17 φ¹ CET | -11      | 128 | 4188 | 875        | 138.           | 402                |                      | 0 39 9          | -11 9           | 116 40         | -73 23          |
| 195        | λ² SCL    | -39      | 181 | 4211 | 879        | 139.           |                    |                      | 0 39 22         | -38 58          | 310 12         | -78 36          |
| 196        |           | +54      | 143 | 4222 | 894        | 142.           | 408                | 625                  | 0 39 35         | +54 40          | 122 3          | - 7 39          |
| 197        |           | -22      | 127 | 4247 | 889        | 143.           | 406                |                      | 0 39 48         | -22 33          | 105 57         | -84 39          |
| 198        |           | -43      | 207 | 4293 | 900        |                |                    |                      | 0 40 13         | -43 13          | 307 24         | -74 24          |
| 199        |           | -63      | 72  | 4294 | 893        |                |                    | I                    | 0 40 10         | -63 3           | 304 19         | -54 36          |
| 200        |           | +68      | 49  | 4295 | 921        |                | 420                |                      | 0 40 22         | +68 47          | 122 30         | + 6 27          |



## BRIGHT STAR CATALOGUE

15

| BS=HR | RA<br>(2000) | $\Delta\alpha$<br>100 YR |      | DEC<br>(2000) | $\Delta\delta$<br>100 YR |   | VISUAL<br>MAG | B-V   | SPECTRAL<br>CLASS | PROPER MOTION |        | PAR    | RADIAL<br>VELOCITY<br>km/s | DOUBLE STARS |      |    | R |
|-------|--------------|--------------------------|------|---------------|--------------------------|---|---------------|-------|-------------------|---------------|--------|--------|----------------------------|--------------|------|----|---|
|       |              | h                        | m s  |               | °                        | ' |               |       |                   | RA            | DEC    |        |                            | $\Delta m$   | SEP  | NO |   |
| 151   | 0 36 6       | +                        | 4 58 | -22 51        | +33                      |   | 6.05          | +0.30 | A7p               | -0.080        | -0.038 | .      | + 14                       | .            | .    | .  |   |
| 152   | 0 36 46      | +                        | 5 26 | +44 29        | +33                      |   | 5.29 R        |       | K5III             | -0.026        | +0.035 | +0.006 | - 33                       | .            | .    | .  |   |
| 153   | 0 36 58      | +                        | 5 34 | +53 54        | +33                      |   | 3.61          | -0.20 | B2V               | +0.018        | -0.008 | -0.007 | + 2                        | .            | .    | .  |   |
| 154   | 0 36 53      | +                        | 5 21 | +33 43        | +33                      |   | 4.43 R        | -0.13 | B5V               | +0.013        | -0.006 | -0.012 | + 9V                       | 4.5          | 36.1 | 3  | G |
| 155   | 0 36 48      | +                        | 5 13 | +15 14        | +33                      |   | 5.81          | -0.13 | B3V               | +0.001        | -0.016 | .      | - 12                       | .            | .    | .  | R |
| 156   | 0 37 7       | +                        | 5 16 | +24 1         | +33                      |   | 6.44 R        |       | K1                | -0.016        | -0.042 | .      | - 1                        | .            | .    | .  |   |
| 157   | 0 37 21      | +                        | 5 21 | +35 24        | +33                      |   | 5.46 R        |       | gG0               | -0.020        | -0.004 | .      | - 0                        | .            | .    | .  |   |
| 158   | 0 39 47      | +                        | 7 35 | +82 29        | +33                      |   | 6.34 R        |       | dF6               | -0.111        | +0.091 | +0.025 | - 33                       | .            | .    | .  |   |
| 159   | 0 37 20      | +                        | 5 8  | -24 46        | +33                      |   | 5.56          | +0.74 | G5V               | +1.383        | -0.008 | +0.070 | + 17                       | 0            | 8    | .  | * |
| 160   | 0 36 37      | +                        | 4 24 | -65 8         | +33                      |   | 6.41          | +1.26 | gK2               | +0.028        | -0.018 | .      | .                          | .            | .    | .  |   |
| 161   | 0 37 31      | +                        | 5 9  | + 3 8         | +33                      |   | 6.98          | +1.32 | K4III             | +0.090        | -0.055 | .      | + 4                        | .            | .    | .  |   |
| 162   | 0 37 18      | +                        | 4 39 | -54 24        | +33                      |   | 6.40          | +1.00 | gG9               | +0.051        | -0.020 | .      | .                          | .            | .    | .  |   |
| 163   | 0 38 33      | +                        | 5 17 | +29 19        | +33                      |   | 4.37          | +0.88 | G8III             | -0.232        | -0.249 | +0.031 | - 84                       | .            | .    | .  |   |
| 164   | 0 39 10      | +                        | 5 32 | +49 21        | +33                      |   | 5.58 R        |       | gK5               | +0.004        | -0.010 | .      | - 10                       | 4.5          | 14.8 | .  | 1 |
| 165   | 0 39 20      | +                        | 5 21 | +30 52        | +33                      |   | 3.21          | +1.31 | K3III             | +0.133        | -0.090 | +0.024 | - 7V                       | 9.5          | 28.7 | 3  | D |
| 166   | 0 39 22      | +                        | 5 12 | +21 15        | +32                      |   | 5.84          | +0.86 | K0V               | -0.466        | -0.369 | +0.100 | - 34                       | .            | .    | .  |   |
| 167   | 0 39 56      | +                        | 5 16 | +21 26        | +33                      |   | 5.42 R        |       | K0II-III          | +0.025        | -0.033 | +0.006 | - 17                       | 2.7          | 6.6  | .  | D |
| 168   | 0 40 31      | +                        | 5 41 | +56 32        | +33                      |   | 2.24          | +1.18 | K0II-III          | +0.050        | -0.029 | +0.009 | - 4                        | 6.0          | 64.4 | 4  | D |
| 169   | 0 38 41      | +                        | 3 56 | -73 8         | +33                      |   | 6.84          | +0.11 | A0                | -0.015        | +0.021 | .      | .                          | .            | .    | .  |   |
| 170   | 0 39 58      | +                        | 4 55 | -33 57        | +33                      |   | 6.3 H         |       | F8                | +0.325        | -0.111 | +0.015 | - 11                       | .            | .    | .  | V |
| 171   | 0 39 52      | +                        | 4 46 | -44 48        | +33                      |   | 6.00          | +1.15 | gK1               | +0.036        | +0.001 | .      | .                          | .            | .    | .  |   |
| 172   | 0 40 28      | +                        | 5 1  | -16 31        | +33                      |   | 6.48          | +0.91 | G5                | +0.033        | -0.034 | .      | .                          | .            | .    | .  |   |
| 173   | 0 40 33      | +                        | 5 2  | -23 49        | +32                      |   | 6.13          | +0.70 | dG3               | +0.640        | -0.329 | +0.036 | - 53                       | .            | .    | .  |   |
| 174   | 0 40 42      | +                        | 5 5  | - 4 21        | +33                      |   | 5.92          | +1.10 | gG7               | -0.018        | -0.014 | .      | + 35                       | .            | .    | .  |   |
| 175   | 0 41 7       | +                        | 5 25 | +39 28        | +33                      |   | 5.33          | +0.88 | G8III             | -0.014        | -0.004 | .      | - 5                        | .            | .    | .  | G |
| 176   | 0 40 25      | +                        | 4 41 | -59 27        | +34                      |   | 5.88          | +0.56 | G1V               | +0.886        | +0.451 | +0.052 | + 3                        | .            | .    | .  |   |
| 177   | 0 42 3       | +                        | 5 58 | +66 9         | +33                      |   | 5.82 R        |       | G9III-IV          | -0.005        | -0.004 | .      | - 3                        | .            | .    | .  |   |
| 178   | 0 41 36      | +                        | 5 18 | +24 38        | +33                      |   | 5.93 R        |       | A m               | +0.100        | -0.021 | .      | - 15                       | .            | .    | .  |   |
| 179   | 0 42 4       | +                        | 5 35 | +50 31        | +33                      |   | 4.79          | -0.11 | B2V               | +0.011        | -0.005 | .      | - 8V?                      | .            | .    | .  | G |
| 180   | 0 41 19      | +                        | 4 43 | -46 5         | +33                      |   | 4.58          | +0.97 | G8III             | -0.026        | +0.000 | +0.001 | + 17                       | .            | .    | .  | G |
| 181   | 0 42 31      | +                        | 5 45 | +58 45        | +33                      |   | 6.09 R        | -0.01 | B9                | +0.035        | -0.003 | .      | - 2                        | .            | .    | .  |   |
| 182   |              |                          |      |               |                          |   |               |       |                   |               |        |        |                            |              |      |    |   |
| 183   | 0 41 46      | +                        | 4 33 | -56 30        | +33                      |   | 5.69          | +0.22 | A8p               | +0.081        | +0.046 | .      | + 10                       | 4.2          | 13.4 | .  | D |
| 184   | 0 43 28      | +                        | 5 32 | +47 2         | +33                      |   | 4.99 R        |       | A5                | -0.025        | -0.033 | +0.020 | + 13V                      | .            | .    | .  | R |
| 185   | 0 42 43      | +                        | 4 49 | -38 28        | +33                      |   | 6.05          | -0.03 | A0V               | -0.006        | -0.002 | .      | + 4V                       | 2            | 7    | .  | 2 |
| 186   | 0 42 41      | +                        | 4 29 | -60 16        | +33                      |   | 5.98          | +1.32 | K2                | +0.252        | -0.043 | .      | + 26                       | .            | .    | .  |   |
| 187   | 0 42 28      | +                        | 4 16 | -65 28        | +33                      |   | 5.38          | +0.50 | dF5               | +0.052        | +0.047 | +0.031 | + 14V                      | .            | .    | .  | R |
| 188   | 0 43 35      | +                        | 5 1  | -17 59        | +33                      |   | 2.04          | +1.02 | K1III             | +0.230        | +0.040 | +0.057 | + 13                       | .            | .    | .  |   |
| 189   | 0 44 26      | +                        | 5 33 | +47 52        | +33                      |   | 5.64          | -0.12 | B5V               | -0.030        | +0.016 | .      | - 60                       | .            | .    | .  |   |
| 190   | 0 43 50      | +                        | 5 2  | -12 0         | +33                      |   | 6.18 H        |       | G5                | +0.003        | -0.199 | .      | .                          | .            | .    | .  |   |
| 191   | 0 43 21      | +                        | 4 29 | -57 28        | +33                      |   | 4.36          | +0.00 | A0IV              | -0.006        | +0.011 | +0.039 | + 10V                      | 7.2          | 20.4 | .  | * |
| 192   | 0 45 39      | +                        | 6 37 | +74 59        | +33                      |   | 5.57VR        |       | A2,3              | -0.017        | -0.022 | .      | + 11V                      | 3.7          | 36.1 | .  | * |
| 193   | 0 44 44      | +                        | 5 35 | +48 17        | +33                      |   | 4.57          | -0.06 | B2V               | +0.017        | -0.007 | .      | - 8                        | 6.5          | 33.1 | .  |   |
| 194   | 0 44 12      | +                        | 5 3  | -10 36        | +33                      |   | 4.75          | +1.02 | K0III             | -0.013        | -0.106 | +0.018 | + 1                        | .            | .    | .  |   |
| 195   | 0 44 12      | +                        | 4 50 | -38 25        | +33                      |   | 5.97 H        |       | gK0               | +0.229        | +0.121 | +0.005 | + 24                       | .            | .    | .  |   |
| 196   | 0 45 17      | +                        | 5 42 | +55 13        | +33                      |   | 5.50 R        |       | A2                | -0.027        | +0.005 | +0.010 | - 9                        | 4.9          | 88.3 | 3  | * |
| 197   | 0 44 45      | +                        | 4 57 | -22 0         | +33                      |   | 5.23          | +0.33 | F2V               | -0.069        | +0.087 | +0.041 | + 10                       | .            | .    | .  |   |
| 198   | 0 44 57      | +                        | 4 44 | -42 40        | +33                      |   | 5.93          | +0.29 | A7V               | -0.071        | -0.104 | .      | + 9V                       | .            | .    | .  |   |
| 199   | 0 44 32      | +                        | 4 22 | -62 30        | +33                      |   | 6.17 H        |       | F5                | +0.141        | -0.003 | .      | .                          | 1.9          | 2.9  | .  |   |
| 200   | 0 46 39      | +                        | 6 17 | +69 20        | +33                      |   | 6.31 R        |       | F2                | +0.197        | +0.007 | .      | - 14                       | .            | .    | .  |   |