

Astron. Astrophys. Suppl. Ser. **53**, 223-245 (1983)

Meridian observations made with the Carlsberg Automatic Meridian Circle at Brorfelde (Copenhagen University Observatory) 1981-1982

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Summary. — This catalogue contains positions and magnitudes for 1577 stars with visual magnitudes brighter than 11.0. The observations were made with the 7-inch transit circle at Copenhagen University Observatory during the period July 1981 to May 1982. The instrument has been equipped with a photoelectric moving-slit micrometer and a minicomputer to control the entire observing process, making it a fully automated transit circle. The internal mean errors of a single observation are $\varepsilon_\alpha \cos \delta = 0.0138$, $\varepsilon_\delta = 0.216$, $\varepsilon_m = 0.132$. The positions are reduced relative to the FK4 system for each night and over the whole meridian, instead of the usual narrow zones. The positions of the FK4 stars used in the least squares solution are also given in the catalogue.

Key words : transit circle — catalogue of positions.

1. Introduction.

The observations were made with the 7-inch meridian circle at Brorfelde. The instrument has been completely automated over the past few years and equipped with a photoelectric moving-slit micrometer. This catalogue is compiled from a short program of observations undertaken to test this new system. The observations were carried out in the period 31 July 1981 to 12 May 1982.

The catalogue contains positions of 1577 stars for equinox 1950.0 and epoch of observation ; 425 of these are FK4 stars that were used in the least squares adjustment to the FK4, the remainder being program stars. The program stars include the following : 167 stars from the AGK3 zones + 88° and + 89° ; 115 stars from a zone around the North Galactic Pole ; stars from several PZT zones ; some faint GC stars ; reference stars from radio source fields ; and a few stars from previous Brorfelde programs.

All the positions given in this catalogue (including those for the FK4 stars) were reduced differentially with respect to the FK4 system. The total number of observations in the catalogue is 9,594 of which 6,687 are observations of program stars. This yields an average of 5.8 observations per program star. The resulting internal mean error of a catalogue position is :

$$\begin{aligned}\varepsilon_\alpha \cos \delta &= 0.006 \\ \varepsilon_\delta &= 0.10.\end{aligned}$$

The mean errors of a single observation show an improvement in both right ascension and declination

over the previous photographic catalogues for Brorfelde, as described in section 9.

The photoelectric micrometer utilizes a photon counting technique thus measuring the intensity of the stellar light. On good nights these intensities were converted to magnitudes by using FK4 stars with photoelectrically determined magnitudes as standards. The resulting mean error of the magnitudes given in the catalogue is :

$$\varepsilon_m = 0.06.$$

The catalogue is available on magnetic tape (9-track, 1,600 bpi) upon request.

In collaboration with the Royal Greenwich Observatory, Herstmonceux (RGO) and the Instituto y Observatorio de Marina, San Fernando (IOM), the Carlsberg Automatic Meridian Circle (CAMC) will be moved to the Observatorio del Roque de los Muchachos, La Palma in 1983.

2. Instrument and accessories.

The telescope was delivered by Grubb Parsons in 1953 and has a clear aperture of 178 mm and a focal length of 2,665 mm. A description of the telescope is given by Laustsen (1967).

On completion of the 1964-1976 observing programs (Laustsen, 1968 ; Fogh Olsen, 1973 ; Fogh Olsen, Helmer, 1977 ; Helmer, Fogh Olsen, 1982) a major overhaul of the instrument was undertaken in order to

automate the observing process under the control of two HP minicomputers. The CAMC now incorporates an automatic setting system ; a new type of impersonal photoelectric micrometer ; automatic meteorological data collection ; a photoelectric collimation micrometer ; and an improved circle reading system. The computers control all the movements of the telescope, including the micrometer and the circle reading scanners, and collect data from the various photomultipliers, limit-switches and other sensors.

2.1 AUTOMATIC SETTING SYSTEM. — During the observing period the telescope could be set within 12 seconds to an accuracy of $\pm 6''$. This was achieved using a combination of coarse and fine motion drives, an incremental encoder and one of the six photoelectric circle reading micrometers.

A large gear wheel was fitted to the casing of the spare declination circle. A Heidenhein incremental encoder providing one count per arcminute and two DC motors were mounted on this gear. The clamp of the telescope was replaced by a DC motor and a stepping motor with a step accuracy of $3''$ was fitted to the fine motion drive.

The automatic setting is performed under the control of an HP 21 MX(E) minicomputer known as the process controller. With the telescope unclamped, the process controller positions the telescope to within 5 arcminutes of the final setting using the two DC motors and the incremental encoder. Normally this part of the setting process takes 10 seconds to cover angular distances of up to 60° . Once clamped the fine motion drives the telescope to within one fine motion step of the required setting. The accuracy of the setting was limited by the size of a fine motion step ($\sim 3''$) and the fact that no diameter corrections ($\sim 1''$) were applied to the declination micrometer's output.

2.2 CIRCLE READING SYSTEM. — The glass circle of the instrument is read through six microscopes using an impersonal photoelectric technique. The six scanning photoelectric micrometers were installed in 1964-1965 and are described by Laustsen (1967). However, several improvements have been made to the original system and are described by Fabricius *et al.* (1980). A set of six new microscopes and a circle illumination system were added to the east pier to facilitate the reversal of the telescope. New reticle plates were installed in Autumn of 1980.

Each micrometer's photomultiplier output is provided with a current-voltage amplifier and connected to the process controller via an HP analogue-to-digital converter. During a circle reading the six micrometers are scanned by the process controller, enabling immediate quality checks to be performed, as well as online reduction and application of the diameter corrections to produce the final circle reading and a measure of its quality.

The diameter corrections determined by Fabricius *et al.* (1980) were used for reducing the circle readings throughout the observing period.

2.3 THE PHOTOELECTRIC MOVING-SLIT MICROMETER. — An impersonal photoelectric moving-slit micrometer was

used to record the transit of the stars. The design of this scanning micrometer was based on experience gained from the operation of the passive multi-slit micrometer at Perth (Høg *et al.*, 1976).

The slit plate is mounted on a carriage in the focal plane of the telescope. This slit plate contains a selection of slits and pin-holes used to view different objects such as nadir, planets and stars. The two slits (v-shaped) used for normal star observations are inclined at 45° to the meridian. The slits are $5''.5$ wide in the east-west direction and cover $23''$ in right ascension and declination (Fig. 1).

The detector box is mounted on a separate carriage behind the slit plate. It contains a diaphragm, a filter wheel, a dichroic filter, which splits the light into its blue and visual components, and two photomultipliers. Only the observations made in the visual channel have been included in this catalogue. The filter wheel contains a hole for normal observing ; a prism to allow visual inspection ; a 5-magnitude neutral density filter ; and a compound filter for daytime observing. The magnitude range of the photomultipliers is 2 to 12 magnitudes. The 5-magnitude filter allows objects brighter than magnitude 2 to be observed and provides sufficient overlap to enable the effect of viewing through the filter to be estimated. The diaphragm can be positioned over any single slit, screening the photomultipliers from stray light. Accurate control of all the motors on the micrometer is achieved under the direction of the process controller. Both the slit plate and the diaphragm plate are driven eastward and westward by stepping motors. Each individual step command is issued directly by the process controller. The micrometer also houses an « artificial » star that can be used to calibrate the slit plate motion.

Given the magnitude, right ascension and declination (δ) of an object, the process controller sets the telescope, including a correction for refraction, selects a filter, and calculates where to position the slits prior to making the observation. The process controller also calculates when and how to move the slit and diaphragm plates during the observation. The slit plate is driven at a constant speed (v_s) of $38''.75$ per second. Observations of equatorial stars indicate that one motor step corresponds to a plate movement of $0''.155042$. During a normal observation, the steadily-moving star image is scanned by driving the slits to and fro across the image. Thus, the velocity of the slit plate relative to the star is given by

$$v_r = v_s \pm 15 \cos \delta \quad (1)$$

where the plate is driven in the same direction as the star in the first traverse. At the same time the diaphragm is moved back and forward uncovering the slit that the star is crossing. During the observation a number (n) of such traverses are performed. The normal traverse distance (d) is such that the slit plate moves about $71''$ relative to the star image.

The output from the photomultiplier passes into a binary counter which is read by the process controller every T_{INT} seconds, to produce a series of N_p counts :

$$N_p = n d / v_r T_{\text{INT}} . \quad (2)$$

Normally, an observation consists of eight traverses, each producing two « peaks » in the photon counts from

the photomultipliers and has $T_{\text{INT}} = 32$ ms. Such an observation requires at most 17.24 seconds to complete.

2.4 MEASUREMENT OF COLLIMATION AND NADIR. — Another photoelectric micrometer is mounted on the north collimator. This collimation micrometer contains a light source and a single pair of 45° slits on a plate in front of a photomultiplier. The plate is driven by a stepping motor under control of the process controller. Collimation alignment can be achieved by using this micrometer to determine the position of a fixed light source in the south collimator.

The telescope micrometer also contains a light source which can be observed by reflection in a mercury pool to provide the nadir direction. The mercury pool is held in a sealed container that opens automatically. To prevent pollution of the mercury surface, it is kept in an atmosphere of dry nitrogen. Under these conditions the same surface can be used for a period of six months.

2.5 CLOCK SYSTEM AND METEOROLOGICAL DATA. — The process controller derives its timings from an external clock with absolute accuracy of one millisecond. A 500 Hz sidereal signal provides the basic timing unit to the process controller. A $1/60$ Hz sidereal pulse allows software in the process controller to check that no 2 millisecond pulses are lost.

The process controller is linked via an analogue-to-digital converter to the following meteorological sensors : internal and external temperatures -15 to $+35 \pm 0.1^\circ\text{C}$

barometric pressure $650\text{--}870 \pm 0.1$ mmHg

relative humidity $0\text{--}100 \pm 1$ %

wind speed $0\text{--}30 \pm 1$ m/s

wind direction $0\text{--}360 \pm 5^\circ$

A Vaisala rain detector is also interfaced to the process controller. If triggered it interrupts the process controller, which then closes the dome and suspends observing.

For a complete technical description of the CAMC see Helmer *et al.* (1983).

3. General observing plan.

From a list of star numbers prepared manually and a basic catalogue of equinox 1950.0, a program in the computer prepares an observing list daily. This observing list contains all the information needed by the process controller to perform the observations, such as the apparent place, magnitude and control information for the micrometers. The computer feeds the contents of this observing list sequentially to the process controller, which then performs the observation automatically.

The observing list contains about 90 stars in each hour, selected to allow sufficient time to perform each observation. The setting process must be completed at least two seconds before the starting time of the observation, allowing time for a protective mirror to be removed and all step motors, photomultipliers and the analogue-to-digital converter to be enabled. The entire observation requires a minimum of 32 seconds. To

achieve this separation some stars must be observed off the meridian and an indication of the number of seconds « off-centre » is included in the observing list.

FK4 stars covering the meridian down to a zenith distance of 75° are included in the list. They are selected to provide a density of 10-15 FK4 stars per hour, in order to give the best combination of program and FK4 stars for the later reduction.

The operator initiates the observing duty by inputting the correction to the sidereal clock, making the process controller operate in apparent local sidereal time. The instrument is then zeroised to obtain accurate reference points for all the moving parts of the telescope. Instrumental measurements, including collimation and nadir, are performed automatically at the beginning, end and every hour of the duty. The meteorological sensors are sampled prior to each observation. While observing, the process controller transmits the circle reading, the sampled meteorological data and the output from the micrometer to the computer, which initiates the real-time reduction process (see sect. 4) and returns to the observing list to select the next star.

The duty is terminated either by the operator or automatically at the end of the observing list.

4. Real-time reduction process.

The purpose of the real-time reduction process is to reduce the photon counts to the observed x and y coordinates of the centre of the star image in the micrometer at some clock time θ .

The observational sequence begins at a preselected starting time θ_0 and the first photon count covers the period from $(\theta_0 + 32)$ milliseconds to $(\theta_0 + 64)$ milliseconds. In general, the n th photon count covers a 32 millisecond period centred at the time $(\theta_0 + 16 + 32n)$, thus providing the current time scale for the observation. Since each slit plate step is issued in real time by the process controller, there is a strict relation between the current time scale and the position of the slit plate in the micrometer.

If there were no relative motion, the photon counts would represent the convolution of the stripwise intensity distribution of a stellar image with the rectangular transmission function of the slit. The effect of the relative motion is to alter the slit function, so that it becomes trapezoidal. The sloping sides of the trapezoid correspond to the portions of the image that are exposed for part of the sampling period by the moving slit edges. This trapezoidal function is used to deconvolve the photon counts. In order to reduce the effect of observational scatter, the photon counts are further smoothed by performing a second convolution with the same trapezoidal function.

The median value of each stellar profile is calculated. The mean of the two median values from each traverse corresponds to the time at which the star image median crosses the bisector of the two slits, whose step position in the field at that time provides the x_i coordinate. The x_i values are corrected for the motion in declination. The difference between each pair of median values corresponds to the time taken ($\Delta\theta$) for the star image median

to pass from one slit centre line to the other. Thus, the vertical distance from the intersection of the slits is given by :

$$y_i = \Delta\theta v_r/2. \quad (3)$$

The y_i values are corrected for the curvature of the diurnal path. The x_i and y_i values are corrected to accommodate the drive angle of the slit plate and the mean x and y values and their mean errors are calculated.

The meteorological data and the fourth edition of the Pulkovo tables (Orlov, 1956) are used to compute the correction due to refraction.

The total number of photoelectrons within each profile gives a measure of the total flux received by the passage of the slit across the star image and can be used to derive the stellar magnitude. If S is the number of photoelectrons in a profile after the sky background has been subtracted and t is the width of the stellar path across the slit i.e. 5".5, then the stellar intensity is given by :

$$I = S v_r/t. \quad (4)$$

The CAMC magnitude is computed from each profile using the following equation :

$$m_v = 15.92 - 2.5 \log_{10}(I) \quad (5)$$

The mean observed magnitude and its mean error are obtained by combining the results from all sixteen profiles.

The distribution of the photoelectrons within the profiles is analysed to provide information on the quality of the image structure. By analysing the percentage of the total flux found in each 'tail' of width 4" flanking the central 4" strip of the profile, estimates are made of the degree of asymmetry of skewness and the spread of the image. For asymmetrical images the full data (i.e. all the photon counts) are stored for plotting and further investigation. The mean full width half maximum of the profiles is outputted as a measure of the seeing.

The observation is flagged if any of the eight residuals of the x or y coordinate exceeds 0".75 ; if any of the 'tail' percentages exceeds 20 % ; or if the difference between the two 'tails' in a profile exceeds 5 %. These suspect observations may be removed during the later reductions.

The same real-time reduction program is used to reduce the observations of collimation, zenith point correction, and level. The results of these instrumental reductions are stored in separate files for inclusion in the later stages of the reduction process.

Thus, the real-time reduction of an observation provides the clock time θ at which the object reaches a given step x in the field ; the vertical distance from the intersection of the slits y ; the observed magnitude m_v ; the concluded circle reading z ; and the refraction correction. It also provides the mean errors in x , y , and m_v , an estimate of the seeing, and some indication of the image quality.

5. Right ascension.

The observed clock time of transit reduced to the line of collimation is given by :

$$\theta_c = \theta + [(x - x_c)F - 0.012] \sec\delta \quad (6)$$

where x is the x -coordinate of the star in the micrometer at time θ ; x and θ result from the real time reduction (see sect. 4) ; F is the scale factor (0.155042/15) and -0.012 is the correction for diurnal aberration. x_c is the line of collimation of the telescope, usually measured regularly during the night and interpolated linearly to the time θ .

The right ascension is then given by the following expression :

$$\alpha = \theta_c + (m_0 + m'(\theta - \theta_0)) + (n_0 + n'(\theta - \theta_0))\tan\delta + (c_0 + c'(\theta - \theta_0))\sec\delta \quad (7)$$

where m_0 , n_0 and m' , n' are the Besselian constants and their rates of change ; c_0 and c' are the correction to the measured line of collimation and its rate of change ; and θ_0 is an arbitrary time of reference for the night. The six constants m_0 , m' , n_0 , n' , c_0 and c' were determined for each night by a least squares solution of all the FK4 stars observed during the night.

On some occasions during the observing period it was not possible to measure the collimation error. In these cases the collimation error was determined through the constants c_0 and c' .

For a few long nights it was also found necessary to include a second order term for the time variation of the collimation error. This term was only included in the least squares solution when the differences between the observed and catalogue positions indicated the presence of such a variation.

In addition, the residuals from the least squares solution on most nights showed a systematic dependence on declination over large parts of the sky. A recent determination of the pivot errors shows these variations to be largely due to the pivot errors. No attempt was made to correct the positions for this dependence, and it remains in the final catalogue comparisons with the FK4 system as described in section 10.

6. Declination.

The observed declination is given by :

$$\delta_c = \varphi_0 - (z - \Delta z_p + y) - r \quad (8)$$

where φ_0 is the adopted latitude 55°37'19".3 (Laustsen, 1968) ; z is the zenith distance resulting from the circle reading with diameter corrections applied ; r is the refraction and y is the y -coordinate in the micrometer at clock time θ (see sect. 4). Δz_p is the zenith point correction determined from nadir observations during the night and interpolated linearly to the time θ .

The concluded declination is given by :

$$\delta = \delta_c - (p_0 + p'(\theta - \theta_0)) + (f_0 + f'(\theta - \theta_0)) \sin z + (R_0 + R'(\theta - \theta_0)) \tan z \quad (9)$$

where p_0 contains the correction to the adopted latitude and zero point of the circle reading, f_0 is the horizontal flexure, R_0 is the correction to the refraction and p' , f' , R' are their respective rates of change. These six constants are determined for each night from the observed FK4 stars by a least squares solution.

The terms containing R_0 and R' are normally small and uncertain and were only included in the least squares solution for a few nights. On some nights measurements of nadir were unavailable and on these occasions the zenith point correction was determined through the constants p_0 and p' . For a few long nights it was also found necessary to include a second order term for the time variation of the zenith point correction.

7. Magnitude.

The magnitude is given by the following expression :

$$m = m_v + (D_0 + D'(\theta - \theta_0)) + (K_0 + K'(\theta - \theta_0)) \sec z \quad (10)$$

where m_v is the observed magnitude determined as described in sect. 4 ; D_0 and K_0 are the zero point and the coefficient of extinction at time θ_0 ; while D' and K' are their respective rates of change. These four constants are determined from a least squares solution based on a selection of FK4 stars with well determined photoelectric magnitudes. The magnitudes used for this calibration are all in the range 2 to 7. Consequently the magnitude determinations outside this interval are based on extrapolation.

8. Formation of the catalogue.

The reduction to the FK4 system is made for each night and over the whole meridian. This is contrary to the earlier catalogues where only narrow zones in declination and up to 4 hours in right ascension were used. The longest observing night was 9.7 hours, and the largest range in zenith distance was 75° to the south and 60° to the north.

As the observing period covered by this catalogue was considered a test period for the instrument and as training for the operators, observations were also carried through on nights of dubious quality.

Before forming the unweighted means of all observations giving the final catalogue positions, each individual observation was investigated to detect and exclude badly defined stellar images. If the star image was not completely within a $3''$ limit of the total area scanned by the two slits during the observation, then the observation was rejected. A test was made for skewness and asymmetry of the profiles and for the size of the image. If the image appeared skew in either slit or the full width half maximum exceeded $7''$ the observation was excluded. For right ascension and declination only observations inside the zone defined by the range of FK4 stars were included. No range limits were placed on the magnitudes, but a 3σ limit was imposed. Furthermore, right ascensions, declinations and magnitudes were rejected when the internal mean errors exceeded $0.7''$,

$0.7''$, and $0.07''$, respectively. Roughly 2,000 observations were omitted from the catalogue due to these criteria. On a few nights a further 645 observations were rejected in declination only because a failure in the temperature recording system made it impossible to determine the refraction.

Several poor nights were omitted entirely from the catalogue and on some non-photometric nights no magnitude determination was attempted. The continuous software development throughout the period caused failures during observing and data from a few nights were completely lost. Some very cold nights were excluded since the instrument proved unable to perform in a satisfactory manner at temperatures below -10° . Finally, a 3σ limit was imposed rejecting 0.5 % of the observations in both right ascension and declination.

In total, data for 18,500 observations were recorded during the 9 months observing period. Earlier achievements by the same instrument, manually operated, show a maximum of 10,000 observations during one year of uninterrupted observing.

The reductions from apparent place to mean place were calculated by using the Besselian Day Numbers given in The Astronomical Almanac for the year 1981-1982.

To change the equinox from the beginning of the year nearest the date of observation to 1950.0, Newcomb's precessional constant was used :

$$\alpha_2 = \alpha_1 + (\rho_0 + b) + \Delta\alpha \quad (11)$$

$$\delta_2 = \delta_1 + \theta \cos(a_1 + 1/2 \Delta\alpha) \sec 1/2 \Delta\alpha \quad (12)$$

where

$$a_1 = \alpha_1 + \rho_0$$

$$\tan \Delta\alpha = \frac{p \sin a_1}{1 - p \cos a_1}$$

$$p = (\tan \delta_1 + \cos a_1 \tan 1/2 \theta) \sin \theta$$

$$\rho_0 = (2304.250 + 1.396 T) \tau + 0.302 \tau^2$$

$$b = \rho_0 + 0.791 \tau^2$$

$$\theta = (2004.682 - 0.853 T) \tau - 0.426 \tau^2$$

$$T = (t_1 - 1900)/100$$

$$\tau = (t_2 - t_1)/100$$

(α_1, δ_1) is the position to the epoch t_1 , and (α_2, δ_2) is the position to the epoch t_2 .

9. Discussion of results and internal mean error.

Estimates of the mean error of a single observation are based on a comparison of the individual observations of the same star observed on different nights and are, therefore, defective due to systematic errors from parallax and proper motion.

Excluding FK4 stars, but taking into account all other observations in this catalogue, the internal mean errors are

$$\varepsilon_\alpha \cos \delta = 0.0138 \pm 0.0002$$

$$\varepsilon_\delta = 0.216 \pm 0.003$$

$$\varepsilon_m = 0.132 \pm 0.002.$$

The mean errors in right ascension and declination are similar to those previously obtained in Brorfelde. The mean errors have a clear dependence on magnitude as shown in figure 2. This is largely due to photon statistics as the same observing time (analogous to exposure time) was used for all stars. Before making a comparison with the previous catalogues it should be noted that the exposure time for the photographic micrometer was doubled for stars with $m_V > 9^m.5$. The latest software development on the CAMC has now made a fourfold increase in the observing time possible. It should be remembered that an observing time of only 15-17 seconds was used during the observing period.

The mean errors show no dependence on right ascension but as shown in figure 3 they are dependent on zenith distance. The mean errors in the zenith are

$$\varepsilon_\alpha \cos \delta = 0''.0129, \varepsilon_\delta = 0''.197.$$

The larger mean errors close to the pole are largely due to an excess of faint stars in the polar zones. As the procedure followed (right ascension interval up to 9.7 h, and a range in zenith distance of 135°) for reducing the observations for this catalogue to the FK4 system is atypical of differential catalogues, an attempt was made to form a small catalogue from a subset of the observations. This subset covered 3 hours in right ascension and 30° in declination centred on the zenith and was reduced for stars brighter than $m_V = 9^m.5$. The resulting mean errors for this catalogue are

$$\varepsilon_\alpha \cos \delta = 0''.0124 \pm 0.0006, \varepsilon_\delta = 0''.169 + 0.008.$$

Compared to the earlier Brorfelde catalogues the mean error is much improved in declination, and has a slight gain in accuracy in right ascension.

For the last two months of observing the telescope was reversed. A comparison between the FK4 star observations in the two clamps revealed no systematic differences.

In the course of the observing program a new latitude determination was undertaken. On several long nights the zenith point corrections determined from nadir observations were compared with the zenith point corrections determined by the least squares solution from the FK4 stars. Nadir observations on both clamps were used to eliminate systematic differences. The latitude of the instrument was found to be

$$\varphi = 55^\circ 37' 30''.06 \pm 0''.02 \text{ (m.e.)}.$$

This value deviates by $10''.8$ from the previously determined latitude (Laustsen, 1968). As no information is currently available on this former determination, no explanation for this large systematic difference can be given.

10. Comparison with FK4.

The aim has been to obtain the positions strictly differential to the FK4 system.

Between 20 and 220 FK4 stars were used in the least squares solution for each night, giving a large variation in the size of the zone. Thus, the fit to the FK4 system and its accuracy will differ from night to night.

Figures 4-7 show the systematic differences between Brorfelde and the FK4 system based on a traditional graphical method with intervals of 2 hours and 20° degrees.

In accordance with the previous catalogues and the findings of Röser and Fricke (1981), no significant systematic differences as a function of right ascension are found.

On the other hand, figures 5 and 7 confirm the previously established systematic differences as a function of declination which were also found by Röser and Fricke (1981). The larger systematic differences are probably due to the catalogue being reduced over a much larger zone in zenith distance.

11. Explanation to the catalogue.

Columns 1 and 19 : Internal number.

Columns 2 and 5 : Right ascension and declination for the equinox 1950.0 and epoch of observation.

Columns 3 and 6 : Number of observations in right ascension and declination.

Columns 4 and 7 : Epoch of observation.

Column 8 : Observed magnitude.

Column 9 : Number of observations in magnitude. If 0 no magnitude was determined and column 8 gives a magnitude from an alternative source.

Column 10 : Spectral type. If the spectral type is omitted, no reliable source was available.

Column 11 : DM number.

Column 12 : AGK3 number.

Column 13 : SAO number.

Column 14 : Henry Draper number (Cannon, 1918).

Column 15 : GC number (Boss, 1937).

Column 16 : FK4 (Fricke, Kopff, 1963) or FK4 Suppl. number (Fricke, 1963).

* Signifies that the FK4 star was observed as a program star.

Column 17 : Gliese number (Gliese, 1969).

Column 18 : ADS number (Aitken, 1932).

12. Personnel and acknowledgement.

The observations, reductions and the formation of the catalogue were made under the supervision of L. Helmer, C. Fabricius, O. H. Einicke and C. Thoburn.

The authors wish to thank the following operators from CUO for their contribution to the catalogue : K. Augustesen, H. Hansen, B. Jensen, P. Jensen and T. Knudsen.

We also wish to thank R. H. Tucker and L. V. Morrison, both from RGO, for their contribution to the on-line reduction software.

The HP-1000 system attached to the instrument was used for all computations.

Finally, we wish to thank the Carlsberg Foundation, Copenhagen, Denmark ; the Danish Natural Science Research Council ; and the British Science and Engineering Research Council for their financial support.

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TABLE I.

NO	R.A.	1950.0	N	EPOCH	DEC.	1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3	NO	SAO	HD	GC	FK4	GL	ADS	NO	
1	0 0 29.953	2	81.88		+ 7 59 33.16	2	81.88		8.19	2	F0	+ 7 5123	+ 7	5	108989	225057	10					1	
2	0 3 49.681	2	81.88		+63 35 4.91	2	81.88		5.44	2	B9	+63 2107	+63	6	10978	144	94	2005				2	
3	0 5 2.120	2	81.88		- 4 49 31.00	2	81.88		8.61	2	G0	- 5 2			128592	296	111				84AB	3	
4	0 5 48.152	2	81.88		+28 48 47.09	2	81.88		2.04	2	A0	+28 4	+28	11	73765	358	127	1			94A	4	
5	0 6 31.980	2	81.88		+58 52 21.43	2	81.88		2.28	2	F5	+58 3	+58	16	21133	432	147	2	8.00		107A	5	
6	0 7 21.359	2	81.88		- 2 50 21.72	2	81.88		7.27	2	K2	- 3 9			128618	545	161					6	
7	0 7 56.917	2	81.88		+32 51 10.16	2	81.88		6.74	2	K5	+32 11	+32	17	53694	613	178					7	
8	0 8 46.638	2	81.88		+30 10 17.27	2	81.88		7.87	2	G5	+29 14	+30	11	53703	691	191					8	
9	0 9 7.709	2	81.88		+55 41 1.34	2	81.88		7.28	2	B8	+55 15	+55	15	21191	709	194					9	
10	0 14 30.188	2	81.88		+47 40 11.55	2	81.88		5.72	2	B9	+47 50	+47	23	36236	1279	335	2016				10	
11	0 15 11.731	2	81.88		+50 47 48.97	2	81.88		8.42	2	A5	+50 47	+50	25	21278	1349						11	
12	0 16 45.659	2	81.88		+26 10 35.90	2	81.88		7.46	2	G0	+25 34	+26	31	73889	1501	385					12	
13	0 21 7.954	2	81.88		+60 41 5.82	2	81.88		6.51	2	F2	+60 45	+60	43	11157	1917	465					13	
14	0 22 23.454	2	81.88		+52 46 12.42	2	81.88		5.55	2	B9	+52 61	+52	40	21381	2054	488	2022				14	
15	0 24 20.445	2	81.88		+89 10 7.40	2	81.88		7.96	2	K0	+88 2	+89	2	75	1687						15	
16	0 26 56.052	2	81.88		- 3 44 44.02	2	81.88		6.90	2	K5	- 4 51			128784	2593	574					16	
17	0 28 11.442	2	81.88		+4 23 59.95	2	81.88		9.88	2	G5	+ 3 56	+ 4	55	109243	2716	599					17	
18	0 28 33.633	2	81.88		+28 33 13.14	2	81.88		7.04	2	K5	+20 53	+20	42	74061	2779	613					18	
19	0 32 41.236	2	81.88		- 3 52 4.72	2	81.88		5.14	2	F8	- 4 62			128839	3196	696				23.AB	19	
20	0 33 35.849	2	81.88		+60 3 4.41	2	81.88		5.80	3	A3	+59 84	+60	66	11291	3283	717					20	
21	0 36 22.188	2	81.88		+ 7 38 25.84	2	81.88		8.08	2	K0	+ 7 86	+ 7	68	109344	3603	769					21	
22	0 39 3.864	3	81.93		+19 51 47.74	3	81.93		7.69	3	F8	+19 105	+19	33	92031	3894	826					22	
23	0 39 37.657	3	81.93		+58 28 46.73	3	81.93		6.11	3	B9	+57 132	+58	81	21642	3924	837					23	
24	0 40 24.395	3	81.93		+60 13 44.52	3	81.93		8.55	3	F2	+59 105	+60	74	11346	4005						24	
25	0 41 55.704	3	81.93		+48 0 39.99	3	81.93		4.45	3	B2	+47 183	+48	71	36620	4180	892	25			622A	25	
26	0 42 18.291	3	81.93		+74 42 53.98	3	81.93		5.62	3	A2	+74 27	+74	16	4216	4161	891	24			624A	26	
27	0 44 7.798	2	81.91		- 4 41 55.25	2	81.91		7.40	2	G5	- 5 124			128952	4449	930					27	
28	0 45 47.057	3	81.97		+ 3 0 49.63	3	81.97		5.70	3	G5	+ 4 123	+ 5	87	109471	4628	959	1019			33.00	28	
29	0 46 59.046	3	81.97		+ 7 40 57.26	3	81.97		8.10	3	F5	+ 7 114	+ 7	87	109482	4745	988					29	
30	0 47 30.067	4	81.91		+59 23 59.31	4	81.91		7.53	4	B2	+58 119	+59	77	21757	4768						30	
31	0 48 19.772	3	81.97		+ 7 46 27.18	3	81.97		8.05	3	F8	+ 7 119	+ 7	92	109500	4872	1015					31	
32	0 48 48.262	4	81.91		+50 55 42.09	4	81.91		8.09	4	K0	+50 165	+50	86	21776	532292						32	
33	0 49 48.575	3	81.90		+21 8 19.83	3	81.90		7.29	3	F5	+20 117	+21	75	74333	5036						33	
34	0 50 42.981	4	81.91		+37 8 50.44	4	81.91		6.09	4	K0	+36 148	+37	81	54237	5118	1060					34	
35	0 50 45.100	2	81.88		+89 2 20.95	2	81.88		9.99	2	K5	+88 3	+89	3	147							35	
36	0 51 19.312	3	81.90		+25 13 1.98	3	81.90		7.31	3	K0	+24 133	+25	98	74349	5197	1075					36	
37	0 52 4.949	4	81.91		+50 55 58.68	4	81.91		8.52	4	A0	+50 179	+50	99	21834	532316						37	
38	0 52 42.948	2	81.95		+28 17 28.75	2	81.95		7.27	2	A5	+27 148	+28	115	74367	5328						38	
39	0 53 29.432	4	81.91		- 4 0 30.21	4	81.91		7.36	4	F5	- 4 114			129833	5435						39	
40	0 53 40.440	4	81.91		+60 26 47.42	4	81.91		2.23	12	B0	+59 144			11482	5394	1117	32*			782AB	40	
41	0 55 20.007	4	81.91		+63 26 37.82	4	81.91		7.75	4	B2	+62 175	+63	82	11503	5551						41	
42	0 56 13.729	3	81.87		+ 5 9 7.74	3	81.87		6.59	3	K0	- 6 176			129056	5720	1174	1024				42	
43	0 56 39.341	3	81.95		+48 41 49.38	3	81.95		6.91	3	F5	+48 309	+48	100	36825	9228						43	
44	0 57 30.472	3	81.87		- 2 17 17.04	3	81.87		7.33	3	F5	- 2 136			129072	5861	1196				825A	44	
45	0 58 5.114	4	81.91		+ 9 13 4.06	4	81.91		8.23	4	F0	+ 8 147	+ 9	83	109596	5901	1208				835AB	45	
46	0 58 59.340	3	81.95		+71 24 47.29	3	81.95		9.95	3	H4	+70 689										46	
47	0 59 36.464	4	81.91		+68 57 34.06	4	81.91		7.68	4	G5	+68 67	+68	57	11539	5996	1244					47	
48	1 0 34.856	3	81.90		+50 2 40.35	3	81.90		7.82	3	G0	+49 275	+50	112	21958	6174	1267					48	
49	1 1 16.385	4	81.91		+38 25 14.17	4	81.91		7.12	4	MA	+37 199	+38	105	54393	6262	1283					49	
50	1 1 33.269	17	82.15		+85 59 24.24	14	82.12		4.30	16	K0	+85 19	+85	21	181	5848	1288	906				50	
51	1 2 6.897	2	81.83		- 7 56 32.93	2	81.83		8.23	2	F8	- 8 186			129109	6377	1295					51	
52	1 2 51.110	2	81.83		+15 7 23.64	3	81.90		8.57	3	K2	+14 167	+15	96	92237	6440	1308				895A	52	
53	1 5 41.014	3	81.87		-12 26 5.05	4	81.91		7.60	4	G5	-12 209			147627	6748	1380					53	
54	1 6 18.781	3	81.87		+ 9 27 51.10	3	81.87		7.23	3	B9	+ 8 177	+ 9	100	109700	6815	1388					54	
55	1 6 55.919	4	81.87		+35 21 18.36	4	81.87		2.00	3	MA	+34 198	+35	106	54471	6860	1400	42			53.30	949A	55
56	1 8 54.148	3	81.84		+29 49 28.29	3	81.84		4.68	3	K0	+29 190	+29	164	74546	7106	1441	43				56	
57	1 9 21.141	5	81.90		+61 37 14.14	5	81.90		8.30	6	B3	+61 223	+61	109	11630	7103						57	
58	1 10 19.814	4	81.89		+38 48 20.41	4	81.89		8.30	5	G5	+38 214	+38	119	54521	7226	1464					58	
59	1 10 35.681	3	81.84		+88 0 4.47	3	81.84		8.80	3	F5	+ 88 2			968	9	206					59	
60	1 10 52.788	5	81.90		+60 37 7.05	5	81.90		7.14	14	B3	+60 188	+60	132	11644	7252	1472					60	
61	1 11 57.648	3	81.90		- 5 18 39.59	3	81.90		7.50	4	F8	- 5 215			129195	7449	1493					61	
62	1 12 20.744	5	81.90		+60 15 18.54	5	81.90		7.95	6	K0	+59 220	+60	140	11659	7416	1503					62	
63	1 12 44.935	5	81.90		+50 36 29.49	5	81.90		9.64	6	G5	+50 245	+50	140	22136	7481						63	
64	1 13 13.391	5	81.98		+88 23 48.39	6	82.01		8.90	6	G8	+87 8	+88	4	214							64	
65	1 13 54.878	3	81.95		+25 4 6.79	4	81.97		9.97	4	K5	+25 128										65	
66	1 15 4.344	5	81.90		+76 32 2.11	6	81.92		7.31	6	K2	+76 39	+76	47	4373	7623	1562					66	
67	1 15 13.905	3	81.87		+31 21 4.58	4	81.91		9.11	5	A2	+31 185	+ 3	148	10778	7804	1566	1034				67	
68	1 15 13.750	2	81.82		+88 43 19.41	3	81.89		8.80	4													

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DH	NO	AGK3	NO	SAO	HD	GC	FK4	GL	ADS	NO
111	1 53 52.761	7	81.92	+50 9 59.70	6	81.92	7.75	7	B2	+64	268	+63	137	12051	11744					
112	1 55 15.575	6	81.93	+17 17 45.89	6	81.93	7.91	3	B3	+16	225	+17	167	92727	11980	2371				
113	1 55 35.416	6	81.87	+45 38 1.58	4	81.87	8.72	3	A5	+50	416	+50	221	22810	11968					
114	1 57 8.951	7	81.92	+44 10 42.49	7	81.92	6.87	7	G5	+43	406	+44	211	17699	12131	2404				
115	1 57 48.116	6	81.92	+60 16 14.88	6	81.92	7.76	6	F0	+59	380	+60	228	12086	12161				1399AB	
116	1 58 22.945	5	81.93	+61 39 51.42	5	81.93	7.54	5	BA	+61	366	+61	208	12098	12288			83.30		
117	1 58 57.467	7	81.92	+54 14 49.08	7	81.92	4.97	7	M8	+53	439	+54	230	22859	12303	2442	1034			
118	1 59 6.853	4	81.85	+72 10 51.66	4	81.85	4.00	4	A2	+71	117	+72	57	4560	12216	2445	70			
119	2 1 25.791	7	81.92	+67 26 40.94	7	81.92	9.04	6	F0	+66	182	+67	118	12115	12158	2494				
120	2 2 40.226	6	81.92	+36 43 8.30	6	81.92	9.47	4	B0	+36	402	+36	187	55256		2510				
121	2 2 57.844	7	81.92	+48 55 5.58	7	81.92	7.85	7	F2	+48	600	+48	239	37764	12740					
122	2 4 22.755	4	81.89	+50 31 37.99	4	81.89	8.22	4	A0	+50	455	+50	241	22946	12893					
123	2 4 56.676	5	81.91	+64 48 2.60	5	81.91	7.51	5	B3	+64	295	+64	153	12145	12882					
124	2 6 7.484	2	81.95	+0 41 33.93	2	81.95	7.99	2	A2	+0	356	+0	188	110364	13164					
125	2 6 33.790	5	81.91	+34 45 5.50	5	81.91	3.05	4	A5	+34	381	+34	207	55306	13161	2572	75			
126	2 7 22.564	7	81.92	+50 49 9.14	7	81.92	7.30	6	A0	+50	466	+50	244	23006	13223					
127	2 8 2.733	7	81.92	+55 55 26.41	7	81.92	8.01	6	B0	+55	534	+55	222	23014	13268					
128	2 8 52.914	13	82.16	+83 19 43.73	11	82.14	6.45	12	K0	+82	51	+83	47	359	12918		2622	1635		
129	2 9 25.124	14	81.92	+68 12 35.93	12	81.91	8.07	13	A5	+69	215	+68	10	362	12976					
130	2 10 20.687	7	81.92	+8 36 47.73	7	81.92	4.38	6	G5	+8	345	+8	249	110408	13611	2656	1058			
131	2 11 6.583	6	81.92	+55 5 3.54	6	81.92	7.92	6	B5	+54	494	+55	226	23065	13621				1714AB	
132	2 11 10.036	5	81.93	+7 15 54.21	5	81.93	7.24	5	B0	+7	242	+6	132	127676	13728		2678			
133	2 13 27.021	6	81.86	+56 36 19.23	5	81.86	8.66	5	F0	+67	192	+67	129	92814	13810					
134	2 14 16.091	6	81.92	+67 24 39.93	6	81.92	8.12	6	B3	+55	564	+56	257	23138	13970				1748AB	
135	2 15 20.291	6	81.90	+19 40 15.28	6	81.90	5.52	6	A0	+19	340			92877	14191	2767	81			
136	2 15 34.295	6	81.93	+67 18 41.63	6	81.93	9.10	7	A0	+66	201	+67	130	12219	14059					
137	2 16 7.334	14	82.11	+68 7 11.87	12	82.08	9.17	14	B8	+67	194	+68	113	12223						
138	2 16 43.036	5	81.91	+67 15 12.94	5	81.91	9.73	5	B5	+66	202	+67	131							
139	2 17 13.355	6	81.92	+67 51 10.19	5	81.93	9.29	7	B2	+67	195	+67	132							
140	2 18 1.652	6	81.93	+67 56 17.05	6	81.93	8.84	7	K2	+67	198	+67	134	12240						
141	2 18 16.034	6	81.93	+67 33 18.24	6	81.93	8.67	7	G5	+67	200	+67	135	12243						
142	2 18 57.372	7	82.11	+88 26 34.69	7	82.11	8.69	6	G0	+87	16	+88	11	384	12364					
143	2 19 20.051	7	81.91	+57 1 4.93	7	81.91	7.45	8	A0	+56	591	+57	302	23263	14335					
144	2 20 32.968	5	81.91	+10 36 36.13	5	81.91	7.59	4	G5	+10	318	+10	251	92914	14787	2866				
145	2 21 43.839	6	81.92	+67 17 29.36	7	81.91	7.85	14	K0	+59	483	+60	260	12276	14794					
146	2 22 45.090	6	81.90	+66 9 17.11	6	81.90	8.63	6	G0	+65	261	+66	154	12280						
147	2 23 20.173	5	81.90	+67 56 35.95	5	81.90	9.54	5	F8	+67	206	+67	137							
148	2 24 1.983	6	81.92	+67 23 42.72	6	81.92	9.16	6	A0	+66	210	+67	138							
149	2 25 29.673	8	81.91	+67 12 35.93	8	81.91	8.26	7	A0	+66	214	+67	139	12301	15149			1860D		
150	2 25 29.673	8	81.91	+8 14 12.94	8	81.91	4.31	7	A0	+7	388			110543	15318	2960	85			
151	2 26 26.580	7	81.92	+67 11 36.77	7	81.92	8.69	6	F5	+66	215	+67	140	12396	15208					
152	2 27 26.580	6	81.93	+68 12 22.22	6	81.93	8.93	6	K0	+67	209	+68	127	12316		2996				
153	2 28 22.939	5	81.91	+67 29 35.76	5	81.91	8.73	5	G5	+67	210	+67	142	12328	15547					
154	2 29 24.018	5	81.91	+71 4 30.42	5	81.91	6.54	4	K0	+70	183	+71	80	4677	15533	3041	2175			
155	2 30 21.666	6	81.92	+67 31 27.23	6	81.92	7.46	5	G5	+67	212	+67	143	12337	15682					
156	2 31 1.425	7	81.90	+60 20 .80	7	81.90	8.31	13	B1	+59	513	+60	279	12343	15785					
157	2 31 46.682	7	81.90	+50 58 15.28	7	81.90	9.00	5	F8	+50	587	+50	284	23445	232677					
158	2 32 3.099	7	81.90	+67 17 42.37	7	81.90	7.18	6	F2	+66	223	+67	150	12351	15849	3087				
159	2 33 13.640	16	82.14	+72 36 6.06	14	82.12	5.26	15	K0	+72	140	+72	68	4694	15920	3116	87			
160	2 33 29.663	7	81.91	+66 17 36.04	7	81.91	8.88	7	F2	+65	278	+66	160		16011					
161	2 33 32.154	6	81.87	+8 2 55.03	6	81.87	5.55	5	K5	-8	489			130004	16212	3126	1074			
162	2 33 21.200	7	81.89	+37 52 25.25	7	81.89	6.29	6	A0	+37	591	+37	307	55735	16350	3161				
163	2 36 55.018	6	81.89	+0 6 49.98	6	81.89	4.11	6	B2	-0	406			110665	16582	3192	91			
164	2 38 7.933	3	81.89	+0 59 1.70	3	81.89	9.41	3	N0	+0	444	+0	230	110676			105.50			
165	2 38 44.591	7	81.91	+4 12 53.51	7	81.91	6.89	7	A0	+3	373	+4	286	110688	16763	3239		2050AB		
166	2 39 1.158	8	81.93	+30 43 23.61	8	81.93	5.92	8	K0	+30	433	+30	272	55792	16761	3244				
167	2 40 29.674	19	82.14	+67 36 49.33	17	82.12	5.92	17	A2	+67	224	+67	156	12421	16769	3271	92			
168	2 41 47.362	7	81.92	+49 1 3.84	7	81.92	4.14	7	F8	+48	746	+49	316	38288	16895	3277	93	107.A	2081A	
169	2 41 47.362	7	81.92	+49 1 3.84	7	81.92	4.14	7	F8	+48	746	+49	316	38288	16895	3277	93	107.A	2081A	
170	2 42 11.916	5	81.96	+89 28 3.69	5	81.96	9.15	5	K2	+89	2	+89	5	438						
171	2 43 18.097	8	81.93	+60 21 42.27	8	81.93	6.51	14	A5	+59	541	+60	292	12438	17086	3324				
172	2 43 18.097	8	81.93	+60 21 42.27	8	81.93	6.51	14	A5	+59	541	+60	292	12438	17086	3324				
173	2 44 33.092	5	81.90	+11 24 7.99	5	81.90	8.53	5	K5	+11	383	+11	268	93977	17230			112.10		
174	2 44 37.336	7	81.92	+23 55 41.66	7	81.92	7.36	7	B5	+23	369	+23	222	75575	17331	3357				
175	2 45 25.063	6	81.92	+48 58 35.30	6	81.92	7.41	6	B7	+48	762	+48	321	38332	17359	3362				
176	2 46 22.975	6	81.89	+33 43 46.81	6	81.89	7.14	6	A2	+33	521	+33	280	55911	17497	3376		2150AB		
177	2 47 2.001	7	81.92	+25 41 22.09	7	81.92	3.90	7	K0	+55	714	+55	299	23635	17506	3398	99	2157A		
178	2 47 2.195	8	81.93	+37 36 16.89	8	81.93	3.68	8	B8	+26	471	+27	302	75596	17573	3391	100	2159A		
179	2 48 43.704	8	81.93	+14 52 37.53	8	81.93	5.53	8	B5	+14	480	+14	251	93144	17769	3427	1079			
180	2 49 1.094	2	81.87	+34 11 22.82	2	81.87	9.41	2	N0	+33	529						116.00			
181	2 49 40.898	11	82.07	+88 55 15.05	11	82.07	8.01	11	F0	+88	9	+88	14	460	14369					
182	2 50 52.610	8	81.93	+50 57 50.68	8	81.93	6.53	8	K0	+50	654	+50	326	23686	17992	3466				
183	2 51 58.417	8	81.93	+61 19 8.72	8	81.93	5.58	8	F5	+60										

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DN	NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO
221	3 20 44.523	7	81.92	+49 41 5.47	7	81.92	1.89	7	F5	+49 917	+49 396	38787	29992	4041	120				221
222	3 20 37.436	11	82.10	+88 20 1.11	12	82.08	8.41	11	K0	+87 23	+88 21	552	18365						222
223	3 22 31.201	8	81.93	- 5 32 7.28	8	81.93	7.86	7	K5	- 5 642		130471	21197	4076			141.00		223
224	3 22 45.301	7	81.91	+30 45 24.80	7	81.91	9.05	6	A0	+30 540	+30 356	56444							224
225	3 23 1.914	8	81.93	+50 40 20.41	8	81.93	7.50	8	B8	+50 757	+50 364	24036	21117						225
226	3 24 18.522	8	81.93	+60 4 58.44	8	81.93	6.44	13	B8	+59 657	+60 358	12770	21203	4105				2538A	226
227	3 24 27.449	8	81.93	+ 9 33 33.92	8	81.93	3.74	8	B8	+ 9 439		111195	21364	4107	123				227
228	3 25 .064	8	81.93	+59 46 5.12	8	81.93	4.25	8	B9	+59 660	+59 356	24054	21391	4113	122*			2544AB	228
229	3 27 7.157	6	81.90	+50 51 34.68	6	81.90	8.75	6	A0	+50 771	+50 371	24071	21550						229
230	3 28 37.519	5	81.95	- 8 16 49.22	6	81.93	9.03	5	G5	- 8 664		130540	21890	4206					230
231	3 28 54.806	8	81.93	+27 41 25.07	8	81.93	8.91	8	G0	+27 517	+27 352	75978							231
232	3 29 28.509	8	81.93	+35 17 36.02	8	81.93	5.85	8	B3	+34 674	+35 358	56531	21856	4222	1098				232
233	3 31 .185	5	81.92	+89 17 52.46	5	81.92	9.16	4	G8	+88 10	+89 76	578							233
234	3 32 39.703	6	81.93	- 0 54 14.35	6	81.93	8.31	5	G5	- 1 913	- 0 379	130569	22282						234
235	3 32 47.121	11	82.11	+88 11 14.57	11	82.11	8.91	11	G8	+87 27	+88 22	582							235
236	3 33 23.860	3	81.91	- 9 13 29.11	5	81.91	8.38	4	G5	- 9 709		130597	22380	4292					236
237	3 33 49.498	5	81.94	- 1 43 58.97	5	81.94	8.73	5	K0	- 2 668	- 1 335	130603	22420						237
238	3 34 9.153	7	81.92	+55 0 26.64	7	81.92	7.51	7	B2	+54 496	+55 352	24131	22978						238
239	3 34 18.608	6	81.90	+ 0 14 24.03	6	81.90	4.33	6	G5	- 0 572	+ 0 311	111292	22484	4313	1101	147.00			239
240	3 35 44.314	5	81.93	- 1 54 25.95	5	81.93	8.66	5	A5	- 2 675	- 1 337	130621	22616						240
241	3 36 22.262	7	81.92	- 1 41 14.61	7	81.92	7.20	7	G5	- 1 516	- 1 339	130631							241
242	3 37 7.163	6	81.90	- 0 37 1.14	7	81.91	7.89	6	K5	- 1 818	- 0 386	130640	22782						242
243	3 37 37.467	7	81.92	- 2 3 27.18	7	81.92	7.18	7	G0	- 2 686	- 2 66	130647	22853						243
244	3 37 47.619	5	81.89	+63 3 25.48	6	81.90	5.13	7	MA	+62 597	+63 277	12874	22649	4383	129				244
245	3 38 23.405	4	81.93	- 1 49 32.95	4	81.93	9.25	4	F5	- 2 691	- 1 342	130655	22941						245
246	3 38 59.578	5	81.89	+51 0 55.11	4	81.90	7.81	5	G0	+50 802	+51 341	24174	22872						246
247	3 39 21.332	4	81.90	+47 37 45.43	4	81.90	2.99	4	B5	+47 876	+47 395	39053	22928	4427	131				247
248	3 40 50.704	4	81.90	- 2 13 36.92	4	81.90	7.15	4	G5	- 2 702	- 2 67	130685	23223						248
249	3 41 54.099	6	81.92	+23 57 26.41	6	81.92	3.78	6	B5	+23 507	+23 302	76131	23302	4477	136				249
250	3 43 .851	7	81.92	+ 5 53 41.06	8	81.93	5.31	6	B3	+ 5 539	+ 5 394	111400	23466	4505	1104			2750A	250
251	3 45 2.765	13	82.10	+71 10 50.21	13	82.10	4.59	12	A0	+70 259	+71 125	5006	23401	4557	138				251
252	3 45 11.996	7	81.92	+50 41 17.41	7	81.92	7.27	7	F2	+50 831	+50 396	24241	23623						252
253	3 46 38.038	6	82.08	+88 37 23.37	6	82.08	9.52	6	G0	+88 16	+88 23	607							253
254	3 47 47.748	7	81.92	+60 11 12.79	7	81.92	6.87	7	K0	+59 724	+60 390	12939	23894	4628					254
255	3 49 14.906	2	82.03	+50 54 9.19	2	82.03	7.72	3	B9	+50 849	+50 404	24274	24129	4659					255
256	3 49 57.123	5	81.93	+49 57 28.61	5	81.93	9.73	3	F0	+49 1051	+49 463	39174							256
257	3 50 8.663	7	82.00	+88 30 4.50	7	82.00	9.62	6	K3	+88 17	+88 24	619							257
258	3 50 31.554	6	81.93	+51 24 8.84	6	81.93	8.40	7	A2	+51 796	+51 363	24288	24275						258
259	3 51 23.150	5	81.95	+51 20 38.97	5	81.95	9.24	5	F5	+51 800	+51 364	24294	232855						259
260	3 52 53.065	5	81.93	+50 33 5.16	5	81.93	5.24	5	F5	+50 860	+50 410	24314	24546	4728					260
261	3 53 36.063	4	81.90	+50 42 41.87	4	81.90	9.35	4	K0	+50 864	+50 411	24317	232862						261
262	3 54 24.313	6	81.93	+51 35 25.08	6	81.93	8.01	6	F5	+51 814	+51 366	24321	24708						262
263	3 54 59.868	5	81.93	+50 4 26.42	5	81.93	8.82	5	F5	+49 1873	+50 412	24326	24776						263
264	3 55 37.778	4	81.93	+51 20 11.64	4	81.93	9.98	4	A2	+51 818	+51 368								264
265	3 56 2.688	5	81.93	+50 4 13.68	5	81.93	9.42	4	K0	+49 1875	+50 414							2906AB	265
266	3 56 55.492	7	81.96	+51 3 57.30	7	81.96	8.64	7	A2	+50 873	+51 370	24344	24993						266
267	3 57 54.349	7	81.96	+12 21 1.64	7	81.96	3.39	7	B3	+12 539	+12 504	93719	25204	4885	130				267
268	3 58 5.846	7	81.96	+50 29 56.98	7	81.96	7.88	7	A0	+50 882	+50 417	24353	25109						268
269	3 58 21.982	5	81.96	+51 31 35.04	5	81.96	9.04	5	K0	+51 833	+51 372	24356	232875						269
270	3 59 44.392	6	81.94	+51 43 5.00	6	81.94	9.41	5	K7	+51 839	+51 375	24378	232878						270
271	4 0 3.139	5	81.92	- 0 24 19.88	5	81.92	5.30	5	F5	- 0 632	- 0 423	130893	25457	4851		159.00			271
272	4 0 18.816	7	81.96	+49 49 4.28	7	81.96	9.39	6	F0	+49 1090	+49 470	39282							272
273	4 0 54.022	5	81.94	+49 57 53.31	5	81.94	8.98	4	F5	+49 1094	+49 474	39292	25409						273
274	4 1 24.466	6	81.94	+50 56 50.60	6	81.94	9.34	5	A5	+50 894	+50 422	24398	232885						274
275	4 2 50.874	6	81.96	+50 13 2.48	6	81.96	4.25	7	A0	+49 1101	+50 424	24412	25642	4924	1113				275
276	4 4 5.710	2	81.99	+89 2 43.31	2	81.99	9.88	2	G8	+88 15	+89 7	656							276
277	4 4 6.084	6	81.96	+ 1 33 3.11	6	81.96	7.58	6	F5	+ 1 699	+ 1 416	111606	25953	4948					277
278	4 4 38.083	6	81.97	+30 40 7.34	6	81.97	9.22	6	F8	+30 618	+30 398	56992	281585						278
279	4 5 1.391	7	81.96	+47 34 30.86	7	81.96	3.47	7	B3	+47 939	+47 451	39336	25940	4967	152				279
280	4 6 15.130	6	81.96	+19 28 42.10	6	81.96	5.49	6	G5	+19 672	+19 320	93785	26162	4995	1115				280
281	4 7 15.352	7	81.96	- 8 1 25.22	7	81.96	6.98	7	G0	- 8 801		130994	26337	5012					281
282	4 7 46.751	7	81.96	+26 21 6.75	7	81.96	5.38	7	F0	+26 686	+26 411	76485	26322	5020	1116				282
283	4 8 33.278	6	81.93	+ 2 11 22.95	6	81.93	6.93	6	HA	+ 2 713	+ 2 417	111646	26448	5038					283
284	4 8 50.528	7	81.96	+51 2 26.05	7	81.96	8.12	7	F5	+50 926	+51 388	24466	26370						284
285	4 9 25.346	7	81.96	- 6 57 57.15	7	81.96	4.05	7	F2	- 7 764		131019	26574	5056	154				285
286	4 11 13.851	3	81.92	+48 17 3.22	3	81.92	4.18	3	G0	+48 1063	+48 484	39404	26630	5099	1117			3071A	286
287	4 12 16.124	5	81.96	+16 24 2.56	5	81.96	7.68	4	F8	+16 956	+16 431	111716	27089	5170					287
288	4 15 25.680	4	81.96	+21 27 30.42	4	81.96	5.57	4	A5	+21 618	+21 401	76541	27176	5189	2313				288
289	4 15 33.165	2	82.00	+89 22 6.12	2	82.00	10.12	2	A3	+89 6	+89 8	684							289
290	4 16 56.876	5	81.92	+15 30 29.92	5	81.92	3.68	5	K0	+15 612		93868	27371	5226	159				290
291	4 17 26.099	6	81.94	+60 37 5.36	6	81.94	5.45	7	K0	+60 800	+60 426	13113	27245	5244	2317				291

TABLE I (continued).

NO	R.A.	1950.0	N	EPOCH	DEC.	1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3	NO	SAO	HD	GC	FK4	GL	ADS	NO
331	4 48 32.399	5	82.00	+ 5 31 16.29	5	82.00	3.67	5	B3	+ 5 745			112142			30836	5911	179				331
332	4 48 34.030	5	82.00	+50 42 23.28	5	82.00	8.69	5	B9	+50 1076	+50	495	24868			30669						332
333	4 49 3.843	7	82.10	+66 15 39.01	7	82.10	4.32	7	B0	+66 358	+66	267	13298			30614	5924	178				333
334	4 49 42.054	3	82.00	+14 10 6.46	3	82.00	4.83	3	MA	+14 777	+14	438	94176			30759	5942	1136				334
335	4 49 46.789	4	82.01	+60 30 24.56	4	82.01	8.76	5	A0	+60 843	+60	453	13302			30768	5944					335
336	4 51 38.653	4	81.99	+ 2 21 37.30	4	81.99	3.68	4	B3	+ 2 810			112197			31237	5978	180				336
337	4 52 40.956	3	81.95	+10 7 45.67	3	81.95	8.89	3	G0	+ 9 686	+10	515	94209			287234						337
338	4 53 37.159	5	82.00	+ 5 24 3.46	5	82.00	7.76	5	B9	+ 5 1088			131611			31478	6027					338
339	4 53 43.996	4	81.99	+33 5 19.46	4	81.99	2.80	3	K2	+32 855	+33	456	57522			31398	6029	181				339
340	4 54 33.689	4	82.01	+27 17 59.23	4	82.01	8.82	4	F5	+27 712	+27	464	76057			31520	6041					340
341	4 55 .555	3	82.00	+49 46 27.21	3	82.00	9.68	2	M2	+49 1280	+49	553				31592	6048	2374			3547A	341
342	4 55 5.611	4	81.98	+24 58 28.83	4	81.98	5.86	3	B9	+24 717	+24	441	76862			31592	6048	2374				342
343	4 57 9.852	4	82.03	+88 44 1.50	4	82.03	9.55	4	K0	+88 199	+88	27	797			31855	6105					343
344	4 57 41.364	3	81.98	+45 49 .31	3	81.98	7.39	3	F2	+45 1024	+45	488	39945			31855	6105					344
345	4 58 19.998	4	81.98	+73 59 48.46	4	81.98	6.14	4	A2	+73 265	+73	130	5407			31590	6121					345
346	4 58 57.619	3	81.98	+60 22 18.09	3	81.98	4.19	3	G0	+60 856	+60	463	13351			31910	6136	182			3615A	346
347	5 1 42.564	5	82.00	+15 20 9.21	5	82.00	4.72	5	B9	+15 732	+15	433	94290			32549	6191	1140				347
348	5 1 46.780	3	82.00	+44 59 25.42	3	82.00	8.25	3	B3	+44 1080	+44	533	40009			32446						348
349	5 2 47.476	5	82.00	+26 21 47.00	5	82.00	6.70	5	B5	+26 783	+26	469	76955			32656	6220					349
350	5 3 .314	4	81.99	+41 10 6.35	4	81.99	3.27	4	B3	+41 1058	+41	513	40026			32630	6226	185				350
351	5 4 17.211	4	82.03	- 4 43 14.78	4	82.03	5.11	4	B9	- 4 1044			131777			32764	6246					351
352	5 5 2.455	3	81.95	- 8 43 4.60	3	81.95	6.95	3	B8	- 8 1035			131791			32669	6266					352
353	5 5 26.657	5	82.00	+28 12 34.96	5	82.00	7.07	4	A2	+28 751	+28	488	76978			33034	6275					353
354	5 6 45.077	4	81.99	- 8 49 .44	4	81.99	4.38	4	B2	- 8 1040			131824			33328	6304	190				354
355	5 6 48.057	4	82.01	+40 35 52.44	4	82.01	8.74	4	B5	+40 1189	+40	591	40074			277680						355
356	5 7 17.876	4	82.03	+40 56 29.63	4	82.03	8.00	4	B3	+40 1196	+40	593	40080			33232						356
357	5 8 7.193	3	82.05	+29 40 10.15	3	82.05	7.06	3	A0	+29 830	+29	539	77017			33413	6336					357
358	5 8 27.300	4	82.03	+61 47 26.20	4	82.03	6.20	4	A0	+61 766	+61	422	13409			33266	6345					358
359	5 9 7.486	3	82.05	+ 4 20 40.06	3	82.05	7.00	3	G0	+ 4 858	+ 4	552	112506			33636	6360					359
360	5 10 41.114	2	82.06	-16 15 49.02	2	82.03	3.23	2	A0	-16 1072			150237			33904	6382	1144				360
361	5 11 .714	3	82.05	+50 50 50.29	3	82.05	9.13	3	F0	+50 1135	+50	528	25091			233091						361
362	5 11 8.911	2	82.06	- 8 12 19.33	2	82.06	6.28	2	A0	- 8 1859			131887			33948	6392					362
363	5 12 7.763	3	82.05	+32 37 43.69	3	82.05	7.70	0	A2	+32 922P	+32	491	57798				6409					363
364	5 12 35.993	3	82.05	+29 24 41.76	3	82.05	8.93	3	G5	+29 847	+29	549	77039			34052						364
365	5 12 59.657	2	82.07	+60 7 41.96	2	82.07	6.96	2	F5	+60 870	+60	471	13444			33924	6428					365
366	5 12 59.721	4	82.03	+45 56 44.42	4	82.03	.25	4	A0	+45 1077	+45	512	40186			34029	6427	193	194.AB			366
367	5 13 50.708	4	82.03	+89 53 38.19	4	82.03	6.51	4	A5	+89 74	+89	71	843			32196	6447	1637				367
368	5 14 15.728	4	82.03	+79 10 48.24	4	82.03	5.15	4	F8	+79 169	+79	157	5496			33564	6455	191*	196.00			368
369	5 16 24.375	3	82.03	+ 4 25 48.53	3	82.03	8.24	3	B3	+ 4 905	+ 4	575	112687			34929	6562					369
370	5 19 10.685	4	82.03	+37 37 43.67	4	82.03	7.30	4	B0	+37 1160	+37	584	57958			34921						370
371	5 19 12.453	2	81.99	- 0 25 48.88	2	81.99	4.68	2	B3	- 0 930	- 0	611	132028			35039	6579	1147				371
372	5 20 12.185	2	82.06	+ 3 29 52.44	2	82.06	4.92	2	B3	+ 3 871	+ 3	632	112697			35149	6597					372
373	5 21 11.119	3	82.05	+50 46 12.63	3	82.05	8.35	3	F5	+50 1166	+50	541	25184			35086	7122					373
374	5 22 18.086	4	82.06	+88 12 46.25	4	82.06	10.00	0	G0	+88 24	+88	29	859									374
375	5 22 26.811	3	82.03	+ 6 18 21.30	3	82.03	1.62	3	B2	+ 6 919			112740			35468	6668	201				375
376	5 23 12.695	2	81.99	+ 0 28 37.97	2	81.99	6.11	2	B3	+ 0 1056	+ 0	539	112782			35588	6685					376
377	5 24 14.931	2	82.06	+17 55 14.96	2	82.06	5.33	2	B3	+17 928	+17	489	94554			35671	6714	1148			4038A	377
378	5 24 32.796	4	82.03	+34 44 31.19	4	82.03	8.37	4	B3	+34 1051	+34	573	58059			35652						378
379	5 25 22.060	4	82.03	+60 13 45.84	4	82.03	6.86	4	A0	+60 884	+60	479	13517			35607	6741					379
380	5 26 41.325	4	82.03	+41 14 39.60	4	82.03	8.01	4	A0	+41 1205	+41	569	40378			35951	6777					380
381	5 27 55.659	3	82.03	- 7 28 20.26	3	82.03	6.27	3	B3	- 7 1099			132192			36285	6810					381
382	5 28 17.021	4	82.03	+57 11 10.93	4	82.03	6.47	4	G0	+57 889	+57	535	25241			36066	6814	1150				382
383	5 28 27.396	3	82.03	+ 3 18 59.44	3	82.03	7.85	3	B3	+ 3 944	+ 3	664	112859			36340	6816					383
384	5 29 55.079	4	82.03	+42 4 28.86	4	82.03	6.53	4	B8	+41 1218	+42	625	40426			36404	6837					384
385	5 30 31.894	4	82.03	+43 54 14.81	4	82.03	7.19	4	B9	+43 1301	+43	607	40434			36468	6876					385
386	5 33 40.465	3	82.05	- 1 13 56.33	3	82.05	1.62	3	B0	- 1 969			132346			37128	6960	210				386
387	5 33 46.546	6	82.10	+89 17 59.11	6	82.10	9.77	6	F2	+89 7	+89	11	887									387
388	5 33 49.106	3	82.01	+34 46 56.23	2	82.04	8.04	3	B5	+34 1118	+34	609	58254			37032						388
389	5 34 26.144	4	82.03	+51 3 40.00	3	82.05	8.77	4	A0	+50 1204	+51	499	25292			37031						389
390	5 35 43.523	2	82.04	+88 7 30.54	2	82.04	10.01	2	G2	+88 25	+88	30	890									390
391	5 36 11.153	3	82.05	+37 57 43.63	3	82.05	6.87	3	B9	+37 1275	+37	629	58296			37339	7027					391
392	5 36 17.938	4	82.13	+89 5 40.93	5	82.14	9.35	5	G8	+88 20	+89	12										392
393	5 37 4.847	3	82.03	+60 35 52.90	2	82.06	7.00	3	A3	+60 894	+60	483	13568			37315	7060					393
394	5 39 49.185	2	82.06	+50 40 12.63	2	82.06	7.23	2	K0	+50 1218	+50	560	25184			37723						394
395	5 40 51.489	2	82.06	+30 54 44.60	2	82.06	7.97	2	B8	+30 922			58377			38017	7138					395
396	5 42 1.418	2	82.06	+49 48 24.65	2	82.06	5.42	2	A0													

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3	NO	SAO	HD	GC	FK4	GL	ADS	NO
441	6 21 19.624	5	82.05	+88 21 36.47	5	82.05	10.23	4	G0	+88 30	+88 35	1009								
442	6 21 50.184	6	82.12	-11 30 7.30	7	82.13	5.26	7	K0	-11 1479		151458		44951	8265	1171				
443	6 22 48.111	7	82.11	+41 59 21.65	8	82.12	7.09	8	G5	+42 1552	+41 678	41099		44901	8300	1172				
444	6 25 53.253	6	82.12	+60 10 49.90	7	82.13	6.79	7	B8	+60 971	+60 524	13855		45271	8389					
445	6 25 59.592	7	82.11	+20 14 43.43	7	82.11	4.10	7	B5	+20 1441	+20 689	78423		45542	8394	1173			5103A	
446	6 29 12.924	6	82.12	+5 4 11.98	7	82.13	7.56	7	B2	+5 1292	+5 809	114009		46149						
447	6 31 46.874	6	82.14	+2 34 26.84	6	82.14	7.84	6	B2	+2 1295	+2 749	114075		46573						
448	6 32 13.594	8	82.12	+11 9 54.19	8	82.12	7.95	8	A3	+11 1232	+11 709	95865		46660						
449	6 33 2.285	7	82.06	+88 24 38.46	9	82.06	9.42	8	K0	+88 31	+88 36	1041								
450	6 33 6.591	6	82.12	+61 31 31.49	6	82.12	6.01	6	G0	+61 893	+61 497	13897		46480	8582	247				
451	6 33 45.067	6	82.14	+6 7 32.22	6	82.14	6.82	6	B2	+6 1303	+6 771	114120		46966						
452	6 34 49.486	6	82.12	+16 26 36.03	6	82.12	1.93	6	A0	+16 1223		95912		47105	8633	251				
453	6 35 11.648	6	82.12	+39 26 9.55	6	82.12	5.77	6	K0	+39 1690	+39 789	95316		47070	8648	250				
454	6 37 12.415	5	82.12	+6 6 12.66	5	82.12	7.88	5	B9	+6 1334	+6 787	114232		47633	8699					
455	6 37 40.280	4	82.13	+17 41 17.48	4	82.13	7.69	4	F8	+17 1346	+17 678	95985		47681	8710					
456	6 37 43.553	2	81.66	+79 37 6.84	3	81.67	5.45	0	F8	+79 212	+79 200	5946		46588	8711	248	240.10			
457	6 38 12.421	8	82.12	+24 0 25.33	8	82.12	8.06	8	K2	+24 1357	+24 704	78637		47752			241.00			
458	6 39 1.164	8	82.12	+14 15 55.14	8	82.12	6.76	8	B5	+14 1395	+14 687	76007		48011	8744					
459	6 39 40.576	6	82.13	-6 3 53.50	6	82.13	6.93	6	B5	-6 1753		133587		48215	8762					
460	6 39 43.566	7	82.13	+88 42 52.62	9	82.07	9.15	7	G8	+88 29	+88 37	1059								
461	6 39 50.135	8	82.12	+37 11 51.40	8	82.12	6.25	8	K0	+37 1567	+37 760	59406		48073	8766					
462	6 40 51.341	8	82.12	+25 10 56.36	8	82.12	3.06	8	B3	+25 1406	+25 749	78682		48329	8786	254			5381A	
463	6 42 2.095	6	82.14	+0 38 29.51	6	82.14	7.78	6	B5	+0 1574	+0 754	114352		48691						
464	6 43 48.746	4	82.09	+8 38 29.81	4	82.09	5.89	4	B3	+8 1486	+8 832	114388		48977	8856	1177				
465	6 43 51.017	7	82.13	+48 50 40.75	7	82.13	5.30	7	K0	+48 1436	+48 643	41346		48981	8958	1176				
466	6 45 15.125	6	82.13	+2 28 5.88	6	82.13	4.54	6	K0	+2 1397		114428		49293	8892	258				
467	6 45 27.818	7	82.12	+60 23 27.74	7	82.12	8.39	7	H0	+60 1003	+60 544	13771		49948			247.00			
468	6 46 55.394	7	82.12	+27 3 43.05	7	82.12	8.18	7	A0	+27 1240	+27 727	78784		49537	8926					
469	6 47 13.852	7	82.12	+41 50 27.52	7	82.12	5.03	7	K0	+41 1536	+41 720	41380		49520	8931	2527				
470	6 47 48.143	8	82.12	+47 25 51.95	8	82.12	8.90	8	K2	+47 1355	+47 632			49601			249.00			
471	6 47 53.410	8	82.12	+60 27 16.92	8	82.12	8.55	8	G0	+60 1005	+60 547	13993		49444						
472	6 48 19.486	8	82.12	+68 56 58.92	8	82.12	5.09	8	B5	+69 394	+68 315	13986		49340	8957	259				
473	6 51 51.658	7	82.13	-11 58 29.89	7	82.13	4.13	7	K2	-11 1681		152071		50778	9051	266				
474	6 52 49.084	6	82.14	+77 2 43.40	6	82.14	4.64	6	K5	+77 266	+77 202	6022		49878	9073	260				
475	6 53 1.516	8	82.12	+51 4 17.14	8	82.12	7.49	8	A2	+51 1258	+51 591	26055		50657						
476	6 53 14.748	3	82.13	-9 25 26.15	3	82.13	8.32	3	G0	-9 1733		133904		51081	9090				5597A	
477	6 53 52.170	6	82.12	+30 49 27.55	6	82.12	9.65	4	H0	+30 1367A	+30 747	266611				254.00				
478	6 56 1.508	7	82.16	+88 33 23.78	7	82.16	9.82	5	G0	+88 33	+88 38	1110								
479	6 56 55.352	7	82.13	+60 28 31.14	7	82.13	9.00	7	A3	+60 1023	+60 555	14047		51467						
480	6 56 58.239	8	82.12	+16 0 40.46	8	82.12	7.00	8	G0	+16 1352	+16 707	76359		51911	9192				5660AB	
481	6 57 25.631	9	82.12	+88 17 4.64	8	82.12	9.22	7	F8	+88 35	+88 39	1116								
482	6 58 41.636	7	82.13	+43 27.24	7	82.13	8.10	7	A2	+50 1363	+50 646	26113		52098					3697A	
483	7 1 25.696	7	82.13	-15 33 29.10	7	82.13	4.10	7	B5	-15 1685		152303		53244	9320	271				
484	7 1 44.713	7	82.13	+1 33 50.65	7	82.13	6.56	7	B9	+1 1645	+1 828	114867		53205	9328					
485	7 3 23.697	7	82.13	+17 49 19.63	7	82.13	7.09	7	B9	+17 1492	+17 728	76487		53398	9369					
486	7 4 31.630	4	82.11	+3 31 39.22	4	82.11	9.65	4	H0							266.00				
487	7 5 27.991	6	82.12	+7 33 3.37	6	82.12	5.78	6	K0	+7 1607	+7 931	114947		54079	9409	1185				
488	7 5 27.991	5	82.11	+25 4 19.67	5	82.11	8.55	5	K5	+25 1518	+25 812	79998		5417						
489	7 6 13.716	5	82.13	+15 30 14.30	5	82.13	7.77	5	G0	+15 1482	+15 746	76559		54351	9440					
490	7 6 39.624	5	82.13	+25 48 59.64	5	82.13	7.67	4	F0	+25 1595	+25 819	79124		54403	9451				5827C	
491	7 7 3.254	8	82.12	+60 18 27.78	8	82.12	7.27	7	K0	+60 1844	+60 565	14109		54122						
492	7 7 44.614	4	82.12	-4 9 20.63	4	82.12	4.97	4	K0	-4 1030		134282		54810	9477	1186				
493	7 9 24.088	8	82.13	+24 12 48.82	8	82.13	5.84	7	F5	+24 1558	+24 793	79162		55052	9521					
494	7 10 14.491	6	82.14	+70 35 36.86	6	82.14	7.92	4	G5	+70 441	+70 306	6125		54684	9548					
495	7 11 14.769	5	82.15	+88 33 51.09	5	82.15	10.13	3	G5	+88 34	+88 40	1151								
496	7 11 28.380	8	82.11	+15 50 47.00	8	82.11	7.97	6	F2	+16 1422	+15 765	76665		55625	9579				5908A	
497	7 12 7.734	5	82.12	+47 19 45.24	5	82.12	5.61	4	G0	+47 1419	+47 668	41644		55575	9606	1190				
498	7 12 32.144	11	81.95	+89 44 52.31	11	81.95	8.96	8	A5	+89 3	+89 15	1157		21070						
499	7 14 17.905	10	82.13	+38 58 1.35	10	82.13	6.52	9	K0	+39 1908	+38 803	59955		56171	9671					
500	7 14 52.626	10	82.13	+59 13 3.27	10	82.13	7.63	9	F8	+59 1068	+59 591	26269		56099	9689					
501	7 15 13.086	8	82.13	+16 37 54.78	8	82.13	3.59	8	A2	+16 1443		76746		56537	9701	277			5961A	
502	7 15 55.913	8	81.95	+88 53 10.75	8	81.95	9.75	6	K2	+88 32	+88 41	1163								
503	7 16 16.213	6	82.12	+32 55 28.48	6	82.12	9.89	4	H2	+33 1505						270.00				
504	7 17 8.196	10	82.13	+22 4 13.58	10	82.13	5.50	9	F0	+22 1645	+22 862	79294		56986	9755	279*			5983A	
505	7 17 48.922	10	82.13	+87 7 33.39	10	82.13	5.11	8	HA	+87 51	+87 55	1168		51802	9772	909				
506	7 17 56.833	8	82.13	+0 29 52.28	8	82.13	6.83	8	B9	+0 1909	+0 912	115294		57275	9776				5996AB	
507	7 18 5.609	10	82.13	+34 7 18.10	10	82.13	8.04	8	A0	+34 1583	+34 805	59996		57158	9780				5999AB	
508	7 18 47.683	10	82.13	+82 27 19.67	10	82.13	5.64	9	B6	+82 1128		154312		57103	9809	280*			6012A	
509	7 19 7.316	8	82.14	-5 48 3.85	9	82.14	6.55	8	B3	-5 2080		154920		57539	9810	2569				
510	7 20 8.164	9	82.13	+67 14 43.61	9	82.13	7.62	8	A0	+67 486	+67 358	14182		57177	9837					
511	7 20 41																			

TABLE I (continued).

NO	R.A. 1950.0	N EPOCH	DEC. 1950.0	N EPOCH	MAG	N	SP	DM	NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO
551	7 54 52.994	6 82.14	- 1 28 40.29	6 82.14	8.38	5	A0	- 1 1900	- 1 1151	135293	65176						551
552	7 55 5.654	9 82.13	+43 38 23.37	9 82.13	7.22	8	B3	+43 1754	+43 811	42099	65041						552
553	7 57 26.973	9 82.13	+60 27 47.35	9 82.13	6.02	8	A2	+60 1185	+60 611	14402	65339	10822	392				553
554	7 57 54.506	9 82.13	+25 31 52.89	9 82.13	5.90	8	K0	+25 1812	+25 928	77861	65714	10844	1211				554
555	7 58 12.831	8 82.14	+60 33 20.09	8 82.14	8.01	7	G0	+60 1106	+60 613	14410	65518	10857					555
556	7 58 47.681	7 82.15	+76 56 5.76	7 82.15	9.50	5	F5	+77 309	+76 368	6484		10876				6522AB	556
557	7 59 23.676	4 82.13	+88 55 17.47	3 82.12	10.46	3	G0	+89 11	+88 45	1283							557
558	7 59 58.546	9 82.13	- 6 11 48.05	9 82.13	6.34	8	G0	- 5 2339		135406	66242	10900	1213				558
559	8 2 7.815	7 82.13	+ 6 19 43.67	8 82.13	7.63	7	B3	+ 6 1867	+ 6 1044	116308	66665						559
560	8 2 44.816	6 82.11	+ 5 58 15.17	6 82.11	7.16	6	B9	+ 6 1869	+ 5 1154	116324	66801	10973				6571A	560
561	8 4 32.352	4 82.15	+ 1 29 30.58	4 82.15	8.97	3	K0	+ 1 1997	+ 1 997	116365	67231	11017				6599AB	561
562	8 5 13.603	7 82.13	+84 12 30.17	7 82.13	6.46	7	A0	+84 169	+84 172	1300	65299	11031	1639				562
563	8 5 33.393	8 82.13	+51 4 58.71	8 82.13	8.58	8	F8	+51 1393	+51 676	26697	67202						563
564	8 6 44.191	7 82.14	+ 0 1 49.91	7 82.14	7.65	7	A0	+ 0 2203	+ 0 1097	116406	67719	11069					564
565	8 6 57.030	8 82.14	+35 36 15.12	8 82.14	6.64	7	F8	+35 1767	+35 810	60611	67587	11073	1214				565
566	8 7 51.810	7 82.13	+68 37 26.05	7 82.13	5.39	7	G5	+68 524	+68 379	14456	67447	11100	1215				566
567	8 9 42.836	7 82.13	+43 9 6.10	7 82.13	8.19	7	F2	+43 1779	+43 823	42230	68195						567
568	8 11 23.000	7 82.14	+43 11 16.27	7 82.14	6.79	7	A0	+43 1783	+43 824	42242	68562	11191				6675AB	568
569	8 11 38.413	8 82.14	+60 32 2.02	8 82.14	6.44	7	F0	+60 1119	+60 626	14479	68457	11199				6680AB	569
570	8 12 10.723	8 82.14	+50 56 21.98	8 82.14	8.57	7	F0	+51 1399	+50 720	26743	68702						570
571	8 14 3.700	5 82.15	+42 44 19.31	5 82.15	9.77	4	K0	+43 1794	+42 890	42268							571
572	8 15 24.249	7 82.12	+56 36 31.80	7 82.12	8.93	6	G5	+56 1288	+56 694	26770	69329	11309				6727AB	572
573	8 16 51.168	5 82.14	-10 0 29.71	6 82.13	6.26	5	A5	-10 2471		154105	69997	11346	1218				573
574	8 17 1.768	7 82.12	+27 22 39.95	7 82.12	5.16	6	F5	+27 1582	+27 919	80104	69897	11348	1217	303.00			574
575	8 17 23.065	4 82.18	+42 15 37.38	4 82.18	8.55	3	F6	+42 1847	+42 892	42298	69895						575
576	8 18 32.976	8 82.13	+60 47 29.46	8 82.13	6.48	7	G5	+61 1043	+60 633	14522	69976	11381					576
577	8 19 25.076	9 82.13	+43 20 57.85	9 82.13	4.14	8	K5	+43 1815	+43 834	42319	70272	11401	314				577
578	8 20 31.176	6 82.13	+41 36 24.44	6 82.13	9.56	5	K0	+41 1827	+41 845	42334							578
579	8 21 21.028	6 82.16	+26 37 41.60	6 82.16	8.07	6	A2	+26 1778	+26 931	80155	70707	11457					579
580	8 22 38.434	12 81.96	+89 21 30.20	12 81.96	9.23	10	G8	+89 9	+89 16	1340							580
581	8 23 9.556	6 82.14	- 3 44 32.31	6 82.14	3.91	6	A0	- 3 2339		135896	71155	11499	316				581
582	8 23 33.165	5 82.15	+ 4 40 1.47	4 82.15	8.11	5	A2	+ 4 1974	+ 4 1178	116750	71209	11511				6809AB	582
583	8 24 4.452	7 82.14	+51 4 20.63	7 82.14	8.43	7	A5	+51 1422	+51 694	26848	71092						583
584	8 24 5.390	2 82.16	+22 7 18.82	2 82.16	10.40	0	M0								307 00		584
585	8 25 12.186	2 82.16	+35 11 3.50	2 82.16	10.50	2	M0								308. AB		585
586	8 25 41.655	4 82.14	+61 53 47.45	4 82.14	10.16	4	M0								308.10		586
587	8 25 49.962	5 82.17	+14 22 39.47	5 82.17	5.90	5	A2	+14 1899	+14 915	97843	71555	11584	1222				587
588	8 26 7.067	6 82.15	+60 53 10.99	6 82.15	3.39	6	G0	+61 1054	+60 638	14573	71369	11593	317			6830A	588
589	8 28 16.699	7 82.14	+50 47 16.30	7 82.14	7.45	7	G0	+51 1431	+50 737	26892	71881	11645				6874AB	589
590	8 31 18.490	3 82.17	+ 1 43 26.24	3 82.17	7.47	3	A0	+ 1 2006	+ 1 1082	116891	72605	11737					590
591	8 31 49.576	5 82.15	+67 28 5.36	5 82.15	9.16	5	M2	+67 552	+67 400					310.00			591
592	8 31 58.726	6 82.13	- 0 33 13.05	6 82.13	7.21	6	G5	- 0 2024	- 0 1243	136057	72760	11754					592
593	8 33 6.134	6 82.13	+49 33 1.55	6 82.13	7.20	6	MA	+49 1750	+49 810	42444	72777	11779					593
594	8 33 59.735	3 82.12	+23 25 19.53	3 82.12	8.77	3	K5	+23 1978	+23 958	80288	71795					6891AB	594
595	8 35 4.335	7 82.14	+ 5 52 45.31	7 82.14	4.15	7	A0	+ 6 2001	+ 5 1263	116965	73262	11823	1223				595
596	8 35 6.743	7 82.14	+60 6 55.97	7 82.14	6.49	7	A0	+60 1148	+60 648	14612	73029	11827					596
597	8 35 10.057	6 82.15	+50 50 23.47	6 82.15	8.67	6	K	+51 1440	+50 745	26939	73132						597
598	8 36 31.621	7 82.14	+41 32 35.71	7 82.14	7.90	7	K2	+41 1864	+41 864	42475	73407	11868					598
599	8 37 34.306	7 82.14	+46 0 42.48	7 82.14	5.42	7	K0	+46 1422	+46 734	42490	73593	11903	1225				599
600	8 37 39.121	5 82.15	-12 17 51.18	5 82.15	5.09	5	K2	-11 2420		154515	73840	11908	325				600
601	8 37 48.652	7 82.16	+62 12 7.79	7 82.16	9.45	6	G	+62 1010	+62 587	14630							601
602	8 38 4.590	8 82.14	+70 38 18.76	8 82.14	7.70	8	K0	+70 528	+70 348	42820	73392	11922					602
603	8 41 6.799	3 82.17	+13 48 18.71	3 82.17	8.47	3	G5	+14 1963	+13 877	98876	74328	12002				6952A	603
604	8 42 34.623	5 82.14	+ 4 24 41.12	5 82.14	8.82	5	A0	+ 4 2034	+ 4 1223	117090	74641	12049					604
605	8 43 13.605	3 82.12	+13 26 49.76	3 82.12	8.68	3	B9	+13 1981	+13 884	98102	74721	12067					605
606	8 43 23.031	6 82.13	+66 23 42.22	6 82.13	7.80	6	F8	+66 575	+66 440	14663	74425	12072					606
607	8 43 40.444	7 82.13	+28 56 37.62	7 82.13	4.12	7	G5	+28 1821	+28 943	80414	74739	12083	328*			6988A	607
608	8 43 45.741	8 82.14	+67 38 5.49	8 82.14	8.66	8	K0	+67 359	+67 404	14665	74462						608
609	8 44 59.568	8 82.14	+53 6 51.13	8 82.14	8.40	8	F5	+53 1285	+53 670	27002	74856	12129					609
610	8 45 20.049	11 81.95	+88 2 20.18	11 81.95	9.93	8	G8	+88 46	+88 47	1398							610
611	8 45 49.309	8 82.14	+50 51 34.98	8 82.14	8.31	8	G0	+51 1454	+50 754	27006	75002						611
612	8 46 50.905	8 82.14	- 3 15 23.52	8 82.14	5.30	8	B9	- 2 2699		136308	75333	12172	1230			7029A	612
613	8 47 11.159	7 82.15	+49 32 1.69	7 82.15	8.25	7	F5	+49 1776		42566	75214	12181					613
614	8 47 34.442	7 82.15	+66 19 7.73	7 82.15	9.12	7	K5	+66 582	+66 447	14684				322.00			614
615	8 48 4.390	4 82.14	+ 4 12 33.88	4 82.14	8.81	4	G5	+ 4 2056	+ 4 1240	117188		12205					615
616	8 49 24.136	7 82.15	+55 8 31.30	7 82.15	7.38	7	G0	+55 1297	+55 670	27027	75553	12238				7054AB	616
617	8 49 25.724	5 82.17	+ 4 39 17.67	5 82.17	7.05	5	A2	+ 5 2073	+ 4 1243	117208	75768	12239				7055AB	617
618	8 50 55.614	6 82.16	+39 26 41.84	6 82.16	7.49	6	F2	+39 2164	+39 1013	61121	75895	12275					618
619	8 51 53.356	3 82.18	+16 48 7.74	3 82.18	8.24	3	G5	+17 1972	+16 954	98223		12308				7081AB	619
620	8 51 57.014	2 82.18	+88 44 15.72	2 82.18	10.31	2	G0	+89 14	+88 51	1427							620
621	8 52 9.082	7 82.14	+60 31 41.16	7 82.14	7.99	7	K0	+60 1157	+60 657	14702	75973						621
622	8 52 34.351	6 82.16	+65 43 5.64	6 82.16	7.41	6	G5	+66 587	+65 435	14706	75972	12323					622
623	8 53 58.939	7 82.14	+50 56 4.91	7 82.14	7.28	7	A0	+51 1460	+50 762	27038	76290						623
624	8 54 13.605	6 82.13	+51 37 6.05	6 82.13	8.81												

TABLE I (continued).

NO	R.A.	1950.0	N	EPOCH	DEC.	1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3	NO	SAO	HD	GC	FK4	GL	ADS	NO		
661	9 27 50.374	4	82.24	+15 28 49.70	3	82.22	8.15	4	F8	+15 2042	+15 1071	98613	82140	13115								661		
662	9 29 28.180	10	82.20	+51 51 5.73	9	82.19	3.17	10	F8	+52 1401	+51 758	27289	82328	13157				358			7420A	662		
663	9 30 7.207	9	82.01	+81 32 59.63	9	82.01	4.34	9	K2	+81 382	+81 278	15551	91817	13174				910				663		
664	9 31 9.985	10	82.20	+36 37 13.60	9	82.19	4.57	10	G5	+37 2004	+36 939	61570	82635	13203				360				664		
665	9 31 28.484	9	82.21	+61 6 55.32	8	82.20	7.26	9	F0	+61 1132	+61 663	14931	82569	13214							7432A	665		
666	9 32 39.988	5	82.22	+18 36 38.68	4	82.21	8.92	5	G0	+19 2230	+18 984	98657		13241								666		
667	9 33 54.779	9	82.20	+60 26 19.60	8	82.19	6.45	10	G5	+60 198	+60 690	14971	82969	13274								667		
668	9 34 15.867	9	82.20	+50 56 5.45	8	82.19	9.06	8	K0	+51 1529	+50 807	27318	233658									668		
669	9 35 16.274	9	82.17	+88 23 51.65	8	82.15	10.16	6	G2	+88 52	+88 54	1566										669		
670	9 35 50.490	9	82.20	+4 52 31.78	8	82.19	4.76	9	K0	+5 2207	+4 1332	117821	83425	13316				1249				670		
671	9 36 34.292	8	82.21	+13 32 20.45	7	82.19	6.94	7	F5	+13 2131	+13 969	98696	83509	13332								671		
672	9 37 18.244	8	82.22	-0 54 56.00	7	82.20	3.98	8	K0	-0 2231	-0 1411	137035	83618	13341				1250				672		
673	9 37 54.396	8	82.21	-14 6 17.56	6	82.21	5.06	8	B3	-13 2917		155388	83754	13354				364				673		
674	9 37 59.720	10	82.20	+69 27 57.38	9	82.19	5.78	10	K0	+69 531	+69 421	14966	83489	13358				363				674		
675	9 38 28.691	10	82.20	+10 7 13.24	9	82.19	3.54	10	F5	+10 2044		98709	83808	13366				365				7480A	675	
676	9 39 33.863	9	82.20	+50 49 1.80	8	82.19	7.95	9	G5	+51 1537	+50 811	27356	83887									7490AB	676	
677	9 39 56.106	10	82.20	+78 21 52.32	9	82.19	6.33	10	G5	+78 317	+78 247	6948	83550	13392									677	
678	9 40 37.621	10	82.20	+30 12 15.82	9	82.19	5.60	10	A2	+30 1901	+30 996	61656	84107	13406				1251				7498AB	678	
679	9 40 46.777	11	82.20	+76 56 27.33	10	82.19	8.39	11	F2	+77 379	+76 434	6953	83746	13410									679	
680	9 41 1.642	9	82.20	+14 15 4.80	8	82.19	5.40	9	MA	+14 2136	+14 1043	98733	84194	13414				1252					680	
681	9 43 1.883	11	82.20	+24 0 19.18	10	82.19	2.98	11	G0	+24 2129	+24 1096	81004	84441	13443				367					681	
682	9 43 57.700	7	82.19	+1 57 1.89	6	82.18	7.74	7	F8	+2 2247	+1 1236	117902	84616	13465									682	
683	9 45 12.513	10	82.20	+60 19 47.64	9	82.19	7.02	11	K0	+60 1209	+60 701	14993	84633	13475									683	
684	9 47 25.869	10	82.20	+59 16 25.19	9	82.19	3.76	10	F0	+59 1268	+59 731	27401	84999	13540				368					684	
685	9 48 42.844	9	82.21	-4 0 30.58	8	82.20	5.95	9	A2	-3 2794		137183	85364	13558				370					685	
686	9 49 27.250	9	82.21	+89 19 45.09	8	82.20	9.72	7	G0	+89 12	+89 17	1605											686	
687	9 50 1.047	11	82.20	+59 51 25.44	10	82.19	7.25	11	G5	+51 1553		27416	85439	13592									7554AB	687
688	9 50 4.757	11	82.20	+65 1 29.90	10	82.19	7.41	11	K0	+65 741	+65 500	15013	85560	13594									7556A	688
689	9 50 42.591	11	82.20	+60 9 24.31	10	82.19	6.91	11	K2	+60 1216	+60 709	15015	85501	13598									689	
690	9 51 3.221	8	82.12	+88 30 58.40	8	82.12	9.84	6	G0	+88 54	+88 55	1611											690	
691	9 52 27.646	11	82.20	+63 1 43.64	10	82.19	8.97	10	H2	+63 869	+63 559												691	
692	9 53 38.848	11	82.20	-7 24 27.10	10	82.19	6.72	10	K0	-7 3033		137237	86082	13674				1257					692	
693	9 53 56.937	11	82.20	+73 7 5.95	10	82.19	5.89	11	K0	+73 478	+73 269	7809	85841	13684				372					693	
694	9 54 16.452	7	82.21	+19 59 32.22	6	82.19	8.29	7	G5	+20 2400	+19 1017	98859		13693									7589B	694
695	9 55 34.368	11	82.20	+27 59 33.90	10	82.19	6.40	11	F0	+28 1824	+27 1045	81120	86358	13725									695	
696	9 56 29.814	10	82.20	-2 46 54.59	9	82.19	7.38	9	F2	-2 3024	-2 554	137267	86535	13738									696	
697	9 57 7.331	10	82.20	+3 37 29.07	9	82.19	6.59	9	A5	+4 2276		118041	86611	13746				376					697	
698	9 58 21.627	8	82.19	+9 11 25.02	7	82.18	8.00	9	G0	+9 1263	+9 1263	118051	86794	13768									698	
699	9 58 44.728	10	82.20	+60 24 37.27	9	82.19	8.07	11	K0	+60 1228	+60 716	15051	86725										699	
700	9 58 49.719	8	82.16	+88 10 43.64	7	82.14	10.24	4	G0	+88 57	+88 56	1631											700	
701	9 59 46.955	7	82.19	+14 47 59.03	6	82.18	7.95	8	A0	+15 2156	+14 1077	98914	86986	13790									701	
702	10 1 17.672	7	82.19	+54 8 4.13	7	82.19	5.74	7	F5	+54 1348	+54 747	27503	87141	13827				1259					702	
703	10 1 59.565	12	82.20	+50 47 40.40	11	82.20	7.30	12	K2	+51 1572	+50 834	27513	87258	13844									703	
704	10 2 24.503	6	82.21	+89 33 19.16	7	82.21	10.34	6		+89 18													704	
705	10 2 45.282	10	82.21	+31 19 49.95	10	82.20	7.88	11	A3	+31 2095	+31 986	61853	87443	13862									705	
706	10 3 7.468	12	82.20	+56 0 47.94	11	82.20	7.27	12	K0	+56 1430	+56 777	27518	87421	13872									706	
707	10 4 21.450	8	82.20	+3 12 33.49	7	82.19	9.74	7	H0	+3 2316	+3 1360												707	
708	10 5 42.053	10	82.21	+12 12 44.46	9	82.20	1.36	10	B8	+12 2149		98967	87901	13926				380					708	
709	10 6 55.737	12	82.20	+51 4 34.21	11	82.20	4.76	12	A2	+51 1377	+51 792	27536	87852										709	
710	10 7 6.901	7	82.18	+3 24 29.00	6	82.19	8.30	9	K0	+3 2323	+3 1364	118140	88105	13956									710	
711	10 8 8.498	11	82.21	-12 6 25.71	10	82.20	3.71	11	K0	-11 2820		155785	88284	13982				381					711	
712	10 9 12.626	11	82.20	+49 10 12.69	10	82.19	6.64	11	K5	+50 1725	+49 914	43223	88230	13987									712	
713	10 10 43.867	10	82.20	+52 45 30.95	9	82.19	9.14	10	K5	+53 1389	+52 792	27569	23719										713	
714	10 11 49.258	9	82.20	+16 23 13.28	8	82.19	7.13	9	K0	+16 2098	+16 1095	99019	88748	14061									714	
715	10 12 37.376	12	82.20	+60 23 59.98	11	82.20	6.79	12	F2	+60 1250	+60 728	15131	88759	14075									715	
716	10 13 54.795	12	82.20	+23 40 1.63	11	82.20	3.43	12	F0	+24 2209	+23 1076	81265	89025	14107				384					716	
717	10 14 4.865	12	82.20	+43 9 52.09	11	82.20	3.43	12	A2	+43 2005	+43 959	43248	89221	14113									717	
718	10 14 25.189	12	82.20	+65 21 38.90	11	82.20	5.74	12	A3	+65 767	+65 515	15135	88983	14123				1262					718	
719	10 14 38.340	10	82.06	+88 16 38.68	10	82.06	10.03	7	G5	+88 58	+88 57	1673											719	
720	10 15 36.107	10	82.20	+39 21 40.78	9	82.19	8.73	10	G5	+39 2337	+39 1114	61977	89252	14138									7719AB	720
721	10 19 21.230	11	82.20	+41 45 7.27	10	82.20	3.14	11	K5	+42 2115	+41 998	43310	89758	14232				386					721	
722	10 20 13.823	11	82.20	+34 9 40.43	10	82.20	5.86	11	A3	+34 2120	+34 1081	62010	89904	14252				1267					722	
723	10 20 32.973	9	82.19	+65 49 11.64	9	82.19	4.94	9	A0	+66 664	+65 520	15163	89822	14260				387					723	
724	10 20 54.688	11	82.20	+3 49																				

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DN NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO
771	11 0 4.056	9	82.20	- 3 14 35.89	8	82.19	6.77	9	G5	- 2 3270		137952	95695	15176	1285			771
772	11 0 39.224	10	82.20	+6 11 14.45	9	82.19	1.84	10	K0	+62 1161	+62 691	15384	95689	15185	417		8035AB	772
773	11 2 25.548	10	82.21	+ 7 36 22.56	9	82.20	4.61	10	F0	+ 8 2493		118648	95697	15235	418			773
774	11 3 3.323	8	82.22	-10 49 6.30	7	82.21	6.06	8	A3	-10 3190		156448	96220	15256	1286			774
775	11 3 33.670	9	82.22	+ 7 24 35.22	8	82.21	7.26	8	F5	+ 7 2412	+ 7 1512	118658	96272	15262				775
776	11 4 20.336	10	82.21	+ 2 13 35.05	9	82.20	5.52	10	G5	+ 2 2397	+ 2 1459	118668	96436	15282	1287			776
777	11 5 48.537	9	82.17	+88 18 15.91	7	82.15	10.02	9	G0	+88 63	+88 61	1827						777
778	11 6 24.041	10	82.21	+51 39 .48	9	82.20	7.00	10	MA	+52 1541	+51 836	27930	96734	15327				778
779	11 6 51.402	11	82.21	+44 46 11.54	10	82.20	3.03	11	K0	+55 1897	+44 991	43629	96833	15340	420			779
780	11 8 25.678	11	82.21	+66 18 6.39	10	82.20	8.19	11	K	+66 705	+66 537	15427	97050	15368				780
781	11 8 47.833	11	82.21	+85 54 43.74	10	82.20	7.31	11	A2	+86 161	+85 159	1834	96571	15376	1641			781
782	11 9 10.354	11	82.21	+61 28 34.04	10	82.20	7.37	11	A2	+61 1226	+61 721	15432	97192	15384				782
783	11 12 5.199	8	82.20	+12 53 41.58	7	82.18	8.34	7	K5	+13 2373	+12 1295	99517	97714	15451				783
784	11 12 43.610	6	82.22	+ 2 20 12.23	5	82.20	8.18	6	K0	+ 2 2403	+ 2 1472	118746	97815	15467				784
785	11 13 19.700	7	82.20	+ 2 21 34.68	6	82.18	9.08	5	F5	+ 2 2406	+ 2 1474	118757	97916	15489				785
786	11 14 6.860	9	82.21	- 3 22 42.05	8	82.20	4.49	9	A5	- 2 3315		138102	98058	15511	1292			786
787	11 14 30.731	10	82.21	+60 32 41.82	9	82.20	6.68	10	K0	+61 1235	+60 780	15462	98054	15517				787
788	11 15 17.720	11	82.22	+35 43 5.34	10	82.21	8.19	11	G5	+36 2171	+35 1081	62482	98186	15533				788
789	11 15 46.976	10	82.22	+33 22 3.58	11	82.21	3.55	12	K0	+35 2266	+33 1074	62486	98262	15547	425		8123A	789
790	11 16 30.013	10	82.24	-14 30 21.23	8	82.22	3.64	10	K0	-13 3345		156605	98430	15567	426			790
791	11 17 12.745	12	82.22	+66 7 9.68	11	82.21	9.23	11	M2	+66 717	+66 544	15475		15579				791
792	11 18 4.849	9	82.22	+23 9 17.96	8	82.21	9.07	9	G5	+23 2336	+23 1199	81783	98574	15591				792
793	11 18 59.711	8	82.23	+89 1 22.85	7	82.22	9.36	9	G0	+89 17	+89 20	11859						793
794	11 19 24.613	11	82.22	+37 21 43.89	10	82.21	9.08	10	G0	+37 2176	+37 1117	62514	98744	15614				794
795	11 19 54.056	12	82.22	+64 36 16.70	11	82.21	6.00	12	A0	+65 828	+64 547	15486	98772	15619	429			795
796	11 20 48.185	10	82.22	+ 6 37 25.55	9	82.21	8.89	9	K0	+ 7 2444	+ 6 1427	118826	98959	15642				796
797	11 21 28.426	11	82.22	+68 25 43.74	10	82.22	8.92	10	G5	+68 642	+68 475	15495	98987	15658				797
798	11 23 6.788	12	82.22	+27 1 17.83	11	82.21	7.25	11	A2	+27 2021	+27 1146	81819	99302	15682	1295			798
799	11 23 22.555	4	82.09	+89 51 53.15	4	82.03	10.15	3	F2	+89 1	+89 21	1870						799
800	11 23 49.810	8	82.23	+10 41 53.12	7	82.22	8.56	8	G5	+11 2353	+10 1430	99605	99404	15700				800
801	11 26 46.079	10	82.23	+26 8 59.22	9	82.22	8.86	9	F5	+26 2219	+26 1186	81846	99862	15758				801
802	11 27 38.012	9	82.23	+42 18 30.91	8	82.22	9.31	8	K0	+42 2212	+42 1093	43782						802
803	11 27 46.544	7	82.22	+88 9 18.25	6	82.21	9.75	8	F5	+88 65	+88 62	1880						803
804	11 28 8.189	10	82.23	+41 33 47.24	9	82.22	6.94	10	F5	+42 2214	+41 1055	43789	100018	15787			8189AB	804
805	11 28 27.285	11	82.22	+69 36 25.21	10	82.21	3.88	11	MA	+70 665	+69 475	15532	100029	15799	433			805
806	11 29 12.629	11	82.22	+41 42 53.84	10	82.21	7.33	11	F8	+42 2216	+41 1056	43797	100167					806
807	11 29 53.961	9	82.22	+42 3 5.10	8	82.21	8.69	9	K0	+42 2217	+42 1095	43801	100266					807
808	11 32 29.212	10	82.23	+41 54 49.42	8	82.21	8.69	10	G5	+42 2220	+41 1058	43815	100642					808
809	11 33 13.471	10	82.23	+ 0 29 10.28	8	82.21	8.83	9	K0	+ 1 2586	+ 0 1489	118936	100763	15895				809
810	11 33 43.543	11	82.23	+42 35 13.08	9	82.22	8.99	11	K0	+43 2132	+42 1097	43821						810
811	11 34 23.253	12	82.23	- 0 32 49.92	10	82.21	4.33	12	K0	- 0 2458	- 0 1637	138298	100920	15927	437			811
812	11 35 5.353	11	82.23	+40 25 19.04	9	82.22	9.31	9	G5	+40 2444	+40 1208	43832	101014					812
813	11 35 48.232	10	82.22	+39 1 53.65	8	82.20	8.73	10	A0	+39 2458	+39 1201	62634	101108				8246A	813
814	11 36 17.351	12	82.23	+40 31 43.71	10	82.21	7.75	11	F5	+41 2218	+40 1209	43843	101194	15981				814
815	11 36 34.721	10	82.24	+42 10 45.91	8	82.22	9.25	8	K2	+42 2232	+42 1103	43850						815
816	11 37 25.539	11	82.23	+42 18 10.18	9	82.22	7.55	11	MA	+42 2233	+42 1105	43854	101366					816
817	11 38 6.398	12	82.23	+60 23 .85	10	82.21	7.85	12	F0	+60 1337	+60 793	15594	101439					817
818	11 38 25.250	12	82.23	+34 28 50.77	10	82.21	5.34	11	G5	+34 1156	62645	101501	16035	1308				818
819	11 39 7.501	11	82.24	+41 30 54.20	9	82.23	6.89	11	F5	+42 2236	+41 1067	43864	101620	16053				819
820	11 39 41.857	11	82.24	+67 1 19.02	9	82.23	5.36	11	K0	+67 714	+67 522	15606	101673	16072	440			820
821	11 40 16.388	7	82.25	+39 24 29.63	5	82.23	9.93	7	G0	+39 2464	+39 1208	62668						821
822	11 41 22.100	9	82.24	+49 49 15.97	7	82.23	7.89	7	F5	+49 2246	+48 1166	62680	101978					822
823	11 43 19.902	10	82.16	+38 3 38.09	8	82.13	10.13	9	G2	+88 68	+88 63	1931						823
824	11 43 24.584	11	82.23	+48 3 24.95	9	82.22	3.76	11	K0	+48 1966	+48 967	43886	102224	16137	441			824
825	11 44 7.224	9	82.23	+42 37 17.80	7	82.21	9.35	8	G0	+43 2147	+42 1109	43887						825
826	11 44 26.587	11	82.23	+61 40 47.28	9	82.22	6.57	10	F0	+62 1198	+61 746	15631	102355	16158	1303			826
827	11 46 29.496	9	82.22	+14 51 1.94	8	82.21	2.12	9	A2	+15 2383	+14 1239	99809	102647	16189	444	448.00	8314A	827
828	11 47 22.361	9	82.25	+41 36 34.49	7	82.24	9.00	8	G5	+42 2248	+41 1077	43905	102759					828
829	11 47 45.007	5	82.19	+88 26 35.37	4	82.11	9.81	5	G8	+88 69	+88 64	1939						829
830	11 48 6.974	11	82.23	+ 2 2 38.66	9	82.22	3.59	11	F8	+ 2 2489		119076	102870	16215	445	449.00		830
831	11 48 28.744	11	82.23	- 5 3 19.20	9	82.22	5.65	11	K0	- 4 3152		138445	102928	16228	1306			831
832	11 51 12.907	11	82.22	+53 58 22.18	9	82.20	2.39	11	A0	+54 1475	+53 826	28179	103287	16268	447			832
833	11 51 51.139	6	82.23	+43 26 29.60	5	82.22	9.89	5	G5	+43 2166	+43 1055	43943	103406					833
834	11 52 38.368	7	82.21	+41 52 42.99	6	82.19	9.40	6	G5	+42 2255	+41 1084	43947						834
835	11 53 6.295	8	82.21	+15 55 30.07	7	82.19	5.46	8	A2	+16 2319	+15 1269	99869	103578	16311	1308			835
836	11 53 48.054	7	82.19	+88 6 57.32	6	82.17	10.36	4	G8	+88 70	+88 65	1953						836
837	11 55 32.978	12	82.23	+32 33 8.95	9	82.20	6.39	12	F0	+33 2174	+32 1109	62774	103928	16368	1310		8368A	837
838	11 56 1.821	8	82.21	+40 27 30.45	6	82.18	8.23	7	K2	+40 2485	+40 1230	43981	103985					838
839	11 57 1.977	11	82.21	+41 18 17.47	9	82.19	9.44	5	G0	+41 2261	+41 1088	43984						839
840	11 57 16.298	12	82.23	+60 26 13.03	9	82.20	8.47	11	G5	+60 1367	+60 807	15681	104163					840
841	11 57 55.487	11	82.															

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TABLE I (continued).

NO	R.A. 1950.0	N EPOCH	DEC. 1950.0	N EPOCH	MAG	N	SP	DM NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO
991	13 54 56.060	9 82.27	+88 5 57.39	7 82.26	9.30	8	K0	+88 85	+88 77	2301						991
992	13 55 18.688	8 82.27	+12 12 19.33	6 82.26	7.70	8	A5	+12 2644	+12 1527	100793	121845	18878				992
993	13 56 17.152	8 82.27	+41 5 17.34	6 82.26	8.48	8	K0	+41 2445	+41 1214	44820	122037					993
994	13 57 2.959	7 82.25	+41 3 41.31	5 82.24	9.58	7	A5	+41 2447	+41 1215	44828						994
995	13 57 13.558	7 82.28	+3 18 26.94	5 82.27	6.40	7	F5	- 2 3768		137666	122106	18919	1362			995
996	13 58 19.050	8 82.28	+41 3 5.59	6 82.28	8.69	7	K2	+41 2449	+41 1217	44838	122345					996
997	13 58 54.209	8 82.28	+27 37 38.92	6 82.28	6.18	7	A3	+28 2267	+27 1336	83130	122405	18943	517			997
998	13 59 5.972	5 82.28	+1 47 7.60	5 82.28	4.20	4	A2	+ 2 2761		120238	122408	18945	516		9085A	998
999	14 1 1.031	5 82.28	+40 20 47.39	5 82.28	8.31	4	G0	+40 2723	+40 1372	44863	122813					999
1000	14 1 20.378	3 81.96	+88 10 13.98	3 81.96	10.52	2	A5	+88 87	+88 78	2318						1000
1001	14 1 23.910	3 82.29	+39 54 48.95	3 82.29	9.35	2	K0	+40 2724	+39 1400	63913						1001
1002	14 1 44.179	4 82.23	-14 43 56.74	4 82.23	6.37	4	K0	-14 3863		158325	122837	18999	1365			1002
1003	14 3 1.691	8 82.26	+64 36 51.92	6 82.25	3.61	7	A0	+65 978	+64 666	16273	123299	19019	521			1003
1004	14 3 19.300	8 82.26	+40 32 13.18	6 82.25	9.49	7	F8	+40 2726	+40 1374	44878						1004
1005	14 3 51.127	4 82.26	+39 2 29.98	3 82.24	10.17	4	G0	+39 2719	+39 1403	63930					9108AB	1005
1006	14 4 20.736	8 82.26	+38 39 18.77	6 82.25	7.97	7	K0	+39 2720	+38 1314	63933	123399	19048	1367*		9111A	1006
1007	14 4 58.687	8 82.27	+25 19 43.61	6 82.26	10.20	5	F8	+25 2731	+25 1458	83176		19066			9113AB	1007
1008	14 5 11.494	10 82.20	+88 22 13.48	7 82.18	10.37	5	G0	+88 88	+88 79	2327						1008
1009	14 5 55.257	10 82.28	+44 5 28.77	8 82.28	5.52	9	HB	+44 2325	+44 1162	44901	123657	19084	1368			1009
1010	14 6 7.002	10 82.28	+25 19 37.82	8 82.28	4.82	9	F5	+25 2737	+25 1460	83203	123999	19127	522			1010
1011	14 8 46.054	9 82.27	+32 6 30.61	7 82.27	7.41	8	F2	+32 2440	+32 1259	63975	124138	19140				1011
1012	14 9 2.214	2 82.18	+77 46 57.72	2 82.18	4.89	2	K0	+78 478	+77 421	7958	124547	19142	524			1012
1013	14 9 31.790	8 82.27	+41 58 34.37	8 82.27	10.17	7	G0	+42 2470	+41 1230							1013
1014	14 10 13.393	9 82.28	+80 42 29.14	7 82.27	8.08	11	F5	+81 1409	+60 898	16301	124473					1014
1015	14 10 13.468	9 82.28	-10 2 26.25	6 82.26	4.26	8	K0	- 9 3878		158427	124294	19168	523			1015
1016	14 10 49.623	7 82.29	- 8 45 52.38	5 82.28	8.60	7	F0	- 8 3724		139795	124389	19181				1016
1017	14 11 33.295	9 82.28	+46 33 28.48	7 82.27	7.16	8	G0	+46 1044	+46 666	44946	124694	19214				1017
1018	14 13 20.225	9 82.29	+19 25 26.30	7 82.29	.01	8	K0	+19 2777		100944	124897	19242	526	541.00		1018
1019	14 14 23.136	9 82.29	+51 35 52.75	7 82.29	4.73	8	A5	+52 1784	+51 975	29071	125161	19269	528*		9198A	1019
1020	14 15 52.958	11 82.29	+35 44 22.25	9 82.29	4.84	10	K0	+36 2468	+35 1266	64053	125351	19296	1370			1020
1021	14 18 27.294	3 82.21	+48 44 7.56	3 82.21	7.38	3	F8	+49 2294	+48 1128	45008	125796	19347			9229AB	1021
1022	14 18 45.333	10 82.28	+36 37 13.98	8 82.28	7.31	9	A0	+37 2519	+36 1268	64085	125798	19353				1022
1023	14 18 52.124	8 82.27	-10 8 35.29	7 82.27	7.56	8	A2	- 9 3915		158512	125729	19357				1023
1024	14 19 41.790	10 82.29	+20 1 57.70	8 82.29	7.93	9	K0	+20 2970	+20 1499	83308	125920	19370			9243A	1024
1025	14 20 29.291	11 82.29	+32 43 49.80	9 82.29	7.05	10	K0	+33 2452	+32 1273	64105	126081	19393				1025
1026	14 20 43.896	9 82.28	-11 29 13.87	7 82.27	6.25	8	K0	-11 3729		158528	126035	19399	1374			1026
1027	14 21 41.717	10 82.29	+ 6 2 45.61	9 82.29	5.08	9	A3	+ 6 2875	+ 6 1710	120434	126248	19428	1375			1027
1028	14 24 7.565	9 82.30	+19 27 3.51	7 82.30	5.38	8	A5	+19 2810	+19 1357	101025	126661	19480	1378			1028
1029	14 24 27.411	6 82.32	+ 3 54 43.26	5 82.33	8.35	6	G0	+ 4 2864	+ 3 1785	120466	126678	19486				1029
1030	14 26 54.890	7 82.30	+39 50 27.55	5 82.30	7.49	7	K0	+40 2785	+39 1437	64167	127185	19534				1030
1031	14 27 8.486	8 82.29	+15 44 53.64	6 82.29	9.90	2	M3	+16 2658						552.00		1031
1032	14 27 36.244	8 82.32	+75 55 6.33	6 82.33	4.29	7	K2	+76 527	+75 601	8024	127700	19548	1379		9286A	1032
1033	14 27 54.002	10 82.30	- 3 50 37.55	8 82.30	7.36	9	F5	- 3 3636		139974	127265	19559				1033
1034	14 30 3.517	10 82.30	+38 31 39.03	8 82.30	3.02	9	F8	+38 2565	+38 1345	64203	127762	19607	535		9300A	1034
1035	14 30 20.952	9 82.29	+60 26 43.91	7 82.29	6.22	12	F0	+60 1547	+60 917	16411	127929	19613	536			1035
1036	14 31 36.414	13 82.17	+88 40 54.69	11 82.14	10.16	7	G0	+89 27	+88 80	2394						1036
1037	14 32 30.592	10 82.30	+29 57 45.30	8 82.30	4.43	8	F0	+30 2536	+29 1421	83416	128167	19659	1380	557.00		1037
1038	14 33 4.921	3 82.27	+ 3 41 6.96	3 82.27	7.54	7	F2	+ 4 2885	+ 3 1799	120548	128221	19671				1038
1039	14 33 37.311	8 82.31	- 9 23 43.25	7 82.30	7.51	8	K0	- 9 3805		140027	128275	19683				1039
1040	14 36 15.284	7 82.30	+29 8 41.60	6 82.30	9.60	7	F5	+29 2562	+29 1423	83448	128828	19730				1040
1041	14 36 58.317	10 82.30	+44 37 9.79	8 82.30	5.40	9	A0	+45 2204	+44 1192	45153	129092	19747	540			1041
1042	14 38 42.731	9 82.29	+78 22 40.70	7 82.28	7.42	9	F2	+78 2294		16452	129654	19765				1042
1043	14 38 58.368	11 82.29	+38 21 47.03	9 82.29	7.40	9	F5	+38 2579	+38 1353	64272	129354	19784				1043
1044	14 39 18.910	11 82.29	+11 52 26.41	9 82.29	5.59	9	G5	+12 2729	+11 1605	101152	129336	19793	1392			1044
1045	14 40 22.419	11 82.29	+52 13 3.23	9 82.29	7.52	9	F0	+52 1822	+52 1001	29248	129674	19814				1045
1046	14 40 22.509	11 82.29	+80 0 3.83	9 82.29	7.38	9	K0	+80 451	+80 334	2431	130235	19815				1046
1047	14 41 13.399	11 82.29	+26 44 21.50	9 82.29	4.87	9	MA	+27 2413	+26 1447	83488	129712	19831	1383			1047
1048	14 41 13.981	11 82.29	+60 26 33.55	9 82.29	8.04	14	F0	+60 1557	+60 923	16470	129865					1048
1049	14 41 45.762	14 82.16	+88 11 36.28	12 82.14	8.94	13	K0	+88 90	+88 81	2440	134437					1049
1050	14 45 4.889	8 82.29	+17 57 55.36	7 82.29	8.40	7	G5	+18 2933	+17 1464	101215	130385	19909				1050
1051	14 46 34.347	8 82.30	+24 47 27.33	7 82.30	9.13	8	K0	+25 2838	+24 1506	83537	130668	19939				1051
1052	14 47 8.181	9 82.30	+38 1 2.42	8 82.30	6.14	7	F0	+38 2593	+38 1362	64344	130817	19949	1386			1052
1053	14 47 18.444	11 82.12	+89 29 12.69	10 82.10	10.08	8	G8	+89 31	+89 38	2450						1053
1054	14 47 43.283	8 82.29	+24 55 35.73	7 82.29	6.73	7	B9	+25 2841	+24 1508	83550	130870	19964				1054
1055	14 50 49.348	8 82.31	+74 21 35.97	7 82.32	2.10	6	K5	+74 595	+74 412	8102	131873	20029	550			1055
1056	14 51 11.131	8 82.29	+ 6 26 41.94	7 82.29	6.67	7	K0	+ 6 2957	+ 6 1752	120719	131476	20039	1388			1056
1057	14 51 19.756	6 82.28	+59 15 16.58	5 82.27	9.14	6	G5	+59 1616		29318	138401	20043			9428AB	1057
1058	14 52 8.437	4 82.25	+16 18 14.88	3 82.24	9.77	4	M0	+16 2708						569.00		1058
1059	14 53 10.554	7 82.29	+15 10 42.54	7 82.29	7.94	6	K0	+15 1042	+15 1494	101282	131747	20065				1059
1060	14 53 36.433	10 81.98	+82 42 59.67	10 81.98	5.64	10	G0	+83 431	+82 441	29249	133002	20087	1644			1060
1061	14 53 42.114	7 82.29	+53 52 46.02	7 82.29	7.79	6	G5	+54 1716	+53 976	29336	132142	20090		569.10		1061
1062	14 54 3.066	7 82.29	-11 12 32.70	7 82.29	5.50	6	K0	-10 3989		158915	131918	20096	1390			1062
1063	14 54 48.516	7 82.29	+21 45 20.97	7 82.29	6.46	6	MA	+22 2725	+21 1472	83594	132142	20099	1392			1063

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3	NO	SAO	HD	GC	FK4	GL	ADS	NO
1101	15 22 35.588	6	82.31	+37 33 8.47	6	82.31	4.30	5	F0	+37 2636	+37 1409	64686	137391	20724	568*				9626A	1101
1102	15 23 28.072	6	82.31	+15 36 9.32	6	82.31	5.25	5	MA	+15 2859		101545	137471	20740	578					1102
1103	15 23 48.694	6	82.31	+59 8 26.61	6	82.31	3.35	5	K2	+59 1654	+59 999	29520	137759	20747	571					1103
1104	15 24 7.79	2	82.36	+14 52 2.84	2	82.36	7.90	2	B5	+15 2862	+14 1546	101555	137569							1104
1105	15 24 5.819	3	82.28	+10 12 36.02	3	82.28	7.06	3	MA	+10 2853	+10 1814	101556	137570	20757						1105
1106	15 24 29.433	4	82.30	- 5 38 39.29	4	82.30	7.88	4	K5	- 5 4079		140540	137610	20762						1106
1107	15 26 51.489	3	82.30	+60 50 31.68	3	82.30	5.96	2	K5	+61 1509	+60 769	16741	138265	20819						1107
1108	15 27 50.036	2	82.36	+25 40 44.49	2	82.36	7.66	2	K2	+26 2694		83852	138232	20840					9675AB	1108
1109	15 28 16.060	2	82.29	+40 4 45.08	2	82.29	7.60	2	F8	+40 2892	+40 1437	45569	138339	20846						1109
1110	15 28 29.686	5	82.32	+ 8 44 55.64	5	82.32	6.53	4	F2	+ 9 3055	+ 8 1853	121038	138290	20850	1408					1110
1111	15 29 7.901	2	82.36	+41 0 8.96	2	82.36	5.16	2	K5	+41 2609	+41 1321	45580	138481	20866	573					1111
1112	15 29 10.022	2	82.29	+ 1 3 10.56	2	82.29	7.39	2	G0	+ 1 3092	+ 1 1737	121042	138369	20867						1112
1113	15 30 20.285	2	82.36	+11 8 7.82	2	82.36	7.20	2	G0	+11 2816	+11 1678	101603	138573	20895						1113
1114	15 30 54.639	6	82.31	+31 31 36.23	6	82.31	4.12	5	B5	+31 2750	+31 1352	64769	138749	20908						1114
1115	15 32 34.432	2	82.36	+26 52 51.68	2	82.36	2.20	2	A0	+27 2512	+26 1496	63893	139006	20947	578					1115
1116	15 32 43.615	5	82.32	-14 37 26.94	5	82.32	4.02	4	K0	-14 4237		159370	138905	20949	577				9704A	1116
1117	15 33 8.258	3	82.28	+60 29 26.37	3	82.28	8.68	6	A3	+60 1619	+60 971	16768	139282							1117
1118	15 33 33.213	3	82.28	+ 6 13 22.55	3	82.28	7.92	3	F8	+ 6 4112		140631	139059	20969						1118
1119	15 34 11.142	3	82.28	+ 9 24 36.50	3	82.28	9.46	3	G5	+ 9 3072	+ 9 1831	121092	139286	20986						1119
1120	15 34 27.283	2	82.36	+55 41 23.88	2	82.36	9.04	2	G5	+56 1814	+55 996	29586	238480							1120
1121	15 34 50.041	2	82.36	+55 41 9.35	2	82.36	8.59	2	F8	+56 1815	+55 997		238482						9720AB	1121
1122	15 35 1.758	5	82.31	+12 27 53.35	5	82.31	7.13	5	F0	+12 2863	+12 1642	101651	139275	21006						1122
1123	15 36 1.903	6	82.31	+40 30 50.83	6	82.31	5.29	5	G5	+40 2907	+40 1467	45643	139641	21032	580					1123
1124	15 36 40.270	6	82.31	+46 57 37.55	6	82.31	5.75	5	F0	+47 2253	+46 1126	45650	139798	21044	1412					1124
1125	15 36 55.107	2	82.36	+25 54 28.77	2	82.36	8.21	2	G5	+26 2712	+25 1582	83928	139749							1125
1126	15 37 18.637	11	82.12	+88 12 17.28	11	82.12	8.98	11	M0	+88 94	+88 82	2572								1126
1127	15 37 22.035	3	82.28	+44 1 39.89	3	82.28	8.63	3	G5	+44 2498	+44 1259	45660	139907	21058						1127
1128	15 37 58.464	2	82.36	+53 53 34.70	2	82.36	9.57	2	F8	+56 1821	+55 998	29608	238488							1128
1129	15 38 13.038	3	82.28	- 8 50 16.15	3	82.28	7.94	3	G0	- 8 4049		140696	139879	21079						1129
1130	15 39 3.357	4	82.32	-19 31 8.83	4	82.32	5.00	4	K5	-19 4188		159442	139997	21094	1413					1130
1131	15 39 8.762	4	82.29	+64 6 20.58	4	82.29	8.55	3	G0	+41 2622	+41 1328	45677	140228	21096						1131
1132	15 39 12.484	6	82.31	+44 49 18.61	6	82.31	7.61	5	K2	+65 1069	+64 737	16806	140453	21098						1132
1133	15 40 31.549	3	82.28	+19 8 43.71	3	82.28	9.46	3	F5	+19 3004	+19 1458	101695		21127						1133
1134	15 40 55.466	2	82.36	+26 26 5.89	2	82.36	10.80	0		+26 2723P					596.00					1134
1135	15 41 16.431	2	82.36	-10 41 21.99	2	82.36	9.02	2	G5	-10 4154		159467	140458	21147						1135
1136	15 41 48.441	4	82.29	+ 6 34 55.24	4	82.29	2.70	3	K0	+ 6 3088		121157	140573	21158	582	596.20			9765A	1136
1137	15 42 28.843	3	82.28	+21 23 30.59	3	82.28	9.60	3	F5	+21 2811	+21 1533	83975		21165						1137
1138	15 45 47.986	5	82.32	+77 56 56.86	5	82.32	4.32	4	A2	+78 527	+77 461	8328	142105	21243	590					1138
1139	15 45 54.022	2	82.36	+62 45 11.23	2	82.36	5.15	2	A2	+63 1255	+62 988	16848	141653	21246	587					1139
1140	15 46 29.060	2	82.36	+18 17 38.17	2	82.36	4.18	2	K5	+18 3074		101752	141477	21255	584					1140
1141	15 48 19.528	6	82.31	+ 4 37 38.66	6	82.31	3.72	5	A2	+ 4 3069		121218	141795	21288	588					1141
1142	15 48 21.704	6	82.31	+60 40 41.02	6	82.31	7.90	5	F5	+60 1637	+60 984	16860	142089						9806AB	1142
1143	15 48 28.367	9	82.02	+83 6 3.14	9	82.02	7.33	8	A2	+83 455	+83 395	2606	143173	21295	1645					1143
1144	15 49 20.725	6	82.31	+35 48 30.18	6	82.31	4.84	5	K0	+36 2652	+35 1369	64948	142891	21319	1414					1144
1145	15 49 48.680	9	82.12	+88 18 36.67	9	82.12	9.50	8	F2	+88 96	+88 83	2610								1145
1146	15 49 51.242	2	82.36	+50 59 5.89	2	82.36	8.61	2	A0	+51 2036	+50 1124	29692	142264							1146
1147	15 50 57.974	4	82.29	+42 35 46.01	4	82.29	4.61	3	G0	+42 2648	+42 1368	45772	142373	21340						1147
1148	15 51 57.078	3	82.28	+ 5 26 24.11	3	82.28	9.2	3	G5	+ 5 2873		121248	142443	21363						1148
1149	15 52 24.556	2	82.36	+ 8 43 49.71	2	82.36	8.17	2	K5	+ 9 3118	+ 8 1894	121257	142536	21370						1149
1150	15 52 34.524	3	82.28	+ 5 12 55.62	2	82.27	8.60	3	F0	+ 5 3113	+ 5 2076	121258	142575	21372						1150
1151	15 53 6.386	2	82.36	+10 14 59.51	2	82.36	8.59	2	F0	+10 2925	+10 1862	101817	142658	21397					9840A	1151
1152	15 53 48.757	2	82.36	+10 26 30.57	2	82.36	7.41	2	K0	+10 2927	+10 1864	101823	142798	21399						1152
1153	15 54 9.130	2	82.36	+15 48 43.23	2	82.36	3.84	2	F5	+16 2849		101826	142860	21408	591	603.00				1153
1154	15 55 30.716	2	82.36	+27 1 15.08	2	82.36	4.17	2	K0	+27 2558	+27 1477	84098	143107	21440	593				9859ABC	1154
1155	15 56 53.412	2	82.36	+59 24 42.97	2	82.36	10.23	2	M0						605.00					1155
1156	15 58 34.442	2	82.36	+71 2 2.11	2	82.36	7.23	2	G5	+71 762	+71 467	8382	144061	21515					9878AB	1156
1157	15 59 12.553	2	82.36	+50 57 32.10	2	82.36	8.41	2	F5	+51 2050	+50 1137	29749	143873							1157
1158	16 0 16.265	2	82.36	+55 39 34.11	2	82.36	8.07	2	K5	+55 1801	+55 1019	29760	144109							1158
1159	16 0 41.934	10	82.05	+89 26 21.46	9	82.01	10.02	8	F0	+89 33	+89 42	2646								1159
1160	16 0 42.957	2	82.36	+14 7 43.03	2	82.36	7.88	2	F2	+14 2984	+14 1608	101894	143993	21567					9904AB	1160
1161	16 0 55.508	2	82.36	+58 42 4.48	2	82.36	4.01	2	F8	+58 1608	+58 1008	29765	144284	21572	598	609.10				1161
1162	16 1 17.731	2	82.36	+11 34 12.73	2	82.36	7.13	2	K2	+11 2903	+11 1730	101898	144064	21583					9908A	1162
1163	16 1 42.867	5	81.96	+88 3 35.67	5	81.96	10.28	3	F8	+88 97	+88 84									1163
1164	16 1 55.569	2	82.36	+ 2 29 30.95	2	82.36	4.79	2	F8	+ 2 1160	+ 0 1919	121330	144172	21597						1164
1165	16 2 31.489	2	82.36	-19 40 12.28	2	82.36	2.41	2	B1	-19 4307		159682	144217	21609	597*				9913AB	1165
1166	16 3 56.184	12	82.12	+89 38 11.76	10	82.11	10.08	9	F8	+89 36	+89 43	2653								116

TABLE I (continued).

NO.	R.A. 1950.0	N EPOCH	DEC. 1950.0	N EPOCH	MAG	N	SP	DM	NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO	
1211	17 6 49.722	4 82.03	+89 19 56.82	4 82.03	9.76	2	G5	+89 34	+89 47	2806							1211	
1212	17 7 44.195	2 82.36	+88 56 25.35	2 82.36	9.78	2	K0	+88 107	+88 90	2809							1212	
1213	17 20 22.950	5 82.00	+88 13 22.88	5 82.00	8.14	4	F5	+88 104	+88 92	2849	163988						1213	
1214	17 47 13.979	3 82.03	+88 0 7.31	3 82.03	8.56	3	K3	+87 173	+88 95	2935							1214	
1215	17 48 18.803	3 82.05	+86 36 36.37	3 82.05	4.34	3	A0	+86 269	+88 240	2937	166205	24236	913				1215	
1216	18 3 59.359	4 82.03	+88 40 13.07	3 82.05	8.97	4	F5	+88 110	+88 96	2981	175078						1216	
1217	18 21 18.035	4 82.03	+89 3 3.65	3 82.05	6.42	4	M8	+88 112	+89 48	3020	183030	25111	914				1217	
1218	18 26 15.641	2 82.06	+88 11 1.31	2 82.06	9.56	2	G8	+88 109	+88 97	3034							1218	
1219	18 30 55.111	3 81.60	+45 44 9.72	3 81.60	6.95	3	K5	+45 2736	+45 1487	47577	171393	25339	700				1219	
1220	18 32 10.367	2 81.60	+77 30 34.37	2 81.60	5.88	2	K0	+77 699	+77 522	9151	172340	25372					1220	
1221	18 33 6.698	2 81.63	+60 17 4.53	2 81.63	9.30	0	F0	+60 1835	+60 1129	17926						11475AB	1221	
1222	18 34 4.628	4 81.63	+9 4 49.87	4 81.63	5.39	2	F2	+9 3783	+9 2269	123690	171802	25422	1484				1222	
1223	18 35 15.193	7 81.63	+38 44 19.04	7 81.63	6.02	4	A0	+38 3238	+38 1711	67174	172167	25466			721.00	11510A	1223	
1224	18 35 17.381	3 81.64	+6 50 51.89	3 81.64	7.88	2	G5	+6 4817		142451	171999	25469					1224	
1225	18 36 18.340	6 81.63	+15 2 18.07	6 81.63	6.73	3	A0	+14 3603	+15 1906	103942	172228	25497	3483				1225	
1226	18 37 26.287	4 81.65	+7 18 43.58	4 81.65	6.25	2	K0	+7 3798	+7 2471	123782	172424	25527				11555A	1226	
1227	18 38 33.526	5 81.62	+30 14 29.62	5 81.62	8.42	3	A0	+30 3264	+30 1738	67236	172716	25555					1227	
1228	18 39 19.946	6 81.63	+12 11 16.07	6 81.63	6.83	3	G5	+12 3619	+12 1978	103989	172744	25571					1228	
1229	18 39 24.494	5 82.11	+88 13 32.16	5 82.11	9.21	5	F5	+88 111	+88 98	3084		25576				11578AB	1229	
1230	18 40 28.313	7 81.63	+14 47 31.28	7 81.63	7.12	4	A0	+14 3615	+14 1911	104011	173026	25602					1230	
1231	18 40 32.659	6 81.63	+51 4 34.66	6 81.63	8.17	3	A2	+50 2651	+51 1252	31111	173287						11599AB	1231
1232	18 40 47.863	6 81.63	+8 19 34.29	6 81.63	4.94	3	G5	+8 4606		142546	173009	25610	702				1232	
1233	18 43 30.473	5 81.64	+20 29 39.12	5 81.64	4.19	2	F5	+20 3926	+20 1960	86406	173667	25698	703	725.20		11658A	1233	
1234	18 43 51.387	5 81.64	+60 17 45.20	5 81.64	7.12	6	K5	+60 1846	+60 1137	17999	173976	25710					1234	
1235	18 45 9.499	6 81.63	+59 30 15.11	6 81.63	7.53	3	K5	+59 1919	+59 1189	31160	174228	25746					1235	
1236	18 46 49.637	2 81.66	+13 9 15.61	3 81.64	9.30	0	A2	+13 3765	+13 1839	104133	229601	25790				11716B	1236	
1237	18 47 27.296	6 81.63	+15 52 33.73	6 81.63	6.65	3	B3	+15 3583	+15 1931	104154	174391	25814					1237	
1238	18 47 59.553	6 81.63	+75 22 36.04	6 81.63	5.27	4	A0	+75 682	+75 780	9250	175286	25839	1494				1238	
1239	18 48 13.936	6 81.63	+33 18 12.32	6 81.63	3.67	3	B8	+33 3223	+33 1690	67451	174638	25847	705				11745A	1239
1240	18 48 26.972	4 81.63	+6 20 20.98	4 81.63	8.25	2	B8	+6 4929		142695	174512	25853					11752A	1240
1241	18 49 37.055	2 81.66	+16 31 28.40	2 81.66	10.10	0	M2				229793				731.00		1241	
1242	18 50 53.722	4 81.63	+3 19 23.86	4 81.63	8.49	3	F5	+3 3825	+3 2341	124010	175018	25911				11790A	1242	
1243	18 50 58.987	5 81.64	+60 22 20.78	5 81.64	8.28	3	G0	+60 1855	+60 1146	18049	175441						1243	
1244	18 52 38.126	4 81.64	+16 26 26.87	4 81.64	5.78	2	F5	+16 5078		161984	175317	25955	1495				1244	
1245	18 54 52.569	3 82.10	+89 0 1.82	4 82.12	10.04	3	F5	+88 116	+89 49	3130							1245	
1246	18 54 54.101	5 81.64	+13 18 18.28	5 81.64	7.16	3	A3	+13 3826	+13 1861	104280	175922	26022					1246	
1247	18 55 33.256	5 81.64	+5 50 45.74	5 81.64	8.90	3	K5	+5 3993	+5 2624	124104	176029	26042			740.00		1247	
1248	18 57 44.637	3 81.60	+50 44 20.07	3 81.60	6.87	3	G5	+50 2705	+50 1334	31304	176707	26103					1248	
1249	18 57 54.981	4 81.64	+60 35 49.72	4 81.64	6.97	7	A0	+60 1864	+60 1150	18091	176893	26108					1249	
1250	18 58 27.342	7 82.11	+88 46 55.68	7 82.11	8.19	7	K0	+88 114	+88 99	3143	187138						1250	
1251	18 58 40.723	6 81.63	+40 36 45.61	6 81.63	6.60	3	M4	+40 3555	+40 1759	47993	176844	26130					1251	
1252	18 59 44.157	7 81.63	+9 41 9.70	7 81.63	8.77	4	F8	+9 3783	+9 2269	124010	176915	26171					1252	
1253	19 0 46.724	3 81.60	+31 19 31.96	3 81.60	7.73	2	A3	+31 3441		67730	177279	26200				11977A	1253	
1254	19 2 50.739	4 81.64	+54 18 48.22	4 81.64	7.72	3	K5	+54 2080	+54 1196	31361	177981	26261					1254	
1255	19 3 7.737	5 81.62	+22 59 59.11	5 81.62	8.48	3	K0	+22 3579	+22 1900	86786	177745				743.00		1255	
1256	19 3 18.191	5 81.64	+25 50 37.90	5 81.64	7.35	2	K0	+25 3719	+25 2041	86791	177830				743.20		1256	
1257	19 3 35.647	7 81.63	+4 57 35.47	6 81.63	3.44	4	B9	+4 5876		143021	177756	26285	717				1257	
1258	19 4 38.761	8 81.62	+28 32 56.25	8 81.62	5.64	4	A5	+28 3193	+28 1914	86819	178233	26317	1498				1258	
1259	19 5 30.954	7 81.63	+36 1 14.30	7 81.63	5.18	3	B5	+35 3485	+36 1743	67834	178475	26338	719				1259	
1260	19 6 49.639	7 81.63	+37 49 45.57	7 81.63	8.26	3	K0	+37 3350	+37 1741	67865	178848	26387				12090A	1260	
1261	19 7 3.416	4 81.62	+33 50 50.13	4 81.62	9.26	2	K8	+33 3339	+33 1739	67872					747.20		1261	
1262	19 7 20.998	4 81.62	+7 21 34.76	3 81.62	7.21	2	K0	+7 4872		143088	178746	26402					1262	
1263	19 8 40.847	5 81.64	+44 28 37.13	5 81.64	7.27	2	A5	+44 3073	+44 1573	48149	179367	26424					1263	
1264	19 9 32.038	8 82.00	+88 56 25.24	9 82.02	8.45	9	G5	+88 117	+88 100	3170	190250	26441					1264	
1265	19 9 35.193	3 81.60	+50 38 18.84	3 81.60	8.55	2	A2	+50 2738	+50 1349	31444	179617						1265	
1266	19 9 57.975	5 81.63	+8 1 28.93	4 81.63	5.29	3	B3	+8 4887		143134	179406	26461	1500				1266	
1267	19 11 59.537	4 81.92	+88 4 40.86	4 81.92	10.07	4	F2	+87 182	+88 101	3179							1267	
1268	19 12 22.943	7 81.63	+50 49 17.65	7 81.63	8.35	3	A	+50 2744	+50 1351	31487	180347						1268	
1269	19 12 35.378	4 82.15	+67 34 27.81	4 82.15	3.16	4	K0	+18222	+67 836	18222	180419						1269	
1270	19 12 38.537	5 81.64	+9 43 10.22	5 81.64	7.91	2	B3	+9 4037	+9 2418	124437	180126						1270	
1271	19 12 48.296	2 81.67	+60 25 12.42	2 81.67	9.60	0	A0	+60 1911	+60 1177	18227							1271	
1272	19 13 54.532	3 82.18	+88 41 3.62	3 82.18	8.94	5	A2	+88 115	+88 102	3181	189275						1272	
1273	19 14 5.905	7 81.63	+49 58 35.28	7 81.63	6.35	3	G5	+49 2968	+49 1516	88247	180756	26565				12240AB	1273	
1274	19 14 27.851	7 81.63	+5 5 7.52	7 81.63	8.90	3	A6	+4 4048	+5 2703	180617					732. A		1274	
1275	19 14 42.121	6 81.62	+0 58 7.76	6 81.62	8.15	3	B3	+0 4159	+0 2325	124467	180642						1275	
1276	19 15 20.606	8 81.94	+88 13 53.18	8 81.94	9.58	7	K8	+87 183	+88 103	3184							1276	
1277	19 15 28.103	4 81.63	+11 30 14.41	4 81.63	5.26	3	A5	+11 3787		104619	180868	26607			725		1277	
1278	19 16 29.572	7 81.63	+29 51 52.38	7 81.63	7.90	3	A0	+29 3550	+29 2019	87054	181226	26635					1278	
1279	19 16 30.439	8 82.08	+73 15 51.32	8 82.08	4.52	6	K0	+73 857	+73 520	9366	181984	26638	729				1279	
1280	19 17 9.395	6 81.63	+23 12 39.71	6 81.63	7.52	2	B3	+23 3625	+23 1887	87063	181360						1280	
1281	19 17 21.646	2 81.59	+6 43 18.09	2 81.59	6.90	0	K0	+6 5103		143275	181255	26655				12314A	1281	
1282	19 17 52.971	4 81.64	+5 30 37.08	4 81.64	5.04	2	G5	+5 4936										

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGE3	NO	SAO	HD	GC	FK4	GL	ADS	NO
1321	19 47 24.255	7	81.65	+61 17 6.62	7	81.65	7.05	3	K5	+61 1912	+61 1142	18538	187793	27446						1321
1322	19 47 28.289	6	81.65	+72 20 20.24	6	81.65	7.47	2	K0	+72 911	+72 539	9535	188013	27450						1322
1323	19 47 51.868	8	81.64	+7 46 27.59	8	81.64	6.21	3	B3	+7 4252	+7 2766	125116	187567	27458						1323
1324	19 49 27.804	8	81.64	+27 19 32.42	8	81.64	7.76	2	K0	+27 3536	+27 2073	87829	187921							1324
1325	19 49 49.180	5	81.67	+60 16 18.39	5	81.67	8.92	2	A2	+60 2028	+60 1234	18558	186207							1325
1326	19 52 51.477	10	81.63	+6 16 34.63	9	81.63	3.68	4	K0	+6 4337		125235	188512	27587	749	771.A	13110A			1326
1327	19 54 1.711	11	81.65	+40 15 29.09	11	81.65	7.26	4	B3	+40 3940	+40 1929	48983	188891							1327
1328	19 54 25.639	11	81.63	+34 56 57.59	11	81.63	3.84	4	K0	+34 3798	+34 1947	69116	188947	27622	1521		773.20	13149A		1328
1329	19 55 12.869	11	81.63	+29 41 15.47	11	81.63	7.96	4	G5	+29 3820	+29 2191	87976	189087							1329
1330	19 56 32.766	11	81.63	+19 21 19.25	11	81.63	3.48	4	K5	+19 4229		105500	189319	27672	752					1330
1331	19 56 50.166	11	81.63	+1 14 24.49	11	81.63	6.19	4	G5	+0 4375	+1 2369	125310	189322	27681	3596					1331
1332	19 56 54.887	5	81.67	+60 26 26.18	5	81.67	8.34	2	A0	+60 2059	+60 1245	18618	189653							1332
1333	19 57 47.028	11	81.63	+7 8 59.08	11	81.63	7.66	4	B9	+6 4395	+7 2812	125334	189510	27710						1333
1334	19 57 37.454	4	82.17	+88 40 8.26	4	82.17	10.30	3	F2	+88 119	+88 106	3308								1334
1335	19 58 29.076	10	81.63	+7 16 21.57	10	81.63	8.18	3	B9	+7 4335	+7 2819	125354	189676	27738						1335
1336	19 58 56.404	9	81.64	+6 48 28.34	9	81.64	8.19	4	F5	+6 4481	+6 2638	123364	189757	27751						1336
1337	20 0 1.914	4	81.60	+41 40 34.98	4	81.60	7.35	2	A0	+41 3975	+41 1818	49181	190112	27773						1337
1338	20 1 41.774	10	81.63	+7 8 8.26	10	81.63	5.34	4	K0	+6 4416	+7 2831	125403	190327	27824	1524					1338
1339	20 2 38.417	10	81.63	+32 4 32.55	10	81.63	5.60	4	B0	+31 3925	+32 1887	69362	190603	27858				13335A		1339
1340	20 3 8.517	11	81.63	+15 21 23.86	11	81.63	6.46	4	HA	+15 4040	+15 2140	105663	190658	27872				13344AB		1340
1341	20 3 54.371	3	82.18	+88 24 5.21	3	82.18	9.35	3	G0	+88 118	+88 107	3324								1341
1342	20 4 19.455	11	81.63	+50 53 9.64	11	81.63	8.77	4	A0	+50 2980	+50 1463	32279	191060							1342
1343	20 4 12.186	11	81.63	+35 35 44.22	11	81.63	8.22	4	B0	+35 3964	+35 1956	694228	227696							1343
1344	20 6 29.797	11	81.63	+37 59 1.82	11	81.63	8.04	4	B0	+37 3783	+37 1913	69486	191396							1344
1345	20 6 53.027	9	81.64	+84 31 34.97	9	81.64	6.81	4	A2	+84 451	+84 425	3332	193214	27964	1647					1345
1346	20 7 1.099	10	81.63	+35 21 55.81	10	81.63	8.32	4	B2	+35 3987	+35 1965	69501	191495							1346
1347	20 7 34.110	10	81.63	+36 41 29.65	10	81.63	4.86	4	B2	+36 3907	+36 1946	69518	191610	27980	1525					1347
1348	20 8 43.566	11	81.63	+26 19 31.31	11	81.63	3.22	4	A0	+26 3911	+26 1910	44150	191692	28010	756					1348
1349	20 10 12.512	11	81.63	+26 19 31.31	11	81.63	5.57	4	K2	+26 3825	+26 2242	88330	192004	28037						1349
1350	20 10 17.090	11	81.63	+26 12 15.11	11	81.63	7.38	4	OB	+37 3821	+38 1977	69592	192163	28056						1350
1351	20 10 36.689	12	81.90	+77 33 43.14	13	81.92	4.38	8	B9	+77 764	+77 570	9665	192907	28066	759*			13524A		1351
1352	20 12 19.753	8	81.63	+40 29 15.73	8	81.64	5.75	3	K2	+40 2916	+40 1271	18766	192781	28120						1352
1353	20 12 39.525	10	81.63	+40 10 33.77	10	81.63	7.51	3	B3	+39 4076	+40 1990	49346	192640	28125						1353
1354	20 13 8.675	10	81.63	+25 26 17.30	10	81.63	4.74	4	B3	+25 4165	+25 2303	88410	192685	28140				13589AB		1354
1355	20 14 10.450	7	81.63	+42 49 29.36	7	81.63	10.00	3	M0									786.10		1355
1356	20 14 38.650	4	81.60	+24 30 56.97	4	81.60	5.45	0	K0	+24 4075	+24 2166	88451	192944	28183	760					1356
1357	20 16 23.870	5	81.67	+21 21 48.73	5	81.67	7.45	2	A3	+21 4147	+21 2148	88495	193248	28229						1357
1358	20 17 10.334	4	82.06	+88 43 21.40	4	82.06	9.67	2	K5	+88 122	+88 108	3363								1358
1359	20 20 14.816	4	81.66	+60 33 4.45	4	81.66	10.03	2	A0	+60 2119	+60 1288	18823								1359
1360	20 20 41.954	5	81.67	+5 10 53.71	5	81.67	5.33	2	K0	+5 4434	+5 2950	125747	194013	28351	1531					1360
1361	20 20 51.376	5	81.67	+60 21 9.96	5	81.67	9.27	2	A0	+60 2120	+60 1289	18830	194316							1361
1362	20 22 1.240	5	81.67	+50 37 53.74	5	81.67	8.51	2	A0	+50 3073	+50 1497	32521	194445							1362
1363	20 23 13.438	4	81.67	+61 48 31.92	4	81.67	8.76	2	K0	+61 2009	+61 1189	18846								1363
1364	20 23 56.699	3	81.67	+62 13 50.80	3	81.67	9.47	2	F0	+61 2010	+62 1143	18852								1364
1365	20 24 45.192	4	81.66	+61 59 14.30	4	81.66	9.08	2	F8	+61 2011	+61 1192	18860	195032							1365
1366	20 25 41.559	4	81.66	+8 16 15.26	4	81.66	6.29	2	K0	+7 4477	+8 2789	125841	194937	28466	3638					1366
1367	20 26 1.332	4	81.66	+61 21 39.01	4	81.66	8.27	2	K0	+61 2013	+61 1194	18871	195253							1367
1368	20 26 14.411	3	81.66	+1 54 5.21	3	81.66	6.80	0	G0	+2 5286	+1 2496	144480	195805	28495						1368
1369	20 27 25.856	3	81.66	+36 17 12.74	3	81.66	5.88	0	A0	+35 4141	+36 2027	78996	195324	28515	1535					1369
1370	20 28 18.510	2	81.65	+60 15 12.45	2	81.65	7.60	0	A0	+59 2246	+60 1299	18891	195607							1370
1371	20 29 31.296	7	81.95	+88 17 37.58	8	81.98	9.82	7	G5	+87 191	+88 110	3403								1371
1372	20 29 40.260	2	81.65	+10 1 27.36	2	81.65	5.63	0	G5	+10 5423		163665	195564	28563	1536	792.1A	13960A			1372
1373	20 30 37.179	5	81.98	+68 55 19.94	6	82.01	10.45	4	G5	+68 128	+68 111	49361								1373
1374	20 31 27.387	3	81.70	+41 8 32.39	3	81.70	8.50	0	B0	+40 4227	+41 1925	47581								1374
1375	20 31 30.548	4	81.70	+4 43 35.64	4	81.70	6.41	0	K0	+4 4486	+4 2770	125961	195909	28614	1537					1375
1376	20 32 11.369	9	82.00	+74 47 1.63	9	82.00	5.24	7	A2	+74 872	+74 611	9802	196502	28639	770					1376
1377	20 32 16.164	4	81.66	+40 29 15.73	4	81.66	9.40	4	F8	+40 3916	+40 1929	48983	188891							1377
1378	20 33 22.969	3	81.71	+51 40 51.56	3	81.71	6.20	0	F0	+51 2895	+51 1479	32709	196379	28667	3646					1378
1379	20 33 57.741	3	81.71	+16 38 25.25	3	81.71	6.60	0	K2	+16 4315	+16 2232	106287	196345	28677						1379
1380	20 34 2.656	3	81.71	+50 15 2.90	3	81.71	7.80	0	F5	+49 3321	+50 1523	32716	196482	28680						1380
1381	20 35 12.892	2	81.73	+50 42 53.13	2	81.73	7.80	0	A0	+50 3145		32731	196670							1381
1382	20 35 40.144	3	81.71	+50 39 6.76	3	81.71	9.80	0	A3	+50 3148	+50 1529	32735	235296							1382
1383	20 35 50.057	2	81.67	+88 30 40.25	2	81.67	10.20	0	F2	+88 123	+88 112	3424								1383
1384	20 36 17.399	4	81.70	+21 1 29.02	4	81.70	4.82	0	A0	+20 4658	+21 2234	88944	196724	28740	1539					1384
1385	20 36 42.690	4	81.70	+9 54 32.67	4	81.70	5.05	0	G5	+9 4600	+9 2822	126059	196755	28756	772			14101A		1385
1386	20 39 14.292	4	81.70	+60 19 32.56	3	81.71	5.90	0	F5	+59 2272	+60 1313	18979	197373	28832	3654					1386
1387	20 39 43.544	2	81.74</																	

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO	
1431	21 17 23.863	6	81.69	+62 22 25.49	6	81.69	2.45	3	A5	+61 2111	+62 1226	19302	203280	29848	803	826.00		14858A	1431	
1432	21 18 22.151	5	81.69	+52 45 49.41	5	81.69	7.70	0	G5	+52 2916	+52 1485							14878A	1432	
1433	21 19 7.880	6	81.69	+60 28 27.39	6	81.69	5.74	4	F5	+56 2224	+60 1368	19329	203551	29591				14878A	1433	
1434	21 20 33.008	2	81.73	+30 5 43.18	2	81.73	6.20	0	K0	+29 4397	+30 2331	71259	203630	29933					1434	
1435	21 22 23.016	6	81.69	+21 2 57.69	6	81.69	9.16	3	F8	+20 4906	+21 2366	89686		29983				14951AB	1435	
1436	21 22 24.224	5	81.69	+57 43 29.13	5	81.69	7.78	3	K0	+57 2318	+57 1430	33389	204067	29985					1436	
1437	21 23 44.277	6	81.69	+36 27 2.04	6	81.69	5.90	3	B0	+36 4557	+36 2193	71329	204172	30016				14969A	1437	
1438	21 25 56.925	6	81.69	+7 58 37.26	6	81.69	6.45	3	MA	+7 4696	+7 3145	126818	204445	30060	1564				1438	
1439	21 27 40.905	6	81.69	+23 25 7.98	6	81.69	4.60	3	K5	+23 4325	+23 2197	89752	204724	30109	1565			15027A	1439	
1440	21 28 1.370	6	81.69	+70 20 28.10	6	81.69	3.16	3	B1	+69 1173		10057	205021	30118	809*			15032A	1440	
1441	21 29 32.583	6	81.69	+44 39 16.43	6	81.69	6.78	3	A5	+44 3843	+44 1939	50949	204918	30126					1441	
1442	21 29 36.822	6	81.69	+60 14 18.32	6	81.69	5.50	8	B0	+59 2395	+60 1392	19466	205139	30150					1442	
1443	21 30 7.907	6	81.69	+57 16 52.24	6	81.69	7.44	3	B0	+56 2589	+57 1447	33506	205196	30162					1443	
1444	21 31 3.110	5	81.67	+21 22 4.24	5	81.67	7.29	3	K5	+20 4957	+21 2386	89776	205224	30182					1444	
1445	21 32 3.019	2	81.67	-9 18 37.32	2	81.67	7.77	2	K0	- 9 5770		145502	205321	30205					1445	
1446	21 32 5.764	4	81.67	+55 22 9.69	4	81.67	4.01	3	K0	+44 3865	+45 1885	51035	205435	30207	1568				1446	
1447	21 32 58.724	11	81.91	+88 11 44.28	10	81.87	9.60	8	A5	+87 199	+88 119	3587							1447	
1448	21 33 41.925	2	81.73	+14 51 28.86	2	81.73	6.60	0	G5	+14 4637	+14 2422	107262	205603	30241					1448	
1449	21 35 25.384	5	81.70	+57 15 34.53	5	81.70	5.49	4	F0	+15 4829	+16 2215	107268	205852	30274	1570				1449	
1450	21 36 8.909	4	81.70	+14 20 6.26	4	81.70	9.31	2	K5	+13 4752	+14 2429								1450	
1451	21 36 9.195	5	82.17	+88 36 51.24	4	82.15	9.13	5	F	+88 130	+88 120	3594	209269						1451	
1452	21 37 19.798	3	81.67	-16 53 22.03	4	81.67	3.68	2	F0	-17 6340		164560	206088	30320	812			15184AB	1452	
1453	21 37 24.384	5	81.70	+57 18 44.68	5	81.70	5.64	2	OE	+56 2617	+57 1444	33626	206267	30322	813*				1453	
1454	21 38 18.379	4	81.70	+13 35 9.95	4	81.70	9.88	2	K2	+13 4761	+13 2318								1454	
1455	21 38 39.475	6	82.16	+89 12 1.93	6	82.16	8.85	6	A5	+88 131	+89 51	3602	211455						1455	
1456	21 39 18.018	6	81.69	+47 19 1.63	6	81.69	7.32	3	K2	+46 3407	+47 1785	51182	206523	30369					1456	
1457	21 39 31.379	4	81.67	+14 1 43.93	4	81.67	9.52	3	F2	+13 4767	+14 2436	107351							1457	
1458	21 41 11.981	6	81.69	+37 47 16.98	6	81.69	7.09	3	C6	+37 4407	+37 2138	71642	206750	30416					1458	
1459	21 41 12.497	6	81.69	+71 4 54.90	6	81.69	4.57	3	K0	+70 1193	+71 640	18126	206952	30415	817				1459	
1460	21 41 43.808	4	81.70	+9 38 41.73	4	81.70	2.45	2	K0	+9 4891		127029	206778	30431	815			15268A	1460	
1461	21 42 29.695	3	81.67	+3 0 1.44	2	81.67	9.17	2	G5	+ 2 4405	+ 3 2834	127039	206891	30453					1461	
1462	21 44 1.092	4	81.70	+69 45 2.13	4	81.70	8.40	2	F2	+69 1193	+69 926	19625	207327	30485					1462	
1463	21 44 11.946	3	81.71	+50 40 44.10	3	81.71	9.10	0	G0	+50 3429	+50 1694	33730	235608						1463	
1464	21 45 56.638	4	81.70	+60 27 36.87	4	81.70	5.67	7	MA	+60 2294	+60 1413	19642	207528	30526					1464	
1465	21 47 37.834	3	81.67	+29 56 25.50	3	81.67	5.04	0	A0	+29 4525	+29 2664	90040	207650	30565	1575				1465	
1466	21 48 42.788	4	81.70	+48 45 51.39	4	81.70	7.70	0	F0	+50 3451	+50 1702	33800	207855						1466	
1467	21 49 5.701	3	81.67	+0 36 53.17	3	81.67	8.60	0	K1	+ 0 4788	+ 0 2750	127116	207795			838.20			1467	
1468	21 49 51.823	4	81.70	+42 6 36.70	4	81.70	7.90	0	G5	+41 4291	+42 2093	51378	207966			838.3A	15400A		1468	
1469	21 53 12.094	4	81.70	+56 22 26.39	4	81.70	6.00	0	B9	+55 2644	+56 1513	33864	208501	30691	3749				1469	
1470	21 53 29.161	3	81.72	+15 22 4.80	3	81.72	9.20	0	G5	+14 4697	+15 2473	107515						15455AB	1470	
1471	21 56 2.230	3	81.72	+50 47 55.59	3	81.72	8.80	0	A0	+50 3504	+50 1724	33913	208893						1471	
1472	21 56 18.252	2	81.68	-4 36 41.42	2	81.68	6.22	0	K0	- 5 5674		145784	208801	30755	1580	842.10			1472	
1473	21 57 23.926	3	81.72	+42 22 28.38	3	81.72	8.70	0	K0	+41 4338	+42 2115	51520							1473	
1474	21 57 36.216	11	82.07	+88 10 54.61	10	82.05	10.12	8	G8	+87 202	+88 121	3662							1474	
1475	21 58 13.402	3	81.72	+60 18 20.56	3	81.72	8.29	8	A0	+59 2445	+60 1433	19781	209216					15538AB	1475	
1476	21 58 58.290	3	81.72	+50 59 42.58	3	81.72	8.40	0	A0	+50 3522	+50 1733	33969	209285						1476	
1477	21 59 20.518	3	81.72	+41 47 2.10	3	81.72	9.00	0	K0	+41 4349	+41 2130	51562							1477	
1478	21 59 37.789	2	81.68	+1 9 35.77	2	81.68	9.40	0	K8	+ 1 4811	+1 2476		209298			846.00			1478	
1479	22 0 40.766	4	81.70	+42 34 21.05	4	81.70	7.00	0	B9	+42 4280	+42 2128	51589	209469	30843					1479	
1480	22 1 57.365	4	81.70	+42 16 55.78	4	81.70	9.80	0	B5	+41 4366	+42 2130	51611							1480	
1481	22 2 27.886	4	81.70	+31 48 32.60	4	81.70	8.30	0	G5	+31 4617	+31 2265	72000	209707						1481	
1482	22 3 29.317	7	81.70	+43 17 10.70	7	81.70	9.47	0	K5	+43 170		19847	209960	30984	830				1482	
1483	22 4 17.308	4	81.70	+29 33 13.66	4	81.70	9.90	0	G5	+29 4584	+29 2718	90230							1483	
1484	22 4 41.527	4	81.70	+25 6 1.73	4	81.70	3.76	0	F5	+24 4533	+25 2653	90238	210027	30932	831				1484	
1485	22 7 336	4	81.70	+32 55 36.81	4	81.70	5.58	0	K0	+32 4349	+32 2183	72064	210354	30995	833			15672A	1485	
1486	22 7 41.054	4	81.70	+42 56 25.53	4	81.70	7.60	0	K5	+42 4309	+42 2140	51711	210496	31014					1486	
1487	22 8 51.269	4	81.70	+72 5 41.06	4	81.70	4.79	0	G5	+71 1111	+72 599	10265	210807	31037	837				1487	
1488	22 9 7.000	4	81.70	+57 57 15.87	4	81.70	3.35	0	K0	+57 2475	+57 1533	34137	210745	31044	836				1488	
1489	22 9 44.533	4	81.70	+52 10 58.28	4	81.70	7.90	0	B2	+51 3281	+52 1591	34147	210809						1489	
1490	22 9 56.284	8	82.20	+88 44 43.02	7	82.19	10.26	6	G5	+88 132	+88 124	3701							1490	
1491	22 9 57.217	11	82.06	+88 59 8.97	10	82.03	9.67	9	A5	+88 133	+88 123	3700							1491	
1492	22 10 22.523	4	81.70	+60 30 41.50	4	81.70	5.47	8	K0	+60 2358	+60 1457	19932	210939	31077					1492	
1493	22 11 43.808	5	81.72	+39 27 59.22	5	81.72	4.58	2	K2	+38 4711	+39 2374	72155	211073	31104	1583			15758A	1493	
1494	22 12 13.678	5	81.72	+27 36 13.82	4	81.73	10.30	0	M0							851.50				1494
1495	22 14 12.038	4	81.70	-8 1 59.79	4	81.70	4.49	2	K0	- 8 5845		145991	211391	31152	840				1495	
1496	22 14 58.553	5	81.72	+4 53 37.80	5	81.72	7.49	2	MA	+ 4 4837	+ 4 3011	127434	211516	31176					1496	
1497	22 15 37.370	5	81.72	+13 41 59.08	5	81.72	6.91	2	K0	+13 4887	+13 2400	107807	211607	31195					1497	
1498	22 16 47.913	4	81.70	+8 45 26.58	4	81.70	8.90	0	G5	- 9 5958		146017	211748	31211						

TABLE I (continued).

NO	R.A. 1950.0	N	EPOCH	DEC. 1950.0	N	EPOCH	MAG	N	SP	DM	NO	AGK3 NO	SAO	HD	GC	FK4	GL	ADS	NO
1541	23 14 6.474	11	82.17	+88 22 5.75	10	82.16	10.89	8	F8	+87 215	+88 131	3877							1541
1542	23 21 50.939	2	81.88	+87 15 38.91	2	81.88	6.77	2	G0	+56 2999	+57 1662	35386	220562	32571					1542
1543	23 22 36.387	2	81.88	+62 0 29.04	2	81.88	5.01	2	K5	+61 2444	+62 1441	20614	220652	32582	882				1543
1544	23 23 24.674	2	81.88	+53 5 12.74	2	81.88	7.46	2	K5	+52 3442	+53 1649	35408	220747	32593					1544
1545	23 28 12.816	2	81.88	+38 23 10.49	2	81.88	6.05	2	K0	+37 4856	+38 2431	73308	221293	32692					1545
1546	23 28 50.266	2	81.88	+39 37 38.43	2	81.88	5.23	2	K0	+38 5023	+38 2432	73311	221345	32703					1546
1547	23 29 20.788	2	81.88	+19 39 41.11	2	81.88	9.96	2	M4	+19 5116						896.AB			1547
1548	23 29 37.133	10	82.13	+88 58 15.22	7	82.11	10.04	9	F5	+88 136	+88 132	3924							1548
1549	23 30 4.138	2	81.88	+31 10 15.08	2	81.88	7.94	2	F8	+30 4971	+31 2420	73328	221492	32741			16822AB		1549
1550	23 30 59.837	8	82.22	+88 54 32.05	7	82.21	9.73	8	G0	+88 137	+88 133								1550
1551	23 31 15.940	2	81.88	+60 11 32.53	2	81.88	7.33	2	K0	+59 2746	+60 1575	20701	221670	32764					1551
1552	23 32 10.313	2	81.88	+39 57 36.86	2	81.88	5.51	2	A0	+39 5114	+39 2510	73346	221756	32780	1616				1552
1553	23 32 26.279	2	81.88	+1 19 43.06	2	81.88	9.36	2	M1	+0 5017	+1 2831					900.00			1553
1554	23 34 36.739	2	81.88	+30 24 2.90	2	81.88	7.21	2	G0	+29 4971	+30 2649	73377	222833						1554
1555	23 35 7.012	2	81.88	+46 11 .50	2	81.88	4.02	2	K0	+45 4283	+46 2169	53204	222107	32832	890				1555
1556	23 35 59.283	2	81.88	+58 22 37.71	2	81.88	6.95	2	K0	+57 2770	+58 1573	35631	222218	32854					1556
1557	23 36 35.965	2	81.88	+51 59 7.84	2	81.88	6.70	0	MC	+51 3676	+51 1818	35640	222293	32862					1557
1558	23 36 57.822	5	82.22	+88 55 23.79	4	82.20	10.23	4	M2	+88 138	+88 134								1558
1559	23 37 15.891	2	81.88	+77 21 16.59	2	81.88	3.24	2	K0	+76 928	+77 685	10818	222404	32875	893	903.00			1559
1560	23 40 8.041	2	81.88	-14 49 19.33	2	81.88	4.49	2	A0	-15 6476		165842	222661	32931	894		16944A		1560
1561	23 43 13.629	10	82.21	+88 3 52.11	8	82.19	8.94	11	A0	+87 217	+88 135	3963	223237						1561
1562	23 43 41.946	2	81.88	+60 11 43.36	2	81.88	6.99	2	K0	+59 2749	+60 1586	20832	223070	32991			16982AB		1562
1563	23 45 30.379	2	81.88	+57 31 44.49	2	81.88	4.98	2	A0	+67 1562	+67 1086	20853	223274	33031	895				1563
1564	23 46 23.221	2	81.88	+61 56 11.90	2	81.88	5.39	2	A2	+61 2533	+61 1486	20869	223385	33051			17022AB		1564
1565	23 46 46.016	2	81.88	+22 34 36.15	2	81.88	7.00	2	A0	+22 4908	+22 2569	91514	223425	33056					1565
1566	23 47 28.466	5	82.25	+89 15 33.29	2	82.29	9.88	4	G0	+88 141	+89 55	3978							1566
1567	23 47 31.554	2	81.88	+2 35 53.46	2	81.88	8.21	2	G5	+2 4723	+2 2970	128407	223498	33070					1567
1568	23 47 55.562	2	81.88	+30 4 30.58	2	81.88	9.28	2	M0	+29 5007	+30 2670	73544				908.10			1568
1569	23 50 35.292	2	81.88	+60 25 35.26	2	81.88	6.93	2	K5	+59 2784	+60 1596	20915	223866	33138			17080A		1569
1570	23 52 50.074	2	81.88	+25 40 36.68	2	81.88	6.78	2	K5	+25 5042	+25 2851	91582	224128	33178					1570
1571	23 53 10.294	6	82.16	+89 10 .25	6	82.16	9.25	6	G5	+88 142	+89 56	3993							1571
1572	23 54 4.842	9	82.12	+82 54 46.43	9	82.12	6.56	9	A0	+82 743	+82 726	3994	224309	33205	1650				1572
1573	23 56 6.620	2	81.88	-3 50 2.38	2	81.88	4.85	2	K0	-4 5996		147008	224533	33248	900*		17137AB		1573
1574	23 56 48.539	2	81.88	+50 13 47.94	2	81.88	8.10	0	K2	+49 4298	+50 2010	35958	224625	33264					1574
1575	23 58 14.468	2	81.88	+16 42 41.21	2	81.88	8.87	2	K0	+16 5027	+16 2644	108960	224808	33299					1575
1576	23 59 4.657	2	81.88	+60 10 18.13	2	81.88	8.74	2	B1	+59 2813	+60 1623	21010	224905						1576
1577	23 59 43.451	2	81.88	+60 25 29.74	2	81.88	6.86	8	MA	+59 2816	+60 1625	21020	224980	33336					1577

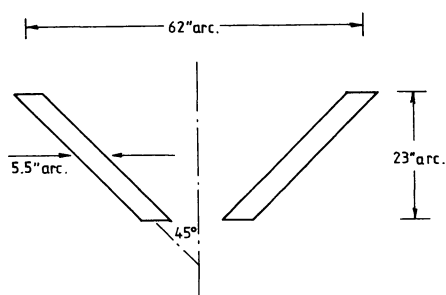
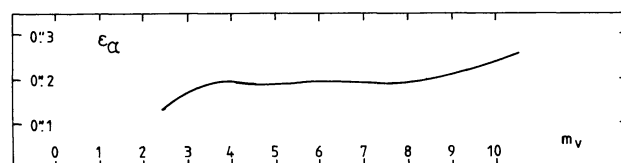
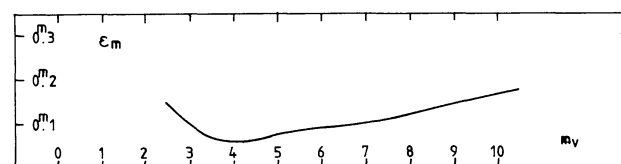


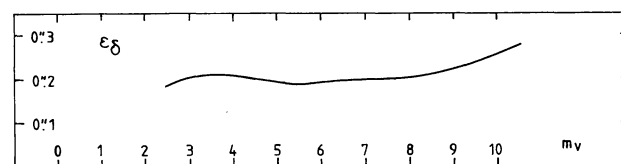
FIGURE 1. — Micrometer slits for stellar observations.



a)

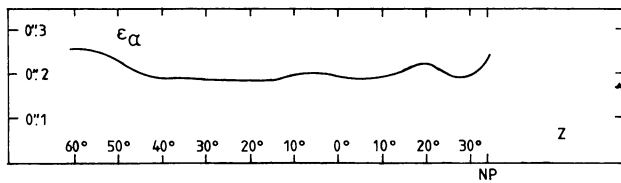


b)

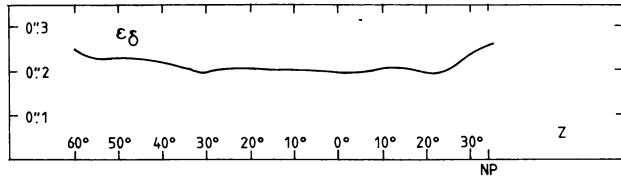


c)

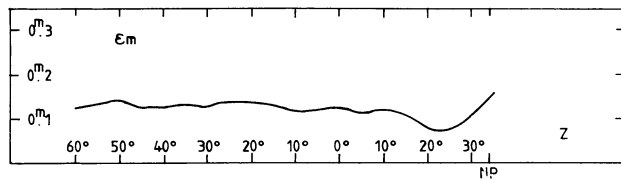
FIGURE 2 (a to c). — Internal mean errors in right ascension, magnitude and declination as a function of observed magnitude.



a)



b)



c)

FIGURE 3 (a to c). — Internal mean errors in right ascension, declination and magnitude as a function of zenith distance.

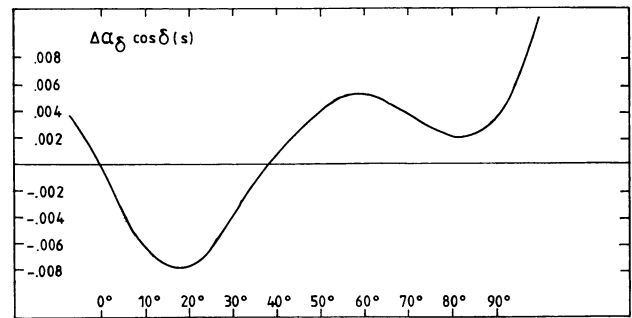


FIGURE 5. — Systematic differences Br-FK4 as a function of declination.

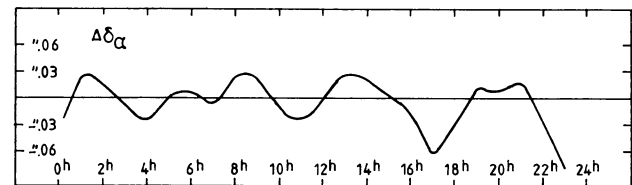


FIGURE 6. — Systematic differences Br-FK4 as a function of right ascension.

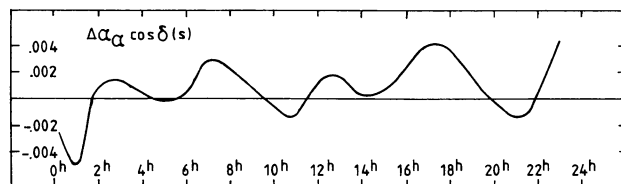


FIGURE 4. — Systematic differences Br-FK4 as a function of right ascension.

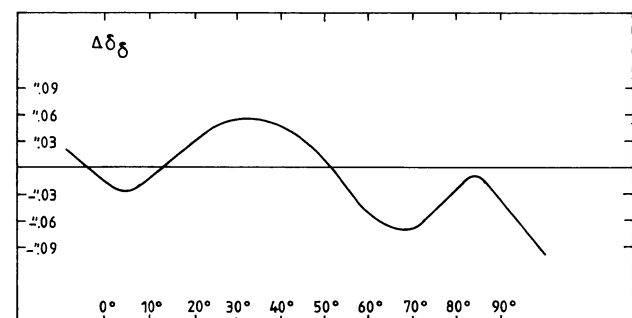


FIGURE 7. — Systematic differences Br-FK4 as a function of declination.