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# RELATION BETWEEN PLANE RECTANGULAR COORDINATES AND GEOGRAPHIC POSITIONS

BY

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# RELATION BETWEEN PLANE RECTANGULAR COORDINATES AND GEOGRAPHIC POSITIONS.

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By WALTER F. REYNOLDS, *Senior Mathematician, U. S. Coast and Geodetic Survey.*

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## INTRODUCTION.

The control surveys over large areas the size of a State or the whole United States are necessarily made and computed by the use of geographic coordinates (latitudes and longitudes) because of the curvature of the earth. For this reason the results of triangulation in publications of the U. S. Coast and Geodetic Survey, U. S. Geological Survey, and U. S. Corps of Engineers are always given in geographic coordinates, for the triangulation in any of these publications either covers a large area or is joined to the triangulation scheme of the whole United States.

When all the points of a survey are located within a relatively small area, such as a city or small county, the use of plane coordinates instead of geographic coordinates is much more convenient, since the computations involved are thereby greatly simplified. If there are triangulation stations within or near the local area to be surveyed they should be used as a basis for the survey, as they not only furnish an accurate control but also serve to join the local survey to the triangulation of the country and thus insure that the resulting map can be joined satisfactorily to maps of adjacent regions.

The object of this publication is to enable the engineer or surveyor who is making the survey of a city, town, or county to convert the geographic coordinates of the available triangulation stations readily and quickly into plane coordinates and also, if he so desires, to convert the position of any point determined by the local survey from the plane coordinates back into geographic coordinates.

The tables given in this publication make the computations for changing from one set of coordinates to the other simple and easy. No difficult formulas are involved. The development of the formulas used in the computation of the tables is given in the appendix on page 85. In the preparation of these tables, reference was made to Hosmer's Geodesy and to Geographic Tables in manuscript form by L. A. Chase.

To establish a system of coordinates for any locality it is necessary to choose first the position of the coordinate axes. The origin should

be defined in terms of some specified point of the survey. In order to avoid large errors, the origin should be at the center of the area to be surveyed. It is possible to keep all the signs of the plane coordinates of the survey positive by assigning to the coordinates of the central origin a large numerical value. The origin may be taken as coinciding with a selected triangulation point as in the case of the survey of Baltimore, Md. In case the area over which the survey is made is very large, it is necessary to use more than one origin, as in the case of Greater New York city, where three different origins were used.

Just how far one may carry the plane coordinates from a given origin depends upon the accuracy desired. The errors of approximation made in computing plane coordinates in small areas are of little or no importance in connection with city surveys. But if it is proposed to extend these coordinates over a larger area it must be borne in mind that the errors of approximation increase rapidly as the area is extended.

The table below shows at a glance the decrease of accuracy with increase of the distance from the origin.

| Distance from origin |        | Accuracy of plane coordinates. |
|----------------------|--------|--------------------------------|
| Kilometers.          | Miles. |                                |
| 30                   | 18. 6  | 1 part in 100 000.             |
| 40                   | 24. 9  | 1 part in 50 000.              |
| 64                   | 40     | 1 part in 20 000.              |
| 90                   | 55. 9  | 1 part in 10 000.              |
| 128                  | 79. 5  | 1 part in 5 000.               |

The plane coordinates may be determined from the geographic coordinates by the use of the formulas for inverse solution (see appendix, p. 85), one of the points being the origin and the other the triangulation station whose plane coordinates are desired. This becomes a long process if the coordinates of many points are to be transformed.

It is much more convenient to use the following formulas for the transformation of the geographic coordinates to the plane coordinates (see p. 87):

$$x = \Delta\lambda'' H, \quad y = \Delta\phi'' K + Lx^2$$

where

$$\Delta\lambda'' = \lambda_n - \lambda_o \text{ (in seconds)},$$

$$\Delta\phi'' = \varphi_n - \varphi_o \text{ (in seconds)}.$$

$\varphi_n$  and  $\lambda_n$  are the latitude and longitude, respectively, of the new station and  $\varphi_o$  and  $\lambda_o$  the latitude and longitude of the origin. Log  $H$ , log  $K$ , and log  $L$  are taken directly from the tables for a given latitude, log  $K$  being taken out for the mean latitude of the origin and the new station, log  $H$  for the latitude of the new station, and log  $L$  for the latitude of the origin. The resulting values for the plane coordinates are in feet.

The tables can be used in the transformation of geographic coordinates to plane coordinates of any stations between latitudes  $24^{\circ}$  and  $49^{\circ}$ ; that is, throughout the extent of the United States.

#### COMPUTATION OF PLANE COORDINATES FROM GEOGRAPHIC COORDINATES

To obtain the plane coordinates when the geographic coordinates (latitude and longitude) are given, it is necessary first to get the differences in latitude and longitude between the origin and the station whose plane coordinates are desired, and reduce these differences to seconds; then to take out from the tables  $\log H$ ,  $\log K$ , and  $\log L$  corresponding to the proper latitudes.

An example of this computation is given below showing the use of the tables. Triangulation station "Bogart," whose geographic coordinates are latitude  $40^{\circ} 36' 07''.650$ , longitude  $74^{\circ} 06' 58''.013$ , is considered the origin of the system of plane coordinates, and its plane coordinates are 0, 0. It is desired to obtain the plane coordinates of triangulation station, Fort Tompkins 2, whose geographic coordinates are latitude  $40^{\circ} 36' 15''.867$ , longitude  $74^{\circ} 03' 23''.433$ .

|                           | Latitude.                         | Longitude.   |
|---------------------------|-----------------------------------|--|
| Fort Tompkins 2 . . . . . | $40^{\circ} 36' 15''.867$         | $74^{\circ} 03' 23''.433$                          |
| Bogart (origin) . . . . . | $40 \quad 36 \quad 07 \quad .650$ | $74 \quad 06 \quad 58 \quad .013$                  |
|                           | $\Delta\varphi'' = +8''.217$      | $\Delta\lambda'' = -3' 34''.580$<br>$= -214''.580$ |

$$\begin{aligned}\log\Delta\lambda'' &= 2.3315892n & \log x^2 &= 8.43768 & \log\Delta\varphi'' &= 0.9147133 \\ \log H &= 1.8872494 & \log L &= 2.31073 - 10 & \log K &= 2.0051783 \\ \log x &= 4.2188386n & \log Lx^2 &= 0.74841 & \log\Delta\varphi''K &= 2.9198916 \\ x &= -16551.55 \text{ ft. (east)} & Lx^2 &= 5.603 \text{ ft.} & \Delta\varphi''K &= +831.556 \text{ ft.} \\ y &= +831.556 + 5.603 = +837.159 \text{ feet (north).}\end{aligned}$$

The latitude of the new station,  $40^{\circ} 36' 15''.867$ , is used as the argument in taking out  $\log H$ , the latitude of the origin,  $40^{\circ} 36' 07''.650$ , in taking out  $\log L$ , and the mean latitude of the origin and the new station or  $40^{\circ} 36' 11''.758$  as the argument for  $\log K$ . (See p. 59.) It should be noted that -10 is understood after each logarithm in the column headed "Log L."

On pages 87 and 88 are shown the positions of a number of points expressed as geographic coordinates and the computations for conversion to plane coordinates. These points form a closed circuit, and the various steps necessary to make the two ends of the circuit come together, or close the circuit, are also given.

#### COMPUTATION OF GEOGRAPHIC COORDINATES FROM PLANE COORDINATES

If we have two points,  $A$  and  $B$ , whose rectangular coordinates are  $x_1, y_1$  and  $x_2, y_2$  referred to the same origin, then the distance between them may be computed from the formula

$$S = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \quad (1)$$

The direction of the line from the point  $A$  to the point  $B$ , referred to a line parallel with the  $Y$  axis through the point  $A$ , may be computed from the formula

$$\tan \alpha_y = \frac{x_2 - x_1}{y_1 - y_2} \quad (2)$$

If it is desired to obtain the true azimuth of the line from  $A$  to  $B$  or, in other words, its direction referred to the true meridian through the point  $A$ , a correction to  $\alpha_y$  for the convergence of the meridians between the origin and the point  $A$  must be computed as follows:

$$\Delta\alpha = -\Delta\lambda'' \sin \varphi_m$$

where  $\Delta\lambda''$  is the difference in longitude in seconds between the origin and the point  $A$  (see p. 6), and  $\varphi_m$  is the mean latitude of point  $A$  and the origin. In north latitudes the sign of this correction is plus if the point is east of the origin and minus if the point is west of the origin. The true azimuth of the line from  $A$  to  $B$  is therefore

$$\alpha = \alpha_y + \Delta\alpha$$

The azimuth,  $\alpha$ , is counted in a clockwise direction starting with south as zero.

The true azimuth of the line from  $B$  to  $A$  can be computed in a similar manner.

If logarithms are used, it will be convenient to compute the  $\alpha$  first and then compute  $S$  from one of the two formulas

$$S = \frac{x_2 - x_1}{\sin \alpha}, \text{ and } S = \frac{y_1 - y_2}{\cos \alpha}.$$

To make the effect of omitted decimal places as small as possible, the one of these two formulas that has the larger numerator in each particular case should be used.

Since the distance and azimuth between any two points can be thus easily determined when their plane coordinates are known, the geographic positions of all the points whose plane coordinates are known can be computed provided the geographic position of the origin has been determined.

To illustrate this, let us take the case of two points in a triangulation scheme whose geographic positions and plane coordinates are given, one of these points being the origin. The plane coordinates of station Great Kills are

$$x = +4309.12 \text{ feet} = +1313.42 \text{ meters}, \\ y = -24119.16 \text{ feet} = -7351.53 \text{ meters}$$

as referred to Bogart as origin (0, 0). (See page 88.)

Now if  $S$  represent the distance and  $\alpha$  the azimuth of the line Bogart to Great Kills, then since  $x = S \sin \alpha$  and  $y = S \cos \alpha$ ,  $\tan \alpha = \frac{x}{y}$  and  $S = \frac{y}{\cos \alpha}$ .

$$\begin{array}{ll} \log x = 3.1184036 & \log y = 3.8663778 \\ \log y = 3.8663778 & \log \cos \alpha = 9.9931771 - 10 \\ \hline \log \tan \alpha = 9.2520258 - 10 & \log S = 3.8732007 \\ \alpha = 10^\circ 07' 46'' .4 & S = 7467.94 \text{ meters.} \end{array}$$

Now knowing the geographic position of the origin, Bogart, and the distance and bearing of Great Kills from the origin, we can readily compute the geographic position of Great Kills from the formulas given in Special Publication No. 8 of the U. S. Coast and Geodetic Survey. The latitude and the longitude of station Great Kills as determined in this manner are respectively,  $40^\circ 32' 09''.312$ ,  $74^\circ 07' 53''.821$ , agreeing exactly with the latitude and longitude as determined through the regular computation of geographic coordinates.

Engineers and others who have occasion to compute geographic positions, will find it of help to have Special Publication No. 8, referred to above. It is entitled, "Formulæ and Tables for the Computation of Geodetic Positions," and contains data which enable one to compute the geographic coordinates for triangulation when the distances, angles, and the geographic coordinates of some initial point are known.

Table for transformation of coordinates.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| * * //    | 1.9672311 | -----        | 2.0040379 | 2.02663 | ° ' "     | 1.9666696 | 9.3          | 2.0040475 | 2.03002 |
| 24 00 00  | 2217      | 9.4          | 81        | 69      | 24 10 00  | 6601      | 9.5          | 77        | 08      |
| 10        | 2124      | 9.3          | 82        | 74      | 20        | 6508      | 9.3          | 78        | 13      |
| 20        | 2030      | 9.4          | 84        | 80      | 30        | 6413      | 9.5          | 79        | 18      |
| 30        | 1938      | 9.2          | 86        | 86      | 40        | 6320      | 9.3          | 80        | 24      |
| 40        | 1844      | 9.4          | 87        | 91      | 50        | 6225      | 9.5          | 82        | 20      |
| 24 01 00  | 1751      | 9.3          | 89        | 2.02697 | 24 11 00  | 6132      | 9.3          | 84        | 35      |
| 10        | 1658      | 9.3          | 90        | 2.02703 | 10        | 6037      | 9.4          | 86        | 41      |
| 20        | 1564      | 9.4          | 92        | 09      | 20        | 5944      | 9.3          | 88        | 47      |
| 30        | 1471      | 9.3          | 93        | 14      | 30        | 5850      | 9.4          | 89        | 52      |
| 40        | 1379      | 9.2          | 95        | 20      | 40        | 5757      | 9.3          | 91        | 57      |
| 50        | 1285      | 9.4          | 97        | 26      | 50        | 5662      | 9.5          | 93        | 04      |
| 24 02 00  | 1192      | 9.3          | 2.0040398 | 31      | 24 12 00  | 5568      | 9.4          | 94        | 70      |
| 10        | 1098      | 9.4          | 2.0040400 | 37      | 10        | 5474      | 9.4          | 96        | 76      |
| 20        | 1005      | 9.3          | 02        | 43      | 20        | 5380      | 9.4          | 98        | 81      |
| 30        | 0911      | 9.4          | 03        | 48      | 30        | 5285      | 9.5          | 2.0040499 | 86      |
| 40        | 0818      | 9.3          | 05        | 53      | 40        | 5192      | 9.3          | 2.0040501 | 92      |
| 50        | 0724      | 9.4          | 07        | 59      | 50        | 5097      | 9.5          | 03        | 2.03097 |
| 24 03 00  | 0631      | 9.3          | 08        | 65      | 24 13 00  | 5002      | 9.5          | 04        | 2.03103 |
| 10        | 0537      | 9.4          | 10        | 71      | 10        | 4900      | 9.3          | 06        | 09      |
| 20        | 0444      | 9.3          | 12        | 77      | 20        | 4815      | 9.4          | 07        | 15      |
| 30        | 0350      | 9.4          | 13        | 82      | 30        | 4720      | 9.5          | 08        | 20      |
| 40        | 0257      | 9.3          | 15        | 87      | 40        | 4626      | 9.4          | 09        | 25      |
| 50        | 0163      | 9.4          | 17        | 93      | 50        | 4532      | 9.4          | 11        | 31      |
| 24 04 00  | 1.9670070 | 9.3          | 18        | 2.02799 | 24 14 00  | 4438      | 9.4          | 13        | 37      |
| 10        | 1.9669976 | 9.4          | 20        | 2.02805 | 10        | 4343      | 9.5          | 15        | 43      |
| 20        | 9883      | 9.3          | 21        | 11      | 20        | 4249      | 9.4          | 17        | 49      |
| -         | 9789      | 9.4          | 22        | 16      | 30        | 4155      | 9.4          | 18        | 54      |
| 40        | 9696      | 9.3          | 23        | 21      | 40        | 4061      | 9.4          | 20        | 59      |
| 50        | 9602      | 9.4          | 25        | 27      | 50        | 3966      | 9.5          | 22        | 65      |
| 24 05 00  | 9509      | 9.3          | 27        | 33      | 24 15 00  | 3872      | 9.4          | 23        | 71      |
| 10        | 9415      | 9.4          | 29        | 39      | 10        | 3777      | 9.5          | 24        | 77      |
| 20        | 9322      | 9.3          | 31        | 44      | 20        | 3683      | 9.4          | 26        | 82      |
| 30        | 9227      | 9.5          | 32        | 50      | 30        | 3588      | 9.5          | 28        | 88      |
| 40        | 9134      | 9.3          | 34        | 55      | 40        | 3495      | 9.3          | 30        | 93      |
| 50        | 9040      | 9.4          | 36        | 60      | 50        | 3400      | 9.5          | 32        | 2.03199 |
| 24 06 00  | 8947      | 9.3          | 37        | 66      | 24 16 00  | 3306      | 9.4          | 33        | 2.03204 |
| 10        | 8853      | 9.4          | 39        | 72      | 10        | 3211      | 9.5          | 35        | 10      |
| 20        | 8760      | 9.3          | 41        | 78      | 20        | 3117      | 9.4          | 37        | 15      |
| 30        | 8666      | 9.4          | 42        | 83      | 30        | 3023      | 9.5          | 38        | 21      |
| 40        | 8573      | 9.3          | 43        | 88      | 40        | 2928      | 9.4          | 39        | 27      |
| 50        | 8479      | 9.4          | 45        | 2.02894 | 50        | 2834      | 9.4          | 40        | 32      |
| 24 07 00  | 8386      | 9.3          | 46        | 2.02900 | 24 17 00  | 2740      | 9.5          | 42        | 38      |
| 10        | 8291      | 9.5          | 48        | 06      | 10        | 2645      | 9.4          | 43        | 44      |
| 20        | 8198      | 9.3          | 50        | 12      | 20        | 2551      | 9.4          | 45        | 49      |
| 30        | 8104      | 9.4          | 51        | 17      | 30        | 2456      | 9.5          | 47        | 55      |
| 40        | 8010      | 9.4          | 53        | 22      | 40        | 2362      | 9.4          | 49        | 60      |
| 50        | 7916      | 9.4          | 55        | 28      | 50        | 2267      | 9.5          | 51        | 66      |
| 24 08 00  | 7823      | 9.3          | 56        | 34      | 24 18 00  | 2173      | 9.4          | 52        | 71      |
| 10        | 7728      | 9.5          | 58        | 40      | 10        | 2078      | 9.5          | 54        | 77      |
| 20        | 7635      | 9.3          | 59        | 46      | 20        | 1984      | 9.4          | 56        | 82      |
| 30        | 7541      | 9.4          | 60        | 51      | 30        | 1889      | 9.5          | 57        | 88      |
| 40        | 7447      | 9.4          | 61        | 56      | 40        | 1794      | 9.5          | 58        | 94      |
| 50        | 7353      | 9.4          | 63        | 62      | 50        | 1699      | 9.5          | 59        | 2.03299 |
| 24 09 00  | 7260      | 9.3          | 65        | 68      | 24 19 00  | 1605      | 9.4          | 61        | 2.03305 |
| 10        | 7165      | 9.5          | 67        | 74      | 10        | 1510      | 9.5          | 62        | 10      |
| 20        | 7072      | 9.3          | 69        | 80      | 20        | 1416      | 9.4          | 64        | 15      |
| 30        | 6977      | 9.5          | 70        | 85      | 30        | 1321      | 9.5          | 66        | 21      |
| 40        | 6884      | 9.3          | 72        | 90      | 40        | 1227      | 9.4          | 68        | 27      |
| 50        | 6789      | 9.5          | 74        | 2.02996 | 50        | 1131      | 9.6          | 70        | 33      |
| 24 10 00  | 6696      | 9.3          | 75        | 2.03002 | 24 20 00  | 1037      | 9.4          | 71        | 39      |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  |
|-----------|-----------|---------------|-----------|---------|-----------|-----------|---------------|-----------|---------|
| °   '   " |           |               |           |         | °   '   " |           |               |           |         |
| 24 20 00  | 1.9661037 | 9.4           | 2.0040571 | 2.03339 | 24 30 00  | 1.9655334 | 9.5           | 2.0040668 | 2.03674 |
| 10        | 0942      | 9.5           |           | 45      | 10        | 5239      | 9.5           | 70        | 80      |
| 20        | 0848      | 9.4           |           | 50      | 20        | 5143      | 9.6           | 71        | 85      |
| 30        | 0752      | 9.6           |           | 56      | 30        | 5048      | 9.5           | 72        | 91      |
| 40        | 0658      | 9.4           |           | 61      | 40        | 4953      | 9.5           | 74        | 2.03696 |
| 50        | 0563      | 9.5           |           | 67      | 50        | 4857      | 9.5           | 76        | 2.03702 |
| 24 21 00  | 0469      | 9.4           |           | 81      | 72        | 24 31 00  | 4762          | 9.5       | 77      |
| 10        | 0373      | 9.6           |           | 82      | 78        |           | 4667          | 9.5       | 79      |
| 20        | 0279      | 9.4           |           | 84      | 83        |           | 4571          | 9.6       | 80      |
| 30        | 0185      | 9.4           |           | 86      | 89        |           | 4476          | 9.5       | 82      |
| 40        | 1.9660089 | 9.6           |           | 88      |           | 2.03395   | 4380          | 9.6       | 84      |
| 50        | 1.9659995 | 9.4           |           | 89      | 2.03400   |           | 4285          | 9.5       | 85      |
| 24 22 00  | 9901      | 9.4           |           | 90      | 06        | 24 32 00  | 4189          | 9.6       | 87      |
| 10        | 9805      | 9.6           |           | 92      | 13        |           | 4094          | 9.5       | 89      |
| 20        | 9711      | 9.4           |           | 94      | 18        |           | 3908          | 9.6       | 90      |
| 30        | 9616      | 9.5           |           | 96      | 24        |           | 3902          | 9.6       | 92      |
| 40        | 9521      | 9.5           |           | 98      | 29        |           | 3806          | 9.6       | 94      |
| 50        | 9426      | 9.5           | 2.0040599 | 35      |           |           | 3711          | 9.5       | 95      |
| 24 23 00  | 9331      | 9.5           | 2.0040600 | 40      | 24 33 00  | 3615      | 9.6           | 97        | 75      |
| 10        | 9236      | 9.5           | 02        | 46      | 10        | 3520      | 9.5           | 2.0040699 | 81      |
| 20        | 9141      | 9.5           | 04        | 51      | 20        | 3424      | 9.6           | 2.0040700 | 86      |
| 30        | 9046      | 9.5           | 06        | 57      | 30        | 3328      | 9.6           | 02        | 92      |
| 40        | 8951      | 9.5           | 08        | 62      | 40        | 3232      | 9.6           | 04        | 2.03797 |
| 50        | 8856      | 9.5           | 09        | 68      | 50        | 3137      | 9.5           | 05        | 2.03803 |
| 24 24 00  | 8761      | 9.5           |           | 10      | 73        | 24 34 00  | 3041          | 9.6       | 07      |
| 10        | 8666      | 9.5           |           | 11      | 79        |           | 2945          | 9.6       | 09      |
| 20        | 8571      | 9.5           |           | 13      | 84        |           | 2849          | 9.6       | 10      |
| 30        | 8476      | 9.5           |           | 15      | 90        |           | 2754          | 9.5       | 11      |
| 40        | 8381      | 9.5           |           | 17      | 2.03496   |           | 2659          | 9.5       | 13      |
| 50        | 8286      | 9.5           |           | 18      | 2.03501   |           | 2563          | 9.6       | 15      |
| 24 25 00  | 8191      | 9.5           |           | 19      | 07        | 24 35 00  | 2467          | 9.5       | 16      |
| 10        | 8096      | 9.5           |           | 21      | 13        |           | 2372          | 9.5       | 18      |
| 20        | 8001      | 9.5           |           | 23      | 18        |           | 2275          | 9.7       | 19      |
| 30        | 7905      | 9.6           |           | 25      | 24        |           | 2180          | 9.5       | 21      |
| 40        | 7811      | 9.4           |           | 27      | 29        |           | 2084          | 9.6       | 23      |
| 50        | 7715      | 9.6           |           | 28      | 35        |           | 1988          | 9.6       | 24      |
| 24 26 00  | 7620      | 9.5           |           | 29      | 40        | 24 36 00  | 1892          | 9.6       | 26      |
| 10        | 7526      | 9.4           |           | 31      | 46        |           | 1796          | 9.6       | 28      |
| 20        | 7431      | 9.5           |           | 33      | 51        |           | 1700          | 9.6       | 29      |
| 30        | 7335      | 9.6           |           | 35      | 57        |           | 1604          | 9.6       | 31      |
| 40        | 7241      | 9.4           |           | 37      | 63        |           | 1508          | 9.6       | 33      |
| 50        | 7146      | 9.5           |           | 38      | 68        |           | 1413          | 9.5       | 34      |
| 24 27 00  | 7050      | 9.6           |           | 39      | 74        | 24 37 00  | 1316          | 9.7       | 36      |
| 10        | 6956      | 9.4           |           | 40      | 80        |           | 1221          | 9.5       | 38      |
| 20        | 6860      | 9.6           |           | 42      | 85        |           | 1124          | 9.7       | 39      |
| 30        | 6765      | 9.5           |           | 44      | 91        |           | 1029          | 9.5       | 41      |
| 40        | 6669      | 9.6           |           | 46      | 2.03596   |           | 0932          | 9.7       | 43      |
| 50        | 6574      | 9.5           |           | 47      | 2.03602   |           | 0837          | 9.5       | 44      |
| 24 28 00  | 6479      | 9.5           |           | 48      | 07        | 24 38 00  | 0740          | 9.7       | 46      |
| 10        | 6383      | 9.6           |           | 50      | 13        |           | 0645          | 9.5       | 48      |
| 20        | 6288      | 9.5           |           | 52      | 18        |           | 0548          | 9.7       | 49      |
| 30        | 6192      | 9.6           |           | 54      | 24        |           | 0452          | 9.6       | 50      |
| 40        | 6097      | 9.5           |           | 56      | 30        |           | 0357          | 9.5       | 52      |
| 50        | 6001      | 9.6           |           | 57      | 35        |           | 0260          | 9.7       | 54      |
| 24 29 00  | 5907      | 9.4           |           | 58      | 41        | 24 39 00  | 0165          | 9.5       | 55      |
| 10        | 5811      | 9.6           |           | 59      | 47        |           | 1.9650069     | 9.6       | 57      |
| 20        | 5716      | 9.5           |           | 61      | 52        |           | 1.9649972     | 9.7       | 58      |
| 30        | 5620      | 9.6           |           | 63      | 58        |           | 0877          | 9.5       | 60      |
| 40        | 5525      | 9.5           |           | 65      | 63        |           | 0780          | 9.7       | 62      |
| 50        | 5429      | 9.6           |           | 67      | 69        |           | 0684          | 9.6       | 63      |
| 24 30 00  | 5334      | 9.5           |           | 68      | 74        | 24 40 00  | 9688          | 9.6       | 65      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.       |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|--------------|
| •   /   " |           |              |           |         | •   /   " |           |              |           |              |
| 24 40 00  | 1.9649588 | 9.6          | 2.0040765 | 2.04008 | 24 50 00  | 1.9643796 | 9.7          | 2.0040863 | 2.04340      |
| 10        | 9492      | 9.6          |           | 67      | 14        | 3699      | 9.7          | 65        | 46           |
| 20        | 9395      | 9.7          |           | 68      | 19        | 3602      | 9.7          | 66        | 51           |
| 30        | 9299      | 9.6          |           | 70      | 25        | 3505      | 9.7          | 67        | 57           |
| 40        | 9203      | 9.6          |           | 72      | 30        | 3409      | 9.6          | 69        | 62           |
| 50        | 9107      | 9.6          |           | 73      | 36        | 3311      | 9.8          | 71        | 68           |
| 24 41 00  | 9010      | 9.7          |           | 75      | 41        | 3215      | 9.6          | 72        | 73           |
| 10        | 8914      | 9.6          |           | 77      | 47        | 3118      | 9.7          | 74        | 79           |
| 20        | 8818      | 9.6          |           | 78      | 52        | 3021      | 9.7          | 75        | 84           |
| 30        | 8722      | 9.6          |           | 79      | 58        | 2924      | 9.7          | 77        | 90           |
| 40        | 8625      | 9.7          |           | 81      | 63        | 2827      | 9.7          | 79        | 2.04395      |
| 50        | 8529      | 9.6          |           | 83      | 69        | 2730      | 9.7          | 80        | 2.04401      |
| 24 42 00  | 8432      | 9.7          |           | 84      | 74        | 24 52 00  | 2633         | 9.7       | 82 06        |
| 10        | 8337      | 9.5          |           | 86      | 80        |           | 2536         | 9.7       | 84 11        |
| 20        | 8240      | 9.7          |           | 87      | 85        |           | 2438         | 9.8       | 85 17        |
| 30        | 8144      | 9.6          |           | 89      | 91        |           | 2342         | 9.6       | 87 22        |
| 40        | 8048      | 9.6          |           | 91      | 2.04096   |           | 2244         | 9.8       | 89 27        |
| 50        | 7951      | 9.7          |           | 92      | 2.04102   |           | 2147         | 9.7       | 90 33        |
| 24 43 00  | 7855      | 9.6          |           | 94      | 08        | 24 53 00  | 2050         | 9.7       | 92 38        |
| 10        | 7759      | 9.6          |           | 96      | 14        |           | 1953         | 9.7       | 94 44        |
| 20        | 7662      | 9.7          |           | 97      | 19        |           | 1855         | 9.8       | 95 50        |
| 30        | 7566      | 9.6          | 2.0040799 |         | 25        |           | 1759         | 9.6       | 97 56        |
| 40        | 7469      | 9.7          | 2.0040801 |         | 30        |           | 1661         | 9.8       | 2.0040899 61 |
| 50        | 7373      | 9.6          |           | 02      | 36        |           | 1564         | 9.7       | 2.0040900 67 |
| 24 44 00  | 7276      | 9.7          |           | 04      | 41        | 24 54 00  | 1467         | 9.7       | 02 72        |
| 10        | 7180      | 9.6          |           | 06      | 47        |           | 1370         | 9.7       | 04 78        |
| 20        | 7083      | 9.7          |           | 07      | 52        |           | 1272         | 9.8       | 05 83        |
| 30        | 6987      | 9.5          |           | 09      | 57        |           | 1175         | 9.7       | 07 89        |
| 40        | 6890      | 9.7          |           | 11      | 63        |           | 1079         | 9.6       | 09 2.04494   |
| 50        | 6794      | 9.6          |           | 12      | 69        |           | 0981         | 9.8       | 10 2.04500   |
| 24 45 00  | 6697      | 9.7          |           | 14      | 74        | 24 55 00  | 0884         | 9.7       | 12 05        |
| 10        | 6601      | 9.6          |           | 16      | 80        |           | 0787         | 9.7       | 14 11        |
| 20        | 6504      | 9.7          |           | 17      | 85        |           | 0689         | 9.8       | 15 16        |
| 30        | 6408      | 9.6          |           | 19      | 91        |           | 0592         | 9.7       | 16 22        |
| 40        | 6311      | 9.7          |           | 21      | 2.04196   |           | 0495         | 9.7       | 18 28        |
| 50        | 6215      | 9.6          |           | 22      | 2.04202   |           | 0398         | 9.7       | 20 33        |
| 24 46 00  | 6118      | 9.7          |           | 24      | 07        | 24 56 00  | 0300         | 9.8       | 21 38        |
| 10        | 6021      | 9.7          |           | 26      | 13        |           | 0203         | 9.7       | 23 44        |
| 20        | 5924      | 9.7          |           | 27      | 18        |           | 0105         | 9.8       | 24 49        |
| 30        | 5828      | 9.6          |           | 28      | 24        | 1.9640008 | 9.7          | 26 55     |              |
| 40        | 5732      | 9.6          |           | 30      | 29        | 1.9639910 | 9.8          | 28 60     |              |
| 50        | 5635      | 9.7          |           | 32      | 35        |           | 9813         | 9.7       | 29 66        |
| 24 47 00  | 5539      | 9.6          |           | 33      | 40        | 24 57 00  | 9715         | 9.8       | 31 71        |
| 10        | 5442      | 9.7          |           | 35      | 46        |           | 9618         | 9.7       | 33 77        |
| 20        | 5345      | 9.7          |           | 36      | 51        |           | 9520         | 9.8       | 34 82        |
| 30        | 5249      | 9.6          |           | 38      | 57        |           | 9423         | 9.7       | 36 88        |
| 40        | 5152      | 9.7          |           | 40      | 62        |           | 9326         | 9.7       | 38 93        |
| 50        | 5055      | 9.7          |           | 41      | 68        |           | 9228         | 9.8       | 39 2.04599   |
| 24 48 00  | 4958      | 9.7          |           | 43      | 73        | 24 58 00  | 9131         | 9.7       | 41 2.04604   |
| 10        | 4862      | 9.6          |           | 45      | 79        |           | 9034         | 9.7       | 43 10        |
| 20        | 4764      | 9.8          |           | 46      | 84        |           | 8936         | 9.8       | 44 15        |
| 30        | 4668      | 9.6          |           | 47      | 90        |           | 8839         | 9.7       | 46 21        |
| 40        | 4571      | 9.7          |           | 49      | 2.04296   |           | 8741         | 9.8       | 48 26        |
| 50        | 4474      | 9.7          |           | 51      | 2.04301   |           | 8644         | 9.7       | 49 32        |
| 24 49 00  | 4377      | 9.7          |           | 53      | 07        | 24 59 00  | 8546         | 9.8       | 51 37        |
| 10        | 4281      | 9.6          |           | 55      | 13        |           | 8449         | 9.7       | 53 43        |
| 20        | 4183      | 9.8          |           | 56      | 18        |           | 8351         | 9.8       | 54 48        |
| 30        | 4087      | 9.6          |           | 58      | 24        |           | 8254         | 9.7       | 56 54        |
| 40        | 3990      | 9.7          |           | 60      | 29        |           | 8155         | 9.9       | 58 59        |
| 50        | 3893      | 9.7          |           | 61      | 35        |           | 8058         | 9.7       | 59 65        |
| 24 50 00  | 3796      | 9.7          |           | 63      | 40        | 25 00 00  | 7960         | 9.8       | 61 70        |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 25 00 00  | 1.9637960 | 9.8          | 2.0040061 | 2.04670 | 25 10 00  | 1.9632080 | 9.9          | 2.0041059 | 2.04999 |
| 10        | 7863      | 9.7          | 63        | 76      | 10        | 1982      | 9.8          | 61        | 2.05004 |
| 20        | 7765      | 9.8          | 64        | 81      | 20        | 1883      | 9.9          | 62        | 10      |
| 30        | 7668      | 9.7          | 66        | 87      | 30        | 1785      | 9.8          | 64        | 15      |
| 40        | 7569      | 9.9          | 68        | 92      | 40        | 1686      | 9.9          | 66        | 20      |
| 50        | 7472      | 9.7          | 69        | 2.04698 | 50        | 1588      | 9.8          | 67        | 26      |
| 25 01 00  | 7374      | 9.8          | 71        | 2.04703 | 25 11 00  | 1489      | 9.9          | 69        | 31      |
| 10        | 7277      | 9.7          | 73        | 09      | 10        | 1391      | 9.8          | 71        | 37      |
| 20        | 7178      | 9.9          | 74        | 14      | 20        | 1292      | 9.9          | 72        | 42      |
| 30        | 7081      | 9.7          | 75        | 20      | 30        | 1194      | 9.8          | 74        | 48      |
| 40        | 6984      | 9.7          | 77        | 25      | 40        | 1095      | 9.9          | 76        | 53      |
| 50        | 6885      | 9.9          | 79        | 31      | 50        | 0997      | 9.8          | 77        | 59      |
| 25 02 00  | 6788      | 9.7          | 80        | 36      | 25 12 00  | 0898      | 9.9          | 79        | 64      |
| 10        | 6691      | 9.7          | 82        | 41      | 10        | 0800      | 9.8          | 81        | 70      |
| 20        | 6592      | 9.9          | 83        | 47      | 20        | 0701      | 9.9          | 82        | 75      |
| 30        | 6495      | 9.7          | 85        | 52      | 30        | 0602      | 9.9          | 84        | 81      |
| 40        | 6397      | 9.8          | 87        | 57      | 40        | 0504      | 9.8          | 86        | 86      |
| 50        | 6299      | 9.8          | 88        | 63      | 50        | 0405      | 9.9          | 87        | 92      |
| 25 03 00  | 6201      | 9.8          | 90        | 68      | 25 13 00  | 0307      | 9.8          | 89        | 2.05097 |
| 10        | 6103      | 9.8          | 92        | 74      | 10        | 0209      | 9.8          | 91        | 2.05102 |
| 20        | 6005      | 9.8          | 93        | 80      | 20        | 0110      | 9.9          | 92        | 08      |
| 30        | 5908      | 9.7          | 95        | 86      | 30        | 1.9630012 | 9.8          | 94        | 14      |
| 40        | 5809      | 9.9          | 97        | 91      | 40        | 1.0620912 | 10.0         | 96        | 19      |
| 50        | 5712      | 9.7          | 2.0040998 | 2.04707 | 50        | 9814      | 9.8          | 97        | 25      |
| 25 04 00  | 5613      | 9.9          | 2.0041000 | 2.04802 | 25 14 00  | 9715      | 9.9          | 2.0041099 | 30      |
| 10        | 5516      | 9.7          | 02        | 08      | 10        | 9617      | 9.8          | 2.0041101 | 36      |
| 20        | 5417      | 9.9          | 03        | 13      | 20        | 9517      | 10.0         | 02        | 41      |
| 30        | 5320      | 9.7          | 05        | 19      | 30        | 9419      | 9.8          | 04        | 47      |
| 40        | 5221      | 9.9          | 07        | 24      | 40        | 9320      | 9.9          | 06        | 52      |
| 50        | 5124      | 9.7          | 08        | 30      | 50        | 9222      | 9.8          | 07        | 58      |
| 25 05 00  | 5025      | 9.9          | 10        | 35      | 25 15 00  | 9122      | 10.0         | 09        | 63      |
| 10        | 4927      | 9.8          | 12        | 41      | 10        | 9024      | 9.8          | 11        | 69      |
| 20        | 4829      | 9.8          | 13        | 46      | 20        | 8925      | 9.9          | 12        | 74      |
| 30        | 4731      | 9.8          | 15        | 52      | 30        | 8826      | 9.9          | 14        | 80      |
| 40        | 4634      | 9.7          | 17        | 57      | 40        | 8728      | 9.8          | 16        | 85      |
| 50        | 4535      | 9.9          | 18        | 63      | 50        | 8629      | 9.9          | 17        | 91      |
| 25 06 00  | 4438      | 9.7          | 20        | 68      | 25 16 00  | 8530      | 9.9          | 19        | 2.05106 |
| 10        | 4340      | 9.8          | 22        | 74      | 10        | 8432      | 9.8          | 21        | 2.05201 |
| 20        | 4241      | 9.9          | 23        | 79      | 20        | 8333      | 9.9          | 22        | 07      |
| 30        | 4144      | 9.7          | 25        | 85      | 30        | 8234      | 9.9          | 24        | 12      |
| 40        | 4045      | 9.9          | 27        | 90      | 40        | 8135      | 9.9          | 26        | 17      |
| 50        | 3947      | 9.8          | 28        | 2.04896 | 50        | 8036      | 9.9          | 27        | 23      |
| 25 07 00  | 3849      | 9.8          | 30        | 2.04901 | 25 17 00  | 7937      | 9.9          | 20        | 28      |
| 10        | 3751      | 9.8          | 32        | 06      | 10        | 7838      | 9.9          | 31        | 34      |
| 20        | 3652      | 9.9          | 33        | 12      | 20        | 7739      | 9.9          | 32        | 39      |
| 30        | 3554      | 9.8          | 35        | 17      | 30        | 7640      | 9.9          | 33        | 45      |
| 40        | 3456      | 9.8          | 37        | 22      | 40        | 7541      | 9.9          | 35        | 50      |
| 50        | 3358      | 9.8          | 38        | 28      | 50        | 7442      | 9.9          | 37        | 56      |
| 25 08 00  | 3259      | 9.9          | 40        | 33      | 25 18 00  | 7343      | 9.9          | 38        | 61      |
| 10        | 3161      | 9.8          | 42        | 39      | 10        | 7244      | 9.9          | 40        | 66      |
| 20        | 3062      | 9.9          | 43        | 44      | 20        | 7145      | 9.9          | 41        | 72      |
| 30        | 2965      | 9.7          | 44        | 50      | 30        | 7046      | 9.9          | 43        | 77      |
| 40        | 2867      | 9.8          | 46        | 55      | 40        | 6948      | 9.8          | 45        | 82      |
| 50        | 2768      | 9.9          | 48        | 61      | 50        | 6848      | 10.0         | 46        | 88      |
| 25 09 00  | 2670      | 9.8          | 49        | 66      | 25 19 00  | 6749      | 9.8          | 48        | 93      |
| 10        | 2572      | 9.8          | 51        | 72      | 10        | 6651      | 9.8          | 50        | 2.05299 |
| 20        | 2473      | 9.9          | 52        | 77      | 20        | 6551      | 10.0         | 51        | 2.05304 |
| 30        | 2376      | 9.7          | 54        | 83      | 30        | 6453      | 9.8          | 53        | 10      |
| 40        | 2277      | 9.9          | 56        | 88      | 40        | 6353      | 10.0         | 55        | 15      |
| 50        | 2179      | 9.8          | 57        | 94      | 50        | 6254      | 9.9          | 56        | 21      |
| 25 10 00  | 2080      | 9.9          | 50        | 99      | 25 20 00  | 6155      | 9.9          | 58        | 26      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  |
|-----------|-----------|---------------|-----------|---------|-----------|-----------|---------------|-----------|---------|
| •   "     |           |               |           |         | •   "     |           |               |           |         |
| 25 20 00  | 1.9626155 | 9.9           | 2.0041158 | 2.05326 | 25 30 00  | 1.9620184 | 9.9           | 2.0041258 | 2.05651 |
| 10        | 6056      | 9.9           | 60        | 31      | 10        | 1.9620085 | 10.1          | 60        | 57      |
| 20        | 5956      | 10.0          | 61        | 37      | 20        | 1.9619985 | 10.0          | 61        | 62      |
| 30        | 5858      | 9.8           | 63        | 42      | 30        | 9885      | 10.0          | 63        | 68      |
| 40        | 5758      | 10.0          | 65        | 47      | 40        | 9785      | 10.0          | 65        | 73      |
| 50        | 5659      | 9.9           | 66        | 53      | 50        | 9685      | 10.0          | 66        | 79      |
| 25 21 00  | 5559      | 10.0          | 68        | 58      | 25 31 00  | 9585      | 10.0          | 68        | 84      |
| 10        | 5461      | 9.8           | 70        | 64      | 10        | 9485      | 10.0          | 70        | 89      |
| 20        | 5361      | 10.0          | 71        | 69      | 20        | 9385      | 10.0          | 71        | 2.05695 |
| 30        | 5262      | 9.9           | 73        | 75      | 30        | 9285      | 10.0          | 73        | 2.05700 |
| 40        | 5163      | 9.9           | 75        | 80      | 40        | 9186      | 9.9           | 75        | 05      |
| 50        | 5063      | 10.0          | 76        | 86      | 50        | 9086      | 10.0          | 76        | 11      |
| 25 22 00  | 4965      | 9.8           | 78        | 91      | 25 32 00  | 8985      | 10.1          | 78        | 16      |
| 10        | 4866      | 9.9           | 80        | 2.05396 | 10        | 8886      | 9.9           | 80        | 21      |
| 20        | 4766      | 10.0          | 81        | 2.05402 | 20        | 8785      | 10.1          | 81        | 27      |
| 30        | 4667      | 9.9           | 83        | 07      | 30        | 8686      | 9.9           | 83        | 32      |
| 40        | 4567      | 10.0          | 85        | 12      | 40        | 8585      | 10.1          | 85        | 37      |
| 50        | 4468      | 9.9           | 86        | 18      | 50        | 8485      | 10.0          | 86        | 43      |
| 25 23 00  | 4368      | 10.0          | 88        | 23      | 25 33 00  | 8385      | 10.0          | 88        | 48      |
| 10        | 4270      | 9.8           | 90        | 28      | 10        | 8285      | 10.0          | 90        | 54      |
| 20        | 4170      | 10.0          | 91        | 34      | 20        | 8184      | 10.1          | 91        | 59      |
| 30        | 4071      | 9.9           | 93        | 40      | 30        | 8085      | 9.9           | 93        | 65      |
| 40        | 3971      | 10.0          | 95        | 46      | 40        | 7985      | 10.0          | 95        | 71      |
| 50        | 3872      | 9.9           | 96        | 51      | 50        | 7884      | 10.1          | 96        | 77      |
| 25 24 00  | 3772      | 10.0          | 2.0041198 | 57      | 25 34 00  | 7785      | 9.9           | 2.0041298 | 82      |
| 10        | 3673      | 9.9           | 2.0041200 | 62      | 10        | 7685      | 10.0          | 2.0041300 | 87      |
| 20        | 3573      | 10.0          | 01        | 67      | 20        | 7584      | 10.1          | 01        | 93      |
| 30        | 3474      | 9.9           | 03        | 73      | 30        | 7484      | 10.0          | 03        | 2.05798 |
| 40        | 3375      | 9.9           | 05        | 78      | 40        | 7384      | 10.0          | 05        | 2.05803 |
| 50        | 3275      | 10.0          | 06        | 83      | 50        | 7284      | 10.0          | 06        | 09      |
| 25 25 00  | 3176      | 9.9           | 08        | 89      | 25 35 00  | 7183      | 10.1          | 08        | 14      |
| 10        | 3077      | 9.9           | 10        | 2.05494 | 10        | 7083      | 10.0          | 10        | 19      |
| 20        | 2977      | 10.0          | 11        | 2.05500 | 20        | 6982      | 10.1          | 11        | 25      |
| 30        | 2877      | 10.0          | 13        | 05      | 30        | 6883      | 9.9           | 13        | 30      |
| 40        | 2777      | 10.0          | 15        | 11      | 40        | 6782      | 10.1          | 15        | 35      |
| 50        | 2678      | 9.9           | 16        | 16      | 50        | 6682      | 10.0          | 16        | 41      |
| 25 26 00  | 2578      | 10.0          | 18        | 22      | 25 36 00  | 6581      | 10.1          | 18        | 46      |
| 10        | 2479      | 9.9           | 20        | 27      | 10        | 6481      | 10.0          | 20        | 52      |
| 20        | 2379      | 10.0          | 22        | 32      | 20        | 6380      | 10.1          | 21        | 57      |
| 30        | 2280      | 9.9           | 23        | 38      | 30        | 6280      | 10.0          | 23        | 63      |
| 40        | 2180      | 10.0          | 25        | 43      | 40        | 6179      | 10.1          | 25        | 68      |
| 50        | 2080      | 10.0          | 26        | 48      | 50        | 6079      | 10.0          | 26        | 74      |
| 25 27 00  | 1980      | 10.0          | 28        | 54      | 25 37 00  | 5978      | 10.1          | 28        | 79      |
| 10        | 1881      | 9.9           | 30        | 59      | 10        | 5878      | 10.0          | 30        | 84      |
| 20        | 1781      | 10.0          | 31        | 65      | 20        | 5778      | 10.0          | 31        | 90      |
| 30        | 1681      | 10.0          | 33        | 70      | 30        | 5678      | 10.0          | 33        | 2.05895 |
| 40        | 1582      | 9.9           | 35        | 75      | 40        | 5578      | 10.0          | 35        | 2.05900 |
| 50        | 1482      | 10.0          | 36        | 81      | 50        | 5477      | 10.1          | 36        | 06      |
| 25 28 00  | 1383      | 9.9           | 38        | 86      | 25 38 00  | 5376      | 10.1          | 38        | 11      |
| 10        | 1283      | 10.0          | 40        | 92      | 10        | 5276      | 10.0          | 40        | 16      |
| 20        | 1183      | 10.0          | 41        | 2.05597 | 20        | 5175      | 10.1          | 41        | 22      |
| 30        | 1084      | 9.9           | 43        | 2.05603 | 30        | 5075      | 10.0          | 43        | 27      |
| 40        | 0984      | 10.0          | 45        | 08      | 40        | 4974      | 10.1          | 45        | 32      |
| 50        | 0884      | 10.0          | 46        | 14      | 50        | 4874      | 10.0          | 46        | 38      |
| 25 29 00  | 0784      | 10.0          | 48        | 19      | 25 39 00  | 4773      | 10.1          | 48        | 43      |
| 10        | 0684      | 10.0          | 50        | 24      | 10        | 4673      | 10.0          | 50        | 48      |
| 20        | 0584      | 10.0          | 51        | 30      | 20        | 4572      | 10.1          | 51        | 54      |
| 30        | 0485      | 9.9           | 53        | 35      | 30        | 4472      | 10.0          | 53        | 59      |
| 40        | 0384      | 10.1          | 55        | 40      | 40        | 4371      | 10.1          | 55        | 64      |
| 50        | 0285      | 9.9           | 56        | 46      | 50        | 4270      | 10.1          | 56        | 70      |
| 25 30 00  | 0184      | 9.9           | 58        | 51      | 25 40 00  | 4169      | 10.1          | 58        | 75      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 25 40 00  | 1.9614169 | 10.1         | 2.0041358 | 2.05975 | 25 50 00  | 1.9608110 | 10.2         | 2.0041459 | 2.06298 |
| 10        | 4069      | 10.0         | 60        | 81      | 10        | 8009      | 10.1         | 61        | 2.06303 |
| 20        | 3968      | 10.1         | 61        | 86      | 20        | 7907      | 10.2         | 62        | 09      |
| 30        | 3868      | 10.0         | 63        | 92      | 30        | 7806      | 10.1         | 64        | 14      |
| 40        | 3767      | 10.1         | 65        | 2.05997 | 40        | 7704      | 10.2         | 66        | 19      |
| 50        | 3666      | 10.1         | 66        | 2.06003 | 50        | 7603      | 10.1         | 67        | 25      |
| 25 41 00  | 3566      | 10.0         | 68        | 08      | 25 51 00  | 7501      | 10.2         | 69        | 30      |
| 10        | 3466      | 10.0         | 70        | 13      | 10        | 7400      | 10.1         | 71        | 35      |
| 20        | 3364      | 10.2         | 71        | 19      | 20        | 7298      | 10.2         | 72        | 41      |
| 30        | 3264      | 10.0         | 73        | 24      | 30        | 7197      | 10.1         | 74        | 46      |
| 40        | 3163      | 10.1         | 75        | 29      | 40        | 7096      | 10.1         | 76        | 51      |
| 50        | 3062      | 10.1         | 76        | 35      | 50        | 6994      | 10.2         | 77        | 57      |
| 25 42 00  | 2961      | 10.1         | 78        | 40      | 25 52 00  | 6893      | 10.1         | 79        | 62      |
| 10        | 2861      | 10.0         | 80        | 45      | 10        | 6791      | 10.2         | 81        | 67      |
| 20        | 2759      | 10.2         | 81        | 51      | 20        | 6689      | 10.2         | 82        | 73      |
| 30        | 2659      | 10.0         | 83        | 56      | 30        | 6588      | 10.1         | 84        | 78      |
| 40        | 2559      | 10.0         | 85        | 61      | 40        | 6486      | 10.2         | 86        | 83      |
| 50        | 2457      | 10.2         | 86        | 67      | 50        | 6385      | 10.1         | 87        | 89      |
| 25 43 00  | 2357      | 10.0         | 88        | 72      | 25 53 00  | 6283      | 10.2         | 89        | 94      |
| 10        | 2257      | 10.0         | 90        | 77      | 10        | 6182      | 10.1         | 91        | 2.06399 |
| 20        | 2155      | 10.2         | 91        | 83      | 20        | 6079      | 10.3         | 92        | 2.06405 |
| 30        | 2055      | 10.0         | 93        | 89      | 30        | 5978      | 10.1         | 94        | 11      |
| 40        | 1953      | 10.2         | 95        | 2.06094 | 40        | 5876      | 10.2         | 96        | 16      |
| 50        | 1853      | 10.0         | 96        | 2.06100 | 50        | 5775      | 10.1         | 97        | 22      |
| 25 44 00  | 1751      | 10.2         | 2.0041398 | 05      | 25 54 00  | 5673      | 10.2         | 2.0041499 | 27      |
| 10        | 1651      | 10.0         | 2.0041400 | 10      | 10        | 5571      | 10.2         | 2.0041501 | 32      |
| 20        | 1549      | 10.2         | 01        | 16      | 20        | 5469      | 10.2         | 02        | 38      |
| 30        | 1449      | 10.0         | 03        | 21      | 30        | 5368      | 10.1         | 04        | 43      |
| 40        | 1347      | 10.2         | 05        | 26      | 40        | 5267      | 10.1         | 06        | 48      |
| 50        | 1247      | 10.0         | 06        | 32      | 50        | 5164      | 10.3         | 07        | 54      |
| 25 45 00  | 1145      | 10.2         | 08        | 37      | 25 55 00  | 5063      | 10.1         | 09        | 59      |
| 10        | 1045      | 10.0         | 10        | 42      | 10        | 4962      | 10.1         | 11        | 64      |
| 20        | 0943      | 10.2         | 11        | 48      | 20        | 4859      | 10.3         | 12        | 70      |
| 30        | 0842      | 10.1         | 13        | 53      | 30        | 4758      | 10.1         | 14        | 75      |
| 40        | 0742      | 10.0         | 15        | 58      | 40        | 4656      | 10.2         | 16        | 80      |
| 50        | 0640      | 10.2         | 16        | 64      | 50        | 4554      | 10.2         | 17        | 86      |
| 25 46 00  | 0540      | 10.0         | 18        | 69      | 25 56 00  | 4452      | 10.2         | 19        | 91      |
| 10        | 0439      | 10.1         | 20        | 75      | 10        | 4350      | 10.2         | 21        | 2.06490 |
| 20        | 0337      | 10.2         | 21        | 80      | 20        | 4248      | 10.2         | 22        | 2.06502 |
| 30        | 0237      | 10.0         | 23        | 86      | 30        | 4147      | 10.1         | 24        | 07      |
| 40        | 0135      | 10.2         | 25        | 91      | 40        | 4044      | 10.3         | 26        | 13      |
| 50        | 1.9610034 | 10.1         | 26        | 2.06197 | 50        | 3943      | 10.1         | 27        | 18      |
| 25 47 00  | 1.9609933 | 10.1         | 28        | 2.06202 | 25 57 00  | 3840      | 10.3         | 29        | 23      |
| 10        | 9832      | 10.1         | 30        | 07      | 10        | 3739      | 10.1         | 31        | 28      |
| 20        | 9730      | 10.2         | 31        | 13      | 20        | 3636      | 10.3         | 32        | 34      |
| 30        | 9629      | 10.1         | 33        | 18      | 30        | 3535      | 10.1         | 34        | 39      |
| 40        | 9528      | 10.1         | 35        | 23      | 40        | 3433      | 10.2         | 36        | 44      |
| 50        | 9427      | 10.1         | 36        | 29      | 50        | 3331      | 10.2         | 37        | 50      |
| 25 48 00  | 9325      | 10.2         | 38        | 34      | 25 58 00  | 3229      | 10.2         | 39        | 55      |
| 10        | 9224      | 10.1         | 40        | 39      | 10        | 3128      | 10.1         | 41        | 60      |
| 20        | 9122      | 10.2         | 42        | 45      | 20        | 3025      | 10.3         | 42        | 66      |
| 30        | 9022      | 10.0         | 43        | 50      | 30        | 2924      | 10.1         | 44        | 71      |
| 40        | 8921      | 10.1         | 45        | 55      | 40        | 2821      | 10.3         | 46        | 76      |
| 50        | 8819      | 10.2         | 47        | 61      | 50        | 2719      | 10.2         | 47        | 82      |
| 25 49 00  | 8718      | 10.1         | 49        | 66      | 25 59 00  | 2617      | 10.2         | 49        | 87      |
| 10        | 8617      | 10.1         | 51        | 71      | 10        | 2515      | 10.2         | 51        | 92      |
| 20        | 8515      | 10.2         | 52        | 77      | 20        | 2413      | 10.2         | 52        | 2.06598 |
| 30        | 8414      | 10.1         | 54        | 82      | 30        | 2311      | 10.2         | 54        | 2.06603 |
| 40        | 8313      | 10.1         | 56        | 87      | 40        | 2209      | 10.2         | 56        | 08      |
| 50        | 8212      | 10.1         | 57        | 93      | 50        | 2107      | 10.2         | 57        | 14      |
| 25 50 00  | 8110      | 10.2         | 59        | 98      | 26 00 00  | 2005      | 10.2         | 59        | 19      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.     | Diff.<br>1". | Log K.     | Log L.   | Latitude. | Log H.     | Diff.<br>1". | Log K.     | Log L.   |
|-----------|------------|--------------|------------|----------|-----------|------------|--------------|------------|----------|
| ° ' "     |            |              |            |          | ° ' "     |            |              |            |          |
| 26 00 00  | 1. 9602005 | 10.2         | 2. 0041559 | 2. 06619 | 26 10 00  | 1. 9595864 | 10.3         | 2. 0041661 | 2. 06938 |
| 10        | 1903       | 10.2         | 61         | 24       | 10        | 5751       | 10.3         | 63         | 43       |
| 20        | 1800       | 10.3         | 63         | 30       | 20        | 5648       | 10.3         | 64         | 49       |
| 30        | 1699       | 10.1         | 64         | 35       | 30        | 5545       | 10.3         | 66         | 54       |
| 40        | 1596       | 10.3         | 66         | 40       | 40        | 5443       | 10.2         | 68         | 59       |
| 50        | 1494       | 10.2         | 68         | 46       | 50        | 5339       | 10.4         | 69         | 65       |
| 26 01 00  | 1391       | 10.3         | 70         | 51       | 26 11 00  | 5237       | 10.2         | 71         | 70       |
| 10        | 1290       | 10.1         | 72         | 56       | 10        | 5134       | 10.3         | 73         | 75       |
| 20        | 1187       | 10.3         | 73         | 62       | 20        | 5030       | 10.4         | 74         | 81       |
| 30        | 1085       | 10.2         | 75         | 67       | 30        | 4928       | 10.2         | 76         | 86       |
| 40        | 0982       | 10.3         | 77         | 72       | 40        | 4824       | 10.4         | 78         | 91       |
| 50        | 0880       | 10.2         | 78         | 78       | 50        | 4722       | 10.2         | 79         | 2. 06997 |
| 26 02 00  | 0778       | 10.2         | 80         | 83       | 26 12 00  | 4618       | 10.4         | 81         | 2. 07002 |
| 10        | 0676       | 10.2         | 82         | 88       | 10        | 4516       | 10.2         | 83         | 07       |
| 20        | 0573       | 10.3         | 83         | 94       | 20        | 4412       | 10.4         | 84         | 13       |
| 30        | 0471       | 10.2         | 85         | 2. 06699 | 30        | 4309       | 10.3         | 86         | 18       |
| 40        | 0369       | 10.2         | 87         | 2. 06704 | 40        | 4207       | 10.2         | 88         | 23       |
| 50        | 0266       | 10.3         | 88         | 10       | 50        | 4103       | 10.4         | 89         | 29       |
| 26 03 00  | 0164       | 10.2         | 90         | 15       | 26 13 00  | 4000       | 10.3         | 91         | 34       |
| 10        | 1. 9600062 | 10.2         | 92         | 21       | 10        | 3898       | 10.2         | 93         | 40       |
| 20        | 1. 9599959 | 10.3         | 93         | 26       | 20        | 3794       | 10.4         | 95         | 45       |
| 30        | 9858       | 10.1         | 95         | 31       | 30        | 3691       | 10.3         | 96         | 50       |
| 40        | 9755       | 10.3         | 97         | 37       | 40        | 3588       | 10.3         | 2. 0041698 | 56       |
| 50        | 9653       | 10.2         | 2. 0041598 | 42       | 50        | 3485       | 10.3         | 2. 0041700 | 61       |
| 26 04 00  | 9550       | 10.3         | 2. 0041600 | 47       | 26 14 00  | 3381       | 10.4         | 02         | 66       |
| 10        | 9448       | 10.2         | 02         | 52       | 10        | 3278       | 10.3         | 04         | 71       |
| 20        | 9345       | 10.3         | 03         | 58       | 20        | 3174       | 10.4         | 05         | 77       |
| - 30      | 9243       | 10.2         | 05         | 63       | 30        | 3072       | 10.2         | 07         | 82       |
| 40        | 9141       | 10.2         | 07         | 68       | 40        | 2969       | 10.3         | 09         | 87       |
| 50        | 9037       | 10.4         | 08         | 74       | 50        | 2865       | 10.4         | 10         | 93       |
| 26 05 00  | 8935       | 10.2         | 10         | 79       | 26 15 00  | 2762       | 10.3         | 12         | 2. 07098 |
| 10        | 8833       | 10.2         | 12         | 84       | 10        | 2659       | 10.3         | 14         | 2. 07103 |
| 20        | 8730       | 10.3         | 13         | 90       | 20        | 2556       | 10.3         | 15         | 09       |
| 30        | 8628       | 10.2         | 15         | 2. 06795 | 30        | 2453       | 10.3         | 17         | 14       |
| 40        | 8525       | 10.3         | 17         | 2. 06800 | 40        | 2349       | 10.4         | 19         | 19       |
| 50        | 8423       | 10.2         | 18         | 06       | 50        | 2246       | 10.3         | 20         | 25       |
| 26 06 00  | 8320       | 10.3         | 20         | 11       | 26 16 00  | 2142       | 10.4         | 22         | 30       |
| 10        | 8218       | 10.2         | 22         | 16       | 10        | 2039       | 10.3         | 24         | 35       |
| 20        | 8114       | 10.4         | 23         | 22       | 20        | 1935       | 10.4         | 25         | 40       |
| 30        | 8012       | 10.2         | 25         | 27       | 30        | 1832       | 10.3         | 27         | 45       |
| 40        | 7909       | 10.3         | 27         | 32       | 40        | 1728       | 10.4         | 29         | 51       |
| 50        | 7807       | 10.2         | 28         | 38       | 50        | 1625       | 10.3         | 30         | 56       |
| 26 07 00  | 7704       | 10.3         | 30         | 43       | 26 17 00  | 1521       | 10.4         | 32         | 61       |
| 10        | 7601       | 10.3         | 32         | 48       | 10        | 1418       | 10.3         | 34         | 66       |
| 20        | 7498       | 10.3         | 34         | 54       | 20        | 1314       | 10.4         | 35         | 72       |
| 30        | 7396       | 10.2         | 35         | 59       | 30        | 1211       | 10.3         | 37         | 77       |
| 40        | 7294       | 10.2         | 37         | 64       | 40        | 1108       | 10.3         | 39         | 82       |
| 50        | 7190       | 10.4         | 39         | 70       | 50        | 1004       | 10.4         | 40         | 88       |
| 26 08 00  | 7088       | 10.2         | 41         | 75       | 26 18 00  | 0901       | 10.3         | 42         | 93       |
| 10        | 6986       | 10.2         | 43         | 80       | 10        | 0798       | 10.3         | 44         | 2. 07198 |
| 20        | 6882       | 10.4         | 44         | 86       | 20        | 0694       | 10.4         | 46         | 2. 07204 |
| 30        | 6780       | 10.2         | 46         | 91       | 30        | 0591       | 10.3         | 47         | 09       |
| 40        | 6677       | 10.3         | 48         | 2. 06896 | 40        | 0487       | 10.4         | 49         | 14       |
| 50        | 6574       | 10.3         | 49         | 2. 06902 | 50        | 0384       | 10.3         | 51         | 20       |
| 26 09 00  | 6471       | 10.3         | 51         | 07       | 26 19 00  | 0280       | 10.4         | 53         | 25       |
| 10        | 6369       | 10.2         | 53         | 12       | 10        | 0176       | 10.4         | 55         | 30       |
| 20        | 6265       | 10.4         | 54         | 17       | 20        | 1. 9590072 | 10.4         | 56         | 36       |
| 30        | 6163       | 10.2         | 56         | 22       | 30        | 1. 9589969 | 10.3         | 58         | 41       |
| 40        | 6059       | 10.4         | 58         | 28       | 40        | 9865       | 10.4         | 60         | 46       |
| 50        | 5957       | 10.2         | 59         | 33       | 50        | 9762       | 10.3         | 61         | 52       |
| 26 10 00  | 5864       | 10.3         | 61         | 38       | 26 20 00  | 9658       | 10.4         | 63         | 57       |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| • ′ ″     |           |             |           |         | • ′ ″     |           |             |           |         |
| 26 20 00  | 1.9589658 | 10.4        | 2.0041763 | 2.07257 | 26 30 00  | 1.9583417 | 10.4        | 2.0041865 | 2.07573 |
| 10        | 9554      | 10.4        | 65        | 62      | 10        | 3313      | 10.4        | 67        | 78      |
| 20        | 9450      | 10.4        | 66        | 67      | 20        | 3208      | 10.5        | 68        | 84      |
| 30        | 9347      | 10.3        | 68        | 72      | 30        | 3104      | 10.4        | 70        | 89      |
| 40        | 9244      | 10.3        | 70        | 78      | 40        | 2999      | 10.5        | 72        | 2.07594 |
| 50        | 9139      | 10.5        | 71        | 83      | 50        | 2895      | 10.4        | 73        | 2.07600 |
| 26 21 00  | 9036      | 10.3        | 73        | 88      | 26 31 00  | 2790      | 10.5        | 75        | 05      |
| 10        | 8933      | 10.3        | 75        | 93      | 10        | 2686      | 10.4        | 77        | 10      |
| 20        | 8828      | 10.5        | 76        | 2.07299 | 20        | 2581      | 10.5        | 79        | 15      |
| 30        | 8725      | 10.3        | 78        | 2.07304 | 30        | 2477      | 10.4        | 81        | 21      |
| 40        | 8621      | 10.4        | 80        | 09      | 40        | 2371      | 10.6        | 82        | 26      |
| 50        | 8517      | 10.4        | 81        | 15      | 50        | 2267      | 10.4        | 84        | 31      |
| 26 22 00  | 8413      | 10.4        | 83        | 20      | 26 32 00  | 2162      | 10.5        | 86        | 36      |
| 10        | 8310      | 10.3        | 85        | 25      | 10        | 2058      | 10.4        | 88        | 41      |
| 20        | 8205      | 10.5        | 87        | 30      | 20        | 1953      | 10.5        | 89        | 47      |
| 30        | 8102      | 10.3        | 88        | 35      | 30        | 1849      | 10.4        | 91        | 52      |
| 40        | 7999      | 10.3        | 90        | 41      | 40        | 1745      | 10.4        | 93        | 58      |
| 50        | 7894      | 10.5        | 92        | 47      | 50        | 1639      | 10.6        | 94        | 64      |
| 26 23 00  | 7791      | 10.3        | 94        | 52      | 26 33 00  | 1535      | 10.4        | 96        | 69      |
| 10        | 7687      | 10.4        | 96        | 57      | 10        | 1431      | 10.4        | 98        | 74      |
| 20        | 7583      | 10.4        | 97        | 63      | 20        | 1326      | 10.5        | 2.0041899 | 79      |
| 30        | 7479      | 10.4        | 2.0041799 | 68      | 30        | 1221      | 10.5        | 2.0041901 | 85      |
| 40        | 7375      | 10.4        | 2.0041801 | 73      | 40        | 1116      | 10.5        | 03        | 90      |
| 50        | 7271      | 10.4        | 02        | 79      | 50        | 1012      | 10.4        | 04        | 2.07695 |
| 26 24 00  | 7167      | 10.4        | 04        | 84      | 26 34 00  | 0907      | 10.5        | 06        | 2.07700 |
| 10        | 7063      | 10.4        | 06        | 89      | 10        | 0802      | 10.5        | 08        | 05      |
| 20        | 6959      | 10.4        | 07        | 2.07395 | 20        | 0697      | 10.5        | 10        | 11      |
| 30        | 6855      | 10.4        | 09        | 2.07400 | 30        | 0593      | 10.4        | 12        | 16      |
| 40        | 6752      | 10.3        | 11        | 05      | 40        | 0488      | 10.5        | 13        | 21      |
| 50        | 6647      | 10.5        | 12        | 11      | 50        | 0383      | 10.5        | 15        | 27      |
| 26 25 00  | 6543      | 10.4        | 14        | 16      | 26 35 00  | 0279      | 10.4        | 17        | 32      |
| 10        | 6440      | 10.3        | 16        | 21      | 10        | 0174      | 10.5        | 19        | 37      |
| 20        | 6335      | 10.5        | 17        | 26      | 20        | 1.9580069 | 10.5        | 20        | 42      |
| 30        | 6232      | 10.3        | 19        | 31      | 30        | 1.9579965 | 10.4        | 22        | 48      |
| 40        | 6127      | 10.5        | 21        | 37      | 40        | 9859      | 10.6        | 24        | 53      |
| 50        | 6023      | 10.4        | 22        | 42      | 50        | 9755      | 10.4        | 25        | 58      |
| 26 26 00  | 5919      | 10.4        | 24        | 47      | 26 36 00  | 9049      | 10.6        | 27        | 63      |
| 10        | 5815      | 10.4        | 26        | 52      | 10        | 9545      | 10.4        | 29        | 68      |
| 20        | 5710      | 10.5        | 27        | 58      | 20        | 9439      | 10.6        | 30        | 73      |
| 30        | 5607      | 10.3        | 29        | 63      | 30        | 9335      | 10.4        | 32        | 79      |
| 40        | 5502      | 10.5        | 31        | 68      | 40        | 9231      | 10.4        | 34        | 84      |
| 50        | 5398      | 10.4        | 32        | 74      | 50        | 9125      | 10.6        | 35        | 89      |
| 26 27 00  | 5293      | 10.5        | 34        | 79      | 26 37 00  | 9021      | 10.4        | 37        | 94      |
| 10        | 5190      | 10.3        | 36        | 84      | 10        | 8916      | 10.5        | 39        | 2.07790 |
| 20        | 5085      | 10.5        | 38        | 90      | 20        | 8810      | 10.6        | 40        | 2.07805 |
| 30        | 4981      | 10.4        | 39        | 2.07495 | 30        | 8706      | 10.4        | 42        | 10      |
| 40        | 4877      | 10.4        | 41        | 2.07500 | 40        | 8600      | 10.6        | 44        | 15      |
| 50        | 4772      | 10.5        | 43        | 05      | 50        | 8496      | 10.4        | 45        | 21      |
| 26 28 00  | 4669      | 10.3        | 45        | 10      | 26 38 00  | 8300      | 10.6        | 47        | 26      |
| 10        | 4565      | 10.4        | 47        | 15      | 10        | 8286      | 10.4        | 49        | 31      |
| 20        | 4460      | 10.5        | 48        | 21      | 20        | 8180      | 10.6        | 51        | 36      |
| 30        | 4356      | 10.4        | 50        | 26      | 30        | 8075      | 10.5        | 53        | 42      |
| 40        | 4251      | 10.5        | 52        | 31      | 40        | 7970      | 10.5        | 54        | 47      |
| 50        | 4147      | 10.4        | 53        | 37      | 50        | 7865      | 10.5        | 56        | 52      |
| 26 29 00  | 4042      | 10.5        | 55        | 42      | 26 39 00  | 7759      | 10.6        | 58        | 57      |
| 10        | 3939      | 10.3        | 57        | 47      | 10        | 7655      | 10.4        | 60        | 62      |
| 20        | 3834      | 10.5        | 58        | 52      | 20        | 7549      | 10.6        | 61        | 68      |
| 30        | 3730      | 10.4        | 60        | 57      | 30        | 7444      | 10.5        | 63        | 73      |
| 40        | 3626      | 10.4        | 62        | 63      | 40        | 7340      | 10.4        | 65        | 78      |
| 50        | 3521      | 10.5        | 63        | 68      | 50        | 7234      | 10.6        | 66        | 84      |
| 26 30 00  | 3417      | 10.4        | 65        | 73      | 26 40 00  | 7129      | 10.5        | 68        | 89      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ′ ″     |           |              |           |         | ° ′ ″     |           |              |           |         |
| 26 40 00  | 1.9577129 | 10.5         | 2.0041968 | 2.07889 | 26 50 00  | 1.9570796 | 10.6         | 2.0042071 | 2.08203 |
| 10        | 7024      | 10.5         | 70        | 94      | 10        | 0690      | 10.6         | 73        | 08      |
| 20        | 6919      | 10.5         | 71        | 2.07899 | 20        | 0584      | 10.6         | 75        | 13      |
| 30        | 6814      | 10.5         | 73        | 2.07905 | 30        | 0478      | 10.6         | 77        | 19      |
| 40        | 6708      | 10.6         | 75        | 10      | 40        | 0372      | 10.6         | 78        | 24      |
| 50        | 6603      | 10.5         | 76        | 15      | 50        | 0266      | 10.6         | 80        | 29      |
| 26 41 00  | 6498      | 10.5         | 78        | 20      | 26 51 00  | 0160      | 10.6         | 82        | 34      |
| 10        | 6393      | 10.5         | 80        | 25      | 10        | 1.9570055 | 10.5         | 84        | 39      |
| 20        | 6287      | 10.6         | 82        | 30      | 20        | 1.9569948 | 10.7         | 85        | 44      |
| 30        | 6182      | 10.5         | 84        | 36      | 30        | 9842      | 10.6         | 87        | 50      |
| 40        | 6077      | 10.5         | 85        | 41      | 40        | 9736      | 10.6         | 89        | 55      |
| 50        | 5971      | 10.6         | 87        | 46      | 50        | 9630      | 10.6         | 90        | 60      |
| 26 42 00  | 5886      | 10.5         | 89        | 51      | 26 52 00  | 9524      | 10.6         | 92        | 65      |
| 10        | 5761      | 10.5         | 91        | 56      | 10        | 9418      | 10.6         | 94        | 71      |
| 20        | 5656      | 10.5         | 92        | 62      | 20        | 9311      | 10.7         | 95        | 76      |
| 30        | 5551      | 10.5         | 94        | 68      | 30        | 9206      | 10.5         | 97        | 82      |
| 40        | 5445      | 10.6         | 96        | 73      | 40        | 9100      | 10.6         | 2.0042099 | 87      |
| 50        | 5340      | 10.5         | 97        | 79      | 50        | 8993      | 10.7         | 2.0042100 | 92      |
| 26 43 00  | 5234      | 10.6         | 2.0041999 | 84      | 26 53 00  | 8887      | 10.6         | 02        | 2.08297 |
| 10        | 5129      | 10.5         | 2.0042001 | 89      | 10        | 8782      | 10.5         | 04        | 2.08302 |
| 20        | 5023      | 10.6         | 02        | 2.07994 | 20        | 8675      | 10.7         | 06        | 07      |
| 30        | 4918      | 10.5         | 04        | 2.08000 | 30        | 8569      | 10.6         | 08        | 13      |
| 40        | 4813      | 10.5         | 06        | 05      | 40        | 8462      | 10.7         | 09        | 18      |
| 50        | 4707      | 10.6         | 07        | 10      | 50        | 8356      | 10.6         | 11        | 23      |
| 26 44 00  | 4602      | 10.5         | 09        | 15      | 26 54 00  | 8250      | 10.6         | 13        | 28      |
| 10        | 4497      | 10.5         | 11        | 20      | 10        | 8144      | 10.6         | 15        | 33      |
| 20        | 4391      | 10.6         | 13        | 25      | 20        | 8037      | 10.7         | 16        | 38      |
| 30        | 4286      | 10.5         | 15        | 31      | 30        | 7931      | 10.6         | 18        | 44      |
| 40        | 4179      | 10.7         | 16        | 36      | 40        | 7824      | 10.7         | 20        | 49      |
| 50        | 4074      | 10.5         | 18        | 41      | 50        | 7718      | 10.6         | 21        | 54      |
| 26 45 00  | 3968      | 10.6         | 20        | 46      | 26 55 00  | 7612      | 10.6         | 23        | 59      |
| 10        | 3863      | 10.5         | 22        | 51      | 10        | 7506      | 10.6         | 25        | 64      |
| 20        | 3757      | 10.6         | 23        | 57      | 20        | 7399      | 10.7         | 26        | 70      |
| 30        | 3652      | 10.5         | 25        | 62      | 30        | 7293      | 10.6         | 28        | 75      |
| 40        | 3546      | 10.6         | 27        | 67      | 40        | 7187      | 10.6         | 30        | 80      |
| 50        | 3440      | 10.6         | 28        | 73      | 50        | 7080      | 10.7         | 31        | 86      |
| 26 46 00  | 3334      | 10.6         | 30        | 78      | 26 56 00  | 6974      | 10.6         | 33        | 91      |
| 10        | 3229      | 10.5         | 32        | 83      | 10        | 6868      | 10.6         | 35        | 2.08396 |
| 20        | 3123      | 10.6         | 33        | 88      | 20        | 6761      | 10.7         | 37        | 2.08401 |
| 30        | 3018      | 10.5         | 35        | 94      | 30        | 6655      | 10.6         | 39        | 07      |
| 40        | 2912      | 10.6         | 37        | 2.08099 | 40        | 6548      | 10.7         | 40        | 12      |
| 50        | 2806      | 10.6         | 38        | 2.08104 | 50        | 6442      | 10.6         | 42        | 17      |
| 26 47 00  | 2701      | 10.5         | 40        | 09      | 26 57 00  | 6335      | 10.7         | 44        | 22      |
| 10        | 2595      | 10.6         | 42        | 14      | 10        | 6229      | 10.6         | 46        | 27      |
| 20        | 2489      | 10.6         | 44        | 19      | 20        | 6122      | 10.7         | 47        | 32      |
| 30        | 2384      | 10.5         | 46        | 25      | 30        | 6016      | 10.6         | 49        | 38      |
| 40        | 2278      | 10.6         | 47        | 30      | 40        | 5910      | 10.6         | 51        | 43      |
| 50        | 2172      | 10.6         | 49        | 35      | 50        | 5802      | 10.8         | 52        | 48      |
| 26 48 00  | 2066      | 10.6         | 51        | 40      | 26 58 00  | 5696      | 10.6         | 54        | 53      |
| 10        | 1960      | 10.6         | 53        | 45      | 10        | 5590      | 10.6         | 56        | 58      |
| 20        | 1854      | 10.6         | 54        | 50      | 20        | 5483      | 10.7         | 58        | 63      |
| 30        | 1749      | 10.5         | 56        | 56      | 30        | 5377      | 10.6         | 60        | 69      |
| 40        | 1643      | 10.6         | 58        | 61      | 40        | 5270      | 10.7         | 61        | 74      |
| 50        | 1537      | 10.6         | 59        | 66      | 50        | 5163      | 10.7         | 63        | 79      |
| 26 49 00  | 1431      | 10.6         | 61        | 71      | 26 59 00  | 5056      | 10.7         | 65        | 84      |
| 10        | 1326      | 10.5         | 63        | 76      | 10        | 4950      | 10.6         | 67        | 89      |
| 20        | 1220      | 10.6         | 64        | 82      | 20        | 4843      | 10.7         | 68        | 2.08494 |
| 30        | 1114      | 10.6         | 66        | 87      | 30        | 4737      | 10.6         | 70        | 2.08500 |
| 40        | 1008      | 10.6         | 68        | 92      | 40        | 4630      | 10.7         | 72        | 05      |
| 50        | 0902      | 10.6         | 69        | 2.08198 | 50        | 4523      | 10.7         | 73        | 10      |
| 26 50 00  | 0796      | 10.6         | 71        | 2.08203 | 27 00 00  | 4417      | 10.6         | 75        | 15      |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Dif.<br>1". | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Dif.<br>1". | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|-------------|----------------|----------------|-----------|----------------|-------------|----------------|----------------|
| 27 00 00  | 1.9564417      | 10.6        | 2.0042175      | 2.08515        | 27 10 00  | 1.9557991      | 10.8        | 2.0042279      | 2.08826        |
| 10        | 4311           | 10.6        | 77             | 20             | 10        | 7884           | 10.7        | 81             | 31             |
| 20        | 4203           | 10.8        | 78             | 25             | 20        | 7776           | 10.9        | 82             | 36             |
| 30        | 4037           | 10.6        | 80             | 31             | 30        | 7669           | 10.7        | 84             | 42             |
| 40        | 3990           | 10.7        | 82             | 36             | 40        | 7561           | 10.8        | 86             | 47             |
| 50        | 3883           | 10.7        | 83             | 41             | 50        | 7453           | 10.8        | 87             | 52             |
| 27 01 00  | 3776           | 10.7        | 85             | 46             | 27 11 00  | 7346           | 10.7        | 89             | 57             |
| 10        | 3670           | 10.6        | 87             | 51             | 10        | 7239           | 10.7        | 91             | 62             |
| 20        | 3562           | 10.8        | 89             | 56             | 20        | 7131           | 10.8        | 93             | 68             |
| 30        | 3456           | 10.6        | 91             | 62             | 30        | 7024           | 10.7        | 95             | 74             |
| 40        | 3349           | 10.7        | 92             | 68             | 40        | 6916           | 10.8        | 96             | 79             |
| 50        | 3242           | 10.7        | 94             | 73             | 50        | 6808           | 10.8        | 2.0042298      | 84             |
| 27 02 00  | 3136           | 10.6        | 96             | 78             | 27 12 00  | 6700           | 10.8        | 2.0042300      | 89             |
| 10        | 3029           | 10.7        | 98             | 83             | 10        | 6593           | 10.7        | 02             | 94             |
| 20        | 2922           | 10.7        | 2.0042199      | 88             | 20        | 6485           | 10.8        | 03             | 2.08899        |
| 30        | 2815           | 10.7        | 2.0042201      | 94             | 30        | 6378           | 10.7        | 05             | 2.08905        |
| 40        | 2708           | 10.7        | 03             | 2.08599        | 40        | 6270           | 10.8        | 07             | 10             |
| 50        | 2601           | 10.7        | 04             | 2.08604        | 50        | 6162           | 10.8        | 08             | 15             |
| 27 03 00  | 2494           | 10.7        | 06             | 00             | 27 13 00  | 6055           | 10.7        | 10             | 20             |
| 10        | 2387           | 10.7        | 08             | 14             | 10        | 5947           | 10.8        | 12             | 25             |
| 20        | 2280           | 10.7        | 10             | 19             | 20        | 5839           | 10.8        | 14             | 30             |
| 30        | 2173           | 10.7        | 12             | 25             | 30        | 5732           | 10.7        | 16             | 36             |
| 40        | 2067           | 10.6        | 13             | 30             | 40        | 5623           | 10.9        | 17             | 41             |
| 50        | 1959           | 10.8        | 15             | 35             | 50        | 5516           | 10.7        | 19             | 46             |
| 27 04 00  | 1852           | 10.7        | 17             | 40             | 27 14 00  | 5408           | 10.8        | 21             | 51             |
| 10        | 1746           | 10.6        | 19             | 45             | 10        | 5300           | 10.8        | 23             | 56             |
| 20        | 1638           | 10.8        | 20             | 50             | 20        | 5192           | 10.8        | 24             | 61             |
| 30        | 1532           | 10.6        | 22             | 56             | 30        | 5085           | 10.7        | 26             | 67             |
| 40        | 1424           | 10.8        | 24             | 61             | 40        | 4977           | 10.8        | 28             | 72             |
| 50        | 1317           | 10.7        | 25             | 66             | 50        | 4869           | 10.8        | 29             | 77             |
| 27 05 00  | 1210           | 10.7        | 27             | 71             | 27 15 00  | 4761           | 10.8        | 31             | 82             |
| 10        | 1103           | 10.7        | 29             | 76             | 10        | 4654           | 10.7        | 33             | 87             |
| 20        | 0995           | 10.8        | 30             | 81             | 20        | 4545           | 10.9        | 35             | 92             |
| 30        | 0889           | 10.6        | 32             | 87             | 30        | 4438           | 10.7        | 37             | 2.08998        |
| 40        | 0782           | 10.7        | 34             | 92             | 40        | 4320           | 10.9        | 38             | 2.09003        |
| 50        | 0674           | 10.8        | 35             | 2.08697        | 50        | 4222           | 10.7        | 40             | 08             |
| 27 06 00  | 0567           | 10.7        | 37             | 2.08702        | 27 16 00  | 4113           | 10.9        | 42             | 13             |
| 10        | 0461           | 10.6        | 39             | 07             | 10        | 4006           | 10.7        | 44             | 18             |
| 20        | 0353           | 10.8        | 41             | 12             | 20        | 3897           | 10.9        | 45             | 23             |
| 30        | 0246           | 10.7        | 43             | 19             | 30        | 3790           | 10.7        | 47             | 29             |
| 40        | 0138           | 10.8        | 44             | 23             | 40        | 3682           | 10.8        | 49             | 34             |
| 50        | 1.9560031      | 10.7        | 46             | 28             | 50        | 3574           | 10.8        | 50             | 39             |
| 27 07 00  | 1.9559924      | 10.7        | 48             | 33             | 27 17 00  | 3460           | 10.8        | 52             | 44             |
| 10        | 9817           | 10.7        | 50             | 38             | 10        | 3359           | 10.7        | 54             | 49             |
| 20        | 9709           | 10.8        | 51             | 43             | 20        | 3250           | 10.9        | 56             | 54             |
| 30        | 9602           | 10.7        | 53             | 49             | 30        | 3142           | 10.8        | 58             | 60             |
| 40        | 9495           | 10.7        | 55             | 54             | 40        | 3034           | 10.8        | 59             | 65             |
| 50        | 9387           | 10.8        | 56             | 59             | 50        | 2926           | 10.8        | 61             | 70             |
| 27 08 00  | 9281           | 10.6        | 58             | 64             | 27 18 00  | 2817           | 10.9        | 63             | 75             |
| 10        | 9174           | 10.7        | 60             | 69             | 10        | 2710           | 10.7        | 65             | 80             |
| 20        | 9066           | 10.8        | 62             | 74             | 20        | 2601           | 10.9        | 66             | 85             |
| 30        | 8959           | 10.7        | 64             | 80             | 30        | 2493           | 10.8        | 68             | 90             |
| 40        | 8851           | 10.8        | 65             | 85             | 40        | 2386           | 10.7        | 70             | 2.00095        |
| 50        | 8744           | 10.7        | 67             | 90             | 50        | 2277           | 10.9        | 71             | 2.00100        |
| 27 09 00  | 8636           | 10.8        | 69             | 2.08795        | 27 19 00  | 2169           | 10.8        | 73             | 05             |
| 10        | 8529           | 10.7        | 71             | 2.08800        | 10        | 2061           | 10.8        | 75             | 10             |
| 20        | 8421           | 10.8        | 72             | 05             | 20        | 1953           | 10.8        | 77             | 15             |
| 30        | 8314           | 10.7        | 74             | 11             | 30        | 1845           | 10.8        | 79             | 21             |
| 40        | 8206           | 10.8        | 76             | 16             | 40        | 1736           | 10.9        | 80             | 26             |
| 50        | 8099           | 10.7        | 77             | 21             | 50        | 1628           | 10.8        | 82             | 31             |
| 27 10 00  | 7991           | 10.8        | 79             | 28             | 27 20 00  | 1519           | 10.9        | 84             | 36             |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H$ . | Dif.<br>1". | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Dif.<br>1". | Log $K$ . | Log $L$ . |
|-----------|-----------|-------------|-----------|-----------|-----------|-----------|-------------|-----------|-----------|
| • / "     |           |             |           |           | • / "     |           |             |           |           |
| 27 20 00  | 1.9551519 | 10.9        | 2.0042384 | 2.09136   | 27 30 00  | 1.9545001 | 11.0        | 2.0042489 | 2.09445   |
| 10        | 1411      | 10.8        | 86        | 41        | 10        | 4893      | 10.8        | 91        | 50        |
| 20        | 1303      | 10.8        | 87        | 46        | 20        | 4783      | 11.0        | 92        | 55        |
| 30        | 1195      | 10.8        | 89        | 52        | 30        | 4674      | 10.9        | 94        | 61        |
| 40        | 1087      | 10.8        | 91        | 57        | 40        | 4566      | 10.8        | 96        | 67        |
| 50        | 9978      | 10.9        | 92        | 62        | 50        | 4456      | 11.0        | 97        | 72        |
| 27 21 00  | 0870      | 10.8        | 94        | 68        | 27 31 00  | 4347      | 10.9        | 2.0042499 | 77        |
| 10        | 0762      | 10.8        | 96        | 73        | 10        | 4239      | 10.8        | 2.0042501 | 82        |
| 20        | 0653      | 10.9        | 2.0042398 | 78        | 20        | 4129      | 11.0        | 03        | 87        |
| 30        | 0545      | 10.8        | 2.0042400 | 84        | 30        | 4020      | 10.9        | 05        | 92        |
| 40        | 0436      | 10.9        | 01        | 89        | 40        | 3911      | 10.9        | 06        | 2.09497   |
| 50        | 0328      | 10.8        | 03        | 94        | 50        | 3802      | 10.9        | 08        | 2.09502   |
| 27 22 00  | 0219      | 10.8        | 05        | 2.09199   | 27 32 00  | 3692      | 11.0        | 10        | 07        |
| 10        | 0111      | 10.8        | 07        | 2.09204   | 10        | 3583      | 10.9        | 12        | 12        |
| 20        | 1.9550002 | 10.9        | 08        | 09        | 20        | 3473      | 11.0        | 13        | 17        |
| 30        | 1.9549894 | 10.8        | 10        | 15        | 30        | 3365      | 10.8        | 15        | 23        |
| 40        | 9786      | 10.8        | 12        | 20        | 40        | 3256      | 10.9        | 17        | 28        |
| 50        | 9677      | 10.9        | 13        | 25        | 50        | 3146      | 11.0        | 18        | 33        |
| 27 23 00  | 9569      | 10.8        | 15        | 30        | 27 33 00  | 3037      | 10.9        | 20        | 38        |
| 10        | 9461      | 10.8        | 17        | 35        | 10        | 2928      | 10.9        | 22        | 43        |
| 20        | 9352      | 10.9        | 19        | 40        | 20        | 2819      | 10.9        | 24        | 48        |
| 30        | 9244      | 10.8        | 21        | 45        | 30        | 2710      | 10.9        | 26        | 54        |
| 40        | 9135      | 10.9        | 22        | 50        | 40        | 2600      | 11.0        | 27        | 59        |
| 50        | 9027      | 10.8        | 24        | 55        | 50        | 2491      | 10.9        | 29        | 64        |
| 27 24 00  | 8918      | 10.9        | 26        | 60        | 27 34 00  | 2381      | 11.0        | 31        | 69        |
| 10        | 8810      | 10.8        | 28        | 65        | 10        | 2272      | 10.9        | 33        | 74        |
| 20        | 8700      | 11.0        | 29        | 70        | 20        | 2162      | 11.0        | 34        | 79        |
| 30        | 8592      | 10.8        | 31        | 76        | 30        | 2053      | 10.9        | 36        | 84        |
| 40        | 8484      | 10.8        | 33        | 81        | 40        | 1944      | 10.9        | 38        | 89        |
| 50        | 8375      | 10.9        | 34        | 86        | 50        | 1834      | 11.0        | 39        | 94        |
| 27 25 00  | 8267      | 10.8        | 36        | 91        | 27 35 00  | 1725      | 10.9        | 41        | 2.09590   |
| 10        | 8158      | 10.9        | 38        | 2.09296   | 10        | 1616      | 10.9        | 43        | 2.09604   |
| 20        | 8049      | 10.9        | 40        | 2.09301   | 20        | 1506      | 11.0        | 45        | 09        |
| 30        | 7941      | 10.8        | 42        | 07        | 30        | 1397      | 10.9        | 47        | 15        |
| 40        | 7832      | 10.9        | 43        | 12        | 40        | 1288      | 10.9        | 48        | 20        |
| 50        | 7723      | 10.9        | 45        | 17        | 50        | 1178      | 11.0        | 50        | 25        |
| 27 26 00  | 7614      | 10.9        | 47        | 22        | 27 36 00  | 1069      | 10.9        | 52        | 30        |
| 10        | 7506      | 10.8        | 49        | 27        | 10        | 0960      | 10.9        | 54        | 35        |
| 20        | 7396      | 11.0        | 50        | 32        | 20        | 0850      | 11.0        | 55        | 40        |
| 30        | 7288      | 10.8        | 52        | 38        | 30        | 0741      | 10.9        | 57        | 46        |
| 40        | 7180      | 10.8        | 54        | 43        | 40        | 0631      | 11.0        | 59        | 51        |
| 50        | 7070      | 11.0        | 55        | 48        | 50        | 0521      | 11.0        | 60        | 56        |
| 27 27 00  | 6962      | 10.8        | 57        | 53        | 27 37 00  | 0411      | 11.0        | 62        | 61        |
| 10        | 6854      | 10.8        | 59        | 58        | 10        | 0302      | 10.9        | 64        | 66        |
| 20        | 6744      | 11.0        | 61        | 63        | 20        | 0192      | 11.0        | 66        | 71        |
| 30        | 6636      | 10.8        | 63        | 69        | 30        | 1.9540083 | 10.9        | 68        | 76        |
| 40        | 6526      | 11.0        | 64        | 74        | 40        | 1.9539974 | 10.9        | 69        | 81        |
| 50        | 6418      | 10.8        | 66        | 79        | 50        | 9863      | 11.1        | 71        | 86        |
| 27 28 00  | 6300      | 10.9        | 68        | 84        | 27 38 00  | 9754      | 10.9        | 73        | 91        |
| 10        | 6200      | 10.9        | 70        | 89        | 10        | 9645      | 10.9        | 75        | 2.09696   |
| 20        | 6091      | 10.9        | 71        | 94        | 20        | 9535      | 11.0        | 77        | 2.09701   |
| 30        | 5982      | 10.9        | 73        | 2.09399   | 30        | 9425      | 11.0        | 79        | 07        |
| 40        | 5874      | 10.8        | 75        | 2.09404   | 40        | 9315      | 11.0        | 80        | 12        |
| 50        | 5764      | 11.0        | 76        | 09        | 50        | 9206      | 10.9        | 82        | 17        |
| 27 29 00  | 5656      | 10.8        | 78        | 14        | 27 39 00  | 9096      | 11.0        | 84        | 22        |
| 10        | 5547      | 10.9        | 80        | 19        | 10        | 8986      | 11.0        | 86        | 27        |
| 20        | 5438      | 10.9        | 82        | 24        | 20        | 8876      | 11.0        | 87        | 32        |
| 30        | 5329      | 10.9        | 84        | 30        | 30        | 8767      | 10.9        | 89        | 37        |
| 40        | 5219      | 11.0        | 85        | 35        | 40        | 8657      | 11.0        | 91        | 42        |
| 50        | 5111      | 10.8        | 87        | 40        | 50        | 8547      | 11.0        | 92        | 48        |
| 27 30 00  | 5001      | 11.0        | 89        | 45        | 27 40 00  | 8437      | 11.0        | 94        | 53        |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude.   | Log <i>H</i> . | Diff.<br>1°. | Log <i>K</i> . | Log <i>L</i> . | Latitude.   | Log <i>H</i> . | Diff.<br>1°. | Log <i>K</i> . | Log <i>L</i> . |
|-------------|----------------|--------------|----------------|----------------|-------------|----------------|--------------|----------------|----------------|
| 27° 40' 00" | 1.9538437      | 11.0         | 2.0042594      | 2.09753        | 27° 50' 00" | 1.9531826      | 11.0         | 2.0042700      | 2.10060        |
| 10          | 8328           | 10.9         | 96             | 58             | 10          | 1716           | 11.0         | 02             | 65             |
| 20          | 8218           | 11.0         | 2.0042598      | 63             | 20          | 1605           | 11.1         | 04             | 70             |
| 30          | 8108           | 11.0         | 2.0042600      | 69             | 30          | 1494           | 11.1         | 06             | 75             |
| 40          | 7998           | 11.0         | 01             | 74             | 40          | 1383           | 11.1         | 07             | 80             |
| 50          | 7888           | 11.0         | 03             | 79             | 50          | 1273           | 11.0         | 09             | 85             |
| 27° 41' 00" | 7778           | 11.0         | 05             | 84             | 27° 51' 00" | 1162           | 11.1         | 11             | 90             |
| 10          | 7668           | 11.0         | 07             | 89             | 10          | 1051           | 11.1         | 13             | 2.10095        |
| 20          | 7558           | 11.0         | 08             | 94             | 20          | 0940           | 11.1         | 14             | 2.10100        |
| 30          | 7448           | 11.0         | 10             | 2.09799        | 30          | 0830           | 11.0         | 16             | 05             |
| 40          | 7339           | 10.9         | 12             | 2.09804        | 40          | 0720           | 11.0         | 18             | 10             |
| 50          | 7228           | 11.1         | 13             | 09             | 50          | 0608           | 11.2         | 10             | 15             |
| 27° 42' 00" | 7119           | 10.9         | 15             | 14             | 27° 52' 00" | 0498           | 11.0         | 21             | 20             |
| 10          | 7009           | 11.0         | 17             | 19             | 10          | 0388           | 11.0         | 23             | 25             |
| 20          | 6899           | 11.0         | 19             | 24             | 20          | 0276           | 11.2         | 25             | 30             |
| 30          | 6789           | 11.0         | 21             | 30             | 30          | 0166           | 11.0         | 27             | 36             |
| 40          | 6679           | 11.0         | 22             | 35             | 40          | 1.9530055      | 11.1         | 28             | 41             |
| 50          | 6569           | 11.0         | 24             | 40             | 50          | 1.9529944      | 11.1         | 30             | 46             |
| 27° 43' 00" | 6458           | 11.1         | 26             | 45             | 27° 53' 00" | 9833           | 11.1         | 32             | 51             |
| 10          | 6349           | 10.9         | 28             | 50             | 10          | 9722           | 11.1         | 34             | 56             |
| 20          | 6238           | 11.1         | 29             | 55             | 20          | 9611           | 11.1         | 35             | 61             |
| 30          | 6129           | 10.9         | 31             | 61             | 30          | 9500           | 11.1         | 37             | 66             |
| 40          | 6019           | 11.0         | 33             | 66             | 40          | 9390           | 11.0         | 39             | 71             |
| 50          | 5908           | 11.1         | 34             | 71             | 50          | 9270           | 11.1         | 40             | 76             |
| 27° 44' 00" | 5798           | 11.0         | 36             | 76             | 27° 54' 00" | 9168           | 11.1         | 42             | 81             |
| 10          | 5689           | 10.9         | 38             | 81             | 10          | 9058           | 11.0         | 44             | 86             |
| 20          | 5578           | 11.1         | 40             | 86             | 20          | 8946           | 11.2         | 46             | 91             |
| 30          | 5468           | 11.0         | 42             | 91             | 30          | 8836           | 11.0         | 48             | 2.10197        |
| 40          | 5358           | 11.0         | 43             | 2.09896        | 40          | 8725           | 11.1         | 49             | 2.10202        |
| 50          | 5248           | 11.0         | 45             | 2.09901        | 50          | 8614           | 11.1         | 51             | 07             |
| 27° 45' 00" | 5137           | 11.1         | 47             | 06             | 27° 55' 00" | 8503           | 11.1         | 53             | 12             |
| 10          | 5027           | 11.0         | 49             | 11             | 10          | 8392           | 11.1         | 55             | 17             |
| 20          | 4916           | 11.1         | 51             | 16             | 20          | 8281           | 11.1         | 57             | 22             |
| 30          | 4807           | 10.9         | 53             | 22             | 30          | 8170           | 11.1         | 59             | 27             |
| 40          | 4697           | 11.0         | 54             | 27             | 40          | 8059           | 11.1         | 60             | 32             |
| 50          | 4586           | 11.1         | 56             | 32             | 50          | 7948           | 11.1         | 62             | 37             |
| 27° 46' 00" | 4476           | 11.0         | 58             | 37             | 27° 56' 00" | 7836           | 11.2         | 64             | 42             |
| 10          | 4366           | 11.0         | 60             | 42             | 10          | 7726           | 11.0         | 66             | 47             |
| 20          | 4255           | 11.1         | 61             | 47             | 20          | 7614           | 11.2         | 67             | 52             |
| 30          | 4146           | 10.9         | 63             | 52             | 30          | 7503           | 11.1         | 69             | 57             |
| 40          | 4035           | 11.1         | 65             | 57             | 40          | 7393           | 11.0         | 71             | 62             |
| 50          | 3925           | 11.0         | 66             | 62             | 50          | 7281           | 11.2         | 72             | 67             |
| 27° 47' 00" | 3814           | 11.1         | 68             | 67             | 27° 57' 00" | 7170           | 11.1         | 74             | 72             |
| 10          | 3704           | 11.0         | 70             | 72             | 10          | 7060           | 11.0         | 76             | 77             |
| 20          | 3593           | 11.1         | 72             | 77             | 20          | 6948           | 11.2         | 78             | 82             |
| 30          | 3483           | 11.0         | 74             | 83             | 30          | 6837           | 11.1         | 80             | 88             |
| 40          | 3373           | 11.0         | 75             | 88             | 40          | 6725           | 11.2         | 81             | 93             |
| 50          | 3262           | 11.1         | 77             | 93             | 50          | 6615           | 11.0         | 83             | 2.10298        |
| 27° 48' 00" | 3152           | 11.0         | 79             | 2.09998        | 27° 58' 00" | 6503           | 11.2         | 85             | 2.10303        |
| 10          | 3042           | 11.0         | 81             | 2.10003        | 10          | 6392           | 11.1         | 87             | 08             |
| 20          | 2931           | 11.1         | 82             | 08             | 20          | 6280           | 11.2         | 89             | 13             |
| 30          | 2821           | 11.0         | 84             | 13             | 30          | 6169           | 11.1         | 91             | 18             |
| 40          | 2710           | 11.1         | 86             | 18             | 40          | 6058           | 11.1         | 92             | 24             |
| 50          | 2600           | 11.0         | 87             | 23             | 50          | 5947           | 11.1         | 94             | 29             |
| 27° 49' 00" | 2489           | 11.1         | 89             | 28             | 27° 59' 00" | 5836           | 11.1         | 96             | 34             |
| 10          | 2370           | 11.0         | 91             | 33             | 10          | 5725           | 11.1         | 98             | 39             |
| 20          | 2267           | 11.2         | 93             | 39             | 20          | 5613           | 11.2         | 2.0042799      | 44             |
| 30          | 2157           | 11.0         | 05             | 45             | 30          | 5502           | 11.1         | 2.0042801      | 49             |
| 40          | 2047           | 11.0         | 06             | 50             | 40          | 5390           | 11.2         | 03             | 54             |
| 50          | 1936           | 11.1         | 2.0042698      | 55             | 50          | 5279           | 11.1         | 04             | 59             |
| 27° 50' 00" | 1826           | 11.0         | 2.0042700      | 60             | 28° 00' 00" | 5167           | 11.2         | 06             | 64             |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 28 00 00  | 1.9525167 | 11.2         | 2.0042806 | 2.10364 | 28 10 00  | 1.9518463 | 11.1         | 2.0042913 | 2.10668 |
| 10        | 5056      | 11.1         | 08        | 69      | 10        | 8351      | 11.2         | 15        | 73      |
| 20        | 4944      | 11.2         | 10        | 74      | 20        | 8238      | 11.3         | 17        | 78      |
| 30        | 4833      | 11.1         | 12        | 80      | 30        | 8126      | 11.2         | 19        | 83      |
| 40        | 4722      | 11.1         | 13        | 85      | 40        | 8013      | 11.3         | 20        | 88      |
| 50        | 4610      | 11.2         | 15        | 90      | 50        | 7902      | 11.1         | 22        | 93      |
| 28 01 00  | 4499      | 11.1         | 17        | 2.10395 | 28 11 00  | 7789      | 11.3         | 24        | 2.10698 |
| 10        | 4388      | 11.1         | 19        | 2.10400 | 10        | 7677      | 11.2         | 26        | 2.10703 |
| 20        | 4276      | 11.2         | 21        | 05      | 20        | 7564      | 11.3         | 27        | 08      |
| 30        | 4165      | 11.1         | 23        | 10      | 30        | 7452      | 11.2         | 29        | 14      |
| 40        | 4053      | 11.2         | 24        | 15      | 40        | 7340      | 11.2         | 31        | 10      |
| 50        | 3942      | 11.1         | 26        | 20      | 50        | 7228      | 11.2         | 32        | 24      |
| 28 02 00  | 3830      | 11.2         | 28        | 25      | 28 12 00  | 7116      | 11.2         | 34        | 29      |
| 10        | 3719      | 11.1         | 30        | 30      | 10        | 7004      | 11.2         | 36        | 34      |
| 20        | 3607      | 11.2         | 31        | 35      | 20        | 6891      | 11.3         | 38        | 39      |
| 30        | 3496      | 11.1         | 33        | 40      | 30        | 6779      | 11.2         | 40        | 44      |
| 40        | 3384      | 11.2         | 35        | 45      | 40        | 6666      | 11.3         | 41        | 49      |
| 50        | 3272      | 11.2         | 36        | 50      | 50        | 6554      | 11.2         | 43        | 54      |
| 28 03 00  | 3161      | 11.1         | 38        | 55      | 28 13 0   | 6441      | 11.3         | 45        | 59      |
| 10        | 3050      | 11.1         | 40        | 60      | 10        | 6329      | 11.2         | 47        | 64      |
| 20        | 2938      | 11.2         | 42        | 65      | 20        | 6216      | 11.3         | 49        | 69      |
| 30        | 2826      | 11.2         | 44        | 71      | 30        | 6104      | 11.2         | 51        | 74      |
| 40        | 2714      | 11.2         | 45        | 76      | 40        | 5992      | 11.2         | 52        | 79      |
| 50        | 2603      | 11.1         | 47        | 81      | 50        | 5879      | 11.3         | 54        | 84      |
| 28 04 00  | 2491      | 11.2         | 49        | 86      | 28 14 00  | 5767      | 11.2         | 56        | 89      |
| 10        | 2379      | 11.2         | 51        | 91      | 10        | 5655      | 11.2         | 58        | 94      |
| 20        | 2267      | 11.2         | 53        | 2.10496 | 20        | 5542      | 11.3         | 60        | 2.10799 |
| 30        | 2156      | 11.1         | 55        | 2.10501 | 30        | 5430      | 11.2         | 62        | 2.10804 |
| 40        | 2044      | 11.2         | 56        | 06      | 40        | 5318      | 11.2         | 63        | 09      |
| 50        | 1932      | 11.2         | 58        | 11      | 50        | 5205      | 11.3         | 65        | 14      |
| 28 05 00  | 1821      | 11.1         | 60        | 16      | 28 15 00  | 5092      | 11.3         | 67        | 19      |
| 10        | 1709      | 11.2         | 62        | 21      | 10        | 4980      | 11.2         | 69        | 24      |
| 20        | 1597      | 11.2         | 63        | 26      | 20        | 4867      | 11.3         | 70        | 29      |
| 30        | 1486      | 11.1         | 65        | 31      | 30        | 4755      | 11.2         | 72        | 34      |
| 40        | 1374      | 11.2         | 67        | 36      | 40        | 4642      | 11.3         | 74        | 39      |
| 50        | 1262      | 11.2         | 68        | 41      | 50        | 4530      | 11.2         | 75        | 44      |
| 28 06 00  | 1150      | 11.2         | 70        | 46      | 28 16 00  | 4416      | 11.4         | 77        | 49      |
| 10        | 1039      | 11.1         | 72        | 51      | 10        | 4304      | 11.2         | 79        | 54      |
| 20        | 0927      | 11.2         | 74        | 56      | 20        | 4191      | 11.3         | 81        | 59      |
| 30        | 0815      | 11.2         | 76        | 62      | 30        | 4079      | 11.2         | 83        | 64      |
| 40        | 0703      | 11.2         | 77        | 67      | 40        | 3966      | 11.3         | 84        | 69      |
| 50        | 0591      | 11.2         | 79        | 72      | 50        | 3853      | 11.3         | 86        | 74      |
| 28 07 00  | 0479      | 11.2         | 81        | 77      | 28 17 00  | 3741      | 11.2         | 88        | 79      |
| 10        | 0367      | 11.2         | 83        | 82      | 10        | 3629      | 11.2         | 90        | 84      |
| 20        | 0255      | 11.2         | 85        | 87      | 20        | 3515      | 11.4         | 92        | 90      |
| 30        | 0143      | 11.2         | 87        | 92      | 30        | 3403      | 11.2         | 94        | 2.10846 |
| 40        | 1 9520032 | 11.1         | 88        | 2.10597 | 40        | 3290      | 11.3         | 95        | 2.10901 |
| 50        | 1 9519919 | 11.3         | 90        | 2.10602 | 50        | 3177      | 11.3         | 97        | 06      |
| 28 08 00  | 9807      | 11.2         | 92        | 07      | 28 18 00  | 3064      | 11.3         | 2.0042909 | 11      |
| 10        | 9696      | 11.1         | 94        | 13      | 10        | 2952      | 11.2         | 2.0043001 | 16      |
| 20        | 9583      | 11.3         | 95        | 18      | 20        | 2838      | 11.4         | 02        | 21      |
| 30        | 9472      | 11.1         | 97        | 23      | 30        | 2726      | 11.2         | 04        | 26      |
| 40        | 9359      | 11.3         | 2.0042899 | 28      | 40        | 2613      | 11.3         | 06        | 31      |
| 50        | 9247      | 11.2         | 2.0042900 | 33      | 50        | 2500      | 11.3         | 07        | 36      |
| 28 09 00  | 9135      | 11.2         | 02        | 38      | 28 19 00  | 2387      | 11.3         | 09        | 41      |
| 10        | 9023      | 11.2         | 04        | 43      | 10        | 2275      | 11.2         | 11        | 46      |
| 20        | 8910      | 11.3         | 06        | 48      | 20        | 2162      | 11.3         | 13        | 51      |
| 30        | 8799      | 11.1         | 08        | 53      | 30        | 2049      | 11.3         | 15        | 56      |
| 40        | 8687      | 11.2         | 09        | 58      | 40        | 1937      | 11.2         | 16        | 61      |
| 50        | 8574      | 11.3         | 11        | 63      | 50        | 1823      | 11.4         | 18        | 66      |
| 28 10 00  | 8463      | 11.1         | 13        | 68      | 28 20 00  | 1711      | 11.2         | 20        | 71      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Diff.<br>1''. | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Diff.<br>1''. | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|---------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|
| • ′ ″     |               |               |               |               | • ′ ″     |               |               |               |               |
| 28 20 00  | 1.9511711     | 11.2          | 2.0043020     | 2.10971       | 28 30 00  | 1.9504910     | 11.4          | 2.0043128     | 2.11272       |
| 10        | 1598          | 11.3          | 22            | 76            | 10        | 4797          | 11.3          | 30            | 77            |
| 20        | 1484          | 11.4          | 24            | 81            | 20        | 4682          | 11.5          | 31            | 82            |
| 30        | 1372          | 11.2          | 26            | 86            | 30        | 4569          | 11.3          | 33            | 87            |
| 40        | 1258          | 11.4          | 27            | 91            | 40        | 4456          | 11.3          | 35            | 92            |
| 50        | 1146          | 11.2          | 29            | 2.10996       | 50        | 4341          | 11.5          | 36            | 2.11297       |
| 28 21 00  | 1032          | 11.4          | 31            | 2.11001       | 28 31 00  | 4228          | 11.3          | 38            | 2.11302       |
| 10        | 0919          | 11.3          | 33            | 06            | 10        | 4114          | 11.4          | 40            | 07            |
| 20        | 0806          | 11.3          | 35            | 11            | 20        | 4000          | 11.4          | 42            | 12            |
| 30        | 0693          | 11.3          | 37            | 16            | 30        | 3887          | 11.3          | 44            | 17            |
| 40        | 0581          | 11.2          | 38            | 21            | 40        | 3773          | 11.4          | 45            | 22            |
| 50        | 0467          | 11.3          | 40            | 26            | 50        | 3659          | 11.4          | 47            | 27            |
| 28 22 00  | 0354          | 11.3          | 42            | 31            | 28 32 00  | 3545          | 11.4          | 49            | 32            |
| 10        | 0242          | 11.2          | 44            | 36            | 10        | 3432          | 11.3          | 51            | 37            |
| 20        | 0128          | 11.4          | 45            | 41            | 20        | 3317          | 11.5          | 53            | 42            |
| 30        | 1.9510015     | 11.3          | 47            | 46            | 30        | 3204          | 11.3          | 55            | 47            |
| 40        | 1.9509901     | 11.4          | 49            | 51            | 40        | 3089          | 11.5          | 56            | 52            |
| 50        | 9789          | 11.2          | 50            | 56            | 50        | 2976          | 11.3          | 58            | 57            |
| 28 23 00  | 9675          | 11.4          | 52            | 61            | 28 33 00  | 2861          | 11.5          | 60            | 62            |
| 10        | 9562          | 11.3          | 54            | 66            | 10        | 2748          | 11.3          | 62            | 67            |
| 20        | 9448          | 11.4          | 56            | 71            | 20        | 2633          | 11.5          | 64            | 72            |
| 30        | 9335          | 11.3          | 58            | 76            | 30        | 2519          | 11.4          | 66            | 77            |
| 40        | 9223          | 11.2          | 59            | 81            | 40        | 2406          | 11.3          | 67            | 82            |
| 50        | 9109          | 11.4          | 61            | 86            | 50        | 2291          | 11.5          | 69            | 87            |
| 28 24 00  | 8996          | 11.3          | 63            | 91            | 28 34 00  | 2178          | 11.3          | 71            | 92            |
| 10        | 8883          | 11.3          | 65            | 2.11096       | 10        | 2064          | 11.4          | 73            | 2.11397       |
| 20        | 8769          | 11.4          | 67            | 2.11101       | 20        | 1949          | 11.5          | 74            | 2.11402       |
| 30        | 8656          | 11.3          | 69            | 06            | 30        | 1836          | 11.3          | 76            | 07            |
| 40        | 8543          | 11.3          | 70            | 11            | 40        | 1721          | 11.5          | 78            | 12            |
| 50        | 8430          | 11.3          | 72            | 16            | 50        | 1607          | 11.4          | 79            | 17            |
| 28 25 00  | 8316          | 11.4          | 74            | 21            | 28 35 00  | 1492          | 11.5          | 81            | 22            |
| 10        | 8203          | 11.3          | 76            | 26            | 10        | 1379          | 11.3          | 83            | 27            |
| 20        | 8089          | 11.4          | 78            | 31            | 20        | 1264          | 11.5          | 85            | 32            |
| 30        | 7976          | 11.3          | 80            | 36            | 30        | 1150          | 11.4          | 87            | 37            |
| 40        | 7863          | 11.3          | 81            | 41            | 40        | 1037          | 11.3          | 88            | 42            |
| 50        | 7749          | 11.4          | 83            | 46            | 50        | 0922          | 11.5          | 90            | 47            |
| 28 26 00  | 7636          | 11.3          | 85            | 51            | 28 36 00  | 0808          | 11.4          | 92            | 53            |
| 10        | 7523          | 11.3          | 87            | 56            | 10        | 0694          | 11.4          | 94            | 58            |
| 20        | 7409          | 11.4          | 88            | 61            | 20        | 0579          | 11.5          | 96            | 63            |
| 30        | 7296          | 11.3          | 90            | 66            | 30        | 0465          | 11.4          | 98            | 68            |
| 40        | 7183          | 11.3          | 92            | 71            | 40        | 0351          | 11.4          | 2.0043199     | 73            |
| 50        | 7069          | 11.4          | 93            | 77            | 50        | 0237          | 11.3          | 2.0043201     | 78            |
| 28 27 00  | 6956          | 11.3          | 95            | 82            | 28 37 00  | 0122          | 11.5          | 03            | 83            |
| 10        | 6843          | 11.3          | 97            | 87            | 10        | 1.9500008     | 11.4          | 05            | 88            |
| 20        | 6728          | 11.5          | 2.0043099     | 92            | 20        | 1.94909593    | 11.5          | 07            | 93            |
| 30        | 6615          | 11.3          | 02            | 2.0043101     | 2.11197   | 9779          | 11.4          | 09            | 2.11498       |
| 40        | 6501          | 11.4          | 02            | 2.11202       | 40        | 9665          | 11.4          | 10            | 2.11503       |
| 50        | 6388          | 11.3          | 04            | 07            | 50        | 9550          | 11.5          | 12            | 08            |
| 28 28 00  | 6274          | 11.4          | 06            | 12            | 28 38 00  | 9436          | 11.4          | 14            | 13            |
| 10        | 6161          | 11.3          | 08            | 17            | 10        | 9322          | 11.4          | 16            | 18            |
| 20        | 6047          | 11.4          | 10            | 22            | 20        | 9207          | 11.5          | 18            | 23            |
| 30        | 5933          | 11.4          | 12            | 27            | 30        | 9094          | 11.3          | 20            | 28            |
| 40        | 5820          | 11.3          | 13            | 32            | 40        | 8980          | 11.4          | 21            | 33            |
| 50        | 5706          | 11.4          | 15            | 37            | 50        | 8864          | 11.6          | 23            | 38            |
| 28 29 00  | 5593          | 11.3          | 17            | 42            | 28 39 00  | 8750          | 11.4          | 25            | 43            |
| 10        | 5479          | 11.4          | 19            | 47            | 10        | 8636          | 11.4          | 27            | 48            |
| 20        | 5365          | 11.4          | 21            | 52            | 20        | 8521          | 11.5          | 28            | 53            |
| 30        | 5252          | 11.3          | 23            | 57            | 30        | 8407          | 11.4          | 30            | 58            |
| 40        | 5138          | 11.4          | 24            | 62            | 40        | 8292          | 11.5          | 32            | 63            |
| 50        | 5024          | 11.4          | 26            | 67            | 50        | 8178          | 11.4          | 33            | 68            |
| 28 30 00  | 4910          | 11.4          | 28            | 72            | 28 40 00  | 8063          | 11.5          | 35            | 73            |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Diff.<br>1". | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Diff.<br>1". | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|--------------|----------------|----------------|-----------|----------------|--------------|----------------|----------------|
| ° ′ ″     |                |              |                |                | ° ′ ″     |                |              |                |                |
| 28 40 00  | 1.9498063      | 11.5         | 2.0043235      | 2.11573        | 28 50 00  | 1.9491168      | 11.6         | 2.0043344      | 2.11872        |
| 10        | 7649           | 11.4         |                | 37             | 78        | 10             | 1053         | 11.5           | 46 77          |
| 20        | 7834           | 11.5         |                | 39             | 83        | 20             | 0937         | 11.6           | 48 82          |
| 30        | 7720           | 11.4         |                | 41             | 88        | 30             | 0822         | 11.5           | 50 87          |
| 40        | 7605           | 11.5         |                | 42             | 92        | 40             | 0707         | 11.5           | 51 91          |
| 50        | 7490           | 11.5         |                | 44             | 2.11597   | 50             | 0592         | 11.5           | 53 2.11896     |
| 28 41 00  | 7376           | 11.4         | 46             | 2.11602        | 28 51 00  | 0477           | 11.5         | 55             | 2.11901        |
| 10        | 7262           | 11.4         | 48             | 07             | 10        | 0362           | 11.5         | 57             | 06             |
| 20        | 7147           | 11.5         | 50             | 12             | 20        | 0246           | 11.6         | 59             | 11             |
| 30        | 7032           | 11.5         | 52             | 17             | 30        | 0131           | 11.5         | 61             | 16             |
| 40        | 6918           | 11.4         | 53             | 22             | 40        | 1.9490015      | 11.6         | 62             | 21             |
| 50        | 6803           | 11.5         | 55             | 27             | 50        | 1.9489899      | 11.6         | 64             | 26             |
| 28 42 00  | 6689           | 11.4         | 57             | 32             | 28 52 00  | 9784           | 11.5         | 66             | 31             |
| 10        | 6574           | 11.5         | 59             | 37             | 10        | 9669           | 11.5         | 68             | 36             |
| 20        | 6459           | 11.5         | 61             | 42             | 20        | 9553           | 11.6         | 69             | 41             |
| 30        | 6345           | 11.4         | 63             | 47             | 30        | 9438           | 11.5         | 71             | 46             |
| 40        | 6229           | 11.6         | 64             | 52             | 40        | 9322           | 11.6         | 73             | 51             |
| 50        | 6115           | 11.4         | 66             | 57             | 50        | 9207           | 11.5         | 74             | 56             |
| 28 43 00  | 6000           | 11.5         | 68             | 62             | 28 53 00  | 9091           | 11.6         | 76             | 61             |
| 10        | 5885           | 11.5         | 70             | 67             | 10        | 8976           | 11.5         | 78             | 66             |
| 20        | 5770           | 11.5         | 72             | 72             | 20        | 8859           | 11.7         | 80             | 71             |
| 30        | 5656           | 11.4         | 74             | 77             | 30        | 8744           | 11.5         | 82             | 76             |
| 40        | 5541           | 11.5         | 75             | 82             | 40        | 8629           | 11.5         | 83             | 81             |
| 50        | 5426           | 11.5         | 77             | 87             | 50        | 8513           | 11.6         | 85             | 86             |
| 28 44 00  | 5311           | 11.5         | 79             | 92             | 28 54 00  | 8398           | 11.5         | 87             | 91             |
| 10        | 5197           | 11.4         | 81             | 2.11697        | 10        | 8282           | 11.6         | 89             | 2.11996        |
| 20        | 5082           | 11.5         | 83             | 2.11702        | 20        | 8166           | 11.6         | 91             | 2.12001        |
| 30        | 4967           | 11.5         | 85             | 07             | 30        | 8051           | 11.5         | 93             | 06             |
| 40        | 4852           | 11.5         | 86             | 12             | 40        | 7936           | 11.5         | 94             | 11             |
| 50        | 4737           | 11.5         | 88             | 17             | 50        | 7819           | 11.7         | 96             | 16             |
| 28 45 00  | 4622           | 11.5         | 90             | 22             | 28 55 00  | 7704           | 11.5         | 2.0043398      | 21             |
| 10        | 4507           | 11.5         | 92             | 27             | 10        | 7589           | 11.5         | 2.0043400      | 26             |
| 20        | 4392           | 11.5         | 93             | 33             | 20        | 7472           | 11.7         | 02             | 31             |
| 30        | 4277           | 11.5         | 95             | 38             | 30        | 7357           | 11.5         | 04             | 36             |
| 40        | 4162           | 11.5         | 97             | 43             | 40        | 7241           | 11.6         | 05             | 41             |
| 50        | 4047           | 11.5         | 2.0043298      | 48             | 50        | 7125           | 11.6         | 07             | 46             |
| 28 46 00  | 3932           | 11.5         | 2.0043300      | 53             | 28 56 00  | 7009           | 11.6         | 09             | 51             |
| 10        | 3818           | 11.4         | 02             | 58             | 10        | 6893           | 11.6         | 11             | 56             |
| 20        | 3702           | 11.6         | 04             | 63             | 20        | 6777           | 11.6         | 13             | 61             |
| 30        | 3587           | 11.5         | 06             | 68             | 30        | 6662           | 11.5         | 15             | 66             |
| 40        | 3473           | 11.4         | 07             | 72             | 40        | 6546           | 11.6         | 16             | 71             |
| 50        | 3357           | 11.6         | 09             | 77             | 50        | 6430           | 11.6         | 18             | 76             |
| 28 47 00  | 3242           | 11.5         | 11             | 82             | 28 57 00  | 6314           | 11.6         | 20             | 81             |
| 10        | 3128           | 11.4         | 13             | 87             | 10        | 6199           | 11.5         | 22             | 86             |
| 20        | 3012           | 11.6         | 15             | 92             | 20        | 6082           | 11.7         | 24             | 91             |
| 30        | 2897           | 11.5         | 17             | 2.11797        | 30        | 5967           | 11.5         | 26             | 2.12096        |
| 40        | 2782           | 11.5         | 18             | 2.11802        | 40        | 5850           | 11.7         | 27             | 2.12100        |
| 50        | 2667           | 11.5         | 20             | 07             | 50        | 5735           | 11.5         | 29             | 05             |
| 28 48 00  | 2551           | 11.6         | 22             | 12             | 28 58 00  | 5618           | 11.7         | 31             | 10             |
| 10        | 2436           | 11.5         | 24             | 17             | 10        | 5503           | 11.5         | 33             | 15             |
| 20        | 2321           | 11.5         | 26             | 22             | 20        | 5386           | 11.7         | 35             | 20             |
| 30        | 2206           | 11.5         | 28             | 27             | 30        | 5270           | 11.6         | 37             | 25             |
| 40        | 2091           | 11.5         | 29             | 32             | 40        | 5155           | 11.5         | 38             | 30             |
| 50        | 1975           | 11.6         | 31             | 37             | 50        | 5038           | 11.7         | 40             | 35             |
| 28 49 00  | 1860           | 11.5         | 33             | 42             | 28 59 00  | 4923           | 11.5         | 42             | 40             |
| 10        | 1746           | 11.4         | 35             | 47             | 10        | 4807           | 11.6         | 44             | 45             |
| 20        | 1630           | 11.6         | 37             | 52             | 20        | 4690           | 11.7         | 46             | 50             |
| 30        | 1515           | 11.5         | 39             | 57             | 30        | 4575           | 11.5         | 48             | 55             |
| 40        | 1399           | 11.6         | 40             | 62             | 40        | 4459           | 11.6         | 49             | 60             |
| 50        | 1284           | 11.5         | 42             | 67             | 50        | 4342           | 11.7         | 51             | 65             |
| 28 50 00  | 1168           | 11.6         | 44             | 72             | 29 00 00  | 4227           | 11.5         | 53             | 70             |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitudo. | Log $H$ . | Diff.<br>1". | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Diff.<br>1". | Log $K$ . | Log $L$ . |
|-----------|-----------|--------------|-----------|-----------|-----------|-----------|--------------|-----------|-----------|
| ° ' "     |           |              |           |           | ° ' "     |           |              |           |           |
| 29 00 00  | 1.9484227 | 11.5         | 2.0043453 | 2.12170   | 29 10 00  | 1.9477236 | 11.6         | 2.0043502 | 2.12467   |
| 10        | 4111      | 11.6         | 55        | 75        | 10        | 7119      | 11.7         | 64        | 72        |
| 20        | 3994      | 11.7         | 57        | 80        | 20        | 7002      | 11.7         | 66        | 77        |
| 30        | 3878      | 11.6         | 59        | 85        | 30        | 6885      | 11.7         | 68        | 82        |
| 40        | 3762      | 11.6         | 60        | 89        | 40        | 6769      | 11.6         | 69        | 86        |
| 50        | 3646      | 11.6         | 62        | 94        | 50        | 6651      | 11.8         | 71        | 91        |
| 29 01 00  | 3529      | 11.7         | 64        | 2.12199   | 29 11 00  | 6535      | 11.6         | 73        | 2.12496   |
| 10        | 3413      | 11.6         | 66        | 2.12204   | 10        | 6418      | 11.7         | 75        | 2.12501   |
| 20        | 3296      | 11.7         | 67        | 69        | 20        | 6300      | 11.8         | 77        | 06        |
| 30        | 3181      | 11.5         | 69        | 14        | 30        | 6184      | 11.6         | 79        | 11        |
| 40        | 3065      | 11.6         | 71        | 19        | 40        | 6066      | 11.8         | 80        | 16        |
| 50        | 2948      | 11.7         | 72        | 24        | 50        | 5949      | 11.7         | 82        | 21        |
| 29 02 00  | 2832      | 11.6         | 74        | 29        | 29 12 00  | 5832      | 11.7         | 84        | 26        |
| 10        | 2716      | 11.6         | 76        | 34        | 10        | 5715      | 11.7         | 86        | 31        |
| 20        | 2599      | 11.7         | 78        | 39        | 20        | 5597      | 11.8         | 88        | 36        |
| 30        | 2483      | 11.6         | 80        | 44        | 30        | 5481      | 11.6         | 90        | 41        |
| 40        | 2368      | 11.5         | 81        | 49        | 40        | 5364      | 11.7         | 91        | 45        |
| 50        | 2251      | 11.7         | 83        | 54        | 50        | 5246      | 11.8         | 93        | 51        |
| 29 03 00  | 2135      | 11.6         | 85        | 59        | 29 13 00  | 5129      | 11.7         | 95        | 56        |
| 10        | 2019      | 11.6         | 87        | 64        | 10        | 5013      | 11.6         | 97        | 61        |
| 20        | 1902      | 11.7         | 89        | 69        | 20        | 4895      | 11.8         | 2.0043599 | 66        |
| 30        | 1786      | 11.6         | 91        | 74        | 30        | 4778      | 11.7         | 2.0043601 | 71        |
| 40        | 1669      | 11.7         | 92        | 79        | 40        | 4661      | 11.7         | 02        | 76        |
| 50        | 1553      | 11.6         | 94        | 84        | 50        | 4544      | 11.7         | 04        | 81        |
| 29 04 00  | 1436      | 11.7         | 96        | 89        | 29 14 00  | 4427      | 11.7         | 06        | 86        |
| 10        | 1320      | 11.6         | 2.0043498 | 94        | 10        | 4310      | 11.7         | 08        | 91        |
| 20        | 1203      | 11.7         | 2.0043500 | 2.12299   | 20        | 4192      | 11.8         | 09        | 2.12506   |
| 30        | 1087      | 11.6         | 02        | 2.12304   | 30        | 4075      | 11.7         | 11        | 2.12601   |
| 40        | 0970      | 11.7         | 03        | 09        | 40        | 3957      | 11.8         | 13        | 05        |
| 50        | 0853      | 11.7         | 05        | 14        | 50        | 3840      | 11.7         | 14        | 10        |
| 29 05 00  | 0737      | 11.6         | 07        | 19        | 29 15 00  | 3722      | 11.8         | 16        | 15        |
| 10        | 0621      | 11.6         | 09        | 24        | 10        | 3606      | 11.6         | 18        | 20        |
| 20        | 0504      | 11.7         | 11        | 29        | 20        | 3488      | 11.8         | 20        | 25        |
| 30        | 0388      | 11.6         | 13        | 34        | 30        | 3371      | 11.7         | 22        | 30        |
| 40        | 0272      | 11.6         | 14        | 38        | 40        | 3254      | 11.7         | 23        | 35        |
| 50        | 0155      | 11.7         | 16        | 43        | 50        | 3136      | 11.8         | 25        | 40        |
| 29 06 00  | 1.9480038 | 11.7         | 18        | 48        | 29 16 00  | 3019      | 11.7         | 27        | 45        |
| 10        | 1.9479922 | 11.6         | 20        | 53        | 10        | 2902      | 11.7         | 29        | 50        |
| 20        | 9805      | 11.7         | 22        | 58        | 20        | 2784      | 11.8         | 31        | 55        |
| 30        | 9689      | 11.6         | 24        | 63        | 30        | 2667      | 11.7         | 33        | 60        |
| 40        | 9571      | 11.8         | 25        | 68        | 40        | 2550      | 11.7         | 34        | 64        |
| 50        | 9455      | 11.6         | 27        | 73        | 50        | 2432      | 11.8         | 36        | 69        |
| 29 07 00  | 9338      | 11.7         | 29        | 78        | 29 17 00  | 2315      | 11.7         | 38        | 74        |
| 10        | 9222      | 11.6         | 31        | 83        | 10        | 2197      | 11.8         | 40        | 79        |
| 20        | 9104      | 11.8         | 33        | 88        | 20        | 2079      | 11.8         | 42        | 84        |
| 30        | 8988      | 11.6         | 35        | 93        | 30        | 1962      | 11.7         | 44        | 89        |
| 40        | 8872      | 11.6         | 36        | 2.12397   | 40        | 1844      | 11.8         | 45        | 94        |
| 50        | 8754      | 11.8         | 38        | 2.12402   | 50        | 1727      | 11.7         | 47        | 2.12699   |
| 29 08 00  | 8638      | 11.6         | 40        | 07        | 29 18 00  | 1609      | 11.8         | 49        | 2.12704   |
| 10        | 8522      | 11.6         | 42        | 12        | 10        | 1492      | 11.7         | 51        | 09        |
| 20        | 8404      | 11.8         | 44        | 17        | 20        | 1374      | 11.8         | 53        | 14        |
| 30        | 8288      | 11.6         | 46        | 22        | 30        | 1256      | 11.8         | 55        | 19        |
| 40        | 8171      | 11.7         | 47        | 27        | 40        | 1139      | 11.7         | 56        | 23        |
| 50        | 8054      | 11.7         | 49        | 32        | 50        | 1021      | 11.8         | 58        | 28        |
| 29 09 00  | 7937      | 11.7         | 51        | 37        | 29 19 00  | 0904      | 11.7         | 60        | 33        |
| 10        | 7820      | 11.7         | 53        | 42        | 10        | 0786      | 11.8         | 62        | 38        |
| 20        | 7703      | 11.7         | 55        | 47        | 20        | 0668      | 11.8         | 64        | 43        |
| 30        | 7586      | 11.7         | 57        | 52        | 30        | 0551      | 11.7         | 66        | 48        |
| 40        | 7470      | 11.6         | 58        | 57        | 40        | 0434      | 11.7         | 67        | 52        |
| 50        | 7352      | 11.8         | 60        | 62        | 50        | 0315      | 11.9         | 69        | 57        |
| 29 10 00  | 7236      | 11.6         | 62        | 67        | 29 20 00  | 0198      | 11.7         | 71        | 62        |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| ° ' "     |           |             |           |         | ° ' "     |           |             |           |         |
| 29 20 00  | 1.9470198 | 11.7        | 2.0043671 | 2.12762 | 29 30 00  | 1.9463111 | 11.9        | 2.0043781 | 2.13057 |
| 10        | 1.9470081 | 11.7        | 73        | 67      | 10        | 2993      | 11.8        | 83        | 62      |
| 20        | 1.9469962 | 11.9        | 75        | 72      | 20        | 2873      | 12.0        | 85        | 67      |
| 30        | 9845      | 11.7        | 77        | 77      | 30        | 2755      | 11.8        | 87        | 72      |
| 40        | 9727      | 11.8        | 78        | 82      | 40        | 2637      | 11.8        | 88        | 77      |
| 50        | 9609      | 11.8        | 80        | 87      | 50        | 2518      | 11.9        | 90        | 82      |
| 29 21 00  | 9491      | 11.8        | 82        | 92      | 29 31 00  | 2400      | 11.8        | 92        | 88      |
| 10        | 9373      | 11.8        | 84        | 2.12797 | 10        | 2282      | 11.8        | 94        | 93      |
| 20        | 9255      | 11.8        | 86        | 2.12802 | 20        | 2162      | 12.0        | 96        | 2.13098 |
| 30        | 9138      | 11.7        | 88        | 07      | 30        | 2044      | 11.8        | 98        | 2.13103 |
| 40        | 9020      | 11.8        | 89        | 11      | 40        | 1926      | 11.8        | 2.0043799 | 07      |
| 50        | 8902      | 11.8        | 91        | 16      | 50        | 1807      | 11.9        | 2.0043801 | 12      |
| 29 22 00  | 8784      | 11.8        | 93        | 22      | 29 32 00  | 1688      | 11.9        | 03        | 17      |
| 10        | 8667      | 11.7        | 95        | 27      | 10        | 1570      | 11.8        | 05        | 22      |
| 20        | 8548      | 11.9        | 97        | 32      | 20        | 1451      | 11.9        | 07        | 27      |
| 30        | 8431      | 11.7        | 2.0043699 | 37      | 30        | 1332      | 11.9        | 09        | 32      |
| 40        | 8313      | 11.8        | 2.0043700 | 42      | 40        | 1213      | 11.9        | 10        | 36      |
| 50        | 8195      | 11.8        | 02        | 47      | 50        | 1095      | 11.8        | 12        | 41      |
| 29 23 00  | 8077      | 11.8        | 04        | 52      | 29 33 00  | 0975      | 12.0        | 14        | 46      |
| 10        | 7960      | 11.7        | 06        | 57      | 10        | 0857      | 11.8        | 16        | 51      |
| 20        | 7841      | 11.9        | 08        | 62      | 20        | 0738      | 11.9        | 18        | 56      |
| 30        | 7723      | 11.8        | 10        | 67      | 30        | 0619      | 11.9        | 20        | 61      |
| 40        | 7605      | 11.8        | 11        | 71      | 40        | 0501      | 11.8        | 21        | 66      |
| 50        | 7487      | 11.8        | 13        | 76      | 50        | 0381      | 12.0        | 23        | 71      |
| 29 24 00  | 7369      | 11.8        | 15        | 81      | 29 34 00  | 0263      | 11.8        | 25        | 76      |
| 10        | 7251      | 11.8        | 17        | 86      | 10        | 0144      | 11.9        | 27        | 81      |
| 20        | 7132      | 11.9        | 19        | 91      | 20        | 1.9460025 | 11.9        | 29        | 86      |
| 30        | 7015      | 11.7        | 21        | 2.12896 | 30        | 1.9459906 | 11.9        | 31        | 91      |
| 40        | 6897      | 11.8        | 22        | 2.12901 | 40        | 9788      | 11.8        | 32        | 2.13195 |
| 50        | 6778      | 11.9        | 24        | 06      | 50        | 9668      | 12.0        | 34        | 2.13200 |
| 29 25 00  | 6660      | 11.8        | 26        | 11      | 29 35 00  | 9550      | 11.8        | 36        | 05      |
| 10        | 6543      | 11.7        | 28        | 16      | 10        | 9431      | 11.9        | 38        | 10      |
| 20        | 6424      | 11.9        | 30        | 21      | 20        | 9312      | 11.9        | 40        | 15      |
| 30        | 6306      | 11.8        | 32        | 26      | 30        | 9193      | 11.9        | 42        | 20      |
| 40        | 6188      | 11.8        | 33        | 30      | 40        | 9074      | 11.9        | 43        | 24      |
| 50        | 6070      | 11.8        | 35        | 35      | 50        | 8955      | 11.9        | 45        | 29      |
| 29 26 00  | 5952      | 11.8        | 37        | 40      | 29 36 00  | 8836      | 11.9        | 47        | 34      |
| 10        | 5834      | 11.8        | 39        | 45      | 10        | 8717      | 11.9        | 49        | 39      |
| 20        | 5715      | 11.9        | 41        | 50      | 20        | 8597      | 12.0        | 51        | 44      |
| 30        | 5597      | 11.8        | 43        | 55      | 30        | 8479      | 11.8        | 53        | 49      |
| 40        | 5479      | 11.8        | 44        | 59      | 40        | 8360      | 11.9        | 54        | 53      |
| 50        | 5361      | 11.8        | 46        | 64      | 50        | 8240      | 12.0        | 56        | 58      |
| 29 27 00  | 5242      | 11.9        | 48        | 69      | 29 37 00  | 8122      | 11.8        | 58        | 63      |
| 10        | 5124      | 11.8        | 50        | 74      | 10        | 8003      | 11.9        | 60        | 68      |
| 20        | 5005      | 11.9        | 52        | 79      | 20        | 7883      | 12.0        | 62        | 73      |
| 30        | 4887      | 11.8        | 54        | 84      | 30        | 7764      | 11.9        | 64        | 78      |
| 40        | 4769      | 11.8        | 55        | 89      | 40        | 7646      | 11.8        | 65        | 83      |
| 50        | 4650      | 11.9        | 57        | 94      | 50        | 7526      | 12.0        | 67        | 88      |
| 29 28 00  | 4532      | 11.8        | 59        | 2.12999 | 29 38 00  | 7497      | 11.9        | 69        | 93      |
| 10        | 4414      | 11.8        | 61        | 2.13004 | 10        | 7288      | 11.9        | 71        | 2.13298 |
| 20        | 4295      | 11.9        | 63        | 09      | 20        | 7169      | 11.9        | 73        | 2.13303 |
| 30        | 4177      | 11.8        | 65        | 14      | 30        | 7050      | 11.9        | 75        | 08      |
| 40        | 4059      | 11.8        | 66        | 18      | 40        | 6930      | 12.0        | 77        | 12      |
| 50        | 3940      | 11.9        | 68        | 23      | 50        | 6811      | 11.9        | 79        | 17      |
| 29 29 00  | 3822      | 11.8        | 70        | 28      | 29 39 00  | 6691      | 12.0        | 81        | 22      |
| 10        | 3701      | 11.8        | 72        | 33      | 10        | 6573      | 11.8        | 83        | 27      |
| 20        | 3585      | 11.9        | 74        | 38      | 20        | 6453      | 12.0        | 85        | 32      |
| 30        | 3467      | 11.8        | 76        | 43      | 30        | 6334      | 11.9        | 87        | 37      |
| 40        | 3348      | 11.9        | 77        | 47      | 40        | 6215      | 11.9        | 88        | 41      |
| 50        | 3230      | 11.8        | 79        | 52      | 50        | 6095      | 12.0        | 90        | 46      |
| 29 30 00  | 3111      | 11.9        | 81        | 57      | 29 40 00  | 5976      | 11.9        | 92        | 51      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Diff.<br>1". | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Diff.<br>1". | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|--------------|----------------|----------------|-----------|----------------|--------------|----------------|----------------|
| 29 40 00  | 1.9455076      | 11.9         | 2.0043892      | 2.13351        | 29 50 00  | 1.9448703      | 11.9         | 2.0044002      | 2.13045        |
| 10        | 5857           | 11.9         | 94             | 57             | 10        | 8673           | 12.0         | 04             | 50             |
| 20        | 5737           | 12.0         | 96             | 62             | 20        | 8552           | 12.1         | 06             | 55             |
| 30        | 5618           | 11.9         | 98             | 67             | 30        | 8432           | 12.0         | 08             | 60             |
| 40        | 5499           | 11.9         | 2.0043899      | 71             | 40        | 8312           | 12.0         | 09             | 64             |
| 50        | 5379           | 12.0         | 2.0043901      | 76             | 50        | 8192           | 12.0         | 11             | 69             |
| 29 41 00  | 5260           | 11.9         | 03             | 81             | 29 51 00  | 8072           | 12.0         | 13             | 74             |
| 10        | 5141           | 11.9         | 05             | 80             | 10        | 7952           | 12.0         | 15             | 79             |
| 20        | 5021           | 12.0         | 07             | 91             | 20        | 7831           | 12.1         | 17             | 84             |
| 30        | 4902           | 11.9         | 09             | 2.13396        | 30        | 7711           | 12.0         | 19             | 89             |
| 40        | 4782           | 12.0         | 10             | 2.13400        | 40        | 7590           | 12.1         | 20             | 93             |
| 50        | 4663           | 11.9         | 12             | 05             | 50        | 7471           | 11.9         | 22             | 2.13098        |
| 29 42 00  | 4543           | 12.0         | 14             | 10             | 29 52 00  | 7350           | 12.1         | 24             | 2.13703        |
| 10        | 4424           | 11.9         | 16             | 15             | 10        | 7230           | 12.0         | 26             | 08             |
| 20        | 4304           | 12.0         | 18             | 20             | 20        | 7109           | 12.1         | 28             | 13             |
| 30        | 4184           | 12.0         | 20             | 25             | 30        | 6989           | 12.0         | 30             | 18             |
| 40        | 4065           | 11.9         | 21             | 30             | 40        | 6869           | 12.0         | 32             | 22             |
| 50        | 3945           | 12.0         | 23             | 35             | 50        | 6748           | 12.1         | 34             | 27             |
| 29 43 00  | 3826           | 11.9         | 25             | 40             | 29 53 00  | 6628           | 12.0         | 36             | 32             |
| 10        | 3707           | 11.9         | 27             | 45             | 10        | 6508           | 12.0         | 38             | 37             |
| 20        | 3587           | 12.0         | 29             | 50             | 20        | 6387           | 12.1         | 40             | 42             |
| 30        | 3467           | 12.0         | 31             | 55             | 30        | 6267           | 12.0         | 42             | 47             |
| 40        | 3348           | 11.9         | 32             | 59             | 40        | 6147           | 12.0         | 43             | 51             |
| 50        | 3228           | 12.0         | 34             | 64             | 50        | 6026           | 12.0         | 45             | 56             |
| 29 44 00  | 3109           | 11.9         | 36             | 69             | 29 54 00  | 5906           | 12.0         | 47             | 61             |
| 10        | 2989           | 12.0         | 38             | 74             | 10        | 5786           | 12.0         | 49             | 66             |
| 20        | 2869           | 12.0         | 40             | 79             | 20        | 5665           | 12.1         | 51             | 71             |
| 30        | 2750           | 11.9         | 42             | 84             | 30        | 5544           | 12.1         | 53             | 76             |
| 40        | 2630           | 12.0         | 43             | 88             | 40        | 5423           | 12.1         | 54             | 80             |
| 50        | 2510           | 12.0         | 45             | 93             | 50        | 5303           | 12.0         | 56             | 85             |
| 29 45 00  | 2390           | 12.0         | 47             | 2.13498        | 29 55 00  | 5182           | 12.1         | 58             | 90             |
| 10        | 2271           | 11.9         | 49             | 2.13503        | 10        | 5062           | 12.0         | 60             | 2.13795        |
| 20        | 2150           | 12.1         | 51             | 08             | 20        | 4941           | 12.1         | 62             | 2.13800        |
| 30        | 2031           | 11.9         | 53             | 13             | 30        | 4821           | 12.0         | 64             | 05             |
| 40        | 1911           | 12.0         | 54             | 17             | 40        | 4700           | 12.1         | 65             | 09             |
| 50        | 1791           | 12.0         | 56             | 22             | 50        | 4579           | 12.1         | 67             | 14             |
| 29 46 00  | 1672           | 11.9         | 58             | 27             | 29 56 00  | 4459           | 12.0         | 69             | 19             |
| 10        | 1552           | 12.0         | 60             | 32             | 10        | 4330           | 12.0         | 71             | 24             |
| 20        | 1432           | 12.0         | 62             | 37             | 20        | 4217           | 12.2         | 73             | 29             |
| 30        | 1312           | 12.0         | 64             | 42             | 30        | 4097           | 12.0         | 75             | 34             |
| 40        | 1193           | 11.9         | 65             | 46             | 40        | 3977           | 12.0         | 76             | 38             |
| 50        | 1072           | 12.1         | 67             | 51             | 50        | 3856           | 12.1         | 78             | 43             |
| 29 47 00  | 0953           | 11.9         | 69             | 56             | 29 57 00  | 3735           | 12.1         | 80             | 48             |
| 10        | 0833           | 12.0         | 71             | 61             | 10        | 3615           | 12.0         | 82             | 53             |
| 20        | 0713           | 12.0         | 73             | 66             | 20        | 3494           | 12.1         | 84             | 58             |
| 30        | 0593           | 12.0         | 75             | 71             | 30        | 3373           | 12.1         | 86             | 63             |
| 40        | 0173           | 12.0         | 76             | 76             | 40        | 3252           | 12.1         | 87             | 67             |
| 50        | 0353           | 12.0         | 78             | 81             | 50        | 3131           | 12.1         | 89             | 72             |
| 29 48 00  | 0233           | 12.0         | 80             | 86             | 29 58 00  | 3010           | 12.1         | 91             | 77             |
| 10        | 1.9450113      | 12.0         | 82             | 91             | 10        | 2890           | 12.0         | 93             | 82             |
| 20        | 1.9449692      | 12.1         | 84             | 2.13596        | 20        | 2768           | 12.2         | 95             | 87             |
| 30        | 9873           | 11.9         | 86             | 2.13601        | 30        | 2648           | 12.0         | 97             | 92             |
| 40        | 9753           | 12.0         | 87             | 05             | 40        | 2527           | 12.1         | 2.0044098      | 2.13897        |
| 50        | 9632           | 12.1         | 89             | 10             | 50        | 2407           | 12.0         | 2.0044100      | 2.13902        |
| 29 49 00  | 9513           | 11.9         | 91             | 15             | 29 59 00  | 2285           | 12.2         | 02             | 07             |
| 10        | 9393           | 12.0         | 93             | 21             | 10        | 2165           | 12.0         | 04             | 12             |
| 20        | 9272           | 12.1         | 95             | 26             | 20        | 2043           | 12.2         | 06             | 17             |
| 30        | 9153           | 11.9         | 97             | 31             | 30        | 1923           | 12.0         | 08             | 22             |
| 40        | 9033           | 12.0         | 2.0043998      | 35             | 40        | 1802           | 12.1         | 09             | 26             |
| 50        | 8912           | 12.1         | 2.0044000      | 40             | 50        | 1681           | 12.1         | 11             | 31             |
| 29 50 00  | 8793           | 11.9         | 02             | 45             | 30 00 00  | 1560           | 12.1         | 13             | 37             |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Dif.<br>1''.<br>1''. | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Dif.<br>1''.<br>1''. | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|----------------------|---------------|---------------|-----------|---------------|----------------------|---------------|---------------|
| • ' "     |               |                      |               |               | • ' "     |               |                      |               |               |
| 30 00 00  | 1.9441560     | 12.1                 | 2.0044113     | 2.13937       | 30 10 00  | 1.9434279     | 12.1                 | 2.0044225     | 2.14227       |
| 10        | 1440          | 12.0                 | 15            | 42            | 10        | 4158          | 12.1                 | 27            | 32            |
| 20        | 1318          | 12.2                 | 17            | 47            | 20        | 4035          | 12.3                 | 29            | 37            |
| 30        | 1198          | 12.0                 | 19            | 52            | 30        | 3914          | 12.1                 | 31            | 42            |
| 40        | 1077          | 12.1                 | 20            | 56            | 40        | 3792          | 12.2                 | 32            | 46            |
| 50        | 955           | 12.2                 | 22            | 61            | 50        | 3670          | 12.2                 | 34            | 51            |
| 30 01 00  | 0835          | 12.0                 | 24            | 66            | 30 11 00  | 3549          | 12.1                 | 36            | 56            |
| 10        | 0714          | 12.1                 | 26            | 71            | 10        | 3427          | 12.2                 | 38            | 61            |
| 20        | 0592          | 12.2                 | 28            | 76            | 20        | 3305          | 12.2                 | 40            | 66            |
| 30        | 0472          | 12.0                 | 30            | 81            | 30        | 3183          | 12.2                 | 42            | 71            |
| 40        | 0350          | 12.2                 | 32            | 85            | 40        | 3062          | 12.1                 | 43            | 75            |
| 50        | 0229          | 12.1                 | 34            | 90            | 50        | 2939          | 12.3                 | 45            | 80            |
| 30 02 00  | 1.9440108     | 12.1                 | 36            | 2.13995       | 30 12 00  | 2818          | 12.1                 | 47            | 85            |
| 10        | 1.9439987     | 12.1                 | 38            | 2.14000       | 10        | 2696          | 12.2                 | 49            | 90            |
| 20        | 9865          | 12.2                 | 40            | 04            | 20        | 2573          | 12.3                 | 51            | 2.14295       |
| 30        | 9744          | 12.1                 | 42            | 09            | 30        | 2452          | 12.1                 | 53            | 2.14300       |
| 40        | 9624          | 12.0                 | 43            | 14            | 40        | 2329          | 12.3                 | 54            | 04            |
| 50        | 9502          | 12.2                 | 45            | 18            | 50        | 2208          | 12.1                 | 56            | 09            |
| 30 03 00  | 9381          | 12.1                 | 47            | 23            | 30 13 00  | 2085          | 12.3                 | 58            | 14            |
| 10        | 9260          | 12.1                 | 49            | 28            | 10        | 1963          | 12.2                 | 60            | 19            |
| 20        | 9138          | 12.2                 | 51            | 33            | 20        | 1841          | 12.2                 | 62            | 24            |
| 30        | 9018          | 12.0                 | 53            | 38            | 30        | 1719          | 12.2                 | 64            | 29            |
| 40        | 8897          | 12.1                 | 54            | 42            | 40        | 1597          | 12.2                 | 65            | 33            |
| 50        | 8775          | 12.2                 | 56            | 47            | 50        | 1475          | 12.2                 | 67            | 38            |
| 30 04 00  | 8654          | 12.1                 | 58            | 52            | 30 14 00  | 1353          | 12.2                 | 69            | 43            |
| 10        | 8533          | 12.1                 | 60            | 57            | 10        | 1231          | 12.2                 | 71            | 48            |
| 20        | 8411          | 12.2                 | 62            | 62            | 20        | 1109          | 12.2                 | 73            | 53            |
| 30        | 8290          | 12.1                 | 64            | 67            | 30        | 0987          | 12.2                 | 75            | 58            |
| 40        | 8169          | 12.1                 | 65            | 71            | 40        | 0865          | 12.2                 | 77            | 62            |
| 50        | 8047          | 12.2                 | 67            | 76            | 50        | 0742          | 12.3                 | 79            | 67            |
| 30 05 00  | 7926          | 12.1                 | 69            | 81            | 30 15 00  | 0621          | 12.1                 | 81            | 72            |
| 10        | 7805          | 12.1                 | 71            | 86            | 10        | 0499          | 12.2                 | 83            | 77            |
| 20        | 7683          | 12.2                 | 73            | 91            | 20        | 0376          | 12.3                 | 85            | 82            |
| 30        | 7562          | 12.1                 | 75            | 2.14096       | 30        | 0254          | 12.2                 | 87            | 87            |
| 40        | 7440          | 12.2                 | 76            | 2.14100       | 40        | 0131          | 12.3                 | 88            | 91            |
| 50        | 7319          | 12.1                 | 78            | 05            | 50        | 1.9430009     | 12.2                 | 90            | 2.14306       |
| 30 06 00  | 7197          | 12.2                 | 80            | 10            | 30 16 00  | 1.9429887     | 12.2                 | 92            | 2.14401       |
| 10        | 7076          | 12.1                 | 82            | 15            | 10        | 9765          | 12.2                 | 94            | 07            |
| 20        | 6954          | 12.2                 | 84            | 20            | 20        | 9642          | 12.3                 | 96            | 12            |
| 30        | 6833          | 12.1                 | 86            | 25            | 30        | 9520          | 12.2                 | 98            | 17            |
| 40        | 6712          | 12.1                 | 87            | 29            | 40        | 9398          | 12.2                 | 2.0044299     | 21            |
| 50        | 6590          | 12.2                 | 89            | 34            | 50        | 9275          | 12.3                 | 2.0044301     | 26            |
| 30 07 00  | 6469          | 12.1                 | 91            | 39            | 30 17 00  | 9153          | 12.2                 | 03            | 31            |
| 10        | 6348          | 12.1                 | 93            | 45            | 10        | 9031          | 12.2                 | 05            | 36            |
| 20        | 6225          | 12.3                 | 95            | 50            | 20        | 8908          | 12.3                 | 07            | 40            |
| 30        | 6104          | 12.1                 | 97            | 55            | 30        | 8786          | 12.2                 | 09            | 45            |
| 40        | 5983          | 12.1                 | 2.0044198     | 59            | 40        | 8664          | 12.2                 | 10            | 50            |
| 50        | 5861          | 12.2                 | 2.0044200     | 64            | 50        | 8541          | 12.3                 | 12            | 54            |
| 30 08 00  | 5740          | 12.1                 | 02            | 69            | 30 18 00  | 8419          | 12.2                 | 14            | 59            |
| 10        | 5618          | 12.2                 | 04            | 74            | 10        | 8297          | 12.2                 | 16            | 64            |
| 20        | 5496          | 12.2                 | 06            | 79            | 20        | 8174          | 12.3                 | 18            | 69            |
| 30        | 5375          | 12.1                 | 08            | 84            | 30        | 8052          | 12.2                 | 20            | 74            |
| 40        | 5253          | 12.2                 | 10            | 88            | 40        | 7930          | 12.2                 | 21            | 78            |
| 50        | 5131          | 12.2                 | 12            | 93            | 50        | 7807          | 12.3                 | 23            | 83            |
| 30 09 00  | 5009          | 12.2                 | 14            | 2.14198       | 30 19 00  | 7685          | 12.2                 | 25            | 88            |
| 10        | 4888          | 12.1                 | 16            | 2.14203       | 10        | 7562          | 12.3                 | 27            | 93            |
| 20        | 4765          | 12.3                 | 18            | 08            | 20        | 7439          | 12.3                 | 29            | 2.14498       |
| 30        | 4644          | 12.1                 | 20            | 13            | 30        | 7317          | 12.2                 | 31            | 2.14503       |
| 40        | 4523          | 12.1                 | 21            | 17            | 40        | 7194          | 12.3                 | 33            | 07            |
| 50        | 4400          | 12.3                 | 23            | 22            | 50        | 7072          | 12.2                 | 35            | 12            |
| 30 10 00  | 4279          | 12.1                 | 25            | 27            | 30 20 00  | 6949          | 12.3                 | 37            | 17            |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| 30 20 00  | 1.9426949 | 12.3        | 2.0044337 | 2.14517 | 30 30 00  | 1.9419570 | 12.4        | 2.0044449 | 2.14806 |
| 10        | 6826      | 12.3        | 39        | 22      | 10        | 9447      | 12.3        | 51        | 11      |
| 20        | 6703      | 12.3        | 41        | 27      | 20        | 9323      | 12.4        | 53        | 16      |
| 30        | 6581      | 12.2        | 43        | 32      | 30        | 9200      | 12.3        | 55        | 21      |
| 40        | 6459      | 12.2        | 44        | 36      | 40        | 9077      | 12.3        | 56        | 25      |
| 50        | 6335      | 12.4        | 46        | 41      | 50        | 8953      | 12.4        | 58        | 30      |
| 30 21 00  | 6213      | 12.2        | 48        | 46      | 30 31 00  | 8829      | 12.4        | 60        | 35      |
| 10        | 6091      | 12.2        | 50        | 51      | 10        | 8706      | 12.3        | 62        | 40      |
| 20        | 5968      | 12.3        | 52        | 56      | 20        | 8582      | 12.4        | 64        | 44      |
| 30        | 5845      | 12.3        | 54        | 61      | 30        | 8459      | 12.3        | 66        | 49      |
| 40        | 5723      | 12.2        | 55        | 65      | 40        | 8335      | 12.4        | 67        | 54      |
| 50        | 5600      | 12.3        | 57        | 70      | 50        | 8212      | 12.3        | 69        | 58      |
| 30 22 00  | 5477      | 12.3        | 59        | 75      | 30 32 00  | 8088      | 12.4        | 71        | 63      |
| 10        | 5355      | 12.2        | 61        | 80      | 10        | 7964      | 12.4        | 73        | 68      |
| 20        | 5231      | 12.4        | 63        | 85      | 20        | 7840      | 12.4        | 75        | 73      |
| 30        | 5109      | 12.2        | 65        | 90      | 30        | 7717      | 12.3        | 77        | 78      |
| 40        | 4987      | 12.2        | 66        | 94      | 40        | 7594      | 12.3        | 79        | 82      |
| 50        | 4863      | 12.4        | 68        | 2.14599 | 50        | 7469      | 12.5        | 81        | 87      |
| 30 23 00  | 4741      | 12.2        | 70        | 2.14604 | 30 33 00  | 7346      | 12.3        | 83        | 92      |
| 10        | 4618      | 12.3        | 72        | 09      | 10        | 7223      | 12.3        | 85        | 2.14897 |
| 20        | 4495      | 12.3        | 74        | 13      | 20        | 7099      | 12.4        | 87        | 2.14902 |
| 30        | 4372      | 12.3        | 76        | 18      | 30        | 6975      | 12.4        | 89        | 07      |
| 40        | 4249      | 12.3        | 77        | 23      | 40        | 6852      | 12.3        | 90        | 11      |
| 50        | 4126      | 12.3        | 79        | 27      | 50        | 6728      | 12.4        | 92        | 16      |
| 30 24 00  | 4003      | 12.3        | 81        | 32      | 30 34 00  | 6604      | 12.4        | 94        | 22      |
| 10        | 3880      | 12.3        | 83        | 37      | 10        | 6481      | 12.3        | 96        | 27      |
| 20        | 3757      | 12.3        | 85        | 42      | 20        | 6357      | 12.4        | 2.0044498 | 31      |
| 30        | 3634      | 12.3        | 87        | 47      | 30        | 6223      | 12.4        | 2.0044500 | 36      |
| 40        | 3512      | 12.2        | 89        | 51      | 40        | 6110      | 12.3        | 01        | 41      |
| 50        | 3388      | 12.4        | 91        | 56      | 50        | 5985      | 12.5        | 03        | 45      |
| 30 25 00  | 3265      | 12.3        | 93        | 62      | 30 35 00  | 5862      | 12.3        | 05        | 50      |
| 10        | 3143      | 12.2        | 95        | 67      | 10        | 5739      | 12.3        | 07        | 55      |
| 20        | 3019      | 12.4        | 97        | 72      | 20        | 5614      | 12.5        | 09        | 60      |
| 30        | 2897      | 12.2        | 2.0044399 | 77      | 30        | 5491      | 12.3        | 11        | 65      |
| 40        | 2774      | 12.3        | 2.0044400 | 81      | 40        | 5366      | 12.5        | 12        | 69      |
| 50        | 2650      | 12.4        | 02        | 86      | 50        | 5243      | 12.3        | 14        | 74      |
| 30 26 00  | 2528      | 12.2        | 04        | 91      | 30 36 00  | 5118      | 12.5        | 16        | 79      |
| 10        | 2405      | 12.3        | 06        | 2.14696 | 10        | 4995      | 12.3        | 18        | 84      |
| 20        | 2281      | 12.3        | 08        | 2.14701 | 20        | 4870      | 12.5        | 20        | 89      |
| 30        | 2158      | 12.3        | 10        | 06      | 30        | 4746      | 12.4        | 22        | 94      |
| 40        | 2035      | 12.3        | 11        | 10      | 40        | 4623      | 12.3        | 24        | 2.14998 |
| 50        | 1912      | 12.3        | 13        | 15      | 50        | 4498      | 12.5        | 26        | 2.15003 |
| 30 27 00  | 1788      | 12.4        | 15        | 20      | 30 37 00  | 4375      | 12.3        | 28        | 08      |
| 10        | 1665      | 12.3        | 17        | 25      | 10        | 4251      | 12.4        | 30        | 13      |
| 20        | 1542      | 12.3        | 19        | 29      | 20        | 4126      | 12.5        | 32        | 18      |
| 30        | 1419      | 12.3        | 21        | 34      | 30        | 4003      | 12.3        | 34        | 23      |
| 40        | 1296      | 12.3        | 22        | 39      | 40        | 3379      | 12.4        | 35        | 27      |
| 50        | 1172      | 12.4        | 24        | 43      | 50        | 3755      | 12.4        | 37        | 32      |
| 30 28 00  | 1049      | 12.3        | 26        | 48      | 30 38 00  | 3631      | 12.4        | 39        | 37      |
| 10        | 0926      | 12.3        | 28        | 53      | 10        | 3507      | 12.4        | 41        | 42      |
| 20        | 0802      | 12.4        | 30        | 58      | 20        | 3382      | 12.5        | 43        | 46      |
| 30        | 0680      | 12.2        | 32        | 63      | 30        | 3250      | 12.3        | 45        | 51      |
| 40        | 0557      | 12.3        | 34        | 67      | 40        | 3135      | 12.4        | 46        | 56      |
| 50        | 0433      | 12.4        | 36        | 72      | 50        | 3010      | 12.5        | 48        | 60      |
| 30 29 00  | 0310      | 12.3        | 38        | 77      | 30 39 00  | 2886      | 12.4        | 50        | 65      |
| 10        | 0187      | 12.3        | 40        | 82      | 10        | 2763      | 12.3        | 52        | 70      |
| 20        | 1.9420063 | 12.4        | 42        | 87      | 20        | 2638      | 12.5        | 54        | 75      |
| 30        | 1.9419940 | 12.3        | 44        | 92      | 30        | 2514      | 12.4        | 56        | 80      |
| 40        | 9817      | 12.3        | 45        | 2.14796 | 40        | 2380      | 12.5        | 57        | 84      |
| 50        | 9694      | 12.3        | 47        | 2.14801 | 50        | 2265      | 12.4        | 59        | 89      |
| 30 30 00  | 9570      | 12.4        | 49        | 06      | 30 40 00  | 2141      | 12.4        | 61        | 94      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.    | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|-----------|-----------|-----------|--------------|-----------|---------|
| °   '   " |           |              |           |           | °   '   " |           |              |           |         |
| 30 40 00  | 1.9412141 | 12.4         | 2.0044561 | 2.15094   | 30 50 00  | 1.9404663 | 12.4         | 2.0044674 | 2.15381 |
| 10        | 2017      | 12.4         | 63        | 2.15099   | 10        | 4533      | 12.5         | 76        | 86      |
| 20        | 1892      | 12.5         | 65        | 2.15104   | 20        | 4412      | 12.6         | 78        | 91      |
| 30        | 1768      | 12.4         | 67        | 09        | 30        | 4288      | 12.4         | 80        | 2.15396 |
| 40        | 1641      | 12.4         | 69        | 13        | 40        | 4163      | 12.5         | 82        | 2.15400 |
| 50        | 1519      | 12.5         | 71        | 18        | 50        | 4037      | 12.6         | 84        | 95      |
| 30 41 00  | 1395      | 12.4         | 73        | 23        | 30 51 00  | 3912      | 12.5         | 86        | 10      |
| 10        | 1271      | 12.4         | 75        | 28        | 10        | 3788      | 12.4         | 88        | 15      |
| 20        | 1146      | 12.5         | 77        | 32        | 20        | 3662      | 12.6         | 90        | 19      |
| 30        | 1022      | 12.4         | 79        | 37        | 30        | 3537      | 12.5         | 92        | 21      |
| 40        | 0898      | 12.4         | 80        | 42        | 40        | 3411      | 12.6         | 93        | 29      |
| 50        | 0773      | 12.5         | 82        | 46        | 50        | 3286      | 12.5         | 95        | 34      |
| 30 42 00  | 0649      | 12.4         | 84        | 51        | 30 52 00  | 3161      | 12.5         | 97        | 39      |
| 10        | 0525      | 12.4         | 86        | 56        | 10        | 3036      | 12.5         | 2.0044699 | 44      |
| 20        | 0400      | 12.5         | 88        | 61        | 20        | 2910      | 12.6         | 2.0044701 | 49      |
| 30        | 0276      | 12.4         | 90        | 66        | 30        | 2785      | 12.5         | 03        | 54      |
| 40        | 0152      | 12.4         | 91        | 70        | 40        | 2660      | 12.5         | 04        | 58      |
| 50        | 1.9410027 | 12.5         | 93        | 76        | 50        | 2534      | 12.6         | 06        | 63      |
| 30 43 00  | 1.9409903 | 12.4         | 95        | 81        | 30 53 00  | 2409      | 12.5         | 08        | 68      |
| 10        | 9779      | 12.4         | 97        | 86        | 10        | 2284      | 12.5         | 10        | 73      |
| 20        | 9654      | 12.5         | 90        | 2.0044590 | 20        | 2158      | 12.6         | 12        | 77      |
| 30        | 9530      | 12.4         | 92        | 2.0044601 | 30        | 2033      | 12.5         | 14        | 82      |
| 40        | 9405      | 12.5         | 03        | 2.15200   | 40        | 1908      | 12.5         | 16        | 87      |
| 50        | 9280      | 12.5         | 05        | 04        | 50        | 1782      | 12.6         | 18        | 91      |
| 30 44 00  | 9155      | 12.5         | 07        | 09        | 30 54 00  | 1657      | 12.5         | 20        | 2.15496 |
| 10        | 9031      | 12.4         | 09        | 14        | 10        | 1532      | 12.5         | 22        | 2.15501 |
| 20        | 8906      | 12.5         | 11        | 19        | 20        | 1406      | 12.6         | 24        | 06      |
| 30        | 8782      | 12.4         | 13        | 24        | 30        | 1281      | 12.5         | 26        | 11      |
| 40        | 8657      | 12.5         | 14        | 28        | 40        | 1156      | 12.5         | 27        | 15      |
| 50        | 8532      | 12.5         | 16        | 33        | 50        | 1031      | 12.5         | 29        | 20      |
| 30 45 00  | 8408      | 12.4         | 18        | 38        | 30 55 00  | 0905      | 12.6         | 31        | 25      |
| 10        | 8284      | 12.4         | 20        | 43        | 10        | 0780      | 12.5         | 33        | 30      |
| 20        | 8158      | 12.6         | 22        | 48        | 20        | 0654      | 12.6         | 35        | 34      |
| 30        | 8034      | 12.4         | 24        | 53        | 30        | 0529      | 12.5         | 37        | 39      |
| 40        | 7910      | 12.4         | 25        | 57        | 40        | 0404      | 12.5         | 38        | 44      |
| 50        | 7784      | 12.6         | 27        | 62        | 50        | 0277      | 12.7         | 40        | 48      |
| 30 46 00  | 7660      | 12.4         | 29        | 67        | 30 56 00  | 0152      | 12.5         | 42        | 53      |
| 10        | 7536      | 12.4         | 31        | 72        | 10        | 1.940027  | 12.5         | 44        | 58      |
| 20        | 7410      | 12.6         | 33        | 76        | 20        | 1.9399901 | 12.6         | 46        | 63      |
| 30        | 7286      | 12.4         | 35        | 81        | 30        | 9776      | 12.5         | 48        | 68      |
| 40        | 7162      | 12.4         | 36        | 86        | 40        | 9649      | 12.7         | 50        | 72      |
| 50        | 7036      | 12.6         | 38        | 90        | 50        | 9524      | 12.5         | 52        | 77      |
| 30 47 00  | 6912      | 12.4         | 40        | 2.15295   | 30 57 00  | 9398      | 12.6         | 54        | 82      |
| 10        | 6878      | 12.5         | 42        | 2.15300   | 10        | 9273      | 12.5         | 56        | 87      |
| 20        | 6662      | 12.5         | 44        | 05        | 20        | 9146      | 12.7         | 58        | 91      |
| 30        | 6537      | 12.5         | 46        | 10        | 30        | 9021      | 12.5         | 60        | 2.15596 |
| 40        | 6412      | 12.5         | 48        | 14        | 40        | 8896      | 12.5         | 61        | 2.15601 |
| 50        | 6287      | 12.5         | 50        | 19        | 50        | 8769      | 12.7         | 63        | 05      |
| 30 48 00  | 6162      | 12.5         | 52        | 24        | 30 58 00  | 8644      | 12.5         | 65        | 10      |
| 10        | 6037      | 12.5         | 54        | 29        | 10        | 8519      | 12.5         | 67        | 15      |
| 20        | 5912      | 12.5         | 56        | 33        | 20        | 8392      | 12.7         | 69        | 20      |
| 30        | 5787      | 12.5         | 58        | 38        | 30        | 8267      | 12.5         | 71        | 25      |
| 40        | 5663      | 12.4         | 59        | 43        | 40        | 8142      | 12.5         | 72        | 29      |
| 50        | 5537      | 12.6         | 61        | 47        | 50        | 8015      | 12.5         | 74        | 34      |
| 30 49 00  | 5413      | 12.4         | 63        | 52        | 30 59 00  | 7890      | 12.5         | 76        | 39      |
| 10        | 5288      | 12.5         | 65        | 57        | 10        | 7764      | 12.6         | 78        | 44      |
| 20        | 5162      | 12.6         | 67        | 62        | 20        | 7638      | 12.6         | 80        | 48      |
| 30        | 5038      | 12.4         | 69        | 67        | 30        | 7512      | 12.6         | 82        | 53      |
| 40        | 4913      | 12.5         | 70        | 71        | 40        | 7387      | 12.5         | 84        | 58      |
| 50        | 4787      | 12.6         | 72        | 76        | 50        | 7260      | 12.7         | 86        | 62      |
| 30 50 00  | 4663      | 12.4         | 74        | 81        | 31 00 00  | 7135      | 12.5         | 88        | 67      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| • ' "     |           |              |           |         | • ' "     |           |              |           |         |
| 31 00 00  | 1.9397135 | 12.5         | 2.0044788 | 2.15667 | 31 10 00  | 1.9389557 | 12.7         | 2.0044901 | 2.15953 |
| 10        | 7009      | 12.6         | 90        | 72      | 10        | 9431      | 12.6         | 03        | 58      |
| 20        | 6883      | 12.6         | 92        | 78      | 20        | 9303      | 12.8         | 05        | 63      |
| 30        | 6757      | 12.6         | 94        | 83      | 30        | 9177      | 12.6         | 07        | 68      |
| 40        | 6631      | 12.6         | 95        | 87      | 40        | 9050      | 12.7         | 09        | 72      |
| 50        | 6505      | 12.6         | 97        | 92      | 50        | 8923      | 12.7         | 11        | 77      |
| 31 01 00  | 6379      | 12.6         | 2.0044799 | 2.15697 | 31 11 00  | 8796      | 12.7         | 13        | 82      |
| 10        | 6253      | 12.6         | 2.0044801 | 2.15702 | 10        | 8669      | 12.7         | 15        | 87      |
| 20        | 6126      | 12.7         | 03        | 06      | 20        | 8542      | 12.7         | 17        | 91      |
| 30        | 6001      | 12.5         | 05        | 11      | 30        | 8415      | 12.7         | 19        | 2.15996 |
| 40        | 5875      | 12.6         | 06        | 16      | 40        | 8289      | 12.6         | 20        | 2.16001 |
| 50        | 5748      | 12.7         | 08        | 20      | 50        | 8162      | 12.7         | 22        | 05      |
| 31 02 00  | 5623      | 12.5         | 10        | 25      | 31 12 00  | 8035      | 12.7         | 24        | 10      |
| 10        | 5497      | 12.6         | 12        | 30      | 10        | 7908      | 12.7         | 26        | 15      |
| 20        | 5370      | 12.7         | 14        | 34      | 20        | 7781      | 12.7         | 28        | 19      |
| 30        | 5245      | 12.5         | 16        | 39      | 30        | 7654      | 12.7         | 30        | 24      |
| 40        | 5119      | 12.6         | 18        | 44      | 40        | 7528      | 12.6         | 31        | 29      |
| 50        | 4992      | 12.7         | 20        | 48      | 50        | 7400      | 12.8         | 33        | 33      |
| 31 03 00  | 4866      | 12.8         | 22        | 53      | 31 13 00  | 7274      | 12.6         | 35        | 38      |
| 10        | 4741      | 12.5         | 24        | 58      | 10        | 7147      | 12.7         | 37        | 43      |
| 20        | 4614      | 12.7         | 26        | 63      | 20        | 7010      | 12.8         | 39        | 47      |
| 30        | 4488      | 12.6         | 28        | 68      | 30        | 6893      | 12.6         | 41        | 52      |
| 40        | 4362      | 12.6         | 29        | 72      | 40        | 6766      | 12.7         | 43        | 57      |
| 50        | 4235      | 12.7         | 31        | 77      | 50        | 6638      | 12.8         | 45        | 61      |
| 31 04 00  | 4110      | 12.5         | 33        | 82      | 31 14 00  | 6512      | 12.6         | 47        | 66      |
| 10        | 3984      | 12.6         | 35        | 87      | 10        | 6385      | 12.7         | 49        | 71      |
| 20        | 3857      | 12.7         | 37        | 91      | 20        | 6257      | 12.8         | 51        | 76      |
| 30        | 3731      | 12.6         | 39        | 2.15796 | 30        | 6131      | 12.6         | 53        | 81      |
| 40        | 3605      | 12.6         | 40        | 2.15801 | 40        | 6004      | 12.7         | 54        | 85      |
| 50        | 3478      | 12.7         | 42        | 05      | 50        | 5876      | 12.8         | 56        | 90      |
| 31 05 00  | 3352      | 12.6         | 44        | 10      | 31 15 00  | 5749      | 12.7         | 58        | 2.16005 |
| 10        | 3226      | 12.6         | 46        | 15      | 10        | 5623      | 12.6         | 60        | 2.16100 |
| 20        | 3099      | 12.7         | 48        | 20      | 20        | 5495      | 12.8         | 62        | 04      |
| 30        | 2973      | 12.6         | 50        | 25      | 30        | 5368      | 12.7         | 64        | 09      |
| 40        | 2846      | 12.7         | 52        | 29      | 40        | 5240      | 12.8         | 66        | 14      |
| 50        | 2721      | 12.5         | 54        | 34      | 50        | 5113      | 12.7         | 68        | 18      |
| 31 06 00  | 2593      | 12.8         | 56        | 39      | 31 16 00  | 4986      | 12.7         | 70        | 23      |
| 10        | 2467      | 12.6         | 58        | 44      | 10        | 4859      | 12.7         | 72        | 28      |
| 20        | 2340      | 12.7         | 60        | 48      | 20        | 4731      | 12.8         | 74        | 32      |
| 30        | 2214      | 12.6         | 62        | 53      | 30        | 4604      | 12.7         | 76        | 37      |
| 40        | 2088      | 12.6         | 63        | 58      | 40        | 4477      | 12.7         | 77        | 42      |
| 50        | 1961      | 12.7         | 65        | 62      | 50        | 4349      | 12.8         | 79        | 46      |
| 31 07 00  | 1835      | 12.7         | 67        | 67      | 31 17 00  | 4222      | 12.7         | 81        | 51      |
| 10        | 1709      | 12.6         | 69        | 72      | 10        | 4095      | 12.7         | 83        | 56      |
| 20        | 1582      | 12.7         | 71        | 76      | 20        | 3967      | 12.8         | 85        | 61      |
| 30        | 1456      | 12.6         | 73        | 81      | 30        | 3840      | 12.7         | 87        | 66      |
| 40        | 1330      | 12.6         | 74        | 86      | 40        | 3713      | 12.7         | 88        | 70      |
| 50        | 1203      | 12.7         | 76        | 90      | 50        | 3585      | 12.8         | 90        | 75      |
| 31 08 00  | 1076      | 12.7         | 78        | 2.15895 | 31 18 00  | 3458      | 12.7         | 92        | 80      |
| 10        | 0950      | 12.6         | 80        | 2.15900 | 10        | 3331      | 12.7         | 94        | 85      |
| 20        | 0823      | 12.7         | 82        | 05      | 20        | 3203      | 12.8         | 96        | 90      |
| 30        | 0697      | 12.6         | 84        | 10      | 30        | 3076      | 12.7         | 2.0044698 | 2.16105 |
| 40        | 0571      | 12.6         | 86        | 14      | 40        | 2949      | 12.7         | 2.0045000 | 2.16200 |
| 50        | 0443      | 12.8         | 88        | 19      | 50        | 2821      | 12.8         | 02        | 04      |
| 31 09 00  | 0317      | 12.6         | 90        | 24      | 31 19 00  | 2694      | 12.7         | 04        | 09      |
| 10        | 0191      | 12.6         | 92        | 29      | 10        | 2567      | 12.7         | 06        | 14      |
| 20        | 1.930063  | 12.8         | 94        | 34      | 20        | 2439      | 12.8         | 08        | 18      |
| 30        | 1.9389937 | 12.6         | 96        | 39      | 30        | 2312      | 12.7         | 10        | 23      |
| 40        | 9811      | 12.6         | 97        | 44      | 40        | 2185      | 12.7         | 11        | 28      |
| 50        | 9684      | 12.7         | 2.0044899 | 48      | 50        | 2056      | 12.9         | 13        | 32      |
| 31 10 00  | 9557      | 12.7         | 2.0044901 | 53      | 31 20 00  | 1929      | 12.7         | 15        | 37      |

*Table for transformation of coordinates—Continued.*

| Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.            |
|-----------|-----------|---------------|-----------|---------|-----------|-----------|---------------|-----------|-------------------|
| • 20 00   | 1.9381929 | 12.7          | 2.0045015 | 2.16237 | • 20 00   | 1.9374251 | 12.8          | 2.0045129 | 2.16521           |
| 10        | 1802      | 12.7          |           | 17      | 42        | 10        | 4123          | 12.8      | 31                |
| 20        | 1674      | 12.8          |           | 19      | 47        | 20        | 3994          | 12.9      | 33                |
| 30        | 1547      | 12.7          |           | 21      | 52        | 30        | 3866          | 12.8      | 35                |
| 40        | 1418      | 12.9          |           | 23      | 56        | 40        | 3737          | 12.9      | 37                |
| 50        | 1291      | 12.7          |           | 25      | 61        | 50        | 3609          | 12.8      | 39                |
| 31 21 00  | 1163      | 12.8          |           | 27      | 66        | 31 31 00  | 3479          | 13.0      | 41 49             |
| 10        | 1036      | 12.7          |           | 29      | 71        | 10        | 3351          | 12.8      | 43 54             |
| 20        | 0907      | 12.9          |           | 31      | 75        | 20        | 3222          | 12.9      | 45 58             |
| 30        | 0780      | 12.7          |           | 33      | 80        | 30        | 3094          | 12.8      | 47 63             |
| 40        | 0653      | 12.7          |           | 34      | 85        | 40        | 2966          | 12.8      | 48 68             |
| 50        | 0524      | 12.9          |           | 36      | 89        | 50        | 2837          | 12.9      | 50 72             |
| 31 22 00  | 0397      | 12.7          |           | 38      | 94        | 31 32 00  | 2709          | 12.8      | 52 77             |
| 10        | 0270      | 12.7          |           | 40      | 2.16299   | 10        | 2580          | 12.9      | 54 82             |
| 20        | 0141      | 12.9          |           | 42      | 2.16303   | 20        | 2451          | 12.9      | 56 87             |
| 30        | 1.9380014 | 12.7          |           | 44      | 08        | 30        | 2323          | 12.8      | 58 92             |
| 40        | 1.9379886 | 12.8          |           | 45      | 13        | 40        | 2195          | 12.8      | 60 2.16596        |
| 50        | 9758      | 12.8          |           | 47      | 17        | 50        | 2065          | 13.0      | 62 2.16601        |
| 31 23 00  | 9631      | 12.7          |           | 49      | 22        | 31 33 00  | 1937          | 12.8      | 64 06             |
| 10        | 9503      | 12.8          |           | 51      | 27        | 10        | 1809          | 12.8      | 66 11             |
| 20        | 9375      | 12.8          |           | 53      | 31        | 20        | 1680          | 12.9      | 68 15             |
| 30        | 9247      | 12.8          |           | 55      | 36        | 30        | 1551          | 12.9      | 70 20             |
| 40        | 9120      | 12.7          |           | 57      | 41        | 40        | 1423          | 12.8      | 71 25             |
| 50        | 8991      | 12.9          |           | 59      | 45        | 50        | 1294          | 12.9      | 73 29             |
| 31 24 00  | 8864      | 12.7          |           | 61      | 50        | 31 34 00  | 1165          | 12.9      | 75 34             |
| 10        | 8736      | 12.8          |           | 63      | 55        | 10        | 1037          | 12.8      | 77 39             |
| 20        | 8608      | 12.8          |           | 65      | 60        | 20        | 0907          | 13.0      | 79 43             |
| 30        | 8480      | 12.8          |           | 67      | 65        | 30        | 0779          | 12.8      | 81 48             |
| 40        | 8353      | 12.7          |           | 68      | 69        | 40        | 0651          | 12.8      | 83 53             |
| 50        | 8224      | 12.9          |           | 70      | 74        | 50        | 0521          | 13.0      | 85 57             |
| 31 25 00  | 8096      | 12.8          |           | 72      | 79        | 31 35 00  | 0393          | 12.8      | 87 62             |
| 10        | 7969      | 12.7          |           | 74      | 84        | 10        | 0264          | 12.9      | 89 67             |
| 20        | 7840      | 12.9          |           | 76      | 88        | 20        | 0135          | 12.9      | 91 72             |
| 30        | 7712      | 12.8          |           | 78      | 93        | 30        | 1.9370006     | 12.9      | 93 77             |
| 40        | 7584      | 12.8          |           | 80      | 2.16308   | 40        | 1.936978      | 12.8      | 94 82             |
| 50        | 7456      | 12.8          |           | 82      | 2.10402   | 50        | 9748          | 13.0      | 96 86             |
| 31 26 00  | 7327      | 12.9          |           | 84      | 07        | 31 36 00  | 9620          | 12.8      | 2.0045198 91      |
| 10        | 7200      | 12.7          |           | 86      | 12        | 10        | 9491          | 12.9      | 2.0045200 2.16696 |
| 20        | 7071      | 12.9          |           | 88      | 16        | 20        | 0362          | 12.9      | 02 2.16700        |
| 30        | 6943      | 12.8          |           | 90      | 21        | 30        | 9233          | 12.9      | 04 05             |
| 40        | 6816      | 12.7          |           | 91      | 26        | 40        | 9104          | 12.9      | 06 10             |
| 50        | 6687      | 12.9          |           | 93      | 31        | 50        | 8975          | 12.9      | 08 14             |
| 31 27 00  | 6559      | 12.8          |           | 95      | 36        | 31 37 00  | 8845          | 13.0      | 10 19             |
| 10        | 6431      | 12.8          |           | 97      | 41        | 10        | 8717          | 12.8      | 12 24             |
| 20        | 6302      | 12.9          |           | 45      |           | 20        | 8587          | 13.0      | 14 28             |
| 30        | 6175      | 12.7          | 2.0045099 | 50      |           | 30        | 8458          | 12.9      | 16 33             |
| 40        | 6047      | 12.8          | 2.0045101 | 55      |           | 40        | 8330          | 12.8      | 17 38             |
| 50        | 5918      | 12.9          | 03        | 59      |           | 50        | 8200          | 13.0      | 19 42             |
| 31 28 00  | 5790      | 12.8          |           | 07      | 64        | 31 38 00  | 8071          | 12.9      | 21 47             |
| 10        | 5662      | 12.8          |           | 09      | 69        | 10        | 7943          | 12.8      | 23 52             |
| 20        | 5533      | 12.9          |           | 11      | 74        | 20        | 7813          | 13.0      | 25 57             |
| 30        | 5406      | 12.7          |           | 13      | 79        | 30        | 7684          | 12.9      | 27 62             |
| 40        | 5278      | 12.8          |           | 14      | 83        | 40        | 7555          | 12.9      | 29 66             |
| 50        | 5149      | 12.9          |           | 16      | 88        | 50        | 7426          | 12.9      | 31 71             |
| 31 29 00  | 5021      | 12.8          |           | 18      | 93        | 31 39 00  | 7297          | 12.9      | 33 76             |
| 10        | 4893      | 12.8          |           | 20      | 2.16498   | 10        | 7168          | 12.9      | 35 81             |
| 20        | 4764      | 12.9          |           | 22      | 2.16502   | 20        | 7038          | 13.0      | 37 85             |
| 30        | 4636      | 12.8          |           | 24      | 07        | 30        | 6910          | 12.8      | 39 90             |
| 40        | 4508      | 12.8          |           | 25      | 12        | 40        | 6781          | 12.9      | 40 95             |
| 50        | 4379      | 12.9          |           | 27      | 16        | 50        | 6651          | 13.0      | 42 2.16799        |
| 31 30 00  | 4251      | 12.8          |           | 29      |           | 31 40 00  | 6522          | 12.9      | 44 2.16804        |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H$ . | Dif.<br>1". | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Dif.<br>1". | Log $K$ . | Log $L$ . |
|-----------|-----------|-------------|-----------|-----------|-----------|-----------|-------------|-----------|-----------|
| • ' "     |           |             |           |           | • ' "     |           |             |           |           |
| 31 40 00  | 1.9366522 | 12.9        | 2.0045244 | 2.16804   | 31 50 00  | 1.9358742 | 13.0        | 2.0045359 | 2.17085   |
| 10        | 6393      | 12.9        | 46        | 09        | 10        | 8613      | 12.9        | 61        | 90        |
| 20        | 6263      | 13.0        | 48        | 13        | 20        | 8482      | 13.1        | 63        | 94        |
| 30        | 6134      | 12.9        | 50        | 18        | 30        | 8352      | 13.0        | 65        | 2.17099   |
| 40        | 6005      | 12.9        | 52        | 23        | 40        | 8222      | 13.0        | 67        | 2.17104   |
| 50        | 5875      | 13.0        | 54        | 27        | 50        | 8092      | 13.0        | 69        | 08        |
| 31 41 00  | 5747      | 12.8        | 56        | 32        | 31 51 00  | 7962      | 13.0        | 71        | 13        |
| 10        | 5618      | 12.9        | 58        | 37        | 10        | 7832      | 13.0        | 73        | 18        |
| 20        | 5488      | 13.0        | 60        | 41        | 20        | 7701      | 13.1        | 75        | 22        |
| 30        | 5359      | 12.9        | 62        | 46        | 30        | 7571      | 13.0        | 77        | 27        |
| 40        | 5230      | 12.9        | 63        | 51        | 40        | 7441      | 13.0        | 78        | 32        |
| 50        | 5100      | 13.0        | 65        | 55        | 50        | 7311      | 13.0        | 80        | 36        |
| 31 42 00  | 4971      | 12.9        | 67        | 60        | 31 52 00  | 7181      | 13.0        | 82        | 41        |
| 10        | 4841      | 13.0        | 69        | 65        | 10        | 7051      | 13.0        | 84        | 46        |
| 20        | 4711      | 13.0        | 71        | 69        | 20        | 6920      | 13.1        | 86        | 50        |
| 30        | 4582      | 12.9        | 73        | 74        | 30        | 6790      | 13.0        | 88        | 55        |
| 40        | 4452      | 13.0        | 75        | 79        | 40        | 6660      | 13.0        | 90        | 60        |
| 50        | 4323      | 12.9        | 77        | 83        | 50        | 6529      | 13.1        | 92        | 65        |
| 31 43 00  | 4193      | 13.0        | 79        | 88        | 31 53 00  | 6399      | 13.0        | 94        | 70        |
| 10        | 4084      | 12.9        | 81        | 93        | 10        | 6269      | 13.0        | 96        | 75        |
| 20        | 3934      | 13.0        | 83        | 2.16897   | 20        | 6138      | 13.1        | 2.0045398 | 79        |
| 30        | 3805      | 12.9        | 85        | 2.16902   | 30        | 6008      | 13.0        | 2.0045400 | 84        |
| 40        | 3675      | 13.0        | 86        | 07        | 40        | 5878      | 13.0        | 01        | 89        |
| 50        | 3545      | 13.0        | 88        | 11        | 50        | 5747      | 13.1        | 03        | 93        |
| 31 44 00  | 3416      | 12.9        | 90        | 16        | 31 54 00  | 5617      | 13.0        | 05        | 2.17198   |
| 10        | 3287      | 12.9        | 92        | 21        | 10        | 5487      | 13.0        | 07        | 2.17203   |
| 20        | 3157      | 13.0        | 94        | 26        | 20        | 5356      | 13.1        | 09        | 07        |
| 30        | 3027      | 13.0        | 96        | 31        | 30        | 5226      | 13.0        | 11        | 12        |
| 40        | 2898      | 12.9        | 2.0045298 | 36        | 40        | 5095      | 13.1        | 13        | 17        |
| 50        | 2768      | 13.0        | 2.0045300 | 40        | 50        | 4965      | 13.0        | 15        | 21        |
| 31 45 00  | 2639      | 12.9        | 02        | 45        | 31 55 00  | 4833      | 13.2        | 17        | 26        |
| 10        | 2509      | 13.0        | 04        | 50        | 10        | 4703      | 13.0        | 19        | 31        |
| 20        | 2379      | 13.0        | 06        | 54        | 20        | 4572      | 13.1        | 21        | 35        |
| 30        | 2250      | 12.9        | 08        | 59        | 30        | 4442      | 13.0        | 23        | 40        |
| 40        | 2120      | 13.0        | 09        | 64        | 40        | 4312      | 13.0        | 24        | 45        |
| 50        | 1990      | 13.0        | 11        | 68        | 50        | 4181      | 13.1        | 26        | 49        |
| 31 46 00  | 1861      | 12.9        | 13        | 73        | 31 56 00  | 4050      | 13.1        | 28        | 54        |
| 10        | 1731      | 13.0        | 15        | 78        | 10        | 3920      | 13.0        | 30        | 59        |
| 20        | 1601      | 13.0        | 17        | 82        | 20        | 3789      | 13.1        | 32        | 63        |
| 30        | 1471      | 13.0        | 19        | 87        | 30        | 3659      | 13.0        | 34        | 68        |
| 40        | 1342      | 12.9        | 21        | 92        | 40        | 3528      | 13.1        | 36        | 73        |
| 50        | 1211      | 13.1        | 23        | 2.16896   | 50        | 3397      | 13.1        | 38        | 77        |
| 31 47 00  | 1082      | 12.9        | 25        | 2.17001   | 31 57 00  | 3267      | 13.0        | 40        | 82        |
| 10        | 0953      | 12.9        | 27        | 06        | 10        | 3136      | 13.1        | 42        | 87        |
| 20        | 0822      | 13.1        | 29        | 10        | 20        | 3005      | 13.1        | 44        | 91        |
| 30        | 0693      | 12.9        | 31        | 15        | 30        | 2875      | 13.0        | 46        | 2.17296   |
| 40        | 0562      | 13.1        | 32        | 20        | 40        | 2744      | 13.1        | 47        | 2.17301   |
| 50        | 0432      | 13.0        | 34        | 24        | 50        | 2613      | 13.1        | 49        | 05        |
| 31 48 00  | 0302      | 13.0        | 36        | 29        | 31 58 00  | 2483      | 13.0        | 51        | 10        |
| 10        | 0172      | 13.0        | 38        | 34        | 10        | 2352      | 13.1        | 53        | 15        |
| 20        | 1.9360042 | 13.0        | 40        | 38        | 20        | 2221      | 13.1        | 55        | 19        |
| 30        | 1.9350012 | 13.0        | 42        | 43        | 30        | 2090      | 13.1        | 57        | 24        |
| 40        | 9783      | 12.9        | 44        | 48        | 40        | 1960      | 13.0        | 59        | 29        |
| 50        | 9652      | 13.1        | 46        | 52        | 50        | 1828      | 13.2        | 61        | 33        |
| 31 49 00  | 9522      | 13.0        | 48        | 57        | 31 59 00  | 1098      | 13.1        | 63        | 38        |
| 10        | 9393      | 12.9        | 50        | 62        | 10        | 1567      | 13.1        | 65        | 43        |
| 20        | 9262      | 13.1        | 52        | 66        | 20        | 1436      | 13.1        | 67        | 47        |
| 30        | 9132      | 13.0        | 54        | 71        | 30        | 1305      | 13.1        | 69        | 52        |
| 40        | 9003      | 12.9        | 55        | 76        | 40        | 1175      | 13.0        | 70        | 57        |
| 50        | 8872      | 13.1        | 57        | 80        | 50        | 1043      | 13.2        | 72        | 61        |
| 31 50 00  | 8742      | 13.0        | 59        | 85        | 32 00 00  | 0013      | 13.0        | 74        | 66        |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| • ' "     |           |              |           |         | • ' "     |           |              |           |         |
| 32 00 00  | 1.9350913 | 13.0         | 2.0045474 | 2.17366 | 32 10 00  | 1.9343031 | 13.2         | 2.0045590 | 2.17646 |
| 10        | 0782      | 13.1         | 76        | 71      | 10        | 2900      | 13.1         | 92        | 51      |
| 20        | 0651      | 13.1         | 78        | 75      | 20        | 2767      | 13.3         | 94        | 56      |
| 30        | 0520      | 13.1         | 80        | 80      | 30        | 2636      | 13.1         | 96        | 61      |
| 40        | 0388      | 13.2         | 82        | 85      | 40        | 2504      | 13.2         | 2.0045598 | 66      |
| 50        | 0258      | 13.0         | 84        | 89      | 50        | 2372      | 13.2         | 2.0045600 | 70      |
| 32 01 00  | 1.9350126 | 13.2         | 86        | 94      | 32 11 00  | 2240      | 13.2         | 02        | 75      |
| 10        | 1.9349996 | 13.0         | 88        | 2.17399 | 10        | 2109      | 13.1         | 04        | 80      |
| 20        | 9864      | 13.2         | 90        | 2.17403 | 20        | 1976      | 13.3         | 06        | 84      |
| 30        | 9733      | 13.1         | 92        | 08      | 30        | 1845      | 13.1         | 08        | 89      |
| 40        | 9602      | 13.1         | 94        | 13      | 40        | 1713      | 13.2         | 09        | 94      |
| 50        | 9471      | 13.1         | 96        | 18      | 50        | 1581      | 13.2         | 11        | 2.17698 |
| 32 02 00  | 9340      | 13.1         | 2.0045498 | 23      | 32 12 00  | 1449      | 13.2         | 13        | 2.17703 |
| 10        | 9209      | 13.1         | 2.0045500 | 28      | 10        | 1318      | 13.1         | 15        | 08      |
| 20        | 9077      | 13.2         | 02        | 32      | 20        | 1185      | 13.3         | 17        | 12      |
| 30        | 8947      | 13.0         | 04        | 37      | 30        | 1053      | 13.2         | 19        | 17      |
| 40        | 8816      | 13.1         | 05        | 42      | 40        | 0922      | 13.1         | 21        | 22      |
| 50        | 8684      | 13.2         | 07        | 46      | 50        | 0789      | 13.3         | 23        | 26      |
| 32 03 00  | 8553      | 13.1         | 09        | 51      | 32 13 00  | 0657      | 13.2         | 25        | 31      |
| 10        | 8422      | 13.1         | 11        | 56      | 10        | 0526      | 13.1         | 27        | 36      |
| 20        | 8291      | 13.1         | 13        | 60      | 20        | 0393      | 13.3         | 29        | 40      |
| 30        | 8160      | 13.1         | 15        | 65      | 30        | 0261      | 13.2         | 31        | 45      |
| 40        | 8029      | 13.1         | 17        | 70      | 40        | 1.9340130 | 13.1         | 33        | 50      |
| 50        | 7897      | 13.2         | 19        | 74      | 50        | 1.9339997 | 13.3         | 35        | 54      |
| 32 04 00  | 7766      | 13.1         | 21        | 79      | 32 14 00  | 9865      | 13.2         | 37        | 59      |
| 10        | 7635      | 13.1         | 23        | 84      | 10        | 9733      | 13.2         | 39        | 64      |
| 20        | 7503      | 13.2         | 25        | 88      | 20        | 9600      | 13.3         | 41        | 68      |
| 30        | 7372      | 13.1         | 27        | 93      | 30        | 9469      | 13.1         | 43        | 73      |
| 40        | 7241      | 13.1         | 28        | 2.17498 | 40        | 9337      | 13.2         | 44        | 78      |
| 50        | 7109      | 13.2         | 30        | 2.17502 | 50        | 9204      | 13.3         | 46        | 82      |
| 32 05 00  | 6978      | 13.1         | 32        | 07      | 32 15 00  | 9072      | 13.2         | 48        | 87      |
| 10        | 6847      | 13.1         | 34        | 12      | 10        | 8940      | 13.2         | 50        | 92      |
| 20        | 6715      | 13.2         | 36        | 16      | 20        | 8807      | 13.3         | 52        | 2.17796 |
| 30        | 6584      | 13.1         | 38        | 21      | 30        | 8676      | 13.1         | 54        | 2.17801 |
| 40        | 6453      | 13.1         | 40        | 26      | 40        | 8543      | 13.3         | 56        | 06      |
| 50        | 6321      | 13.2         | 42        | 30      | 50        | 8411      | 13.2         | 58        | 10      |
| 32 06 00  | 6190      | 13.1         | 44        | 35      | 32 16 00  | 8278      | 13.3         | 60        | 15      |
| 10        | 6059      | 13.1         | 46        | 40      | 10        | 8146      | 13.2         | 62        | 19      |
| 20        | 5927      | 13.2         | 48        | 44      | 20        | 8013      | 13.3         | 64        | 24      |
| 30        | 5796      | 13.1         | 50        | 49      | 30        | 7881      | 13.2         | 66        | 29      |
| 40        | 5665      | 13.1         | 51        | 54      | 40        | 7749      | 13.2         | 67        | 33      |
| 50        | 5533      | 13.2         | 53        | 58      | 50        | 7616      | 13.3         | 69        | 37      |
| 32 07 00  | 5401      | 13.2         | 55        | 63      | 32 17 00  | 7484      | 13.2         | 71        | 42      |
| 10        | 5270      | 13.1         | 57        | 68      | 10        | 7352      | 13.2         | 73        | 47      |
| 20        | 5138      | 13.2         | 59        | 72      | 20        | 7219      | 13.3         | 75        | 51      |
| 30        | 5007      | 13.1         | 61        | 77      | 30        | 7087      | 13.2         | 77        | 56      |
| 40        | 4875      | 13.2         | 63        | 82      | 40        | 6955      | 13.2         | 79        | 61      |
| 50        | 4743      | 13.2         | 65        | 86      | 50        | 6822      | 13.3         | 81        | 65      |
| 32 08 00  | 4611      | 13.2         | 67        | 91      | 32 18 00  | 6690      | 13.2         | 83        | 70      |
| 10        | 4480      | 13.1         | 69        | 2.17596 | 10        | 6557      | 13.3         | 85        | 75      |
| 20        | 4348      | 13.2         | 71        | 2.17600 | 20        | 6424      | 13.3         | 87        | 79      |
| 30        | 4216      | 13.2         | 73        | 05      | 30        | 6292      | 13.2         | 89        | 84      |
| 40        | 4085      | 13.1         | 75        | 10      | 40        | 6160      | 13.2         | 91        | 89      |
| 50        | 3953      | 13.2         | 77        | 14      | 50        | 6027      | 13.3         | 93        | 94      |
| 32 09 00  | 3821      | 13.2         | 79        | 19      | 32 19 00  | 5895      | 13.2         | 95        | 2.17890 |
| 10        | 3690      | 13.1         | 81        | 24      | 10        | 5763      | 13.2         | 97        | 2.17904 |
| 20        | 3558      | 13.2         | 83        | 28      | 20        | 5620      | 13.4         | 2.0045699 | 08      |
| 30        | 3426      | 13.2         | 85        | 33      | 30        | 5497      | 13.2         | 2.0045701 | 13      |
| 40        | 3295      | 13.1         | 86        | 37      | 40        | 5365      | 13.2         | 02        | 18      |
| 50        | 3163      | 13.2         | 88        | 42      | 50        | 5232      | 13.3         | 04        | 22      |
| 32 10 00  | 3031      | 13.2         | 90        | 46      | 32 20 00  | 5099      | 13.3         | 06        | 27      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| •   '   " |           |              |           |         | •   '   " |           |              |           |         |
| 32 20 00  | 1.9335099 | 13.3         | 2.0045706 | 2.17927 | 32 30 00  | 1.9327116 | 13.3         | 2.0045822 | 2.18206 |
| 10        | 4967      | 13.2         | 08        | 32      | 10        | 6982      | 13.4         | 24        | 10      |
| 20        | 4834      | 13.3         | 10        | 36      | 20        | 6849      | 13.3         | 26        | 15      |
| 30        | 4701      | 13.3         | 12        | 41      | 30        | 6715      | 13.4         | 28        | 20      |
| 40        | 4569      | 13.2         | 14        | 46      | 40        | 6581      | 13.4         | 30        | 24      |
| 50        | 4436      | 13.3         | 16        | 50      | 50        | 6447      | 13.4         | 32        | 28      |
| 32 21 00  | 4303      | 13.3         | 18        | 55      | 32 31 00  | 6314      | 13.3         | 34        | 33      |
| 10        | 4171      | 13.2         | 20        | 60      | 10        | 6181      | 13.3         | 36        | 38      |
| 20        | 4038      | 13.3         | 22        | 64      | 20        | 6046      | 13.5         | 38        | 42      |
| 30        | 3905      | 13.3         | 24        | 69      | 30        | 5913      | 13.3         | 40        | 47      |
| 40        | 3773      | 13.2         | 25        | 74      | 40        | 5780      | 13.3         | 42        | 52      |
| 50        | 3639      | 13.4         | 27        | 78      | 50        | 5646      | 13.4         | 44        | 56      |
| 32 22 00  | 3507      | 13.2         | 29        | 83      | 32 32 00  | 5512      | 13.4         | 46        | 61      |
| 10        | 3374      | 13.3         | 31        | 87      | 10        | 5379      | 13.3         | 48        | 66      |
| 20        | 3241      | 13.3         | 33        | 92      | 20        | 5245      | 13.4         | 50        | 70      |
| 30        | 3109      | 13.2         | 35        | 2.17997 | 30        | 5111      | 13.4         | 52        | 75      |
| 40        | 2975      | 13.4         | 37        | 2.18001 | 40        | 4978      | 13.3         | 53        | 80      |
| 50        | 2843      | 13.2         | 39        | 05      | 50        | 4844      | 13.4         | 55        | 84      |
| 32 23 00  | 2709      | 13.4         | 41        | 10      | 32 33 00  | 4710      | 13.4         | 57        | 89      |
| 10        | 2576      | 13.3         | 43        | 15      | 10        | 4577      | 13.3         | 59        | 93      |
| 20        | 2443      | 13.3         | 45        | 19      | 20        | 4442      | 13.5         | 61        | 2.18298 |
| 30        | 2310      | 13.3         | 47        | 24      | 30        | 4309      | 13.3         | 63        | 2.18303 |
| 40        | 2178      | 13.2         | 49        | 29      | 40        | 4175      | 13.4         | 65        | 07      |
| 50        | 2044      | 13.4         | 51        | 33      | 50        | 4041      | 13.4         | 67        | 11      |
| 32 24 00  | 1912      | 13.2         | 53        | 38      | 32 34 00  | 3908      | 13.3         | 69        | 16      |
| 10        | 1779      | 13.3         | 55        | 43      | 10        | 3774      | 13.4         | 71        | 21      |
| 20        | 1645      | 13.4         | 57        | 47      | 20        | 3640      | 13.4         | 73        | 25      |
| 30        | 1513      | 13.2         | 59        | 52      | 30        | 3506      | 13.4         | 75        | 30      |
| 40        | 1380      | 13.3         | 60        | 57      | 40        | 3372      | 13.4         | 77        | 35      |
| 50        | 1246      | 13.4         | 62        | 61      | 50        | 3238      | 13.4         | 79        | 39      |
| 32 25 00  | 1114      | 13.2         | 64        | 66      | 32 35 00  | 3104      | 13.4         | 81        | 44      |
| 10        | 0981      | 13.3         | 66        | 71      | 10        | 2971      | 13.3         | 83        | 49      |
| 20        | 0847      | 13.4         | 68        | 75      | 20        | 2836      | 13.5         | 85        | 53      |
| 30        | 0714      | 13.3         | 70        | 80      | 30        | 2703      | 13.3         | 87        | 58      |
| 40        | 0582      | 13.2         | 72        | 85      | 40        | 2569      | 13.4         | 88        | 63      |
| 50        | 0448      | 13.4         | 74        | 89      | 50        | 2434      | 13.5         | 90        | 67      |
| 32 26 00  | 0315      | 13.3         | 76        | 94      | 32 36 00  | 2301      | 13.3         | 92        | 72      |
| 10        | 0182      | 13.3         | 78        | 2.18098 | 10        | 2167      | 13.4         | 94        | 76      |
| 20        | 1.9330048 | 13.4         | 80        | 2.18103 | 20        | 2032      | 13.5         | 96        | 81      |
| 30        | 1.9329916 | 13.2         | 82        | 08      | 30        | 1899      | 13.3         | 2.0045898 | 86      |
| 40        | 9783      | 13.3         | 84        | 12      | 40        | 1765      | 13.4         | 2.0045900 | 90      |
| 50        | 9649      | 13.4         | 86        | 16      | 50        | 1630      | 13.5         | 02        | 94      |
| 32 27 00  | 9516      | 13.3         | 88        | 21      | 32 37 00  | 1497      | 13.3         | 04        | 2.18399 |
| 10        | 9383      | 13.3         | 90        | 26      | 10        | 1363      | 13.4         | 06        | 2.18404 |
| 20        | 9249      | 13.4         | 92        | 31      | 20        | 1228      | 13.5         | 08        | 08      |
| 30        | 9116      | 13.3         | 94        | 36      | 30        | 1094      | 13.4         | 10        | 13      |
| 40        | 8983      | 13.3         | 95        | 41      | 40        | 0960      | 13.4         | 12        | 18      |
| 50        | 8849      | 13.4         | 97        | 45      | 50        | 0826      | 13.4         | 14        | 22      |
| 32 28 00  | 8717      | 13.2         | 2.0045799 | 50      | 32 38 00  | 0692      | 13.4         | 16        | 27      |
| 10        | 8584      | 13.3         | 55        | 10      |           | 0558      | 13.4         | 18        | 32      |
| 20        | 8450      | 13.4         | 03        | 59      |           | 0423      | 13.5         | 20        | 36      |
| 30        | 8317      | 13.3         | 05        | 64      |           | 0289      | 13.4         | 22        | 41      |
| 40        | 8184      | 13.3         | 07        | 69      |           | 0155      | 13.4         | 23        | 46      |
| 50        | 8050      | 13.4         | 09        | 73      |           | 1.9320021 | 13.4         | 25        | 50      |
| 32 29 00  | 7916      | 13.4         | 11        | 78      | 32 39 00  | 1.9319887 | 13.4         | 27        | 55      |
| 10        | 7783      | 13.3         | 13        | 83      | 10        | 9753      | 13.4         | 29        | 59      |
| 20        | 7649      | 13.4         | 15        | 87      | 20        | 9618      | 13.5         | 31        | 64      |
| 30        | 7516      | 13.3         | 17        | 92      | 30        | 9483      | 13.4         | 33        | 69      |
| 40        | 7383      | 13.3         | 18        | 2.18197 | 40        | 9349      | 13.5         | 35        | 73      |
| 50        | 7249      | 13.4         | 20        | 2.18201 | 50        | 9214      | 13.4         | 37        | 77      |
| 32 30 00  | 7116      | 13.3         | 22        | 06      | 32 40 00  | 9080      | 13.4         | 39        | 82      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| •   /   " |           |              |           |         | •   /   " |           |              |           |         |
| 32 40 00  | 1.9319080 | 13.4         | 2.0045939 | 2.18482 | 32 50 00  | 1.9310994 | 13.5         | 2.0046056 | 2.18760 |
| 10        | 8946      | 13.4         |           | 41      | 87        | 0859      | 13.5         | 58        | 65      |
| 20        | 8811      | 13.5         |           | 43      | 91        | 0723      | 13.6         | 60        | 69      |
| 30        | 8677      | 13.4         |           | 45      | 30        | 0588      | 13.5         | 62        | 74      |
| 40        | 8543      | 13.4         |           | 47      | 40        | 0452      | 13.6         | 64        | 79      |
| 50        | 8408      | 13.5         |           | 49      | 50        | 0317      | 13.5         | 66        | 83      |
| 32 41 00  | 8274      | 13.4         |           | 51      | 10        | 0182      | 13.5         | 68        | 88      |
| 10        | 8140      | 13.4         |           | 53      | 15        | 1.9310047 | 13.5         | 70        | 92      |
| 20        | 8004      | 13.6         |           | 55      | 19        | 1.9309911 | 13.6         | 72        | 2.18797 |
| 30        | 7870      | 13.4         |           | 57      | 24        | 9776      | 13.5         | 74        | 2.18802 |
| 40        | 7736      | 13.4         |           | 59      | 29        | 9641      | 13.5         | 75        | 06      |
| 50        | 7601      | 13.5         |           | 61      | 33        | 9505      | 13.6         | 77        | 10      |
| 32 42 00  | 7467      | 13.4         |           | 63      | 38        | 9370      | 13.5         | 79        | 15      |
| 10        | 7333      | 13.4         |           | 65      | 42        | 9235      | 13.5         | 81        | 20      |
| 20        | 7197      | 13.6         |           | 67      | 47        | 9098      | 13.7         | 83        | 24      |
| 30        | 7063      | 13.4         |           | 69      | 52        | 8963      | 13.5         | 85        | 29      |
| 40        | 6929      | 13.4         |           | 70      | 56        | 8828      | 13.5         | 87        | 34      |
| 50        | 6794      | 13.5         |           | 72      | 60        | 8692      | 13.6         | 89        | 38      |
| 32 43 00  | 6660      | 13.4         |           | 74      | 65        | 8557      | 13.5         | 91        | 43      |
| 10        | 6525      | 13.5         |           | 76      | 70        | 8422      | 13.5         | 93        | 48      |
| 20        | 6390      | 13.5         |           | 78      | 74        | 8286      | 13.6         | 95        | 52      |
| 30        | 6256      | 13.4         |           | 80      | 79        | 8151      | 13.5         | 97        | 57      |
| 40        | 6121      | 13.5         |           | 82      | 84        | 8015      | 13.6         | 2.0046099 | 62      |
| 50        | 5986      | 13.5         |           | 84      | 88        | 7879      | 13.6         | 2.0046101 | 66      |
| 32 44 00  | 5852      | 13.4         |           | 86      | 93        | 7744      | 13.5         | 03        | 71      |
| 10        | 5717      | 13.5         |           | 88      | 2.18598   | 7609      | 13.5         | 05        | 75      |
| 20        | 5582      | 13.5         |           | 90      | 2.18603   | 7473      | 13.6         | 07        | 80      |
| 30        | 5448      | 13.4         |           | 92      | 08        | 7337      | 13.6         | 09        | 85      |
| 40        | 5313      | 13.5         |           | 94      | 13        | 7202      | 13.5         | 11        | 89      |
| 50        | 5178      | 13.5         |           | 96      | 17        | 7066      | 13.6         | 13        | 93      |
| 32 45 00  | 5043      | 13.5         | 2.0045998 | 22      | 32 55 00  | 6931      | 13.5         | 15        | 2.18898 |
| 10        | 4909      | 13.4         | 2.0046000 | 27      | 10        | 6795      | 13.6         | 17        | 2.18903 |
| 20        | 4774      | 13.5         |           | 02      | 31        | 6659      | 13.6         | 19        | 07      |
| 30        | 4639      | 13.5         |           | 04      | 36        | 6524      | 13.5         | 21        | 12      |
| 40        | 4505      | 13.4         |           | 05      | 41        | 6388      | 13.6         | 22        | 17      |
| 50        | 4369      | 13.6         |           | 07      | 45        | 6252      | 13.6         | 24        | 21      |
| 32 46 00  | 4235      | 13.4         |           | 09      | 50        | 6116      | 13.6         | 26        | 26      |
| 10        | 4100      | 13.5         |           | 11      | 55        | 5981      | 13.5         | 28        | 30      |
| 20        | 3965      | 13.5         |           | 13      | 59        | 5845      | 13.6         | 30        | 35      |
| 30        | 3830      | 13.5         |           | 15      | 64        | 5709      | 13.6         | 32        | 40      |
| 40        | 3695      | 13.5         |           | 17      | 69        | 5574      | 13.5         | 34        | 44      |
| 50        | 3560      | 13.5         |           | 19      | 73        | 5437      | 13.7         | 36        | 48      |
| 32 47 00  | 3425      | 13.5         |           | 21      | 78        | 5302      | 13.5         | 38        | 53      |
| 10        | 3291      | 13.4         |           | 23      | 82        | 5166      | 13.6         | 40        | 58      |
| 20        | 3155      | 13.6         |           | 25      | 87        | 5030      | 13.6         | 42        | 62      |
| 30        | 3020      | 13.5         |           | 27      | 92        | 4894      | 13.6         | 44        | 67      |
| 40        | 2886      | 13.4         |           | 29      | 2.18696   | 4759      | 13.5         | 46        | 72      |
| 50        | 2750      | 13.6         |           | 31      | 2.18700   | 4622      | 13.7         | 48        | 76      |
| 32 48 00  | 2615      | 13.5         |           | 33      | 05        | 32 58 00  | 4487         | 13.5      | 50      |
| 10        | 2481      | 13.4         |           | 35      | 10        | 4351      | 13.6         | 52        | 85      |
| 20        | 2345      | 13.6         |           | 37      | 14        | 4215      | 13.6         | 54        | 90      |
| 30        | 2210      | 13.5         |           | 39      | 19        | 4079      | 13.6         | 56        | 95      |
| 40        | 2075      | 13.5         |           | 40      | 24        | 3943      | 13.6         | 58        | 2.18999 |
| 50        | 1940      | 13.5         |           | 42      | 28        | 3807      | 13.6         | 60        | 2.19003 |
| 32 49 00  | 1805      | 13.5         |           | 44      | 33        | 32 59 00  | 3671         | 13.6      | 62      |
| 10        | 1670      | 13.5         |           | 46      | 37        | 3536      | 13.5         | 64        | 13      |
| 20        | 1534      | 13.6         |           | 48      | 42        | 3399      | 13.7         | 66        | 18      |
| 30        | 1400      | 13.4         |           | 50      | 47        | 3263      | 13.6         | 68        | 23      |
| 40        | 1265      | 13.5         |           | 52      | 51        | 3127      | 13.6         | 69        | 28      |
| 50        | 1129      | 13.6         |           | 54      | 55        | 2991      | 13.6         | 71        | 32      |
| 32 50 00  | 0994      | 13.5         |           | 56      | 60        | 33 00 00  | 2855         | 13.6      | 73      |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| °   '   " |           |             |           |         | °   '   " |           |             |           |         |
| 33 00 00  | 1.9302855 | 13.6        | 2.0046173 | 2.19037 | 33 10 00  | 1.9294664 | 13.6        | 2.0046291 | 2.19313 |
| 10        | 2719      | 13.6        | 75        | 41      | 10        | 4527      | 13.7        | 93        | 18      |
| 20        | 2583      | 13.6        | 77        | 46      | 20        | 4390      | 13.7        | 95        | 23      |
| 30        | 2447      | 13.6        | 79        | 51      | 30        | 4253      | 13.7        | 97        | 28      |
| 40        | 2310      | 13.7        | 81        | 55      | 40        | 4116      | 13.7        | 2.0046299 | 32      |
| 50        | 2174      | 13.6        | 83        | 59      | 50        | 3979      | 13.7        | 2.0046301 | 36      |
| 33 01 00  | 2038      | 13.6        | 85        | 64      | 33 11 00  | 3842      | 13.7        | 03        | 41      |
| 10        | 1903      | 13.5        | 87        | 69      | 10        | 3705      | 13.7        | 05        | 45      |
| 20        | 1766      | 13.7        | 89        | 73      | 20        | 3568      | 13.7        | 07        | 50      |
| 30        | 1630      | 13.6        | 91        | 78      | 30        | 3431      | 13.7        | 09        | 55      |
| 40        | 1493      | 13.7        | 93        | 84      | 40        | 3294      | 13.7        | 10        | 59      |
| 50        | 1357      | 13.6        | 95        | 88      | 50        | 3156      | 13.8        | 12        | 63      |
| 33 02 00  | 1220      | 13.7        | 97        | 93      | 33 12 00  | 3020      | 13.6        | 14        | 68      |
| 10        | 1084      | 13.6        | 2.0046199 | 2.19097 | 10        | 2883      | 13.7        | 16        | 73      |
| 20        | 0947      | 13.7        | 2.0046201 | 2.19102 | 20        | 2745      | 13.8        | 18        | 77      |
| 30        | 0811      | 13.6        | 03        | 07      | 30        | 2608      | 13.7        | 20        | 82      |
| 40        | 0675      | 13.6        | 05        | 11      | 40        | 2470      | 13.8        | 22        | 87      |
| 50        | 0538      | 13.7        | 07        | 15      | 50        | 2333      | 13.7        | 24        | 91      |
| 33 03 00  | 0402      | 13.6        | 09        | 20      | 33 13 00  | 2196      | 13.7        | 26        | 2.19396 |
| 10        | 0266      | 13.6        | 11        | 25      | 10        | 2059      | 13.7        | 28        | 2.19400 |
| 20        | 1.9300129 | 13.7        | 13        | 29      | 20        | 1921      | 13.8        | 30        | 05      |
| 30        | 1.9299993 | 13.6        | 15        | 34      | 30        | 1784      | 13.7        | 32        | 10      |
| 40        | 9857      | 13.6        | 16        | 39      | 40        | 1647      | 13.7        | 34        | 14      |
| 50        | 9720      | 13.7        | 18        | 43      | 50        | 1509      | 13.8        | 36        | 18      |
| 33 04 00  | 9584      | 13.6        | 20        | 48      | 33 14 00  | 1372      | 13.7        | 38        | 23      |
| 10        | 9448      | 13.6        | 22        | 52      | 10        | 1235      | 13.7        | 40        | 28      |
| 20        | 9311      | 13.7        | 24        | 57      | 20        | 1097      | 13.8        | 42        | 32      |
| 30        | 9175      | 13.6        | 26        | 62      | 30        | 0960      | 13.7        | 44        | 37      |
| 40        | 9039      | 13.6        | 28        | 66      | 40        | 0823      | 13.7        | 46        | 42      |
| 50        | 8902      | 13.7        | 30        | 70      | 50        | 0685      | 13.8        | 48        | 46      |
| 33 05 00  | 8765      | 13.7        | 32        | 75      | 33 15 00  | 0548      | 13.7        | 50        | 51      |
| 10        | 8629      | 13.6        | 34        | 80      | 10        | 0411      | 13.7        | 52        | 55      |
| 20        | 8492      | 13.7        | 36        | 84      | 20        | 0273      | 13.8        | 54        | 60      |
| 30        | 8356      | 13.6        | 38        | 89      | 30        | 1.9290136 | 13.7        | 56        | 65      |
| 40        | 8220      | 13.6        | 40        | 94      | 40        | 1.9289999 | 13.7        | 58        | 69      |
| 50        | 8082      | 13.8        | 42        | 2.10198 | 50        | 9861      | 13.8        | 60        | 73      |
| 33 06 00  | 7946      | 13.6        | 44        | 2.10203 | 33 16 00  | 9724      | 13.7        | 62        | 78      |
| 10        | 7810      | 13.6        | 46        | 07      | 10        | 9586      | 13.8        | 64        | 82      |
| 20        | 7673      | 13.7        | 48        | 12      | 20        | 9448      | 13.8        | 66        | 87      |
| 30        | 7536      | 13.7        | 50        | 17      | 30        | 9311      | 13.7        | 68        | 92      |
| 40        | 7400      | 13.6        | 52        | 21      | 40        | 9174      | 13.7        | 69        | 2.10496 |
| 50        | 7263      | 13.7        | 54        | 25      | 50        | 9036      | 13.8        | 71        | 2.19500 |
| 33 07 00  | 7126      | 13.7        | 56        | 30      | 33 17 00  | 8898      | 13.8        | 73        | 05      |
| 10        | 6990      | 13.6        | 58        | 35      | 10        | 8761      | 13.8        | 75        | 10      |
| 20        | 6853      | 13.7        | 60        | 39      | 20        | 8623      | 13.8        | 77        | 14      |
| 30        | 6716      | 13.7        | 62        | 44      | 30        | 8486      | 13.7        | 79        | 19      |
| 40        | 6580      | 13.6        | 63        | 49      | 40        | 8349      | 13.7        | 81        | 24      |
| 50        | 6442      | 13.8        | 65        | 53      | 50        | 8210      | 13.9        | 83        | 28      |
| 33 08 00  | 6306      | 13.6        | 67        | 58      | 33 18 00  | 8073      | 13.7        | 85        | 33      |
| 10        | 6170      | 13.6        | 69        | 62      | 10        | 7936      | 13.7        | 87        | 37      |
| 20        | 6032      | 13.8        | 71        | 67      | 20        | 7797      | 13.9        | 89        | 42      |
| 30        | 5896      | 13.6        | 73        | 72      | 30        | 7660      | 13.7        | 91        | 47      |
| 40        | 5759      | 13.7        | 75        | 76      | 40        | 7523      | 13.7        | 93        | 52      |
| 50        | 5622      | 13.7        | 77        | 80      | 50        | 7384      | 13.9        | 95        | 56      |
| 33 09 00  | 5485      | 13.7        | 79        | 85      | 33 19 00  | 7247      | 13.7        | 97        | 61      |
| 10        | 5349      | 13.6        | 81        | 90      | 10        | 7109      | 13.8        | 66        | 66      |
| 20        | 5211      | 13.8        | 83        | 94      | 20        | 6971      | 13.8        | 68        | 70      |
| 30        | 5075      | 13.6        | 85        | 2.10299 | 30        | 6834      | 13.7        | 03        | 75      |
| 40        | 4938      | 13.7        | 87        | 2.10304 | 40        | 6696      | 13.8        | 05        | 80      |
| 50        | 4800      | 13.8        | 89        | 08      | 50        | 6558      | 13.8        | 07        | 84      |
| 33 10 00  | 4664      | 13.6        | 91        | 13      | 33 20 00  | 6420      | 13.8        | 09        | 89      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 33 20 00  | 1.9286420 | 13.8         | 2.0046409 | 2.19589 | 33 30 00  | 1.9278124 | 13.8         | 2.0046527 | 2.19863 |
| 10        | 6283      | 13.7         |           | 11      | 93        | 7986      | 13.8         | 29        | 67      |
| 20        | 6144      | 13.9         |           | 13      | 2.19598   | 7846      | 14.0         | 31        | 72      |
| 30        | 6007      | 13.7         |           | 15      | 2.19603   | 7708      | 13.8         | 33        | 77      |
| 40        | 5869      | 13.8         |           | 17      | 07        | 7569      | 13.9         | 35        | 81      |
| 50        | 5731      | 13.8         |           | 19      | 11        | 7430      | 13.9         | 37        | 85      |
| 33 21 00  | 5593      | 13.8         | 21        | 16      | 33 31 00  | 7291      | 13.9         | 39        | 90      |
| 10        | 5455      | 13.8         | 23        | 20      |           | 7153      | 13.8         | 41        | 94      |
| 20        | 5317      | 13.8         | 25        | 25      |           | 7014      | 13.9         | 43        | 2.19899 |
| 30        | 5179      | 13.8         | 27        | 30      |           | 6875      | 13.9         | 45        | 2.19904 |
| 40        | 5042      | 13.7         | 28        | 34      |           | 6737      | 13.8         | 47        | 08      |
| 50        | 4903      | 13.9         | 30        | 38      |           | 6597      | 14.0         | 49        | 12      |
| 33 22 00  | 4765      | 13.8         | 32        | 43      | 33 32 00  | 6459      | 13.8         | 51        | 17      |
| 10        | 4628      | 13.7         | 34        | 48      |           | 6320      | 13.9         | 53        | 22      |
| 20        | 4489      | 13.9         | 36        | 52      |           | 6180      | 14.0         | 55        | 26      |
| 30        | 4351      | 13.8         | 38        | 57      |           | 6042      | 13.8         | 57        | 31      |
| 40        | 4214      | 13.7         | 40        | 62      |           | 5903      | 13.9         | 58        | 36      |
| 50        | 4075      | 13.9         | 42        | 66      |           | 5764      | 13.9         | 60        | 40      |
| 33 23 00  | 3937      | 13.8         | 44        | 71      | 33 33 00  | 5625      | 13.9         | 62        | 45      |
| 10        | 3799      | 13.8         | 46        | 75      |           | 5486      | 13.9         | 64        | 49      |
| 20        | 3661      | 13.8         | 48        | 80      |           | 5347      | 13.9         | 66        | 54      |
| 30        | 3523      | 13.8         | 50        | 85      |           | 5208      | 13.9         | 68        | 59      |
| 40        | 3385      | 13.8         | 52        | 89      |           | 5069      | 13.9         | 70        | 63      |
| 50        | 3246      | 13.9         | 54        | 93      |           | 4930      | 13.9         | 72        | 67      |
| -33 24 00 | 3108      | 13.8         | 56        | 2.19698 | 33 34 00  | 4791      | 13.9         | 74        | 72      |
| 10        | 2971      | 13.7         | 58        | 2.19702 |           | 4652      | 13.9         | 76        | 76      |
| 20        | 2832      | 13.9         | 60        | 07      |           | 4513      | 13.9         | 78        | 81      |
| 30        | 2694      | 13.8         | 62        | 12      |           | 4374      | 13.9         | 80        | 86      |
| 40        | 2556      | 13.8         | 64        | 16      |           | 4235      | 13.9         | 82        | 90      |
| 50        | 2417      | 13.9         | 66        | 21      |           | 4095      | 14.0         | 84        | 94      |
| 33 25 00  | 2279      | 13.8         | 68        | 26      | 33 35 00  | 3956      | 13.9         | 86        | 2.19999 |
| 10        | 2141      | 13.8         | 70        | 31      |           | 3818      | 13.8         | 88        | 2.20003 |
| 20        | 2002      | 13.9         | 72        | 35      |           | 3678      | 14.0         | 90        | 08      |
| 30        | 1864      | 13.8         | 74        | 40      |           | 3539      | 13.9         | 92        | 13      |
| 40        | 1726      | 13.8         | 76        | 45      |           | 3400      | 13.9         | 94        | 18      |
| 50        | 1587      | 13.9         | 78        | 49      |           | 3260      | 14.0         | 96        | 22      |
| 33 26 00  | 1449      | 13.8         | 80        | 54      | 33 36 00  | 3121      | 13.9         | 2.0046598 | 27      |
| 10        | 1310      | 13.9         | 82        | 58      |           | 2982      | 13.9         | 2.0046600 | 32      |
| 20        | 1172      | 13.8         | 84        | 63      |           | 2843      | 13.9         | 02        | 36      |
| 30        | 1034      | 13.8         | 86        | 68      |           | 2704      | 13.9         | 04        | 41      |
| 40        | 0896      | 13.8         | 87        | 72      |           | 2565      | 13.9         | 06        | 46      |
| 50        | 0757      | 13.9         | 89        | 76      |           | 2425      | 14.0         | 08        | 50      |
| 33 27 00  | 0619      | 13.8         | 91        | 81      | 33 37 00  | 2286      | 13.9         | 10        | 55      |
| 10        | 0481      | 13.8         | 93        | 85      |           | 2147      | 13.9         | 12        | 59      |
| 20        | 0342      | 13.9         | 95        | 90      |           | 2007      | 14.0         | 14        | 64      |
| 30        | 0204      | 13.8         | 97        | 95      |           | 1868      | 13.9         | 16        | 69      |
| 40        | 1.9280066 | 13.8         | 2.0046499 | 2.19799 |           | 1729      | 13.9         | 18        | 73      |
| 50        | 1.9279926 | 14.0         | 2.0046501 | 2.19803 |           | 1589      | 14.0         | 20        | 77      |
| 33 28 00  | 9788      | 13.8         | 03        | 08      | 33 38 00  | 1450      | 13.9         | 22        | 82      |
| 10        | 9650      | 13.8         | 05        | 13      |           | 1311      | 13.9         | 24        | 86      |
| 20        | 9511      | 13.9         | 07        | 17      |           | 1170      | 14.1         | 26        | 91      |
| 30        | 9373      | 13.8         | 09        | 22      |           | 1031      | 13.9         | 28        | 2.20096 |
| 40        | 9233      | 14.0         | 11        | 27      |           | 0892      | 13.9         | 29        | 2.20100 |
| 50        | 9095      | 13.8         | 13        | 31      |           | 0752      | 14.0         | 31        | 04      |
| 33 29 00  | 8956      | 13.9         | 15        | 36      | 33 39 00  | 0613      | 13.9         | 33        | 09      |
| 10        | 8818      | 13.8         | 17        | 40      |           | 0474      | 13.9         | 35        | 13      |
| 20        | 8678      | 14.0         | 19        | 45      |           | 0334      | 14.0         | 37        | 18      |
| 30        | 8540      | 13.8         | 21        | 50      |           | 0194      | 14.0         | 39        | 23      |
| 40        | 8402      | 13.8         | 23        | 54      |           | 1.9270025 | 13.9         | 41        | 27      |
| 50        | 8262      | 14.0         | 25        | 58      |           | 1.9269915 | 14.0         | 43        | 31      |
| 33 30 00  | 8124      | 13.8         | 27        | 63      | 33 40 00  | 9776      | 13.9         | 45        | 36      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Diff.<br>1''.<br>" | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Diff.<br>1''.<br>" | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|--------------------|----------------|----------------|-----------|----------------|--------------------|----------------|----------------|
| 33 40 00  | 1.9269776      | 13.9               | 2.0046645      | 2.20136        | 33 50 00  | 1.9261375      | 14.0               | 2.0046764      | 2.20409        |
| 10        | 9637           | 13.9               | 47             | 40             | 10        | 1234           | 14.1               | 66             | 13             |
| 20        | 9496           | 14.1               | 49             | 45             | 20        | 1093           | 14.1               | 68             | 18             |
| 30        | 9357           | 13.9               | 51             | 50             | 30        | 0953           | 14.0               | 70             | 23             |
| 40        | 9218           | 13.9               | 53             | 54             | 40        | 0812           | 14.1               | 72             | 27             |
| 50        | 9077           | 14.1               | 55             | 58             | 50        | 0672           | 14.0               | 74             | 31             |
| 33 41 00  | 8938           | 13.9               | 57             | 63             | 33 51 00  | 0531           | 14.1               | 76             | 36             |
| 10        | 8790           | 13.9               | 59             | 68             | 10        | 0390           | 14.1               | 78             | 40             |
| 20        | 8658           | 14.1               | 61             | 72             | 20        | 0249           | 14.1               | 80             | 45             |
| 30        | 8519           | 13.9               | 63             | 77             | 30        | 1.9260109      | 14.0               | 82             | 50             |
| 40        | 8380           | 13.9               | 65             | 82             | 40        | 1.9259069      | 14.0               | 84             | 54             |
| 50        | 8239           | 14.1               | 67             | 86             | 50        | 9827           | 14.2               | 88             | 58             |
| 33 42 00  | 8100           | 13.9               | 69             | 91             | 33 52 00  | 9687           | 14.0               | 88             | 63             |
| 10        | 7960           | 14.0               | 71             | 2.20195        | 10        | 9547           | 14.0               | 90             | 68             |
| 20        | 7820           | 14.0               | 73             | 2.20200        | 20        | 9405           | 14.2               | 92             | 73             |
| 30        | 7680           | 14.0               | 75             | 05             | 30        | 9265           | 14.0               | 94             | 78             |
| 40        | 7541           | 13.9               | 77             | 09             | 40        | 9125           | 14.0               | 96             | 83             |
| 50        | 7400           | 14.1               | 79             | 13             | 50        | 8983           | 14.2               | 2.0046798      | 87             |
| 33 43 00  | 7261           | 13.9               | 81             | 18             | 33 53 00  | 8843           | 14.0               | 2.0046800      | 92             |
| 10        | 7121           | 14.0               | 83             | 23             | 10        | 8702           | 14.1               | 02             | 2.20496        |
| 20        | 6981           | 14.0               | 85             | 28             | 20        | 8561           | 14.1               | 04             | 2.20501        |
| 30        | 6841           | 14.0               | 87             | 32             | 30        | 8421           | 14.0               | 06             | 06             |
| 40        | 6702           | 13.9               | 89             | 36             | 40        | 8280           | 14.1               | 08             | 10             |
| 50        | 6561           | 14.1               | 91             | 41             | 50        | 8139           | 14.1               | 10             | 14             |
| 33 44 00  | 6422           | 13.9               | 93             | 46             | 33 54 00  | 7998           | 14.1               | 12             | 19             |
| 10        | 6282           | 14.0               | 95             | 50             | 10        | 7858           | 14.0               | 14             | 23             |
| 20        | 6141           | 14.1               | 97             | 55             | 20        | 7716           | 14.2               | 16             | 28             |
| 30        | 6002           | 13.9               | 2.0046699      | 60             | 30        | 7576           | 14.0               | 18             | 33             |
| 40        | 5862           | 14.0               | 2.0046701      | 64             | 40        | 7435           | 14.1               | 20             | 37             |
| 50        | 5721           | 14.1               | 03             | 68             | 50        | 7294           | 14.1               | 22             | 41             |
| 33 45 00  | 5582           | 13.9               | 05             | 73             | 33 55 00  | 7153           | 14.1               | 24             | 46             |
| 10        | 5442           | 14.0               | 07             | 77             | 10        | 7012           | 14.1               | 26             | 50             |
| 20        | 5301           | 14.1               | 09             | 82             | 20        | 6871           | 14.1               | 28             | 55             |
| 30        | 5162           | 13.9               | 11             | 87             | 30        | 6730           | 14.1               | 30             | 60             |
| 40        | 5022           | 14.0               | 13             | 91             | 40        | 6590           | 14.0               | 32             | 64             |
| 50        | 4881           | 14.1               | 15             | 2.20295        | 50        | 6448           | 14.2               | 34             | 68             |
| 33 46 00  | 4741           | 14.0               | 17             | 2.20300        | 33 56 00  | 6307           | 14.1               | 36             | 73             |
| 10        | 4602           | 13.9               | 19             | 05             | 10        | 6167           | 14.0               | 38             | 77             |
| 20        | 4461           | 14.1               | 21             | 09             | 20        | 6025           | 14.2               | 40             | 82             |
| 30        | 4321           | 14.0               | 23             | 14             | 30        | 5884           | 14.1               | 41             | 87             |
| 40        | 4181           | 14.0               | 25             | 19             | 40        | 5744           | 14.0               | 43             | 91             |
| 50        | 4040           | 14.1               | 27             | 23             | 50        | 5602           | 14.2               | 45             | 2.20595        |
| 33 47 00  | 3901           | 13.9               | 29             | 28             | 33 57 00  | 5461           | 14.1               | 47             | 2.20600        |
| 10        | 3761           | 14.0               | 31             | 32             | 10        | 5320           | 14.1               | 49             | 04             |
| 20        | 3620           | 14.1               | 33             | 37             | 20        | 5179           | 14.1               | 51             | 09             |
| 30        | 3480           | 14.0               | 35             | 42             | 30        | 5038           | 14.1               | 53             | 14             |
| 40        | 3340           | 14.0               | 36             | 46             | 40        | 4897           | 14.1               | 55             | 18             |
| 50        | 3199           | 14.1               | 38             | 50             | 50        | 4755           | 14.2               | 57             | 22             |
| 33 48 00  | 3059           | 14.0               | 40             | 55             | 33 58 00  | 4614           | 14.1               | 59             | 27             |
| 10        | 2919           | 14.0               | 42             | 59             | 10        | 4473           | 14.1               | 61             | 31             |
| 20        | 2778           | 14.1               | 44             | 64             | 20        | 4332           | 14.1               | 63             | 36             |
| 30        | 2638           | 14.0               | 46             | 69             | 30        | 4191           | 14.1               | 65             | 41             |
| 40        | 2498           | 14.0               | 48             | 73             | 40        | 4050           | 14.1               | 67             | 45             |
| 50        | 2357           | 14.1               | 50             | 77             | 50        | 3908           | 14.2               | 69             | 49             |
| 33 49 00  | 2217           | 14.0               | 52             | 82             | 33 59 00  | 3707           | 14.1               | 71             | 54             |
| 10        | 2077           | 14.0               | 54             | 86             | 10        | 3626           | 14.1               | 73             | 58             |
| 20        | 1936           | 14.1               | 56             | 91             | 20        | 3484           | 14.2               | 75             | 63             |
| 30        | 1796           | 14.0               | 58             | 2.20396        | 30        | 3343           | 14.1               | 77             | 68             |
| 40        | 1656           | 14.0               | 60             | 2.20400        | 40        | 3202           | 14.1               | 79             | 72             |
| 50        | 1515           | 14.1               | 62             | 04             | 50        | 3060           | 14.2               | 81             | 76             |
| 33 50 00  | 1375           | 14.0               | 64             | 09             | 34 00 00  | 2919           | 14.1               | 83             | 81             |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log II.   | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| • ' "     |           |             |           |         | • ' "     |           |             |           |         |
| 34 00 00  | 1.9252919 | 14.1        | 2.0046883 | 2.20681 | 34 10 00  | 1.9244411 | 14.2        | 2.0047002 | 2.20954 |
| 10        | 2778      | 14.1        | 85        | 86      | 10        | 4269      | 14.2        | 04        | 58      |
| 20        | 2636      | 14.2        | 87        | 90      | 20        | 4126      | 14.3        | 06        | 63      |
| 30        | 2495      | 14.1        | 89        | 2.20695 | 30        | 3984      | 14.2        | 08        | 68      |
| 40        | 2354      | 14.1        | 91        | 2.20700 | 40        | 3842      | 14.2        | 10        | 72      |
| 50        | 2212      | 14.2        | 93        | 05      | 50        | 3699      | 14.3        | 12        | 76      |
| 34 01 00  | 2071      | 14.1        | 95        | 10      | 34 11 00  | 3557      | 14.2        | 14        | 81      |
| 10        | 1930      | 14.1        | 97        | 14      | 10        | 3415      | 14.2        | 16        | 85      |
| 20        | 1788      | 14.2        | 2.0046899 | 19      | 20        | 3272      | 14.3        | 18        | 90      |
| 30        | 1646      | 14.2        | 2.0046901 | 24      | 30        | 3130      | 14.2        | 20        | 95      |
| 40        | 1505      | 14.1        | 03        | 28      | 40        | 2988      | 14.2        | 22        | 2.20999 |
| 50        | 1363      | 14.2        | 05        | 32      | 50        | 2845      | 14.3        | 24        | 2.21003 |
| 34 02 00  | 1222      | 14.1        | 07        | 37      | 34 12 00  | 2703      | 14.2        | 26        | 68      |
| 10        | 1081      | 14.1        | 09        | 41      | 10        | 2561      | 14.2        | 28        | 12      |
| 20        | 0938      | 14.3        | 11        | 46      | 20        | 2418      | 14.3        | 30        | 17      |
| 30        | 0797      | 14.1        | 13        | 51      | 30        | 2276      | 14.2        | 32        | 22      |
| 40        | 0656      | 14.1        | 15        | 55      | 40        | 2134      | 14.2        | 34        | 26      |
| 50        | 0514      | 14.2        | 17        | 59      | 50        | 1991      | 14.3        | 36        | 30      |
| 34 03 00  | 0372      | 14.2        | 19        | 64      | 34 13 00  | 1848      | 14.3        | 38        | 35      |
| 10        | 0231      | 14.1        | 21        | 68      | 10        | 1706      | 14.2        | 40        | 39      |
| 20        | 1.9250089 | 14.2        | 23        | 73      | 20        | 1563      | 14.3        | 42        | 44      |
| 30        | 1.9249947 | 14.2        | 25        | 78      | 30        | 1421      | 14.2        | 44        | 49      |
| 40        | 9806      | 14.1        | 27        | 82      | 40        | 1279      | 14.2        | 46        | 53      |
| 50        | 9664      | 14.2        | 29        | 86      | 50        | 1135      | 14.4        | 48        | 57      |
| 34 04 00  | 9522      | 14.2        | 31        | 91      | 34 14 00  | 0993      | 14.2        | 50        | 62      |
| 10        | 9381      | 14.1        | 33        | 2.20795 | 10        | 0851      | 14.2        | 52        | 66      |
| 20        | 9239      | 14.2        | 35        | 2.20800 | 20        | 0707      | 14.4        | 54        | 71      |
| 30        | 9097      | 14.2        | 37        | 05      | 30        | 0565      | 14.2        | 56        | 76      |
| 40        | 8956      | 14.1        | 39        | 09      | 40        | 0423      | 14.2        | 58        | 80      |
| 50        | 8813      | 14.3        | 41        | 13      | 50        | 0280      | 14.3        | 60        | 84      |
| 34 05 00  | 8672      | 14.1        | 43        | 18      | 34 15 00  | 1.9240137 | 14.3        | 62        | 89      |
| 10        | 8530      | 14.2        | 45        | 22      | 10        | 1.9239995 | 14.2        | 64        | 93      |
| 20        | 8388      | 14.2        | 47        | 27      | 20        | 9851      | 14.4        | 66        | 2.21098 |
| 30        | 8246      | 14.2        | 49        | 32      | 30        | 9709      | 14.2        | 68        | 2.21103 |
| 40        | 8105      | 14.1        | 51        | 36      | 40        | 9567      | 14.2        | 70        | 07      |
| 50        | 7962      | 14.3        | 53        | 40      | 50        | 9423      | 14.4        | 72        | 11      |
| 34 06 00  | 7821      | 14.1        | 55        | 45      | 34 16 00  | 9281      | 14.2        | 74        | 16      |
| 10        | 7679      | 14.2        | 57        | 49      | 10        | 9138      | 14.3        | 76        | 20      |
| 20        | 7537      | 14.2        | 59        | 54      | 20        | 8905      | 14.3        | 78        | 25      |
| 30        | 7395      | 14.2        | 61        | 59      | 30        | 8852      | 14.3        | 80        | 30      |
| 40        | 7253      | 14.2        | 63        | 63      | 40        | 8710      | 14.2        | 82        | 34      |
| 50        | 7111      | 14.2        | 65        | 67      | 50        | 8566      | 14.4        | 84        | 38      |
| 34 07 00  | 6969      | 14.2        | 67        | 72      | 34 17 00  | 8424      | 14.2        | 86        | 43      |
| 10        | 6828      | 14.1        | 69        | 76      | 10        | 8281      | 14.3        | 88        | 47      |
| 20        | 6685      | 14.3        | 71        | 81      | 20        | 8138      | 14.3        | 90        | 52      |
| 30        | 6543      | 14.2        | 73        | 86      | 30        | 7995      | 14.3        | 92        | 58      |
| 40        | 6402      | 14.1        | 75        | 90      | 40        | 7852      | 14.3        | 94        | 62      |
| 50        | 6259      | 14.3        | 77        | 94      | 50        | 7709      | 14.3        | 96        | 66      |
| 34 08 00  | 6117      | 14.2        | 79        | 2.20899 | 34 18 00  | 7566      | 14.3        | 2.0047098 | 71      |
| 10        | 5975      | 14.2        | 81        | 2.20903 | 10        | 7424      | 14.2        | 2.0047100 | 75      |
| 20        | 5833      | 14.2        | 83        | 08      | 20        | 7280      | 14.4        | 02        | 80      |
| 30        | 5691      | 14.2        | 85        | 13      | 30        | 7137      | 14.3        | 04        | 85      |
| 40        | 5549      | 14.2        | 87        | 17      | 40        | 6995      | 14.2        | 06        | 89      |
| 50        | 5406      | 14.3        | 89        | 21      | 50        | 6851      | 14.4        | 08        | 92      |
| 34 09 00  | 5264      | 14.2        | 91        | 26      | 34 10 00  | 6708      | 14.3        | 10        | 2.21198 |
| 10        | 5123      | 14.1        | 93        | 31      | 10        | 6565      | 14.3        | 12        | 2.21202 |
| 20        | 4980      | 14.3        | 95        | 36      | 20        | 6422      | 14.3        | 14        | 07      |
| 30        | 4838      | 14.2        | 97        | 41      | 30        | 6279      | 14.3        | 16        | 12      |
| 40        | 4696      | 14.2        | 2.0046998 | 45      | 40        | 6136      | 14.3        | 18        | 16      |
| 50        | 4553      | 14.3        | 2.0047000 | 49      | 50        | 5992      | 14.4        | 20        | 20      |
| 34 10 00  | 4411      | 14.2        | 02        | 54      | 34 20 00  | 5850      | 14.2        | 22        | 25      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Dif.<br>1". | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Dif.<br>1". | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|-------------|----------------|----------------|-----------|----------------|-------------|----------------|----------------|
| •   '   " |                |             |                |                | •   '   " |                |             |                |                |
| 34 20 00  | 1.9235850      | 14.2        | 2.0047122      | 2.21225        | 34 30 00  | 1.9227234      | 14.4        | 2.0047242      | 2.21495        |
| 10        | 5707           | 14.3        |                | 24             | 29        | 7090           | 14.4        | 44             | 2.21499        |
| 20        | 5563           | 14.4        |                | 26             | 34        | 6946           | 14.4        | 46             | 2.21504        |
| 30        | 5420           | 14.3        |                | 28             | 39        | 6802           | 14.4        | 48             | 09             |
| 40        | 5277           | 14.3        |                | 30             | 43        | 6658           | 14.4        | 50             | 13             |
| 50        | 5133           | 14.4        |                | 32             | 47        | 6513           | 14.5        | 52             | 17             |
| 34 21 00  | 4991           | 14.2        |                | 34             | 52        | 34 31 00       | 6370        | 14.3           | 54             |
| 10        | 4848           | 14.3        |                | 36             | 56        |                | 6226        | 14.4           | 56             |
| 20        | 4704           | 14.4        |                | 38             | 61        |                | 6081        | 14.5           | 58             |
| 30        | 4561           | 14.3        |                | 40             | 66        |                | 5937        | 14.4           | 60             |
| 40        | 4418           | 14.3        |                | 42             | 70        |                | 5793        | 14.4           | 62             |
| 50        | 4274           | 14.4        |                | 44             | 74        |                | 5648        | 14.5           | 64             |
| 34 22 00  | 4131           | 14.3        |                | 46             | 79        | 34 32 00       | 5505        | 14.3           | 66             |
| 10        | 3988           | 14.3        |                | 48             | 83        |                | 5361        | 14.4           | 68             |
| 20        | 3844           | 14.4        |                | 50             | 88        |                | 5216        | 14.5           | 70             |
| 30        | 3701           | 14.3        |                | 52             | 93        |                | 5072        | 14.4           | 72             |
| 40        | 3558           | 14.3        |                | 54             | 2.21297   |                | 4928        | 14.4           | 74             |
| 50        | 3414           | 14.4        |                | 56             | 2.21301   |                | 4783        | 14.5           | 76             |
| 34 23 00  | 3271           | 14.3        |                | 58             | 06        | 34 33 00       | 4639        | 14.4           | 78             |
| 10        | 3128           | 14.3        |                | 60             | 10        |                | 4495        | 14.4           | 80             |
| 20        | 2983           | 14.5        |                | 62             | 15        |                | 4350        | 14.5           | 82             |
| 30        | 2840           | 14.3        |                | 64             | 20        |                | 4206        | 14.4           | 84             |
| 40        | 2697           | 14.3        |                | 66             | 24        |                | 4062        | 14.4           | 86             |
| 50        | 2553           | 14.4        |                | 68             | 28        |                | 3917        | 14.5           | 88             |
| 34 24 00  | 2410           | 14.3        |                | 70             | 33        | 34 34 00       | 3773        | 14.4           | 90             |
| 10        | 2267           | 14.3        |                | 72             | 37        |                | 3629        | 14.4           | 92             |
| 20        | 2123           | 14.4        |                | 74             | 42        |                | 3484        | 14.5           | 94             |
| 30        | 1979           | 14.4        |                | 76             | 47        |                | 3340        | 14.4           | 96             |
| 40        | 1836           | 14.3        |                | 78             | 51        |                | 3195        | 14.5           | 98             |
| 50        | 1692           | 14.4        |                | 80             | 55        |                | 3050        | 14.5           | 2.21598        |
| 34 25 00  | 1549           | 14.3        |                | 82             | 60        | 34 35 00       | 2906        | 14.4           | 02             |
| 10        | 1405           | 14.4        |                | 84             | 64        |                | 2762        | 14.4           | 04             |
| 20        | 1261           | 14.4        |                | 86             | 69        |                | 2617        | 14.5           | 06             |
| 30        | 1118           | 14.3        |                | 88             | 74        |                | 2473        | 14.4           | 08             |
| 40        | 0974           | 14.4        |                | 90             | 78        |                | 2328        | 14.5           | 10             |
| 50        | 0830           | 14.4        |                | 92             | 83        |                | 2183        | 14.5           | 12             |
| 34 26 00  | 0687           | 14.3        |                | 94             | 88        | 34 36 00       | 2039        | 14.4           | 14             |
| 10        | 0543           | 14.4        |                | 96             | 92        |                | 1895        | 14.4           | 16             |
| 20        | 0399           | 14.4        | 2.0047198      | 2.21397        |           |                | 1749        | 14.6           | 18             |
| 30        | 0256           | 14.3        | 2.0047200      | 2.21402        |           |                | 1605        | 14.4           | 20             |
| 40        | 1.9230112      | 14.4        |                | 02             | 06        |                | 1461        | 14.4           | 22             |
| 50        | 1.9229968      | 14.4        |                | 04             | 10        |                | 1315        | 14.6           | 24             |
| 34 27 00  | 9824           | 14.4        |                | 06             | 15        | 34 37 00       | 1171        | 14.4           | 26             |
| 10        | 9681           | 14.3        |                | 08             | 19        |                | 1027        | 14.4           | 28             |
| 20        | 9537           | 14.4        |                | 10             | 24        |                | 0881        | 14.6           | 30             |
| 30        | 9393           | 14.4        |                | 12             | 28        |                | 0737        | 14.4           | 32             |
| 40        | 9250           | 14.3        |                | 14             | 32        |                | 0593        | 14.4           | 34             |
| 50        | 9105           | 14.5        |                | 16             | 37        |                | 0447        | 14.6           | 36             |
| 34 28 00  | 8962           | 14.3        |                | 18             | 41        | 34 38 00       | 0303        | 14.4           | 38             |
| 10        | 8818           | 14.4        |                | 20             | 45        |                | 0158        | 14.5           | 40             |
| 20        | 8673           | 14.5        |                | 22             | 50        |                | 1.9220013   | 14.5           | 42             |
| 30        | 8530           | 14.3        |                | 24             | 55        |                | 1.9219868   | 14.5           | 44             |
| 40        | 8386           | 14.4        |                | 26             | 59        |                | 0724        | 14.4           | 46             |
| 50        | 8242           | 14.4        |                | 28             | 63        |                | 0978        | 14.6           | 48             |
| 34 29 00  | 8098           | 14.4        |                | 30             | 68        | 34 39 00       | 0434        | 14.4           | 50             |
| 10        | 7955           | 14.3        |                | 32             | 72        |                | 0289        | 14.5           | 52             |
| 20        | 7810           | 14.5        |                | 34             | 77        |                | 0144        | 14.5           | 54             |
| 30        | 7666           | 14.4        |                | 36             | 82        |                | 0890        | 14.5           | 56             |
| 40        | 7523           | 14.3        |                | 38             | 86        |                | 0855        | 14.4           | 58             |
| 50        | 7378           | 14.5        |                | 40             | 90        |                | 0809        | 14.6           | 60             |
| 34 30 00  | 7234           | 14.4        |                | 42             | 95        | 34 40 00       | 8565        | 14.4           | 62             |

Table for transformation of coordinates—Continued.

| Latitude.   | Log $H.$  | Diff.<br>1". | Log $K.$  | Log $L.$ | Latitude.   | Log $H.$  | Diff.<br>1". | Log $K.$  | Log $L.$ |
|-------------|-----------|--------------|-----------|----------|-------------|-----------|--------------|-----------|----------|
| 34° 40' 00" | 1.9218565 | 14.4         | 2.0047362 | 2.21765  | 34° 50' 00" | 1.9209841 | 14.5         | 2.0047482 | 2.22034  |
| 10          | 8420      | 14.5         | 64        | 69       | 10          | 9695      | 14.6         | 84        | 33       |
| 20          | 8274      | 14.6         | 66        | 74       | 20          | 9549      | 14.6         | 86        | 43       |
| 30          | 8130      | 14.4         | 68        | 79       | 30          | 9403      | 14.6         | 88        | 43       |
| 40          | 7985      | 14.5         | 70        | 83       | 40          | 9257      | 14.6         | 90        | 52       |
| 50          | 7839      | 14.6         | 72        | 87       | 50          | 9111      | 14.6         | 92        | 57       |
| 34° 41' 00" | 7695      | 14.4         | 74        | 92       | 34° 51' 00" | 8965      | 14.6         | 94        | 62       |
| 10          | 7550      | 14.5         | 76        | 2.21796  | 10          | 8820      | 14.5         | 96        | 66       |
| 20          | 7404      | 14.6         | 78        | 2.21801  | 20          | 8673      | 14.7         | 2.0047498 | 71       |
| 30          | 7259      | 14.5         | 80        | 66       | 30          | 8527      | 14.6         | 2.0047501 | 76       |
| 40          | 7115      | 14.4         | 82        | 10       | 40          | 8382      | 14.5         | 03        | 80       |
| 50          | 6969      | 14.6         | 84        | 14       | 50          | 8235      | 14.7         | 05        | 84       |
| 34° 42' 00" | 6824      | 14.5         | 86        | 19       | 34° 52' 00" | 8089      | 14.6         | 07        | 89       |
| 10          | 6679      | 14.5         | 88        | 23       | 10          | 7944      | 14.5         | 09        | 93       |
| 20          | 6534      | 14.5         | 90        | 28       | 20          | 7797      | 14.7         | 11        | 2.22098  |
| 30          | 6389      | 14.5         | 92        | 34       | 30          | 7651      | 14.6         | 13        | 2.22103  |
| 40          | 6244      | 14.5         | 94        | 38       | 40          | 7505      | 14.6         | 15        | 07       |
| 50          | 6098      | 14.6         | 96        | 42       | 50          | 7359      | 14.6         | 17        | 11       |
| 34° 43' 00" | 5953      | 14.5         | 2.0047398 | 47       | 34° 53' 00" | 7213      | 14.6         | 19        | 16       |
| 10          | 5808      | 14.5         | 2.0047400 | 51       | 10          | 7067      | 14.6         | 21        | 20       |
| 20          | 5662      | 14.6         | 02        | 56       | 20          | 6920      | 14.7         | 23        | 25       |
| 30          | 5517      | 14.5         | 04        | 60       | 30          | 6774      | 14.6         | 25        | 29       |
| 40          | 5372      | 14.5         | 06        | 64       | 40          | 6629      | 14.5         | 27        | 33       |
| 50          | 5226      | 14.6         | 08        | 69       | 50          | 6482      | 14.7         | 29        | 38       |
| 34° 44' 00" | 5082      | 14.4         | 10        | 73       | 34° 54' 00" | 6336      | 14.6         | 31        | 42       |
| 10          | 4937      | 14.5         | 12        | 77       | 10          | 6189      | 14.7         | 33        | 46       |
| 20          | 4791      | 14.6         | 14        | 82       | 20          | 6043      | 14.6         | 35        | 51       |
| 30          | 4646      | 14.5         | 16        | 87       | 30          | 5897      | 14.6         | 37        | 56       |
| 40          | 4501      | 14.5         | 18        | 91       | 40          | 5751      | 14.6         | 39        | 60       |
| 50          | 4354      | 14.7         | 20        | 2.21895  | 50          | 5604      | 14.7         | 41        | 64       |
| 34° 45' 00" | 4209      | 14.5         | 22        | 2.21900  | 34° 55' 00" | 5458      | 14.6         | 43        | 69       |
| 10          | 4064      | 14.5         | 24        | 04       | 10          | 5312      | 14.6         | 45        | 73       |
| 20          | 3918      | 14.6         | 26        | 09       | 20          | 5165      | 14.7         | 47        | 78       |
| 30          | 3773      | 14.5         | 28        | 14       | 30          | 5019      | 14.6         | 49        | 83       |
| 40          | 3628      | 14.5         | 30        | 18       | 40          | 4873      | 14.6         | 51        | 87       |
| 50          | 3482      | 14.6         | 32        | 22       | 50          | 4726      | 14.7         | 53        | 91       |
| 34° 46' 00" | 3337      | 14.5         | 34        | 27       | 34° 56' 00" | 4580      | 14.6         | 55        | 2.22196  |
| 10          | 3192      | 14.5         | 36        | 31       | 10          | 4434      | 14.6         | 57        | 2.22200  |
| 20          | 3045      | 14.7         | 38        | 36       | 20          | 4287      | 14.7         | 59        | 05       |
| 30          | 2900      | 14.5         | 40        | 41       | 30          | 4141      | 14.6         | 61        | 10       |
| 40          | 2755      | 14.5         | 42        | 45       | 40          | 3995      | 14.6         | 63        | 14       |
| 50          | 2609      | 14.6         | 44        | 49       | 50          | 3848      | 14.7         | 65        | 18       |
| 34° 47' 00" | 2464      | 14.5         | 46        | 54       | 34° 57' 00" | 3701      | 14.7         | 67        | 23       |
| 10          | 2318      | 14.6         | 48        | 58       | 10          | 3555      | 14.6         | 69        | 27       |
| 20          | 2172      | 14.6         | 50        | 63       | 20          | 3408      | 14.7         | 71        | 32       |
| 30          | 2027      | 14.5         | 52        | 68       | 30          | 3202      | 14.6         | 73        | 36       |
| 40          | 1881      | 14.6         | 54        | 72       | 40          | 3116      | 14.6         | 75        | 40       |
| 50          | 1735      | 14.6         | 56        | 76       | 50          | 2968      | 14.8         | 77        | 45       |
| 34° 48' 00" | 1590      | 14.5         | 58        | 81       | 34° 58' 00" | 2822      | 14.6         | 79        | 49       |
| 10          | 1444      | 14.6         | 60        | 85       | 10          | 2676      | 14.6         | 81        | 53       |
| 20          | 1298      | 14.6         | 62        | 90       | 20          | 2529      | 14.7         | 83        | 58       |
| 30          | 1153      | 14.5         | 64        | 94       | 30          | 2382      | 14.7         | 85        | 63       |
| 40          | 1007      | 14.6         | 66        | 2.21998  | 40          | 2236      | 14.6         | 87        | 67       |
| 50          | 0861      | 14.6         | 68        | 2.22003  | 50          | 2089      | 14.7         | 89        | 71       |
| 34° 49' 00" | 0715      | 14.6         | 70        | 07       | 34° 59' 00" | 1943      | 14.6         | 91        | 76       |
| 10          | 0570      | 14.5         | 72        | 11       | 10          | 1796      | 14.7         | 93        | 81       |
| 20          | 0424      | 14.6         | 74        | 16       | 20          | 1649      | 14.7         | 95        | 86       |
| 30          | 0278      | 14.6         | 76        | 21       | 30          | 1502      | 14.7         | 97        | 91       |
| 40          | 1.9210133 | 14.5         | 78        | 25       | 40          | 1356      | 14.6         | 2.0047599 | 95       |
| 50          | 1.9209986 | 14.7         | 80        | 29       | 50          | 1209      | 14.7         | 2.0047601 | 2.22299  |
| 35° 50' 00" | 9841      | 14.5         | 82        | 34       | 35° 00' 00" | 1062      | 14.7         | 03        | 2.22304  |

Table for transformation of coordinates—Continued.

| Latitude.  | Log $H.$  | Diff.<br>$1''.$ | Log $K.$  | Log $L.$ | Latitude.  | Log $H.$  | Diff.<br>$1''.$ | Log $K.$  | Log $L.$ |
|------------|-----------|-----------------|-----------|----------|------------|-----------|-----------------|-----------|----------|
| °   '   '' |           |                 |           |          | °   '   '' |           |                 |           |          |
| 35 00 00   | 1.9201062 | 14.7            | 2.0047603 | 2.22304  | 35 10 00   | 1.9192230 | 14.7            | 2.0047724 | 2.22572  |
| 10         | 0916      | 14.7            |           | 05       | 08         | 2083      | 14.7            | 26        | 76       |
| 20         | 0768      | 14.8            |           | 07       | 13         | 1934      | 14.9            | 28        | 81       |
| 30         | 0622      | 14.6            |           | 09       | 17         | 1787      | 14.7            | 30        | 85       |
| 40         | 0475      | 14.7            |           | 11       | 21         | 1639      | 14.8            | 32        | 89       |
| 50         | 0328      | 14.7            |           | 13       | 26         | 1491      | 14.8            | 34        | 94       |
| 35 01 00   | 0181      | 14.7            |           | 15       | 30         | 35 11 00  | 1344            | 14.7      | 36       |
| 10         | 1.9200035 | 14.6            |           | 17       | 34         |           | 1196            | 14.8      | 38       |
| 20         | 1.9199887 | 14.8            |           | 19       | 39         |           | 1048            | 14.8      | 40       |
| 30         | 9741      | 14.6            |           | 21       | 44         |           | 0900            | 14.8      | 42       |
| 40         | 9594      | 14.7            |           | 23       | 48         |           | 0753            | 14.7      | 44       |
| 50         | 9447      | 14.7            |           | 25       | 52         |           | 0604            | 14.9      | 46       |
| 35 02 00   | 9300      | 14.7            |           | 27       | 57         | 35 12 00  | 0457            | 14.7      | 48       |
| 10         | 9153      | 14.7            |           | 29       | 61         |           | 0309            | 14.8      | 50       |
| 20         | 9006      | 14.7            |           | 31       | 66         |           | 0161            | 14.8      | 52       |
| 30         | 8859      | 14.7            |           | 33       | 71         |           | 1.9190013       | 14.8      | 54       |
| 40         | 8712      | 14.7            |           | 35       | 75         |           | 1.9180866       | 14.7      | 56       |
| 50         | 8565      | 14.7            |           | 37       | 79         |           | 9717            | 14.9      | 58       |
| 35 03 00   | 8418      | 14.7            |           | 39       | 84         | 35 13 00  | 9569            | 14.8      | 60       |
| 10         | 8271      | 14.7            |           | 41       | 88         |           | 9422            | 14.7      | 62       |
| 20         | 8124      | 14.7            |           | 43       | 93         |           | 9273            | 14.9      | 64       |
| 30         | 7977      | 14.7            |           | 45       | 2.22398    |           | 9125            | 14.8      | 66       |
| 40         | 7830      | 14.7            |           | 47       | 2.22402    |           | 8978            | 14.7      | 68       |
| 50         | 7682      | 14.8            |           | 49       | 06         |           | 8829            | 14.9      | 70       |
| 35 04 00   | 7535      | 14.7            |           | 51       | 11         | 35 14 00  | 8681            | 14.8      | 72       |
| 10         | 7389      | 14.6            |           | 53       | 15         |           | 8534            | 14.7      | 74       |
| 20         | 7241      | 14.8            |           | 55       | 20         |           | 8385            | 14.9      | 76       |
| 30         | 7094      | 14.7            |           | 58       | 24         |           | 8237            | 14.8      | 79       |
| 40         | 6947      | 14.7            |           | 60       | 28         |           | 8089            | 14.9      | 81       |
| 50         | 6799      | 14.8            |           | 62       | 33         |           | 7941            | 14.8      | 83       |
| 35 05 00   | 6652      | 14.7            |           | 64       | 37         | 35 15 00  | 7793            | 14.8      | 85       |
| 10         | 6506      | 14.6            |           | 66       | 41         |           | 7645            | 14.8      | 87       |
| 20         | 6358      | 14.8            |           | 68       | 46         |           | 7496            | 14.9      | 89       |
| 30         | 6211      | 14.7            |           | 70       | 51         |           | 7348            | 14.8      | 91       |
| 40         | 6064      | 14.7            |           | 72       | 55         |           | 7200            | 14.8      | 93       |
| 50         | 5916      | 14.8            |           | 74       | 59         |           | 7052            | 14.8      | 95       |
| 35 06 00   | 5769      | 14.7            |           | 76       | 64         | 35 16 00  | 6904            | 14.8      | 97       |
| 10         | 5622      | 14.7            |           | 78       | 68         |           | 6756            | 14.8      | 98       |
| 20         | 5475      | 14.7            |           | 80       | 73         |           | 6607            | 14.9      | 42       |
| 30         | 5328      | 14.7            |           | 82       | 78         |           | 6459            | 14.8      | 03       |
| 40         | 5180      | 14.8            |           | 84       | 82         |           | 6311            | 14.8      | 05       |
| 50         | 5033      | 14.7            |           | 86       | 86         |           | 6162            | 14.9      | 07       |
| 35 07 00   | 4886      | 14.7            |           | 88       | 91         | 35 17 00  | 6014            | 14.8      | 09       |
| 10         | 4739      | 14.7            |           | 90       | 2.22495    |           | 5866            | 14.8      | 11       |
| 20         | 4591      | 14.8            |           | 92       | 2.22500    |           | 5717            | 14.9      | 13       |
| 30         | 4443      | 14.8            |           | 94       | 05         |           | 5569            | 14.8      | 15       |
| 40         | 4296      | 14.7            |           | 96       | 09         |           | 5421            | 14.8      | 17       |
| 50         | 4148      | 14.8            | 2.0047608 | 14       | 50         |           | 5272            | 14.9      | 19       |
| 35 08 00   | 4001      | 14.7            | 2.0047700 |          | 18         | 35 18 00  | 5124            | 14.8      | 21       |
| 10         | 3854      | 14.7            |           | 02       | 22         |           | 4976            | 14.8      | 23       |
| 20         | 3706      | 14.8            |           | 04       | 27         |           | 4827            | 14.9      | 25       |
| 30         | 3558      | 14.8            |           | 06       | 32         |           | 4679            | 14.8      | 27       |
| 40         | 3411      | 14.7            |           | 08       | 36         |           | 4530            | 14.9      | 29       |
| 50         | 3263      | 14.8            |           | 10       | 40         |           | 4381            | 14.9      | 31       |
| 35 09 00   | 3116      | 14.7            |           | 12       | 45         | 35 19 00  | 4233            | 14.8      | 33       |
| 10         | 2969      | 14.7            |           | 14       | 49         |           | 4085            | 14.8      | 35       |
| 20         | 2820      | 14.9            |           | 16       | 54         |           | 3936            | 14.9      | 37       |
| 30         | 2673      | 14.7            |           | 18       | 50         |           | 3787            | 14.9      | 39       |
| 40         | 2526      | 14.7            |           | 20       | 63         |           | 3639            | 14.8      | 41       |
| 50         | 2377      | 14.9            |           | 22       | 67         |           | 3490            | 14.9      | 43       |
| 35 10 00   | 2230      | 14.7            |           | 24       | 72         | 35 20 00  | 3342            | 14.8      | 45       |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  |
|-----------|-----------|---------------|-----------|---------|-----------|-----------|---------------|-----------|---------|
| • ' "     |           |               |           |         | • ' "     |           |               |           |         |
| 35 20 00  | 1.9183342 | 14.8          | 2.0047845 | 2.22839 | 35 30 00  | 1.9174399 | 14.9          | 2.0047967 | 2.23106 |
| 10        | 3193      | 14.9          | 47        | 43      | 10        | 4249      | 15.0          | 69        | 10      |
| 20        | 3044      | 14.9          | 49        | 48      | 20        | 4099      | 15.0          | 71        | 15      |
| 30        | 2896      | 14.8          | 51        | 53      | 30        | 3950      | 14.9          | 73        | 20      |
| 40        | 2748      | 14.8          | 53        | 57      | 40        | 3800      | 15.0          | 75        | 24      |
| 50        | 2598      | 15.0          | 55        | 61      | 50        | 3650      | 15.0          | 77        | 28      |
| 35 21 00  | 2450      | 14.8          | 57        | 66      | 35 31 00  | 3501      | 14.9          | 79        | 33      |
| 10        | 2302      | 14.8          | 59        | 70      | 10        | 3352      | 14.9          | 81        | 37      |
| 20        | 2152      | 15.0          | 61        | 75      | 20        | 3201      | 15.1          | 83        | 42      |
| 30        | 2004      | 14.8          | 64        | 79      | 30        | 3052      | 14.9          | 85        | 46      |
| 40        | 1855      | 14.9          | 66        | 83      | 40        | 2903      | 14.9          | 87        | 50      |
| 50        | 1706      | 14.9          | 68        | 88      | 50        | 2752      | 15.1          | 89        | 55      |
| 35 22 00  | 1557      | 14.9          | 70        | 92      | 35 32 00  | 2603      | 14.9          | 91        | 59      |
| 10        | 1409      | 14.8          | 72        | 2.22896 | 10        | 2454      | 14.9          | 93        | 64      |
| 20        | 1260      | 14.9          | 74        | 2.22901 | 20        | 2303      | 15.1          | 95        | 69      |
| 30        | 1111      | 14.9          | 76        | 06      | 30        | 2154      | 14.9          | 97        | 74      |
| 40        | 0963      | 14.8          | 78        | 10      | 40        | 2004      | 15.0          | 2.0047999 | 78      |
| 50        | 0813      | 15.0          | 80        | 14      | 50        | 1854      | 15.0          | 2.0048001 | 82      |
| 35 23 00  | 0665      | 14.8          | 82        | 19      | 35 33 00  | 1705      | 14.9          | 03        | 87      |
| 10        | 0516      | 14.9          | 84        | 23      | 10        | 1555      | 15.0          | 05        | 91      |
| 20        | 0366      | 15.0          | 86        | 28      | 20        | 1406      | 14.9          | 07        | 2.23196 |
| 30        | 0218      | 14.8          | 88        | 33      | 30        | 1256      | 15.0          | 09        | 2.23200 |
| 40        | 1.9180069 | 14.9          | 90        | 37      | 40        | 1106      | 15.0          | 11        | 04      |
| 50        | 1.9179920 | 14.9          | 92        | 42      | 50        | 0956      | 15.0          | 13        | 09      |
| 35 24 00  | 9771      | 14.9          | 94        | 47      | 35 34 00  | 0806      | 15.0          | 15        | 13      |
| 10        | 9622      | 14.9          | 96        | 51      | 10        | 0657      | 14.9          | 17        | 17      |
| 20        | 9473      | 14.9          | 2.0047898 | 56      | 20        | 0506      | 15.1          | 19        | 22      |
| 30        | 9324      | 14.9          | 2.0047900 | 60      | 30        | 0357      | 14.9          | 21        | 27      |
| 40        | 9175      | 14.9          | 02        | 64      | 40        | 0207      | 15.0          | 23        | 31      |
| 50        | 9026      | 14.9          | 04        | 69      | 50        | 1.9170056 | 15.1          | 25        | 35      |
| 35 25 00  | 8877      | 14.9          | 06        | 73      | 35 35 00  | 1.9169907 | 14.9          | 27        | 40      |
| 10        | 8728      | 14.9          | 08        | 77      | 10        | 9756      | 15.1          | 29        | 44      |
| 20        | 8578      | 15.0          | 10        | 82      | 20        | 9607      | 14.9          | 31        | 49      |
| 30        | 8430      | 14.8          | 12        | 87      | 30        | 9457      | 15.0          | 34        | 53      |
| 40        | 8281      | 14.9          | 14        | 91      | 40        | 9307      | 15.0          | 36        | 57      |
| 50        | 8131      | 15.0          | 16        | 2.22995 | 50        | 9156      | 15.1          | 38        | 62      |
| 35 26 00  | 7982      | 14.9          | 18        | 2.23000 | 35 36 00  | 9007      | 14.9          | 40        | 66      |
| 10        | 7834      | 14.8          | 20        | 04      | 10        | 8857      | 15.0          | 42        | 70      |
| 20        | 7684      | 15.0          | 22        | 09      | 20        | 8706      | 15.1          | 44        | 75      |
| 30        | 7535      | 14.9          | 24        | 13      | 30        | 8556      | 15.0          | 46        | 80      |
| 40        | 7386      | 14.9          | 26        | 17      | 40        | 8407      | 14.9          | 48        | 84      |
| 50        | 7236      | 15.0          | 28        | 22      | 50        | 8256      | 15.1          | 50        | 88      |
| 35 27 00  | 7087      | 14.9          | 30        | 26      | 35 37 00  | 8106      | 15.0          | 52        | 93      |
| 10        | 6938      | 14.9          | 32        | 30      | 10        | 7956      | 15.0          | 54        | 2.23297 |
| 20        | 6788      | 15.0          | 34        | 35      | 20        | 7805      | 15.1          | 56        | 2.23302 |
| 30        | 6639      | 14.9          | 36        | 40      | 30        | 7655      | 15.0          | 58        | 06      |
| 40        | 6490      | 14.9          | 38        | 44      | 40        | 7505      | 15.0          | 60        | 10      |
| 50        | 6340      | 15.0          | 40        | 48      | 50        | 7355      | 15.0          | 62        | 15      |
| 35 28 00  | 6191      | 14.9          | 42        | 53      | 35 38 00  | 7205      | 15.0          | 64        | 19      |
| 10        | 6042      | 14.9          | 44        | 57      | 10        | 7055      | 15.0          | 66        | 23      |
| 20        | 5892      | 15.0          | 46        | 62      | 20        | 6904      | 15.1          | 68        | 28      |
| 30        | 5743      | 14.9          | 49        | 66      | 30        | 6754      | 15.0          | 70        | 33      |
| 40        | 5594      | 14.9          | 51        | 70      | 40        | 6604      | 15.0          | 72        | 37      |
| 50        | 5444      | 15.0          | 53        | 75      | 50        | 6453      | 15.1          | 74        | 41      |
| 35 29 00  | 5295      | 14.9          | 55        | 79      | 35 39 00  | 6303      | 15.0          | 76        | 46      |
| 10        | 5146      | 14.9          | 57        | 83      | 10        | 6153      | 15.0          | 78        | 50      |
| 20        | 4996      | 15.0          | 59        | 88      | 20        | 6002      | 15.1          | 80        | 55      |
| 30        | 4847      | 14.9          | 61        | 93      | 30        | 5852      | 15.0          | 82        | 59      |
| 40        | 4698      | 14.9          | 63        | 2.23097 | 40        | 5702      | 15.0          | 84        | 63      |
| 50        | 4548      | 15.0          | 65        | 2.23101 | 50        | 5551      | 15.1          | 86        | 68      |
| 35 30 00  | 4399      | 14.9          | 67        | 06      | 35 40 00  | 5400      | 15.1          | 88        | 72      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| • ' "     |           |              |           |         | • ' "     |           |              |           |         |
| 35 40 00  | 1.9165400 | 15.1         | 2.0048088 | 2.23372 | 35 50 00  | 1.9156347 | 15.1         | 2.0048210 | 2.23639 |
| 10        | 5250      | 15.0         | 90        | 76      | 10        | 6196      | 15.1         | 12        | 43      |
| 20        | 5099      | 15.1         | 92        | 81      | 20        | 6044      | 15.2         | 14        | 48      |
| 30        | 4949      | 15.0         | 95        | 86      | 30        | 5893      | 15.1         | 16        | 53      |
| 40        | 4799      | 15.0         | 97        | 91      | 40        | 5742      | 15.1         | 18        | 57      |
| 50        | 4648      | 15.1         | 2.0048099 | 2.23395 | 50        | 5590      | 15.2         | 20        | 61      |
| 35 41 00  | 4498      | 15.0         | 2.0048101 | 2.23400 | 35 51 00  | 5438      | 15.2         | 22        | 66      |
| 10        | 4347      | 15.1         | 03        | 04      | 10        | 5287      | 15.1         | 24        | 70      |
| 20        | 4196      | 15.1         | 05        | 00      | 20        | 5135      | 15.2         | 26        | 75      |
| 30        | 4046      | 15.0         | 07        | 13      | 30        | 4984      | 15.1         | 29        | 79      |
| 40        | 3896      | 15.0         | 09        | 17      | 40        | 4833      | 15.1         | 31        | 83      |
| 50        | 3744      | 15.2         | 11        | 22      | 50        | 4681      | 15.2         | 33        | 88      |
| 35 42 00  | 3594      | 15.0         | 13        | 26      | 35 52 00  | 4529      | 15.2         | 35        | 92      |
| 10        | 3444      | 15.0         | 15        | 30      | 10        | 4379      | 15.0         | 37        | 2.23696 |
| 20        | 3292      | 15.2         | 17        | 35      | 20        | 4227      | 15.2         | 39        | 2.23701 |
| 30        | 3142      | 15.0         | 19        | 40      | 30        | 4075      | 15.2         | 41        | 05      |
| 40        | 2992      | 15.0         | 21        | 44      | 40        | 3923      | 15.2         | 43        | 09      |
| 50        | 2840      | 15.2         | 23        | 48      | 50        | 3771      | 15.2         | 45        | 14      |
| 35 43 00  | 2690      | 15.0         | 25        | 53      | 35 53 00  | 3620      | 15.1         | 47        | 18      |
| 10        | 2540      | 15.0         | 27        | 57      | 10        | 3468      | 15.2         | 49        | 22      |
| 20        | 2388      | 15.2         | 29        | 62      | 20        | 3316      | 15.2         | 51        | 27      |
| 30        | 2238      | 15.0         | 31        | 66      | 30        | 3165      | 15.1         | 53        | 32      |
| 40        | 2087      | 15.1         | 33        | 70      | 40        | 3013      | 15.2         | 55        | 36      |
| 50        | 1936      | 15.1         | 35        | 75      | 50        | 2861      | 15.2         | 57        | 40      |
| 35 44 00  | 1785      | 15.1         | 37        | 79      | 35 54 00  | 2709      | 15.2         | 59        | 45      |
| 10        | 1635      | 15.0         | 39        | 83      | 10        | 2558      | 15.1         | 61        | 49      |
| 20        | 1483      | 15.2         | 41        | 88      | 20        | 2406      | 15.2         | 63        | 54      |
| 30        | 1333      | 15.0         | 43        | 93      | 30        | 2254      | 15.2         | 65        | 58      |
| 40        | 1182      | 15.1         | 45        | 2.23497 | 40        | 2103      | 15.1         | 67        | 62      |
| 50        | 1031      | 15.1         | 47        | 2.23501 | 50        | 1950      | 15.3         | 69        | 67      |
| 35 45 00  | 0880      | 15.1         | 49        | 06      | 35 55 00  | 1799      | 15.1         | 71        | 71      |
| 10        | 0730      | 15.0         | 51        | 10      | 10        | 1647      | 15.2         | 73        | 75      |
| 20        | 0578      | 15.2         | 53        | 15      | 20        | 1495      | 15.2         | 75        | 80      |
| 30        | 0427      | 15.1         | 56        | 19      | 30        | 1343      | 15.2         | 78        | 85      |
| 40        | 0277      | 15.0         | 58        | 23      | 40        | 1192      | 15.1         | 80        | 89      |
| 50        | 1.9160125 | 15.2         | 60        | 28      | 50        | 1039      | 15.3         | 82        | 93      |
| 35 46 00  | 1.9159974 | 15.1         | 62        | 32      | 35 56 00  | 0887      | 15.2         | 84        | 2.23708 |
| 10        | 9824      | 15.0         | 64        | 36      | 10        | 0736      | 15.1         | 86        | 2.23802 |
| 20        | 9672      | 15.2         | 66        | 41      | 20        | 0583      | 15.3         | 88        | 07      |
| 30        | 9521      | 15.1         | 68        | 46      | 30        | 0431      | 15.2         | 90        | 11      |
| 40        | 9371      | 15.1         | 70        | 50      | 40        | 0280      | 15.1         | 92        | 16      |
| 50        | 9219      | 15.2         | 72        | 54      | 50        | 1.9150127 | 15.3         | 94        | 21      |
| 35 47 00  | 9068      | 15.1         | 74        | 59      | 35 57 00  | 1.9149975 | 15.2         | 96        | 25      |
| 10        | 8917      | 15.1         | 76        | 63      | 10        | 9524      | 15.1         | 29        |         |
| 20        | 8766      | 15.1         | 78        | 68      | 20        | 9671      | 15.3         | 32        | 34      |
| 30        | 8615      | 15.1         | 80        | 72      | 30        | 9519      | 15.2         | 02        | 39      |
| 40        | 8464      | 15.1         | 82        | 76      | 40        | 9368      | 15.1         | 04        | 43      |
| 50        | 8312      | 15.2         | 84        | 81      | 50        | 9215      | 15.3         | 06        | 47      |
| 35 48 00  | 8161      | 15.1         | 86        | 85      | 35 58 00  | 9063      | 15.2         | 08        | 52      |
| 10        | 8010      | 15.1         | 88        | 89      | 10        | 8911      | 15.2         | 10        | 56      |
| 20        | 7859      | 15.1         | 90        | 94      | 20        | 8758      | 15.3         | 12        | 61      |
| 30        | 7708      | 15.1         | 92        | 2.23599 | 30        | 8607      | 15.1         | 14        | 65      |
| 40        | 7557      | 15.1         | 94        | 2.23604 | 40        | 8455      | 15.2         | 16        | 69      |
| 50        | 7405      | 15.2         | 96        | 08      | 50        | 8302      | 15.3         | 18        | 74      |
| 35 49 00  | 7254      | 15.1         | 2.0048198 | 13      | 35 59 00  | 8150      | 15.2         | 20        | 78      |
| 10        | 7103      | 15.1         | 2.0048200 | 17      | 10        | 7998      | 15.2         | 22        | 82      |
| 20        | 6952      | 15.1         | 02        | 22      | 20        | 7845      | 15.3         | 24        | 87      |
| 30        | 6801      | 15.1         | 04        | 26      | 30        | 7693      | 15.2         | 26        | 91      |
| 40        | 6649      | 15.2         | 06        | 30      | 40        | 7541      | 15.2         | 28        | 2.23895 |
| 50        | 6498      | 15.1         | 08        | 35      | 50        | 7388      | 15.3         | 30        | 2.23900 |
| 35 50 00  | 6347      | 15.1         | 10        | 39      | 36 00 00  | 7236      | 15.2         | 32        | 03      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1''.<br>Lat. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1''.<br>Lat. | Log K.    | Log L.  |
|-----------|-----------|-----------------------|-----------|---------|-----------|-----------|-----------------------|-----------|---------|
| ° ' "     |           |                       |           |         | ° ' "     |           |                       |           |         |
| 36 00 00  | 1.9147236 | 15.2                  | 2.0048332 | 2.23903 | 36 10 00  | 1.9138071 | 15.3                  | 2.0048455 | 2.24168 |
| 10        | 7084      | 15.2                  | 34        | 07      | 10        | 7918      | 15.3                  | 57        | 72      |
| 20        | 6931      | 15.3                  | 36        | 12      | 20        | 7764      | 15.4                  | 59        | 77      |
| 30        | 6779      | 15.2                  | 39        | 17      | 30        | 7611      | 15.3                  | 61        | 82      |
| 40        | 6627      | 15.2                  | 41        | 21      | 40        | 7458      | 15.3                  | 63        | 86      |
| 50        | 6474      | 15.3                  | 43        | 25      | 50        | 7304      | 15.4                  | 65        | 90      |
| 36 01 00  | 6322      | 15.2                  | 45        | 30      | 36 11 00  | 7151      | 15.3                  | 67        | 95      |
| 10        | 6170      | 15.2                  | 47        | 34      | 10        | 6998      | 15.3                  | 69        | 2.24199 |
| 20        | 6017      | 15.3                  | 49        | 39      | 20        | 6844      | 15.4                  | 71        | 2.24204 |
| 30        | 5865      | 15.2                  | 51        | 43      | 30        | 6691      | 15.3                  | 73        | 08      |
| 40        | 5713      | 15.2                  | 53        | 47      | 40        | 6538      | 15.3                  | 75        | 12      |
| 50        | 5560      | 15.3                  | 55        | 52      | 50        | 6384      | 15.4                  | 77        | 17      |
| 36 02 00  | 5408      | 15.2                  | 57        | 56      | 36 12 00  | 6221      | 15.3                  | 79        | 21      |
| 10        | 5255      | 15.3                  | 59        | 60      | 10        | 6078      | 15.3                  | 81        | 25      |
| 20        | 5102      | 15.3                  | 61        | 65      | 20        | 5924      | 15.4                  | 83        | 30      |
| 30        | 4950      | 15.2                  | 63        | 70      | 30        | 5770      | 15.4                  | 86        | 34      |
| 40        | 4798      | 15.2                  | 65        | 74      | 40        | 5617      | 15.3                  | 88        | 38      |
| 50        | 4645      | 15.3                  | 67        | 78      | 50        | 5463      | 15.4                  | 90        | 43      |
| 36 03 00  | 4492      | 15.3                  | 69        | 83      | 36 13 00  | 5310      | 15.3                  | 92        | 48      |
| 10        | 4340      | 15.2                  | 71        | 87      | 10        | 5157      | 15.3                  | 94        | 52      |
| 20        | 4188      | 15.2                  | 73        | 92      | 20        | 5002      | 15.5                  | 96        | 57      |
| 30        | 4036      | 15.2                  | 75        | 2.23996 | 30        | 4849      | 15.3                  | 2.0048498 | 62      |
| 40        | 3882      | 15.4                  | 77        | 2.24000 | 40        | 4696      | 15.3                  | 2.0048500 | 66      |
| 50        | 3730      | 15.2                  | 79        | 05      | 50        | 4542      | 15.4                  | 02        | 70      |
| 36 04 00  | 3578      | 15.2                  | 81        | 09      | 36 14 00  | 4388      | 15.4                  | 04        | 75      |
| 10        | 3425      | 15.3                  | 83        | 13      | 10        | 4235      | 15.3                  | 06        | 79      |
| 20        | 3272      | 15.3                  | 85        | 18      | 20        | 4081      | 15.4                  | 08        | 84      |
| 30        | 3119      | 15.3                  | 88        | 22      | 30        | 3927      | 15.3                  | 10        | 88      |
| 40        | 2967      | 15.2                  | 90        | 26      | 40        | 3774      | 15.3                  | 12        | 92      |
| 50        | 2814      | 15.3                  | 92        | 31      | 50        | 3620      | 15.4                  | 14        | 2.24297 |
| 36 05 00  | 2661      | 15.3                  | 94        | 36      | 36 15 00  | 3466      | 15.4                  | 16        | 2.24302 |
| 10        | 2509      | 15.2                  | 96        | 40      | 10        | 3313      | 15.3                  | 18        | 06      |
| 20        | 2355      | 15.4                  | 2.0048398 | 45      | 20        | 3160      | 15.3                  | 20        | 11      |
| 30        | 2203      | 15.2                  | 2.0048400 | 50      | 30        | 3006      | 15.4                  | 22        | 15      |
| 40        | 2050      | 15.3                  | 02        | 54      | 40        | 2852      | 15.4                  | 24        | 19      |
| 50        | 1897      | 15.3                  | 04        | 58      | 50        | 2698      | 15.4                  | 26        | 24      |
| 36 06 00  | 1744      | 15.3                  | 06        | 63      | 36 16 00  | 2545      | 15.3                  | 28        | 28      |
| 10        | 1592      | 15.2                  | 08        | 67      | 10        | 2391      | 15.4                  | 30        | 32      |
| 20        | 1438      | 15.4                  | 10        | 72      | 20        | 2237      | 15.4                  | 32        | 37      |
| 30        | 1286      | 15.2                  | 12        | 76      | 30        | 2083      | 15.4                  | 35        | 42      |
| 40        | 1133      | 15.3                  | 14        | 80      | 40        | 1930      | 15.3                  | 37        | 46      |
| 50        | 0979      | 15.4                  | 16        | 85      | 50        | 1775      | 15.5                  | 39        | 50      |
| 36 07 00  | 0827      | 15.2                  | 18        | 89      | 36 17 00  | 1622      | 15.3                  | 41        | 55      |
| 10        | 0674      | 15.3                  | 20        | 93      | 10        | 1468      | 15.4                  | 43        | 59      |
| 20        | 0520      | 15.4                  | 22        | 2.24098 | 20        | 1314      | 15.4                  | 45        | 64      |
| 30        | 0368      | 15.2                  | 24        | 2.24102 | 30        | 1160      | 15.4                  | 47        | 68      |
| 40        | 0215      | 15.3                  | 26        | 06      | 40        | 1006      | 15.4                  | 49        | 72      |
| 50        | 1.9140061 | 15.4                  | 28        | 11      | 50        | 0852      | 15.4                  | 51        | 77      |
| 36 08 00  | 1.9139909 | 15.2                  | 30        | 15      | 36 18 00  | 0698      | 15.4                  | 53        | 81      |
| 10        | 9756      | 15.3                  | 32        | 19      | 10        | 0544      | 15.4                  | 55        | 85      |
| 20        | 9602      | 15.4                  | 34        | 24      | 20        | 0390      | 15.4                  | 57        | 90      |
| 30        | 9449      | 15.3                  | 37        | 28      | 30        | 0236      | 15.4                  | 59        | 94      |
| 40        | 9297      | 15.2                  | 39        | 32      | 40        | 1.9130082 | 15.4                  | 61        | 2.24398 |
| 50        | 9143      | 15.4                  | 41        | 37      | 50        | 1.9129927 | 15.5                  | 63        | 2.24403 |
| 36 09 00  | 8990      | 15.3                  | 43        | 42      | 36 19 00  | 9774      | 15.3                  | 65        | 07      |
| 10        | 8837      | 15.3                  | 45        | 46      | 10        | 9620      | 15.4                  | 67        | 11      |
| 20        | 8683      | 15.4                  | 47        | 51      | 20        | 9465      | 15.5                  | 69        | 16      |
| 30        | 8531      | 15.2                  | 49        | 55      | 30        | 9311      | 15.4                  | 71        | 21      |
| 40        | 8378      | 15.3                  | 51        | 59      | 40        | 9158      | 15.3                  | 73        | 25      |
| 50        | 8224      | 15.4                  | 53        | 64      | 50        | 9003      | 15.5                  | 75        | 29      |
| 36 10 00  | 8071      | 15.3                  | 55        | 68      | 36 20 00  | 8849      | 15.4                  | 77        | 34      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.    |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|-----------|
| • ' "     |           |             |           |         | • ' "     |           |             |           |           |
| 36 20 00  | 1.9128849 | 15.4        | 2.0048577 | 2.24434 | 36 30 00  | 1.9119570 | 15.5        | 2.0048700 | 2.24698   |
| 10        | 8095      | 15.4        |           | 79      | 38        | 9415      | 15.5        | 02        | 2.24702   |
| 20        | 8540      | 15.5        |           | 81      | 43        | 9260      | 15.5        | 04        | 07        |
| 30        | 8386      | 15.4        |           | 84      | 47        | 9105      | 15.5        | 07        | 12        |
| 40        | 8232      | 15.4        |           | 86      | 51        | 8950      | 15.5        | 09        | 16        |
| 50        | 8077      | 15.5        |           | 88      | 56        | 8794      | 15.6        | 11        | 20        |
| 36 21 00  | 7923      | 15.4        |           | 90      | 60        | 36 31 00  | 8639        | 15.5      | 13        |
| 10        | 7769      | 15.4        |           | 92      | 65        | 8484      | 15.5        | 15        | 25        |
| 20        | 7615      | 15.4        |           | 94      | 70        | 8328      | 15.6        | 17        | 34        |
| 30        | 7461      | 15.4        |           | 96      | 74        | 8173      | 15.5        | 19        | 38        |
| 40        | 7307      | 15.4        | 2.0048598 | 78      | 40        | 8018      | 15.5        | 21        | 42        |
| 50        | 7151      | 15.6        | 2.0048600 | 83      | 50        | 7862      | 15.6        | 23        | 47        |
| 36 22 00  | 6997      | 15.4        |           | 02      | 87        | 36 32 00  | 7707        | 15.5      | 25        |
| 10        | 6843      | 15.4        |           | 04      | 91        | 7552      | 15.5        | 27        | 55        |
| 20        | 6688      | 15.5        |           | 06      | 2.24496   | 20        | 7396        | 15.6      | 29        |
| 30        | 6534      | 15.4        |           | 08      | 2.24500   | 30        | 7241        | 15.5      | 31        |
| 40        | 6380      | 15.4        |           | 10      | 04        | 7086      | 15.5        | 33        | 68        |
| 50        | 6225      | 15.5        |           | 12      | 09        | 6930      | 15.6        | 35        | 73        |
| 36 23 00  | 6071      | 15.4        |           | 14      | 13        | 36 33 00  | 6775        | 15.5      | 37        |
| 10        | 5917      | 15.4        |           | 16      | 17        | 6620      | 15.5        | 39        | 81        |
| 20        | 5762      | 15.5        |           | 18      | 22        | 6464      | 15.6        | 41        | 86        |
| 30        | 5607      | 15.5        |           | 21      | 27        | 6309      | 15.5        | 44        | 90        |
| 40        | 5453      | 15.4        |           | 23      | 31        | 6154      | 15.5        | 46        | 94        |
| 50        | 5298      | 15.5        |           | 25      | 35        | 5998      | 15.6        | 48        | 2.24799   |
| 36 24 00  | 5144      | 15.4        |           | 27      | 40        | 36 34 00  | 5842        | 15.6      | 50        |
| 10        | 4990      | 15.4        |           | 29      | 44        | 5687      | 15.5        | 52        | 07        |
| 20        | 4835      | 15.5        |           | 31      | 49        | 5531      | 15.6        | 54        | 12        |
| 30        | 4680      | 15.5        |           | 33      | 53        | 5376      | 15.5        | 56        | 17        |
| 40        | 4526      | 15.4        |           | 35      | 57        | 5221      | 15.5        | 58        | 21        |
| 50        | 4370      | 15.4        |           | 37      | 62        | 5064      | 15.7        | 60        | 25        |
| 36 25 00  | 4216      | 15.4        |           | 39      | 66        | 36 35 00  | 4909        | 15.5      | 62        |
| 10        | 4062      | 15.4        |           | 41      | 70        | 4754      | 15.5        | 64        | 34        |
| 20        | 3907      | 15.5        |           | 43      | 75        | 4598      | 15.6        | 66        | 39        |
| 30        | 3753      | 15.4        |           | 45      | 79        | 4442      | 15.6        | 68        | 43        |
| 40        | 3598      | 15.4        |           | 47      | 83        | 4287      | 15.5        | 70        | 47        |
| 50        | 3443      | 15.5        |           | 49      | 88        | 4131      | 15.6        | 72        | 52        |
| 36 26 00  | 3289      | 15.4        |           | 51      | 92        | 36 36 00  | 3975        | 15.6      | 74        |
| 10        | 3134      | 15.5        |           | 53      | 2.24596   | 10        | 3820        | 15.5      | 76        |
| 20        | 2979      | 15.5        |           | 55      | 2.24601   | 20        | 3664        | 15.6      | 78        |
| 30        | 2825      | 15.4        |           | 57      | 06        | 3509      | 15.5        | 80        | 69        |
| 40        | 2670      | 15.5        |           | 59      | 10        | 3353      | 15.6        | 82        | 73        |
| 50        | 2515      | 15.5        |           | 61      | 14        | 3197      | 15.6        | 84        | 78        |
| 36 27 00  | 2360      | 15.5        |           | 63      | 19        | 36 37 00  | 3042        | 15.5      | 86        |
| 10        | 2206      | 15.4        |           | 65      | 23        | 2886      | 15.6        | 88        | 86        |
| 20        | 2050      | 15.6        |           | 67      | 28        | 2730      | 15.6        | 90        | 91        |
| 30        | 1895      | 15.5        |           | 70      | 32        | 2574      | 15.6        | 93        | 2.24896   |
| 40        | 1741      | 15.4        |           | 72      | 36        | 2419      | 15.5        | 95        | 2.24900   |
| 50        | 1585      | 15.6        |           | 74      | 41        | 2262      | 15.7        | 97        | 05        |
| 36 28 00  | 1431      | 15.4        |           | 76      | 45        | 36 38 00  | 2107        | 15.5      | 2.0048799 |
| 10        | 1276      | 15.5        |           | 78      | 49        | 1951      | 15.6        | 2.0048801 | 13        |
| 20        | 1120      | 15.6        |           | 80      | 54        | 1794      | 15.7        | 03        | 18        |
| 30        | 0966      | 15.4        |           | 82      | 58        | 1639      | 15.5        | 05        | 23        |
| 40        | 0811      | 15.5        |           | 84      | 62        | 1483      | 15.6        | 07        | 27        |
| 50        | 0655      | 15.6        |           | 86      | 67        | 1327      | 15.6        | 09        | 31        |
| 36 29 00  | 0501      | 15.4        |           | 88      | 71        | 36 39 00  | 1171        | 15.6      | 11        |
| 10        | 0346      | 15.5        |           | 90      | 75        | 1015      | 15.6        | 13        | 40        |
| 20        | 0190      | 15.6        |           | 92      | 80        | 0850      | 15.6        | 15        | 45        |
| 30        | 1.9120036 | 15.4        |           | 94      | 85        | 0703      | 15.6        | 17        | 49        |
| 40        | 1.9119881 | 15.5        |           | 96      | 89        | 0547      | 15.6        | 19        | 53        |
| 50        | 9725      | 15.6        | 2.0048698 | 94      | 50        | 0390      | 15.7        | 21        | 58        |
| 36 30 00  | 9570      | 15.5        | 2.0048700 | 98      | 36 40 00  | 0235      | 15.5        | 23        | 62        |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.    | Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.    |
|-----------|-----------|---------------|-----------|-----------|-----------|-----------|---------------|-----------|-----------|
| °   '   " |           |               |           |           | °   '   " |           |               |           |           |
| 36 40 00  | 1.9110235 | 15.5          | 2.0048823 | 2.24962   | 36 50 00  | 1.9100842 | 15.7          | 2.0048947 | 2.25225   |
| 10        | 1.9110079 | 15.6          |           | 25        | 66        | 0685      | 15.7          | 49        | 29        |
| 20        | 1.9109922 | 15.7          |           | 27        | 71        | 0528      | 15.7          | 51        | 34        |
| 30        | 9766      | 15.6          |           | 30        | 75        | 0371      | 15.7          | 53        | 38        |
| 40        | 9611      | 15.5          |           | 32        | 79        | 0214      | 15.7          | 55        | 42        |
| 50        | 9454      | 15.7          |           | 34        | 84        | 50        | 1.9100056     | 57        | 47        |
| 36 41 00  | 9298      | 15.6          |           | 36        | 88        | 36 51 00  | 1.9099900     | 15.6      | 59        |
| 10        | 9142      | 15.6          |           | 38        | 92        | 9743      | 15.7          | 61        | 51        |
| 20        | 8985      | 15.7          |           | 40        | 2.24997   | 20        | 9585          | 15.6      | 63        |
| 30        | 8829      | 15.6          |           | 42        | 2.25001   | 30        | 9428          | 15.7      | 65        |
| 40        | 8673      | 15.6          |           | 44        | 05        | 40        | 9271          | 15.7      | 67        |
| 50        | 8517      | 15.6          |           | 46        | 10        | 50        | 9113          | 15.8      | 69        |
| 36 42 00  | 8361      | 15.6          |           | 48        | 14        | 36 52 00  | 8957          | 15.6      | 71        |
| 10        | 8205      | 15.6          |           | 50        | 18        | 10        | 8800          | 15.7      | 77        |
| 20        | 8048      | 15.7          |           | 52        | 23        | 20        | 8642          | 15.8      | 81        |
| 30        | 7892      | 15.6          |           | 54        | 27        | 30        | 8485          | 15.7      | 86        |
| 40        | 7736      | 15.6          |           | 56        | 31        | 40        | 8928          | 15.7      | 90        |
| 50        | 7579      | 15.7          |           | 58        | 36        | 50        | 8170          | 15.8      | 94        |
| 36 43 00  | 7423      | 15.6          |           | 60        | 40        | 36 53 00  | 8013          | 15.7      | 2.25299   |
| 10        | 7267      | 15.6          |           | 62        | 44        | 10        | 7856          | 15.7      | 84        |
| 20        | 7110      | 15.7          |           | 64        | 49        | 20        | 7698          | 15.8      | 02        |
| 30        | 6953      | 15.7          |           | 67        | 54        | 30        | 7541          | 15.7      | 17        |
| 40        | 6797      | 15.6          |           | 69        | 58        | 40        | 7384          | 15.7      | 16        |
| 50        | 6640      | 15.7          |           | 71        | 62        | 50        | 7226          | 15.8      | 21        |
| 36 44 00  | 6484      | 15.6          |           | 73        | 67        | 36 54 00  | 7069          | 15.7      | 94        |
| 10        | 6328      | 15.6          |           | 75        | 71        | 10        | 6912          | 15.7      | 30        |
| 20        | 6171      | 15.7          |           | 77        | 76        | 20        | 6754          | 15.8      | 34        |
| 30        | 6015      | 15.6          |           | 79        | 80        | 30        | 6597          | 15.7      | 2.0049000 |
| 40        | 5859      | 15.6          |           | 81        | 84        | 40        | 6439          | 15.8      | 39        |
| 50        | 5701      | 15.8          |           | 83        | 89        | 50        | 6282          | 15.7      | 43        |
| 36 45 00  | 5545      | 15.6          |           | 85        | 93        | 36 55 00  | 6125          | 15.7      | 52        |
| 10        | 5389      | 15.6          |           | 87        | 2.25097   | 10        | 5968          | 15.7      | 56        |
| 20        | 5233      | 15.6          |           | 89        | 2.25102   | 20        | 5809          | 15.9      | 60        |
| 30        | 5076      | 15.7          |           | 91        | 06        | 30        | 5652          | 15.7      | 65        |
| 40        | 4919      | 15.7          |           | 93        | 11        | 40        | 5495          | 15.7      | 69        |
| 50        | 4763      | 15.6          |           | 95        | 16        | 50        | 5337          | 15.8      | 73        |
| 36 46 00  | 4606      | 15.7          |           | 97        | 20        | 36 56 00  | 5179          | 15.8      | 78        |
| 10        | 4450      | 15.6          |           | 2.0048899 | 24        | 10        | 5022          | 15.7      | 82        |
| 20        | 4293      | 15.7          |           | 2.0048901 | 29        | 20        | 4864          | 15.8      | 86        |
| 30        | 4136      | 15.7          |           | 04        | 33        | 30        | 4707          | 15.7      | 91        |
| 40        | 3980      | 15.6          |           | 06        | 37        | 40        | 4548          | 15.9      | 95        |
| 50        | 3823      | 15.7          |           | 08        | 42        | 50        | 4391          | 15.7      | 2.25399   |
| 36 47 00  | 3666      | 15.7          |           | 10        | 46        | 36 57 00  | 4233          | 15.8      | 25404     |
| 10        | 3510      | 15.6          |           | 12        | 50        | 10        | 4076          | 15.7      | 33        |
| 20        | 3352      | 15.8          |           | 14        | 55        | 20        | 3918          | 15.8      | 35        |
| 30        | 3196      | 15.6          |           | 16        | 59        | 30        | 3760          | 15.8      | 12        |
| 40        | 3039      | 15.7          |           | 18        | 63        | 40        | 3603          | 15.7      | 37        |
| 50        | 2882      | 15.7          |           | 20        | 68        | 50        | 3444          | 15.9      | 17        |
| 36 48 00  | 2725      | 15.7          |           | 22        | 72        | 36 58 00  | 3287          | 15.7      | 22        |
| 10        | 2569      | 15.6          |           | 24        | 76        | 10        | 3129          | 15.8      | 35        |
| 20        | 2411      | 15.8          |           | 26        | 81        | 20        | 2971          | 15.8      | 39        |
| 30        | 2255      | 15.6          |           | 28        | 85        | 30        | 2813          | 15.8      | 44        |
| 40        | 2098      | 15.7          |           | 30        | 89        | 40        | 2656          | 15.7      | 48        |
| 50        | 1941      | 15.7          |           | 32        | 94        | 50        | 2497          | 15.9      | 52        |
| 36 49 00  | 1784      | 15.7          |           | 34        | 2.25198   | 36 59 00  | 2340          | 15.7      | 57        |
| 10        | 1627      | 15.7          |           | 36        | 2.25202   | 10        | 2182          | 15.8      | 61        |
| 20        | 1470      | 15.7          |           | 38        | 07        | 20        | 2024          | 15.8      | 65        |
| 30        | 1313      | 15.7          |           | 41        | 12        | 30        | 1866          | 15.8      | 70        |
| 40        | 1157      | 15.6          |           | 43        | 16        | 40        | 1708          | 15.8      | 74        |
| 50        | 0999      | 15.8          |           | 45        | 20        | 50        | 1550          | 15.8      | 78        |
| 36 50 00  | 0842      | 15.7          |           | 47        | 25        | 37 00 00  | 1392          | 15.8      | 83        |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|--------------|---------------|---------------|-----------|---------------|--------------|---------------|---------------|
| • • "     |               |              |               |               | • • "     |               |              |               |               |
| 37 00 00  | 1.9091392     | 15.8         | 2.0049070     | 2.25487       | 37 10 00  | 1.9081885     | 15.8         | 2.0049194     | 2.25750       |
| 10        | 1234          | 15.8         |               | 72            | 91        | 1726          | 15.9         | 96            | 54            |
| 20        | 1077          | 15.7         |               | 74            | 25496     | 1567          | 15.9         | 2.0049198     | 59            |
| 30        | 0918          | 15.9         |               | 76            | 2.25500   | 30            | 1409         | 15.8          | 2.0049200     |
| 40        | 0760          | 15.8         |               | 78            | 04        | 1249          | 16.0         | 02            | 67            |
| 50        | 0602          | 15.8         |               | 80            | 09        | 1090          | 15.9         | 04            | 72            |
| 37 01 00  | 0444          | 15.8         |               | 82            | 13        | 37 11 00      | 0932         | 15.8          | 06            |
| 10        | 0286          | 15.8         |               | 84            | 17        | 10            | 0773         | 15.9          | 08            |
| 20        | 1.9090127     | 15.9         |               | 86            | 22        | 20            | 0613         | 16.0          | 10            |
| 30        | 1.9089970     | 15.7         |               | 89            | 26        | 30            | 0454         | 15.9          | 13            |
| 40        | 9812          | 15.8         |               | 91            | 30        | 40            | 0296         | 15.8          | 15            |
| 50        | 9653          | 15.9         |               | 93            | 35        | 50            | 1.9080136    | 16.0          | 17            |
| 37 02 00  | 9495          | 15.8         |               | 95            | 40        | 37 12 00      | 1.9079977    | 15.9          | 19            |
| 10        | 9337          | 15.8         |               | 97            | 44        | 10            | 9818         | 15.9          | 21            |
| 20        | 9179          | 15.8         | 2.0049099     | 49            |           | 20            | 9658         | 16.0          | 23            |
| 30        | 9021          | 15.8         | 2.0049101     | 53            |           | 30            | 9499         | 15.9          | 25            |
| 40        | 8863          | 15.8         |               | 57            |           | 40            | 9341         | 15.8          | 27            |
| 50        | 8705          | 15.8         |               | 62            |           | 50            | 9181         | 16.0          | 29            |
| 37 03 00  | 8547          | 15.8         |               | 67            | 66        | 37 13 00      | 9022         | 15.9          | 31            |
| 10        | 8389          | 15.8         |               | 69            | 70        | 10            | 8863         | 15.9          | 33            |
| 20        | 8230          | 15.9         |               | 11            | 75        | 20            | 8703         | 16.0          | 35            |
| 30        | 8072          | 15.8         |               | 14            | 79        | 30            | 8544         | 15.9          | 37            |
| 40        | 7914          | 15.8         |               | 16            | 83        | 40            | 8385         | 15.9          | 39            |
| 50        | 7755          | 15.9         |               | 18            | 88        | 50            | 8225         | 16.0          | 41            |
| 37 04 00  | 7597          | 15.8         |               | 20            | 92        | 37 14 00      | 8066         | 15.9          | 43            |
| 10        | 7439          | 15.8         |               | 22            | 2.25596   | 10            | 7907         | 15.9          | 45            |
| 20        | 7280          | 15.9         |               | 24            | 2.25601   | 20            | 7747         | 16.0          | 63            |
| 30        | 7121          | 15.9         |               | 26            | 06        | 30            | 7588         | 15.9          | 50            |
| 40        | 6963          | 15.8         |               | 28            | 10        | 40            | 7429         | 15.9          | 52            |
| 50        | 6804          | 15.9         |               | 30            | 14        | 50            | 7269         | 16.0          | 54            |
| 37 05 00  | 6646          | 15.8         |               | 32            | 19        | 37 15 00      | 7110         | 15.9          | 56            |
| 10        | 6488          | 15.8         |               | 34            | 23        | 10            | 6950         | 16.0          | 58            |
| 20        | 6329          | 15.8         |               | 36            | 28        | 20            | 6790         | 16.0          | 60            |
| 30        | 6171          | 15.8         |               | 38            | 32        | 30            | 6631         | 15.9          | 62            |
| 40        | 6012          | 15.9         |               | 40            | 36        | 40            | 6472         | 15.9          | 64            |
| 50        | 5853          | 15.9         |               | 42            | 41        | 50            | 6312         | 16.0          | 66            |
| 37 06 00  | 5695          | 15.8         |               | 44            | 45        | 37 16 00      | 6153         | 15.9          | 68            |
| 10        | 5537          | 15.8         |               | 46            | 49        | 10            | 5993         | 16.0          | 70            |
| 20        | 5377          | 16.0         |               | 48            | 54        | 20            | 5833         | 16.0          | 72            |
| 30        | 5219          | 15.8         |               | 51            | 58        | 30            | 5674         | 15.9          | 75            |
| 40        | 5061          | 15.8         |               | 53            | 62        | 40            | 5515         | 15.9          | 77            |
| 50        | 4902          | 15.9         |               | 55            | 67        | 50            | 5354         | 16.1          | 79            |
| 37 07 00  | 4743          | 15.9         |               | 57            | 71        | 37 17 00      | 5105         | 15.9          | 81            |
| 10        | 4585          | 15.8         |               | 59            | 75        | 10            | 5036         | 15.9          | 83            |
| 20        | 4426          | 15.9         |               | 61            | 80        | 20            | 4876         | 16.0          | 85            |
| 30        | 4267          | 15.9         |               | 63            | 84        | 30            | 4716         | 16.0          | 87            |
| 40        | 4109          | 15.8         |               | 65            | 88        | 40            | 4557         | 15.9          | 89            |
| 50        | 3949          | 16.0         |               | 67            | 93        | 50            | 4396         | 16.1          | 91            |
| 37 08 00  | 3791          | 15.8         |               | 69            | 2.25697   | 37 18 00      | 4237         | 15.9          | 93            |
| 10        | 3632          | 15.9         |               | 71            | 2.25701   | 10            | 4078         | 15.9          | 95            |
| 20        | 3473          | 15.9         |               | 73            | 06        | 20            | 3918         | 16.0          | 97            |
| 30        | 3315          | 15.8         |               | 75            | 10        | 30            | 3759         | 15.9          | 2.0049299     |
| 40        | 3156          | 15.9         |               | 77            | 14        | 40            | 3598         | 16.1          | 2.0049301     |
| 50        | 2997          | 15.9         |               | 79            | 19        | 50            | 3439         | 15.9          | 03            |
| 37 09 00  | 2838          | 15.9         |               | 81            | 23        | 37 19 00      | 3279         | 16.0          | 05            |
| 10        | 2680          | 15.8         |               | 83            | 27        | 10            | 3120         | 15.9          | 07            |
| 20        | 2520          | 16.0         |               | 85            | 32        | 20            | 2959         | 16.1          | 09            |
| 30        | 2361          | 15.9         |               | 88            | 36        | 30            | 2800         | 15.9          | 12            |
| 40        | 2203          | 15.8         |               | 90            | 40        | 40            | 2640         | 16.0          | 14            |
| 50        | 2043          | 16.0         |               | 92            | 45        | 50            | 2480         | 16.0          | 16            |
| 37 10 00  | 1885          | 15.8         |               | 94            | 50        | 37 20 00      | 2320         | 16.0          | 18            |
|           |               |              |               |               |           |               |              |               | 12            |

Table for transformation of coordinates—Continued.

| Latitude.  | Log $H$ . | Diff.<br>$1''$ . | Log $K$ . | Log $L$ . | Latitude.  | Log $H$ . | Diff.<br>$1''$ . | Log $K$ . | Log $L$ . |
|------------|-----------|------------------|-----------|-----------|------------|-----------|------------------|-----------|-----------|
| °   '   '' |           |                  |           |           | °   '   '' |           |                  |           |           |
| 37 20 00   | 1.9072320 | 16.0             | 2.0049318 | 2.26012   | 37 30 00   | 1.9062607 | 16.0             | 2.0049442 | 2.26273   |
| 10         | 2161      | 15.9             | 20        | 16        | 10         | 2536      | 16.1             | 44        | 77        |
| 20         | 2000      | 16.1             | 22        | 21        | 20         | 2374      | 16.2             | 46        | 82        |
| 30         | 1840      | 16.0             | 24        | 25        | 30         | 2214      | 16.0             | 48        | 86        |
| 40         | 1681      | 15.9             | 26        | 29        | 40         | 2053      | 16.1             | 50        | 90        |
| 50         | 1520      | 16.1             | 28        | 34        | 50         | 1892      | 16.1             | 52        | 95        |
| 37 21 00   | 1360      | 16.0             | 30        | 38        | 37 31 00   | 1731      | 16.1             | 54        | 2.26299   |
| 10         | 1201      | 15.9             | 32        | 42        | 10         | 1570      | 16.1             | 56        | 2.26303   |
| 20         | 1040      | 16.1             | 34        | 47        | 20         | 1409      | 16.1             | 58        | 08        |
| 30         | 0880      | 16.0             | 36        | 51        | 30         | 1248      | 16.1             | 61        | 12        |
| 40         | 0720      | 16.0             | 38        | 55        | 40         | 1087      | 16.1             | 63        | 16        |
| 50         | 0560      | 16.0             | 40        | 60        | 50         | 0925      | 16.2             | 65        | 21        |
| 37 22 00   | 0400      | 16.0             | 42        | 64        | 37 32 00   | 0765      | 16.0             | 67        | 25        |
| 10         | 0240      | 16.0             | 44        | 68        | 10         | 0604      | 16.1             | 69        | 29        |
| 20         | 1.9070079 | 16.1             | 46        | 73        | 20         | 0442      | 16.2             | 71        | 34        |
| 30         | 1.9069919 | 16.0             | 49        | 77        | 30         | 0281      | 16.1             | 73        | 38        |
| 40         | 9760      | 15.9             | 51        | 81        | 40         | 1.9060120 | 16.1             | 75        | 42        |
| 50         | 9599      | 16.1             | 53        | 86        | 50         | 1.9059959 | 16.1             | 77        | 47        |
| 37 23 00   | 9439      | 16.0             | 55        | 90        | 37 33 00   | 9798      | 16.1             | 79        | 51        |
| 10         | 9279      | 16.0             | 57        | 94        | 10         | 9637      | 16.1             | 81        | 55        |
| 20         | 9118      | 16.1             | 59        | 2.26099   | 20         | 9476      | 16.1             | 83        | 60        |
| 30         | 8958      | 16.0             | 61        | 2.26103   | 30         | 9315      | 16.1             | 85        | 64        |
| 40         | 8798      | 16.0             | 63        | 07        | 40         | 9153      | 16.2             | 87        | 68        |
| 50         | 8637      | 16.1             | 65        | 12        | 50         | 8992      | 16.1             | 89        | 73        |
| 37 24 00   | 8477      | 16.0             | 67        | 16        | 37 34 00   | 8831      | 16.1             | 91        | 77        |
| 10         | 8317      | 16.0             | 69        | 20        | 10         | 8670      | 16.1             | 93        | 82        |
| 20         | 8156      | 16.1             | 71        | 25        | 20         | 8508      | 16.2             | 95        | 86        |
| 30         | 7996      | 16.0             | 74        | 29        | 30         | 8347      | 16.1             | 98        | 91        |
| 40         | 7836      | 16.0             | 76        | 33        | 40         | 8186      | 16.1             | 2.0049500 | 95        |
| 50         | 7675      | 16.1             | 78        | 38        | 50         | 8024      | 16.2             | 02        | 2.26399   |
| 37 25 00   | 7515      | 16.0             | 80        | 42        | 37 35 00   | 7863      | 16.1             | 04        | 2.26403   |
| 10         | 7355      | 16.0             | 82        | 46        | 10         | 7702      | 16.1             | 06        | 07        |
| 20         | 7195      | 16.0             | 84        | 51        | 20         | 7540      | 16.2             | 08        | 12        |
| 30         | 7035      | 16.0             | 86        | 55        | 30         | 7379      | 16.1             | 10        | 16        |
| 40         | 6874      | 16.1             | 88        | 59        | 40         | 7218      | 16.1             | 12        | 20        |
| 50         | 6714      | 16.0             | 90        | 64        | 50         | 7056      | 16.2             | 14        | 25        |
| 37 26 00   | 6553      | 16.1             | 92        | 69        | 37 36 00   | 6895      | 16.1             | 16        | 29        |
| 10         | 6393      | 16.0             | 94        | 73        | 10         | 6734      | 16.1             | 18        | 33        |
| 20         | 6232      | 16.1             | 96        | 78        | 20         | 6571      | 16.3             | 20        | 38        |
| 30         | 6072      | 16.0             | 2.0049399 | 82        | 30         | 6410      | 16.1             | 23        | 42        |
| 40         | 5912      | 16.0             | 2.0049401 | 86        | 40         | 6249      | 16.1             | 25        | 46        |
| 50         | 5750      | 16.2             | 03        | 91        | 50         | 6087      | 16.2             | 27        | 51        |
| 37 27 00   | 5590      | 16.0             | 05        | 95        | 37 37 00   | 5926      | 16.1             | 29        | 55        |
| 10         | 5430      | 16.0             | 07        | 2.26199   | 10         | 5764      | 16.2             | 31        | 59        |
| 20         | 5268      | 16.2             | 09        | 2.26204   | 20         | 5602      | 16.2             | 33        | 64        |
| 30         | 5108      | 16.0             | 11        | 08        | 30         | 5441      | 16.1             | 35        | 68        |
| 40         | 4948      | 16.0             | 13        | 12        | 40         | 5280      | 16.1             | 37        | 72        |
| 50         | 4786      | 16.2             | 15        | 17        | 50         | 5117      | 16.3             | 39        | 77        |
| 37 28 00   | 4626      | 16.0             | 17        | 21        | 37 38 00   | 4955      | 16.2             | 41        | 81        |
| 10         | 4466      | 16.0             | 19        | 25        | 10         | 4794      | 16.1             | 43        | 85        |
| 20         | 4304      | 16.2             | 21        | 30        | 20         | 4632      | 16.2             | 45        | 90        |
| 30         | 4144      | 16.0             | 23        | 34        | 30         | 4471      | 16.1             | 48        | 94        |
| 40         | 3984      | 16.0             | 25        | 38        | 40         | 4309      | 16.2             | 50        | 2.26498   |
| 50         | 3822      | 16.2             | 27        | 43        | 50         | 4147      | 16.2             | 52        | 2.26503   |
| 37 29 00   | 3662      | 16.0             | 29        | 47        | 37 39 00   | 3986      | 16.1             | 54        | 07        |
| 10         | 3501      | 16.1             | 31        | 51        | 10         | 3824      | 16.2             | 56        | 11        |
| 20         | 3340      | 16.1             | 33        | 56        | 20         | 3662      | 16.2             | 58        | 16        |
| 30         | 3179      | 16.1             | 36        | 60        | 30         | 3500      | 16.2             | 60        | 20        |
| 40         | 3019      | 16.0             | 38        | 64        | 40         | 3339      | 16.1             | 62        | 24        |
| 50         | 2857      | 16.2             | 40        | 69        | 50         | 3176      | 16.3             | 64        | 29        |
| 37 30 00   | 2697      | 16.0             | 42        | 73        | 37 40 00   | 3015      | 16.1             | 66        | 33        |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|--------------|---------------|---------------|-----------|---------------|--------------|---------------|---------------|
| • ' "     |               |              |               |               | • ' "     |               |              |               |               |
| 37 40 00  | 1.9053015     | 16.1         | 2.0049566     | 2.26533       | 37 50 00  | 1.9043275     | 16.2         | 2.0049691     | 2.20794       |
| 10        | 2853          | 16.2         | 68            | 37            | 10        | 3112          | 16.3         | 93            | 2.26799       |
| 20        | 2691          | 16.2         | 70            | 42            | 20        | 2949          | 16.3         | 95            | 2.26804       |
| 30        | 2530          | 16.1         | 72            | 46            | 30        | 2786          | 16.3         | 97            | 08            |
| 40        | 2367          | 16.3         | 74            | 50            | 40        | 2624          | 16.2         | 2.0049699     | 12            |
| 50        | 2206          | 16.1         | 76            | 55            | 50        | 2460          | 16.4         | 2.0049701     | 17            |
| 37 41 00  | 2044          | 16.2         | 78            | 59            | 37 51 00  | 2298          | 16.2         | 03            | 21            |
| 10        | 1882          | 16.2         | 80            | 63            | 10        | 2135          | 16.3         | 05            | 25            |
| 20        | 1720          | 16.2         | 82            | 68            | 20        | 1971          | 16.4         | 07            | 30            |
| 30        | 1558          | 16.2         | 85            | 72            | 30        | 1809          | 16.2         | 10            | 34            |
| 40        | 1396          | 16.2         | 87            | 76            | 40        | 1646          | 16.3         | 12            | 38            |
| 50        | 1234          | 16.2         | 89            | 81            | 50        | 1482          | 16.4         | 14            | 43            |
| 37 42 00  | 1072          | 16.2         | 91            | 85            | 37 52 00  | 1320          | 16.2         | 16            | 47            |
| 10        | 0910          | 16.2         | 93            | 90            | 10        | 1157          | 16.3         | 18            | 51            |
| 20        | 0747          | 16.3         | 95            | 95            | 20        | 0994          | 16.3         | 20            | 55            |
| 30        | 0586          | 16.1         | 97            | 2.26599       | 30        | 0831          | 16.3         | 22            | 60            |
| 40        | 0424          | 16.2         | 2.0049599     | 2.26603       | 40        | 0668          | 16.3         | 24            | 64            |
| 50        | 0261          | 16.3         | 2.0049601     | 08            | 50        | 0505          | 16.3         | 26            | 68            |
| 37 43 00  | 1.9050000     | 16.2         | 03            | 12            | 37 53 00  | 0342          | 16.3         | 28            | 72            |
| 10        | 1.9049937     | 16.2         | 05            | 16            | 10        | 0179          | 16.3         | 30            | 76            |
| 20        | 9775          | 16.2         | 07            | 21            | 20        | 1.9040015     | 16.4         | 32            | 81            |
| 30        | 9613          | 16.2         | 10            | 25            | 30        | 1.9039852     | 16.3         | 34            | 85            |
| 40        | 9451          | 16.2         | 12            | 29            | 40        | 9690          | 16.2         | 36            | 89            |
| 50        | 9288          | 16.3         | 14            | 34            | 50        | 9526          | 16.4         | 38            | 94            |
| 37 44 00  | 9126          | 16.2         | 16            | 38            | 37 54 00  | 9363          | 16.3         | 40            | 2.26898       |
| 10        | 8964          | 16.2         | 18            | 42            | 10        | 9200          | 16.3         | 42            | 2.26902       |
| 20        | 8801          | 16.3         | 20            | 47            | 20        | 9036          | 16.4         | 44            | 07            |
| 30        | 8639          | 16.2         | 22            | 51            | 30        | 8873          | 16.3         | 47            | 11            |
| 40        | 8477          | 16.2         | 24            | 55            | 40        | 8710          | 16.3         | 49            | 15            |
| 50        | 8314          | 16.3         | 26            | 60            | 50        | 8546          | 16.4         | 51            | 20            |
| 37 45 00  | 8152          | 16.2         | 28            | 64            | 37 55 00  | 8883          | 16.3         | 53            | 24            |
| 10        | 7990          | 16.2         | 30            | 68            | 10        | 8220          | 16.3         | 55            | 28            |
| 20        | 7827          | 16.3         | 32            | 73            | 20        | 8056          | 16.4         | 57            | 33            |
| 30        | 7665          | 16.2         | 35            | 77            | 30        | 7893          | 16.3         | 59            | 37            |
| 40        | 7503          | 16.2         | 37            | 81            | 40        | 7730          | 16.3         | 61            | 41            |
| 50        | 7340          | 16.3         | 39            | 86            | 50        | 7566          | 16.4         | 63            | 46            |
| 37 46 00  | 7178          | 16.2         | 41            | 90            | 37 56 00  | 7403          | 16.3         | 65            | 50            |
| 10        | 7016          | 16.2         | 43            | 94            | 10        | 7240          | 16.3         | 67            | 54            |
| 20        | 6853          | 16.3         | 45            | 2.26699       | 20        | 7075          | 16.5         | 69            | 59            |
| 30        | 6691          | 16.2         | 47            | 2.26703       | 30        | 6912          | 16.3         | 72            | 63            |
| 40        | 6528          | 16.3         | 49            | 07            | 40        | 6749          | 16.3         | 74            | 67            |
| 50        | 6366          | 16.2         | 51            | 12            | 50        | 6585          | 16.4         | 76            | 72            |
| 37 47 00  | 6204          | 16.2         | 53            | 16            | 37 57 00  | 6422          | 16.3         | 78            | 76            |
| 10        | 6041          | 16.3         | 55            | 20            | 10        | 6259          | 16.3         | 80            | 80            |
| 20        | 5878          | 16.3         | 57            | 25            | 20        | 6094          | 16.5         | 82            | 85            |
| 30        | 5716          | 16.2         | 60            | 29            | 30        | 5931          | 16.3         | 84            | 89            |
| 40        | 5554          | 16.2         | 62            | 33            | 40        | 5768          | 16.3         | 86            | 93            |
| 50        | 5390          | 16.4         | 64            | 38            | 50        | 5604          | 16.4         | 88            | 2.26998       |
| 37 48 00  | 5228          | 16.2         | 66            | 42            | 37 58 00  | 5440          | 16.4         | 90            | 2.27002       |
| 10        | 5066          | 16.2         | 68            | 46            | 10        | 5277          | 16.3         | 92            | 07            |
| 20        | 4902          | 16.4         | 70            | 51            | 20        | 5113          | 16.4         | 94            | 12            |
| 30        | 4740          | 16.2         | 72            | 55            | 30        | 4949          | 16.4         | 97            | 16            |
| 40        | 4578          | 16.2         | 74            | 59            | 40        | 4786          | 16.3         | 2.0049799     | 20            |
| 50        | 4414          | 16.4         | 76            | 64            | 50        | 4622          | 16.4         | 2.0049801     | 25            |
| 37 49 00  | 4252          | 16.2         | 78            | 68            | 37 59 00  | 4458          | 16.4         | 03            | 29            |
| 10        | 4089          | 16.3         | 80            | 72            | 10        | 4295          | 16.3         | 05            | 33            |
| 20        | 3926          | 16.3         | 82            | 77            | 20        | 4131          | 16.4         | 07            | 38            |
| 30        | 3763          | 16.3         | 85            | 81            | 30        | 3968          | 16.3         | 09            | 42            |
| 40        | 3601          | 16.2         | 87            | 85            | 40        | 3803          | 16.5         | 11            | 46            |
| 50        | 3437          | 16.4         | 89            | 90            | 50        | 3640          | 16.3         | 13            | 51            |
| 37 50 00  | 3275          | 16.2         | 91            | 94            | 38 00 00  | 3476          | 16.4         | 15            | 55            |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1°. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1°. | Log K.    | Log L.    |         |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|-----------|---------|
| °   /   " |           |              |           |         | °   /   " |           |              |           |           |         |
| 38 00 00  | 1.9033476 | 16.4         | 2.0049815 | 2.27055 | 38 10 00  | 1.9023618 | 16.4         | 2.0049940 | 2.27314   |         |
| 10        | 3313      | 16.3         |           | 59      | 10        | 3453      | 16.5         | 42        | 18        |         |
| 20        | 3148      | 16.5         |           | 63      | 20        | 3288      | 16.5         | 44        | 23        |         |
| 30        | 2985      | 16.3         |           | 68      | 30        | 3123      | 16.5         | 47        | 27        |         |
| 40        | 2821      | 16.4         |           | 72      | 40        | 2959      | 16.4         | 49        | 31        |         |
| 50        | 2657      | 16.4         |           | 76      | 50        | 2793      | 16.6         | 51        | 36        |         |
| 38 01 00  | 2493      | 16.4         |           | 80      | 38 11 00  | 2629      | 16.4         | 53        | 40        |         |
| 10        | 2330      | 16.3         |           | 84      | 10        | 2464      | 16.5         | 55        | 44        |         |
| 20        | 2165      | 16.5         |           | 89      | 20        | 2299      | 16.5         | 57        | 49        |         |
| 30        | 2001      | 16.4         |           | 93      | 30        | 2135      | 16.4         | 59        | 53        |         |
| 40        | 1838      | 16.3         | 2.27097   | 36      | 40        | 1969      | 16.6         | 61        | 57        |         |
| 50        | 1673      | 16.5         |           | 38      | 2.27102   | 1804      | 16.5         | 63        | 62        |         |
| 38 02 00  | 1500      | 16.4         |           | 40      | 06        | 38 12 00  | 1640         | 16.4      | 65        | 66      |
| 10        | 1346      | 16.3         |           | 42      | 10        | 1475      | 16.5         | 67        | 70        |         |
| 20        | 1181      | 16.5         |           | 44      | 15        | 1309      | 16.6         | 69        | 75        |         |
| 30        | 1017      | 16.4         |           | 47      | 19        | 1145      | 16.4         | 72        | 79        |         |
| 40        | 0853      | 16.4         |           | 49      | 23        | 0980      | 16.5         | 74        | 83        |         |
| 50        | 0689      | 16.4         |           | 51      | 28        | 0814      | 16.6         | 76        | 88        |         |
| 38 03 00  | 0525      | 16.4         |           | 53      | 32        | 38 13 00  | 0649         | 16.5      | 78        | 92      |
| 10        | 0361      | 16.4         |           | 55      | 36        | 10        | 0484         | 16.5      | 80        | 2.27396 |
| 20        | 0196      | 16.5         |           | 57      | 41        | 20        | 0319         | 16.5      | 82        | 2.27400 |
| 30        | 1.9030032 | 16.4         |           | 59      | 45        | 30        | 1.9020154    | 16.5      | 84        | 05      |
| 40        | 1.9029868 | 16.4         |           | 61      | 49        | 40        | 1.9019989    | 16.5      | 86        | 09      |
| 50        | 9704      | 16.4         |           | 63      | 54        | 50        | 9823         | 16.6      | 88        | 13      |
| 38 04 00  | 9540      | 16.4         |           | 65      | 58        | 38 14 00  | 9658         | 16.5      | 90        | 17      |
| 10        | 9376      | 16.4         |           | 67      | 62        | 10        | 9493         | 16.5      | 92        | 22      |
| 20        | 9211      | 16.5         |           | 69      | 67        | 20        | 9327         | 16.6      | 94        | 27      |
| 30        | 9047      | 16.4         |           | 72      | 71        | 30        | 9162         | 16.5      | 97        | 31      |
| 40        | 8883      | 16.4         |           | 74      | 75        | 40        | 8998         | 16.4      | 2.0049999 | 35      |
| 50        | 8718      | 16.5         |           | 76      | 80        | 50        | 8832         | 16.6      | 2.0050001 | 40      |
| 38 05 00  | 8554      | 16.4         |           | 78      | 84        | 38 15 00  | 9667         | 16.5      | 03        | 44      |
| 10        | 8390      | 16.4         |           | 80      | 88        | 10        | 8502         | 16.5      | 05        | 48      |
| 20        | 8226      | 16.4         |           | 82      | 93        | 20        | 8336         | 16.6      | 07        | 53      |
| 30        | 8062      | 16.4         |           | 84      | 2.27197   | 30        | 8171         | 16.5      | 09        | 57      |
| 40        | 7897      | 16.5         |           | 86      | 2.27201   | 40        | 8006         | 16.5      | 11        | 61      |
| 50        | 7733      | 16.4         |           | 88      | 06        | 50        | 7839         | 16.7      | 13        | 68      |
| 38 06 00  | 7569      | 16.4         |           | 90      | 10        | 38 16 00  | 7674         | 16.5      | 15        | 70      |
| 10        | 7405      | 16.4         |           | 92      | 15        | 10        | 7509         | 16.5      | 17        | 74      |
| 20        | 7240      | 16.5         |           | 94      | 20        | 20        | 7343         | 16.6      | 19        | 79      |
| 30        | 7075      | 16.5         |           | 97      | 24        | 30        | 7178         | 16.5      | 22        | 83      |
| 40        | 6911      | 16.4         | 2.0049899 | 28      | 40        | 40        | 7013         | 16.5      | 24        | 87      |
| 50        | 6746      | 16.5         | 2.0049901 | 33      | 50        | 50        | 6847         | 16.6      | 26        | 92      |
| 38 07 00  | 6582      | 16.4         |           | 03      | 37        | 38 17 00  | 6682         | 16.5      | 28        | 2.27496 |
| 10        | 6418      | 16.4         |           | 05      | 41        | 10        | 6516         | 16.6      | 30        | 2.27500 |
| 20        | 6252      | 16.6         |           | 07      | 45        | 20        | 6351         | 16.5      | 32        | 05      |
| 30        | 6088      | 16.4         |           | 09      | 50        | 30        | 6186         | 16.5      | 34        | 09      |
| 40        | 5924      | 16.4         |           | 11      | 54        | 40        | 6020         | 16.6      | 36        | 13      |
| 50        | 5759      | 16.5         |           | 13      | 58        | 50        | 5854         | 16.6      | 38        | 18      |
| 38 08 00  | 5594      | 16.5         |           | 15      | 62        | 38 18 00  | 5689         | 16.5      | 40        | 22      |
| 10        | 5430      | 16.4         |           | 17      | 66        | 10        | 5524         | 16.5      | 42        | 26      |
| 20        | 5265      | 16.5         |           | 19      | 71        | 20        | 5358         | 16.6      | 44        | 30      |
| 30        | 5100      | 16.5         |           | 22      | 75        | 30        | 5192         | 16.6      | 47        | 35      |
| 40        | 4936      | 16.4         |           | 24      | 79        | 40        | 5027         | 16.5      | 49        | 39      |
| 50        | 4771      | 16.5         |           | 26      | 84        | 50        | 4861         | 16.6      | 51        | 43      |
| 38 09 00  | 4606      | 16.5         |           | 28      | 88        | 38 19 00  | 4695         | 16.6      | 53        | 47      |
| 10        | 4442      | 16.4         |           | 30      | 92        | 10        | 4530         | 16.5      | 55        | 51      |
| 20        | 4277      | 16.5         |           | 32      | 2.27297   | 20        | 4363         | 16.7      | 57        | 56      |
| 30        | 4112      | 16.5         |           | 34      | 2.27301   | 30        | 4198         | 16.5      | 59        | 60      |
| 40        | 3948      | 16.4         |           | 36      | 05        | 40        | 4033         | 16.5      | 61        | 64      |
| 50        | 3782      | 16.6         |           | 38      | 10        | 50        | 3866         | 16.7      | 63        | 69      |
| 38 10 00  | 3618      | 16.4         |           | 40      | 14        | 38 20 00  | 3701         | 16.5      | 65        | 73      |

Table for transformation of coordinates—Continued.

| Latitude.   | Log <i>H</i> . | Diff.<br>1". | Log <i>K</i> . | Log <i>L</i> . | Latitude.   | Log <i>H</i> . | Diff.<br>1". | Log <i>K</i> . | Log <i>L</i> . |
|-------------|----------------|--------------|----------------|----------------|-------------|----------------|--------------|----------------|----------------|
| 38° 20' 00" | 1.9013701      | 16.5         | 2.0050065      | 2.27573        | 38° 30' 00" | 1.9003724      | 16.6         | 2.0050190      | 2.27832        |
| 10          | 3535           | 16.6         | 67             | 77             | 10          | 3557           | 16.7         | 92             | 37             |
| 20          | 3369           | 16.6         | 69             | 82             | 20          | 3390           | 16.7         | 94             | 42             |
| 30          | 3203           | 16.6         | 72             | 86             | 30          | 3223           | 16.7         | 97             | 46             |
| 40          | 3038           | 16.5         | 74             | 90             | 40          | 3057           | 16.6         | 2.0050199      | 50             |
| 50          | 2871           | 16.7         | 76             | 95             | 50          | 2889           | 16.8         | 2.0050201      | 55             |
| 38° 21' 00" | 2705           | 16.6         | 78             | 2.27599        | 38° 31' 00" | 2723           | 16.6         | 03             | 59             |
| 10          | 2540           | 16.5         | 80             | 2.27603        | 10          | 2556           | 16.7         | 05             | 63             |
| 20          | 2373           | 16.7         | 82             | 08             | 20          | 2388           | 16.8         | 07             | 68             |
| 30          | 2208           | 16.5         | 84             | 12             | 30          | 2222           | 16.8         | 09             | 72             |
| 40          | 2042           | 16.6         | 86             | 16             | 40          | 2055           | 16.7         | 11             | 76             |
| 50          | 1875           | 16.7         | 88             | 21             | 50          | 1887           | 16.8         | 13             | 81             |
| 38° 22' 00" | 1710           | 16.5         | 90             | 25             | 38° 32' 00" | 1721           | 16.6         | 15             | 85             |
| 10          | 1544           | 16.6         | 92             | 30             | 10          | 1554           | 16.7         | 17             | 89             |
| 20          | 1377           | 16.7         | 94             | 34             | 20          | 1386           | 16.8         | 19             | 93             |
| 30          | 1211           | 16.6         | 97             | 39             | 30          | 1220           | 16.6         | 22             | 2.27898        |
| 40          | 1046           | 16.5         | 2.0050099      | 43             | 40          | 1053           | 16.7         | 24             | 2.27902        |
| 50          | 0879           | 16.7         | 2.0050101      | 48             | 50          | 0885           | 16.8         | 26             | 06             |
| 38° 23' 00" | 0713           | 16.6         | 03             | 52             | 38° 33' 00" | 0718           | 16.7         | 28             | 10             |
| 10          | 0547           | 16.6         | 05             | 56             | 10          | 0552           | 16.6         | 30             | 14             |
| 20          | 0382           | 16.5         | 07             | 60             | 20          | 0384           | 16.8         | 32             | 19             |
| 30          | 0216           | 16.6         | 09             | 65             | 30          | 0217           | 16.7         | 35             | 23             |
| 40          | 1.9010049      | 16.7         | 11             | 69             | 40          | 1.9000050      | 16.7         | 37             | 27             |
| 50          | 1.9009883      | 16.6         | 13             | 73             | 50          | 1.8999882      | 16.8         | 39             | 32             |
| 38° 24' 00" | 9717           | 16.6         | 15             | 77             | 38° 34' 00" | 9715           | 16.7         | 41             | 36             |
| 10          | 9551           | 16.6         | 17             | 81             | 10          | 9548           | 16.7         | 43             | 40             |
| 20          | 9384           | 16.7         | 19             | 86             | 20          | 9382           | 16.6         | 45             | 45             |
| 30          | 9218           | 16.6         | 22             | 90             | 30          | 9215           | 16.7         | 47             | 49             |
| 40          | 9053           | 16.5         | 24             | 94             | 40          | 9047           | 16.8         | 49             | 53             |
| 50          | 8886           | 16.7         | 26             | 2.27699        | 50          | 8880           | 16.7         | 51             | 58             |
| 38° 25' 00" | 8720           | 16.6         | 28             | 2.27703        | 38° 35' 00" | 8713           | 16.7         | 53             | 62             |
| 10          | 8554           | 16.6         | 30             | 07             | 10          | 8546           | 16.7         | 55             | 66             |
| 20          | 8387           | 16.7         | 32             | 12             | 20          | 8378           | 16.8         | 57             | 71             |
| 30          | 8221           | 16.6         | 35             | 16             | 30          | 8211           | 16.7         | 60             | 75             |
| 40          | 8055           | 16.6         | 37             | 20             | 40          | 8044           | 16.7         | 62             | 79             |
| 50          | 7888           | 16.7         | 39             | 25             | 50          | 7876           | 16.8         | 64             | 84             |
| 38° 26' 00" | 7721           | 16.7         | 41             | 29             | 38° 36' 00" | 7709           | 16.7         | 66             | 88             |
| 10          | 7555           | 16.6         | 43             | 33             | 10          | 7542           | 16.7         | 68             | 92             |
| 20          | 7388           | 16.7         | 45             | 38             | 20          | 7373           | 16.9         | 70             | 2.27096        |
| 30          | 7222           | 16.6         | 47             | 42             | 30          | 7206           | 16.7         | 72             | 2.28001        |
| 40          | 7056           | 16.6         | 49             | 46             | 40          | 7039           | 16.7         | 74             | 05             |
| 50          | 6889           | 16.7         | 51             | 51             | 50          | 6871           | 16.8         | 76             | 09             |
| 38° 27' 00" | 6723           | 16.6         | 53             | 55             | 38° 37' 00" | 6704           | 16.7         | 78             | 13             |
| 10          | 6556           | 16.7         | 55             | 59             | 10          | 6537           | 16.7         | 80             | 17             |
| 20          | 6389           | 16.7         | 57             | 64             | 20          | 6368           | 16.9         | 82             | 22             |
| 30          | 6223           | 16.6         | 59             | 68             | 30          | 6201           | 16.7         | 85             | 26             |
| 40          | 6057           | 16.6         | 61             | 72             | 40          | 6034           | 16.7         | 87             | 30             |
| 50          | 5890           | 16.7         | 63             | 77             | 50          | 5866           | 16.8         | 89             | 35             |
| 38° 28' 00" | 5723           | 16.7         | 65             | 81             | 38° 38' 00" | 5698           | 16.8         | 91             | 39             |
| 10          | 5557           | 16.6         | 67             | 85             | 10          | 5531           | 16.7         | 93             | 44             |
| 20          | 5391           | 16.6         | 69             | 89             | 20          | 5363           | 16.8         | 95             | 49             |
| 30          | 5224           | 16.7         | 72             | 91             | 30          | 5195           | 16.8         | 97             | 53             |
| 40          | 5057           | 16.7         | 74             | 2.27798        | 40          | 5028           | 16.7         | 2.0050299      | 57             |
| 50          | 4891           | 16.6         | 76             | 2.27802        | 50          | 4860           | 16.8         | 2.0050301      | 62             |
| 38° 29' 00" | 4724           | 16.7         | 78             | 06             | 38° 39' 00" | 4692           | 16.8         | 03             | 66             |
| 10          | 4558           | 16.6         | 80             | 10             | 10          | 4525           | 16.7         | 05             | 70             |
| 20          | 4390           | 16.8         | 82             | 15             | 20          | 4357           | 16.8         | 07             | 75             |
| 30          | 4224           | 16.6         | 84             | 19             | 30          | 4189           | 16.8         | 10             | 79             |
| 40          | 4058           | 16.6         | 86             | 23             | 40          | 4022           | 16.7         | 12             | 83             |
| 50          | 3890           | 16.8         | 88             | 28             | 50          | 3853           | 16.9         | 14             | 88             |
| 38° 30' 00" | 3724           | 16.6         | 90             | 32             | 38° 40' 00" | 3686           | 16.7         | 16             | 92             |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| ° ′ ″     |           |             |           |         | ° ′ ″     |           |             |           |         |
| 38 40 00  | 1.8993686 | 16.7        | 2.0050318 | 2.28092 | 38 50 00  | 1.8983589 | 16.8        | 2.0050441 | 2.28350 |
| 10        | 3518      | 16.8        |           | 2.28096 | 10        | 3420      | 16.9        | 43        | 54      |
| 20        | 3351      | 16.7        |           | 2.28100 | 20        | 3251      | 16.9        | 45        | 58      |
| 30        | 3183      | 16.8        |           | 05      | 30        | 3082      | 16.9        | 48        | 63      |
| 40        | 3015      | 16.8        |           | 09      | 40        | 2914      | 16.8        | 50        | 67      |
| 50        | 2847      | 16.8        |           | 13      | 50        | 2744      | 17.0        | 52        | 71      |
| 38 41 00  | 2680      | 16.7        | 28        | 17      | 38 51 00  | 2575      | 16.9        | 54        | 75      |
| 10        | 2512      | 16.8        | 30        | 21      | 10        | 2407      | 16.8        | 56        | 79      |
| 20        | 2343      | 16.9        | 32        | 26      | 20        | 2238      | 16.9        | 58        | 84      |
| 30        | 2176      | 16.7        | 35        | 30      | 30        | 2070      | 16.8        | 60        | 88      |
| 40        | 2008      | 16.8        | 37        | 34      | 40        | 1900      | 17.0        | 62        | 92      |
| 50        | 1839      | 16.9        | 39        | 39      | 50        | 1731      | 16.9        | 64        | 2.28397 |
| 38 42 00  | 1672      | 16.7        | 41        | 43      | 38 52 00  | 1563      | 16.8        | 66        | 2.28401 |
| 10        | 1504      | 16.8        | 43        | 47      | 10        | 1394      | 16.9        | 68        | 05      |
| 20        | 1335      | 16.9        | 45        | 52      | 20        | 1224      | 17.0        | 70        | 10      |
| 30        | 1168      | 16.7        | 48        | 56      | 30        | 1055      | 16.9        | 73        | 14      |
| 40        | 1000      | 16.8        | 50        | 60      | 40        | 0887      | 16.8        | 75        | 18      |
| 50        | 0831      | 16.9        | 52        | 65      | 50        | 0717      | 17.0        | 77        | 23      |
| 38 43 00  | 0663      | 16.8        | 54        | 69      | 38 53 00  | 0548      | 16.9        | 79        | 27      |
| 10        | 0496      | 16.7        | 56        | 73      | 10        | 0379      | 16.9        | 81        | 31      |
| 20        | 0327      | 16.9        | 58        | 77      | 20        | 0210      | 16.9        | 83        | 35      |
| 30        | 1.8990159 | 16.8        | 60        | 82      | 30        | 1.8980041 | 16.9        | 86        | 40      |
| 40        | 1.8989991 | 16.8        | 62        | 86      | 40        | 1.8979872 | 16.9        | 88        | 44      |
| 50        | 9822      | 16.9        | 64        | 90      | 50        | 9702      | 17.0        | 90        | 48      |
| 38 44 00  | 9654      | 16.8        | 66        | 94      | 38 54 00  | 9533      | 16.9        | 92        | 53      |
| 10        | 9487      | 16.7        | 68        | 2.28198 | 10        | 9364      | 16.9        | 94        | 57      |
| 20        | 9318      | 16.9        | 70        | 2.28203 | 20        | 9194      | 17.0        | 96        | 62      |
| 30        | 9150      | 16.8        | 73        | 07      | 30        | 9025      | 16.9        | 2.0050498 | 66      |
| 40        | 8982      | 16.8        | 75        | 11      | 40        | 8856      | 16.9        | 2.0050500 | 70      |
| 50        | 8813      | 16.9        | 77        | 16      | 50        | 8686      | 17.0        | 02        | 75      |
| 38 45 00  | 8645      | 16.8        | 79        | 20      | 38 55 00  | 8517      | 16.9        | 04        | 79      |
| 10        | 8477      | 16.8        | 81        | 24      | 10        | 8348      | 16.9        | 06        | 83      |
| 20        | 8309      | 16.8        | 83        | 29      | 20        | 8179      | 16.9        | 08        | 88      |
| 30        | 8141      | 16.8        | 85        | 33      | 30        | 8010      | 16.9        | 11        | 92      |
| 40        | 7972      | 16.9        | 87        | 37      | 40        | 7840      | 17.0        | 13        | 2.28496 |
| 50        | 7804      | 16.8        | 89        | 42      | 50        | 7671      | 16.9        | 15        | 2.28501 |
| 38 46 00  | 7636      | 16.8        | 91        | 46      | 38 56 00  | 7502      | 16.9        | 17        | 05      |
| 10        | 7467      | 16.9        | 93        | 51      | 10        | 7333      | 16.9        | 19        | 09      |
| 20        | 7298      | 16.8        | 95        | 56      | 20        | 7163      | 16.9        | 21        | 13      |
| 30        | 7130      | 16.8        | 2.0050398 | 60      | 30        | 6994      | 16.9        | 23        | 18      |
| 40        | 6962      | 16.8        | 2.0050400 | 64      | 40        | 6825      | 16.9        | 25        | 22      |
| 50        | 6793      | 16.9        | 02        | 69      | 50        | 6654      | 17.1        | 27        | 26      |
| 38 47 00  | 6625      | 16.8        | 04        | 73      | 38 57 00  | 6485      | 16.9        | 29        | 30      |
| 10        | 6457      | 16.8        | 06        | 77      | 10        | 6316      | 16.9        | 31        | 34      |
| 20        | 6287      | 17.0        | 08        | 81      | 20        | 6146      | 17.0        | 33        | 39      |
| 30        | 6119      | 16.8        | 10        | 86      | 30        | 5977      | 16.9        | 36        | 43      |
| 40        | 5951      | 16.8        | 12        | 90      | 40        | 5807      | 17.0        | 38        | 47      |
| 50        | 5782      | 16.9        | 14        | 94      | 50        | 5637      | 17.0        | 40        | 52      |
| 38 48 00  | 5613      | 16.9        | 16        | 2.28298 | 38 58 00  | 5468      | 16.9        | 42        | 56      |
| 10        | 5445      | 16.8        | 18        | 2.28302 | 10        | 5298      | 17.0        | 44        | 60      |
| 20        | 5276      | 16.9        | 20        | 07      | 20        | 5128      | 17.0        | 46        | 65      |
| 30        | 5107      | 16.9        | 23        | 11      | 30        | 4959      | 16.9        | 49        | 69      |
| 40        | 4939      | 16.8        | 25        | 15      | 40        | 4789      | 17.0        | 51        | 73      |
| 50        | 4770      | 16.9        | 27        | 20      | 50        | 4619      | 17.0        | 53        | 78      |
| 38 49 00  | 4601      | 16.9        | 29        | 24      | 38 59 00  | 4450      | 16.9        | 55        | 82      |
| 10        | 4433      | 16.8        | 31        | 28      | 10        | 4280      | 17.0        | 57        | 86      |
| 20        | 4263      | 17.0        | 33        | 33      | 20        | 4110      | 17.0        | 59        | 91      |
| 30        | 4095      | 16.8        | 35        | 37      | 30        | 3940      | 17.0        | 61        | 95      |
| 40        | 3927      | 16.8        | 37        | 41      | 40        | 3771      | 16.9        | 63        | 2.28599 |
| 50        | 3757      | 17.0        | 39        | 46      | 50        | 3600      | 17.1        | 65        | 2.28604 |
| 38 50 00  | 3580      | 16.8        | 41        | 50      | 39 00 00  | 3431      | 16.9        | 67        | 08      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| • ′ ″     |           |              |           |         | • ′ ″     |           |              |           |         |
| 39 00 00  | 1.8973431 | 16.9         | 2.0050567 | 2.28608 | 39 10 00  | 1.8963212 | 17.1         | 2.0050693 | 2.28866 |
| 10        | 3261      | 17.0         | 69        | 12      | 10        | 3042      | 17.0         | 95        | 70      |
| 20        | 3091      | 17.0         | 71        | 16      | 20        | 2870      | 17.2         | 2.0050697 | 75      |
| 30        | 2921      | 17.0         | 74        | 21      | 30        | 2700      | 17.0         | 2.0050700 | 79      |
| 40        | 2752      | 16.9         | 76        | 25      | 40        | 2529      | 17.1         | 02        | 83      |
| 50        | 2581      | 17.1         | 78        | 29      | 50        | 2358      | 17.1         | 04        | 88      |
| 39 01 00  | 2412      | 16.9         | 80        | 33      | 39 11 00  | 2187      | 17.1         | 06        | 92      |
| 10        | 2242      | 17.0         | 82        | 37      | 10        | 2016      | 17.1         | 08        | 2.28866 |
| 20        | 2072      | 17.0         | 84        | 42      | 20        | 1846      | 17.0         | 10        | 2.28900 |
| 30        | 1903      | 16.9         | 86        | 46      | 30        | 1675      | 17.1         | 12        | 05      |
| 40        | 1732      | 17.1         | 88        | 50      | 40        | 1503      | 17.2         | 14        | 09      |
| 50        | 1562      | 17.0         | 90        | 55      | 50        | 1333      | 17.0         | 16        | 13      |
| 39 02 00  | 1393      | 16.9         | 92        | 60      | 39 12 00  | 1162      | 17.1         | 18        | 17      |
| 10        | 1223      | 17.0         | 94        | 64      | 10        | 0991      | 17.1         | 20        | 21      |
| 20        | 1052      | 17.1         | 96        | 68      | 20        | 0819      | 17.2         | 22        | 26      |
| 30        | 0883      | 16.9         | 2.0050599 | 73      | 30        | 0649      | 17.0         | 25        | 30      |
| 40        | 0713      | 17.0         | 2.0050601 | 77      | 40        | 0478      | 17.1         | 27        | 34      |
| 50        | 0542      | 17.1         | 03        | 81      | 50        | 0306      | 17.2         | 29        | 39      |
| 39 03 00  | 0372      | 17.0         | 05        | 85      | 39 13 00  | 1.8960135 | 17.1         | 31        | 43      |
| 10        | 0202      | 17.0         | 07        | 89      | 10        | 1.8959964 | 17.1         | 33        | 47      |
| 20        | 1.8970032 | 17.0         | 09        | 94      | 20        | 9793      | 17.1         | 35        | 52      |
| 30        | 1.8969862 | 17.0         | 11        | 2.28698 | 30        | 9622      | 17.1         | 38        | 56      |
| 40        | 9692      | 17.0         | 13        | 2.28702 | 40        | 9451      | 17.1         | 40        | 60      |
| 50        | 9521      | 17.1         | 15        | 07      | 50        | 9279      | 17.2         | 42        | 65      |
| 39 04 00  | 9351      | 17.0         | 17        | 11      | 39 14 00  | 9108      | 17.1         | 44        | 69      |
| 10        | 9181      | 17.0         | 19        | 15      | 10        | 8937      | 17.1         | 46        | 73      |
| 20        | 9010      | 17.1         | 21        | 20      | 20        | 8765      | 17.2         | 48        | 77      |
| 30        | 8840      | 17.0         | 24        | 24      | 30        | 8594      | 17.1         | 50        | 82      |
| 40        | 8670      | 17.0         | 26        | 28      | 40        | 8423      | 17.1         | 52        | 86      |
| 50        | 8499      | 17.1         | 28        | 33      | 50        | 8251      | 17.2         | 54        | 90      |
| 39 05 00  | 8329      | 17.0         | 30        | 37      | 39 15 00  | 8080      | 17.1         | 56        | 94      |
| 10        | 8159      | 17.0         | 32        | 41      | 10        | 7909      | 17.1         | 58        | 2.28998 |
| 20        | 7988      | 17.1         | 34        | 45      | 20        | 7737      | 17.2         | 60        | 2.29003 |
| 30        | 7818      | 17.0         | 37        | 50      | 30        | 7566      | 17.1         | 63        | 07      |
| 40        | 7648      | 17.0         | 39        | 54      | 40        | 7395      | 17.1         | 65        | 11      |
| 50        | 7477      | 17.1         | 41        | 58      | 50        | 7223      | 17.2         | 67        | 16      |
| 39 06 00  | 7307      | 17.0         | 43        | 62      | 39 16 00  | 7052      | 17.1         | 69        | 20      |
| 10        | 7137      | 17.0         | 45        | 66      | 10        | 6881      | 17.1         | 71        | 24      |
| 20        | 6967      | 17.0         | 47        | 71      | 20        | 6709      | 17.2         | 73        | 28      |
| 30        | 6797      | 17.0         | 49        | 75      | 30        | 6538      | 17.1         | 75        | 33      |
| 40        | 6625      | 17.2         | 51        | 79      | 40        | 6366      | 17.2         | 77        | 37      |
| 50        | 6455      | 17.0         | 53        | 84      | 50        | 6195      | 17.1         | 79        | 41      |
| 39 07 00  | 6285      | 17.0         | 55        | 88      | 39 17 00  | 6024      | 17.1         | 81        | 45      |
| 10        | 6115      | 17.0         | 57        | 92      | 10        | 5852      | 17.2         | 83        | 49      |
| 20        | 5943      | 17.2         | 59        | 2.28797 | 20        | 5880      | 17.2         | 85        | 54      |
| 30        | 5773      | 17.0         | 62        | 2.28801 | 30        | 5509      | 17.1         | 88        | 58      |
| 40        | 5603      | 17.0         | 64        | 05      | 40        | 5338      | 17.1         | 90        | 62      |
| 50        | 5432      | 17.1         | 66        | 10      | 50        | 5165      | 17.3         | 92        | 67      |
| 39 08 00  | 5261      | 17.1         | 68        | 14      | 39 18 00  | 4994      | 17.1         | 94        | 72      |
| 10        | 5091      | 17.0         | 70        | 18      | 10        | 4823      | 17.1         | 96        | 76      |
| 20        | 4920      | 17.1         | 72        | 22      | 20        | 4650      | 17.3         | 2.0050798 | 81      |
| 30        | 4749      | 17.1         | 74        | 27      | 30        | 4479      | 17.1         | 2.0050800 | 85      |
| 40        | 4579      | 17.0         | 76        | 31      | 40        | 4307      | 17.2         | 02        | 89      |
| 50        | 4408      | 17.1         | 78        | 35      | 50        | 4135      | 17.2         | 04        | 94      |
| 39 09 00  | 4237      | 17.1         | 80        | 39      | 39 19 00  | 3964      | 17.1         | 06        | 2.29098 |
| 10        | 4067      | 17.0         | 82        | 43      | 10        | 3792      | 17.2         | 08        | 2.29102 |
| 20        | 3895      | 17.2         | 84        | 48      | 20        | 3620      | 17.2         | 10        | 06      |
| 30        | 3725      | 17.0         | 87        | 52      | 30        | 3448      | 17.2         | 13        | 11      |
| 40        | 3554      | 17.1         | 89        | 56      | 40        | 3277      | 17.1         | 15        | 15      |
| 50        | 3383      | 17.1         | 91        | 61      | 50        | 3104      | 17.3         | 17        | 19      |
| 39 10 00  | 3212      | 17.1         | 93        | 66      | 39 20 00  | 2933      | 17.1         | 19        | 23      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.    | Latitude  | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|-----------|-----------|-----------|-------------|-----------|---------|
| °   '   " |           |             |           |           | °   '   " |           |             |           |         |
| 39 20 00  | 1.8952933 | 17.1        | 2.0050819 | 2.29123   | 39 30 00  | 1.8942592 | 17.3        | 2.0050945 | 2.29380 |
| 10        | 2761      | 17.2        | 21        | 27        | 10        | 2419      | 17.3        | 47        | 84      |
| 20        | 2589      | 17.2        | 24        | 32        | 20        | 2245      | 17.4        | 49        | 88      |
| 30        | 2417      | 17.2        | 26        | 36        | 30        | 2073      | 17.2        | 52        | 93      |
| 40        | 2245      | 17.2        | 28        | 40        | 40        | 1900      | 17.3        | 54        | 2.29397 |
| 50        | 2073      | 17.2        | 30        | 45        | 50        | 1727      | 17.3        | 56        | 2.29401 |
| 39 21 00  | 1901      | 17.2        | 32        | 49        | 39 31 00  | 1554      | 17.3        | 58        | 05      |
| 10        | 1729      | 17.2        | 34        | 53        | 10        | 1381      | 17.3        | 60        | 09      |
| 20        | 1558      | 17.1        | 36        | 57        | 20        | 1208      | 17.3        | 62        | 14      |
| 30        | 1386      | 17.2        | 38        | 62        | 30        | 1036      | 17.2        | 64        | 18      |
| 40        | 1213      | 17.3        | 40        | 66        | 40        | 0862      | 17.4        | 66        | 22      |
| 50        | 1042      | 17.1        | 42        | 70        | 50        | 0689      | 17.3        | 68        | 27      |
| 39 22 00  | 0870      | 17.2        | 44        | 74        | 39 32 00  | 0517      | 17.2        | 70        | 31      |
| 10        | 0698      | 17.2        | 46        | 78        | 10        | 0345      | 17.2        | 72        | 35      |
| 20        | 0525      | 17.3        | 48        | 83        | 20        | 1.8940170 | 17.5        | 74        | 40      |
| 30        | 0354      | 17.1        | 51        | 87        | 30        | 1.8939907 | 17.3        | 77        | 44      |
| 40        | 0182      | 17.2        | 53        | 91        | 40        | 9824      | 17.3        | 79        | 48      |
| 50        | 1.8950009 | 17.3        | 55        | 2.29196   | 50        | 9650      | 17.4        | 81        | 53      |
| 39 23 00  | 1.8949837 | 17.2        | 57        | 2.29200   | 39 33 00  | 9478      | 17.2        | 83        | 57      |
| 10        | 9665      | 17.2        | 59        | 04        | 10        | 9305      | 17.3        | 85        | 61      |
| 20        | 9492      | 17.3        | 61        | 08        | 20        | 9131      | 17.4        | 87        | 65      |
| 30        | 9321      | 17.1        | 63        | 13        | 30        | 8958      | 17.3        | 90        | 70      |
| 40        | 9149      | 17.2        | 65        | 17        | 40        | 8785      | 17.3        | 92        | 74      |
| 50        | 8976      | 17.3        | 67        | 21        | 50        | 8611      | 17.4        | 94        | 79      |
| 39 24 00  | 8804      | 17.2        | 69        | 25        | 39 34 00  | 8438      | 17.3        | 96        | 83      |
| 10        | 8632      | 17.2        | 71        | 29        | 10        | 8265      | 17.3        | 2.0050998 | 87      |
| 20        | 8459      | 17.3        | 73        | 34        | 20        | 8091      | 17.4        | 2.0051000 | 92      |
| 30        | 8287      | 17.2        | 76        | 38        | 30        | 7918      | 17.3        | 02        | 2.29496 |
| 40        | 8115      | 17.2        | 78        | 42        | 40        | 7745      | 17.3        | 04        | 2.29500 |
| 50        | 7942      | 17.3        | 80        | 47        | 50        | 7571      | 17.4        | 06        | 05      |
| 39 25 00  | 7770      | 17.2        | 82        | 51        | 39 35 00  | 7398      | 17.3        | 08        | 09      |
| 10        | 7598      | 17.2        | 84        | 55        | 10        | 7225      | 17.3        | 10        | 13      |
| 20        | 7425      | 17.3        | 86        | 60        | 20        | 7051      | 17.4        | 12        | 17      |
| 30        | 7253      | 17.2        | 89        | 64        | 30        | 6878      | 17.3        | 15        | 22      |
| 40        | 7080      | 17.3        | 91        | 68        | 40        | 6704      | 17.4        | 17        | 26      |
| 50        | 6907      | 17.3        | 93        | 74        | 50        | 6530      | 17.4        | 19        | 30      |
| 39 26 00  | 6735      | 17.2        | 95        | 78        | 39 36 00  | 6357      | 17.3        | 21        | 34      |
| 10        | 6563      | 17.2        | 97        | 82        | 10        | 6184      | 17.3        | 23        | 38      |
| 20        | 6391      | 17.2        | 86        | 2.0050899 | 20        | 6011      | 17.3        | 25        | 43      |
| 30        | 6219      | 17.2        | 91        | 2.0050901 | 30        | 5837      | 17.4        | 28        | 47      |
| 40        | 6045      | 17.4        | 03        | 95        | 40        | 5663      | 17.4        | 30        | 51      |
| 50        | 5873      | 17.2        | 05        | 2.29299   | 50        | 5490      | 17.3        | 32        | 56      |
| 39 27 00  | 5701      | 17.2        | 07        | 2.29303   | 39 37 00  | 5317      | 17.3        | 34        | 60      |
| 10        | 5529      | 17.2        | 09        | 07        | 10        | 5143      | 17.4        | 36        | 64      |
| 20        | 5355      | 17.4        | 11        | 12        | 20        | 4969      | 17.4        | 38        | 68      |
| 30        | 5183      | 17.2        | 14        | 16        | 30        | 4796      | 17.3        | 40        | 73      |
| 40        | 5011      | 17.2        | 16        | 20        | 40        | 4622      | 17.4        | 42        | 77      |
| 50        | 4837      | 17.4        | 18        | 25        | 50        | 4448      | 17.4        | 44        | 81      |
| 38 28 00  | 4665      | 17.2        | 20        | 29        | 39 38 00  | 4275      | 17.3        | 46        | 85      |
| 10        | 4493      | 17.2        | 22        | 33        | 10        | 4101      | 17.4        | 48        | 89      |
| 20        | 4319      | 17.4        | 24        | 37        | 20        | 3927      | 17.4        | 50        | 94      |
| 30        | 4147      | 17.2        | 27        | 42        | 30        | 3753      | 17.4        | 53        | 2.29598 |
| 40        | 3975      | 17.2        | 29        | 46        | 40        | 3580      | 17.3        | 55        | 2.29602 |
| 50        | 3801      | 17.4        | 31        | 50        | 50        | 3405      | 17.5        | 57        | 07      |
| 39 29 00  | 3629      | 17.2        | 33        | 54        | 39 39 00  | 3232      | 17.3        | 59        | 11      |
| 10        | 3456      | 17.3        | 35        | 58        | 10        | 3058      | 17.4        | 61        | 15      |
| 20        | 3283      | 17.3        | 37        | 63        | 20        | 2884      | 17.4        | 63        | 20      |
| 30        | 3110      | 17.3        | 39        | 67        | 30        | 2710      | 17.4        | 65        | 24      |
| 40        | 2938      | 17.2        | 41        | 71        | 40        | 2537      | 17.3        | 67        | 28      |
| 50        | 2765      | 17.3        | 43        | 76        | 50        | 2362      | 17.5        | 69        | 33      |
| 39 30 00  | 2502      | 17.3        | 45        | 80        | 39 40 00  | 2189      | 17.3        | 71        | 37      |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| ° ' "     |           |             |           |         | ° ' "     |           |             |           |         |
| 39 40 00  | 1.8932189 | 17.3        | 2.0051071 | 2.29637 | 39 50 00  | 1.8921724 | 17.4        | 2.0051198 | 2.29894 |
| 10        | 2015      | 17.4        | 73        | 45      | 10        | 1549      | 17.5        | 2.0051200 | 2.29898 |
| 20        | 1841      | 17.4        | 75        | 45      | 20        | 1375      | 17.4        | 02        | 2.29902 |
| 30        | 1668      | 17.3        | 78        | 50      | 30        | 1200      | 17.5        | 05        | 07      |
| 40        | 1493      | 17.5        | 80        | 54      | 40        | 1024      | 17.6        | 07        | 11      |
| 50        | 1320      | 17.3        | 82        | 58      | 50        | 0849      | 17.5        | 09        | 15      |
| 39 41 00  | 1146      | 17.4        | 84        | 62      | 39 51 00  | 0675      | 17.4        | 11        | 19      |
| 10        | 0972      | 17.4        | 86        | 66      | 10        | 0500      | 17.5        | 13        | 23      |
| 20        | 0797      | 17.5        | 88        | 71      | 20        | 0324      | 17.6        | 15        | 28      |
| 30        | 0624      | 17.3        | 91        | 75      | 30        | 1.8920149 | 17.5        | 17        | 32      |
| 40        | 0450      | 17.4        | 93        | 80      | 40        | 1.8919975 | 17.4        | 19        | 36      |
| 50        | 0275      | 17.5        | 95        | 85      | 50        | 9799      | 17.6        | 21        | 41      |
| 39 42 00  | 1.8930101 | 17.4        | 97        | 89      | 39 52 00  | 9624      | 17.5        | 23        | 45      |
| 10        | 1.8929927 | 17.4        | 93        | 10      |           | 9449      | 17.5        | 25        | 49      |
| 20        | 9753      | 17.4        | 2.0051101 | 2.29697 | 20        | 9273      | 17.6        | 27        | 53      |
| 30        | 9579      | 17.4        | 03        | 2.29702 | 30        | 9098      | 17.5        | 30        | 58      |
| 40        | 9405      | 17.4        | 05        | 06      | 40        | 8924      | 17.4        | 32        | 62      |
| 50        | 9230      | 17.5        | 07        | 10      | 50        | 8748      | 17.6        | 34        | 66      |
| 39 43 00  | 9056      | 17.4        | 09        | 14      | 39 53 00  | 8573      | 17.5        | 36        | 70      |
| 10        | 8882      | 17.4        | 11        | 18      | 10        | 8398      | 17.5        | 38        | 74      |
| 20        | 8707      | 17.5        | 13        | 23      | 20        | 8222      | 17.6        | 40        | 79      |
| 30        | 8533      | 17.4        | 16        | 27      | 30        | 8047      | 17.5        | 43        | 83      |
| 40        | 8359      | 17.4        | 18        | 31      | 40        | 7872      | 17.5        | 45        | 87      |
| 50        | 8184      | 17.5        | 20        | 36      | 50        | 7696      | 17.6        | 47        | 92      |
| 39 44 00  | 8010      | 17.4        | 22        | 40      | 39 54 00  | 7521      | 17.5        | 49        | 2.29996 |
| 10        | 7836      | 17.4        | 24        | 44      | 10        | 7346      | 17.5        | 51        | 2.30000 |
| 20        | 7661      | 17.5        | 26        | 48      | 20        | 7170      | 17.6        | 53        | 04      |
| 30        | 7487      | 17.4        | 29        | 53      | 30        | 6994      | 17.6        | 55        | 09      |
| 40        | 7313      | 17.4        | 31        | 57      | 40        | 6819      | 17.5        | 57        | 13      |
| 50        | 7138      | 17.5        | 33        | 61      | 50        | 6643      | 17.6        | 59        | 17      |
| 39 45 00  | 6964      | 17.4        | 35        | 65      | 39 55 00  | 6468      | 17.5        | 61        | 21      |
| 10        | 6790      | 17.4        | 37        | 69      | 10        | 6293      | 17.5        | 63        | 25      |
| 20        | 6616      | 17.4        | 39        | 74      | 20        | 6118      | 17.5        | 65        | 30      |
| 30        | 6442      | 17.4        | 41        | 78      | 30        | 5943      | 17.5        | 68        | 34      |
| 40        | 6266      | 17.6        | 43        | 82      | 40        | 5766      | 17.7        | 70        | 38      |
| 50        | 6092      | 17.4        | 45        | 87      | 50        | 5591      | 17.5        | 72        | 43      |
| 39 46 00  | 5918      | 17.4        | 47        | 91      | 39 56 00  | 5416      | 17.5        | 74        | 47      |
| 10        | 5744      | 17.4        | 49        | 95      | 10        | 5241      | 17.5        | 76        | 51      |
| 20        | 5569      | 17.5        | 51        | 2.29799 | 20        | 5064      | 17.7        | 78        | 55      |
| 30        | 5394      | 17.5        | 54        | 2.29804 | 30        | 4889      | 17.5        | 81        | 60      |
| 40        | 5220      | 17.4        | 56        | 08      | 40        | 4714      | 17.5        | 83        | 64      |
| 50        | 5045      | 17.5        | 58        | 12      | 50        | 4537      | 17.7        | 85        | 68      |
| 39 47 00  | 4870      | 17.5        | 60        | 16      | 39 57 00  | 4362      | 17.5        | 87        | 72      |
| 10        | 4696      | 17.4        | 62        | 20      | 10        | 4187      | 17.5        | 89        | 76      |
| 20        | 4521      | 17.5        | 64        | 25      | 20        | 4010      | 17.7        | 91        | 81      |
| 30        | 4346      | 17.5        | 67        | 29      | 30        | 3835      | 17.5        | 93        | 86      |
| 40        | 4162      | 17.4        | 69        | 33      | 40        | 3659      | 17.6        | 95        | 90      |
| 50        | 3997      | 17.5        | 71        | 38      | 50        | 3483      | 17.5        | 97        | 95      |
| 39 48 00  | 3822      | 17.5        | 73        | 42      | 39 58 00  | 3308      | 17.5        | 2.0051299 | 2.30009 |
| 10        | 3648      | 17.4        | 75        | 46      | 10        | 3132      | 17.6        | 2.0051301 | 2.30103 |
| 20        | 3472      | 17.6        | 77        | 50      | 20        | 2956      | 17.6        | 03        | 07      |
| 30        | 3298      | 17.4        | 79        | 55      | 30        | 2780      | 17.6        | 06        | 12      |
| 40        | 3123      | 17.5        | 81        | 59      | 40        | 2605      | 17.5        | 08        | 16      |
| 50        | 2948      | 17.5        | 83        | 63      | 50        | 2428      | 17.7        | 10        | 20      |
| 39 49 00  | 2773      | 17.5        | 85        | 67      | 39 59 00  | 2252      | 17.6        | 12        | 24      |
| 10        | 2599      | 17.4        | 87        | 71      | 10        | 2077      | 17.5        | 14        | 28      |
| 20        | 2423      | 17.6        | 89        | 76      | 20        | 1901      | 17.6        | 16        | 33      |
| 30        | 2249      | 17.4        | 92        | 80      | 30        | 1726      | 17.5        | 19        | 37      |
| 40        | 2074      | 17.5        | 94        | 85      | 40        | 1549      | 17.7        | 21        | 41      |
| 50        | 1898      | 17.6        | 96        | 90      | 50        | 1373      | 17.6        | 23        | 46      |
| 39 50 00  | 1724      | 17.4        | 98        | 94      | 40 00 00  | 1198      | 17.5        | 25        | 50      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|---------|
| ° ' "     |           |             |           |         | ° ' "     |           |             |           |         |
| 40 00 00  | 1.8911198 | 17.5        | 2.0051325 | 2.30150 | 40 10 00  | 1.8900608 | 17.7        | 2.0051451 | 2.30406 |
| 10        | 1022      | 17.6        | 27        | 54      | 10        | 0431      | 17.7        | 53        | 10      |
| 20        | 0845      | 17.7        | 29        | 58      | 20        | 0253      | 17.8        | 55        | 14      |
| 30        | 0670      | 17.5        | 31        | 63      | 30        | 1.890077  | 17.6        | 58        | 19      |
| 40        | 0494      | 17.6        | 33        | 67      | 40        | 1.889990  | 17.7        | 60        | 23      |
| 50        | 0317      | 17.7        | 35        | 71      | 50        | 9722      | 17.8        | 62        | 27      |
| 40 01 00  | 1.8910141 | 17.6        | 37        | 75      | 40 11 00  | 9545      | 17.7        | 64        | 31      |
| 10        | 1.8909966 | 17.5        | 39        | 79      | 10        | 9368      | 17.7        | 66        | 35      |
| 20        | 9789      | 17.7        | 41        | 84      | 20        | 9191      | 17.7        | 68        | 40      |
| 30        | 9613      | 17.6        | 44        | 88      | 30        | 9014      | 17.7        | 71        | 44      |
| 40        | 9437      | 17.6        | 46        | 92      | 40        | 8837      | 17.7        | 73        | 48      |
| 50        | 9260      | 17.7        | 48        | 2.30197 | 50        | 8659      | 17.8        | 75        | 53      |
| 40 02 00  | 9054      | 17.6        | 50        | 2.30201 | 40 12 00  | 8482      | 17.7        | 77        | 57      |
| 10        | 8908      | 17.6        | 52        | 05      | 10        | 8305      | 17.7        | 79        | 61      |
| 20        | 8732      | 17.6        | 54        | 09      | 20        | 8128      | 17.7        | 81        | 65      |
| 30        | 8556      | 17.6        | 57        | 14      | 30        | 7951      | 17.7        | 83        | 70      |
| 40        | 8380      | 17.6        | 59        | 18      | 40        | 7773      | 17.8        | 85        | 74      |
| 50        | 8203      | 17.7        | 61        | 22      | 50        | 7596      | 17.7        | 87        | 78      |
| 40 03 00  | 8027      | 17.6        | 63        | 26      | 40 13 00  | 7419      | 17.7        | 89        | 82      |
| 10        | 7851      | 17.6        | 65        | 30      | 10        | 7242      | 17.7        | 91        | 86      |
| 20        | 7675      | 17.6        | 67        | 35      | 20        | 7064      | 17.8        | 93        | 91      |
| 30        | 7499      | 17.6        | 69        | 39      | 30        | 6887      | 17.7        | 96        | 2.30496 |
| 40        | 7322      | 17.7        | 71        | 43      | 40        | 6710      | 17.7        | 2.0051498 | 2.30500 |
| 50        | 7146      | 17.6        | 73        | 48      | 50        | 6532      | 17.8        | 2.0051500 | 04      |
| 40 04 00  | 6969      | 17.7        | 75        | 52      | 40 14 00  | 6355      | 17.7        | 02        | 08      |
| 10        | 6793      | 17.6        | 77        | 56      | 10        | 6177      | 17.8        | 04        | 12      |
| 20        | 6616      | 17.7        | 79        | 60      | 20        | 5999      | 17.8        | 06        | 17      |
| 30        | 6440      | 17.6        | 82        | 65      | 30        | 5822      | 17.7        | 09        | 21      |
| 40        | 6264      | 17.6        | 84        | 69      | 40        | 5645      | 17.7        | 11        | 25      |
| 50        | 6087      | 17.7        | 86        | 73      | 50        | 5467      | 17.8        | 13        | 29      |
| 40 05 00  | 5911      | 17.6        | 88        | 77      | 40 15 00  | 5289      | 17.8        | 15        | 34      |
| 10        | 5734      | 17.7        | 90        | 81      | 10        | 5112      | 17.7        | 17        | 38      |
| 20        | 5557      | 17.7        | 92        | 86      | 20        | 4934      | 17.8        | 19        | 42      |
| 30        | 5381      | 17.6        | 95        | 91      | 30        | 4757      | 17.7        | 21        | 47      |
| 40        | 5205      | 17.6        | 97        | 2.30295 | 40        | 4579      | 17.8        | 23        | 51      |
| 50        | 5027      | 17.8        | 2.0051399 | 2.30300 | 50        | 4401      | 17.8        | 25        | 55      |
| 40 06 00  | 4851      | 17.6        | 2.0051401 | 04      | 40 16 00  | 4224      | 17.7        | 27        | 59      |
| 10        | 4675      | 17.5        | 03        | 08      | 10        | 4046      | 17.8        | 29        | 63      |
| 20        | 4497      | 17.8        | 05        | 12      | 20        | 3869      | 17.7        | 31        | 68      |
| 30        | 4321      | 17.6        | 07        | 17      | 30        | 3691      | 17.8        | 34        | 72      |
| 40        | 4145      | 17.6        | 09        | 21      | 40        | 3513      | 17.8        | 36        | 76      |
| 50        | 3967      | 17.8        | 11        | 25      | 50        | 3336      | 17.7        | 38        | 81      |
| 40 07 00  | 3791      | 17.6        | 13        | 29      | 40 17 00  | 3158      | 17.8        | 40        | 85      |
| 10        | 3615      | 17.6        | 15        | 33      | 10        | 2981      | 17.7        | 42        | 89      |
| 20        | 3438      | 17.7        | 17        | 38      | 20        | 2802      | 17.9        | 44        | 93      |
| 30        | 3262      | 17.6        | 20        | 42      | 30        | 2625      | 17.7        | 47        | 2.30598 |
| 40        | 3084      | 17.8        | 22        | 46      | 40        | 2447      | 17.8        | 49        | 2.30602 |
| 50        | 2908      | 17.6        | 24        | 51      | 50        | 2269      | 17.8        | 51        | 06      |
| 40 08 00  | 2731      | 17.7        | 26        | 55      | 40 18 00  | 2091      | 17.8        | 53        | 10      |
| 10        | 2555      | 17.6        | 28        | 59      | 10        | 1914      | 17.7        | 55        | 14      |
| 20        | 2377      | 17.8        | 30        | 63      | 20        | 1735      | 17.9        | 57        | 19      |
| 30        | 2201      | 17.6        | 33        | 68      | 30        | 1557      | 17.8        | 59        | 23      |
| 40        | 2024      | 17.7        | 35        | 72      | 40        | 1380      | 17.7        | 61        | 27      |
| 50        | 1846      | 17.8        | 37        | 76      | 50        | 1201      | 17.9        | 63        | 32      |
| 40 09 00  | 1670      | 17.6        | 39        | 80      | 40 19 00  | 1023      | 17.8        | 65        | 36      |
| 10        | 1493      | 17.7        | 41        | 84      | 10        | 0846      | 17.7        | 67        | 40      |
| 20        | 1316      | 17.7        | 43        | 89      | 20        | 0667      | 17.9        | 69        | 44      |
| 30        | 1139      | 17.7        | 45        | 93      | 30        | 0489      | 17.8        | 72        | 49      |
| 40        | 0962      | 17.7        | 47        | 2.30397 | 40        | 0312      | 17.7        | 74        | 53      |
| 50        | 0785      | 17.7        | 49        | 2.30402 | 50        | 1.8890133 | 17.9        | 76        | 57      |
| 40 10 00  | 0608      | 17.7        | 51        | 06      | 40 20 00  | 1.8889955 | 17.8        | 78        | 61      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Diff.<br>1°. | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Diff.<br>1°. | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|--------------|----------------|----------------|-----------|----------------|--------------|----------------|----------------|
| ° ° °     |                |              |                |                | ° ° °     |                |              |                |                |
| 40 20 00  | 1.8889955      | 17.8         | 2.0051578      | 2.30661        | 40 30 00  | 1.8879240      | 17.9         | 2.0051705      | 2.30917        |
| 10        | 9777           | 17.8         | 80             | 65             | 10        | 9001           | 17.9         | 07             | 21             |
| 20        | 9599           | 17.8         | 82             | 70             | 20        | 8881           | 18.0         | 09             | 26             |
| 30        | 9421           | 17.8         | 85             | 74             | 30        | 8703           | 17.8         | 12             | 30             |
| 40        | 9243           | 17.8         | 87             | 78             | 40        | 8524           | 17.9         | 14             | 34             |
| 50        | 9064           | 17.9         | 89             | 83             | 50        | 8344           | 18.0         | 16             | 39             |
| 40 21 00  | 8886           | 17.8         | 91             | 87             | 40 31 00  | 8165           | 17.9         | 18             | 43             |
| 10        | 8708           | 17.8         | 93             | 92             | 10        | 7986           | 17.9         | 20             | 47             |
| 20        | 8530           | 17.8         | 95             | 2.30666        | 20        | 7806           | 18.0         | 22             | 51             |
| 30        | 8352           | 17.8         | 2.0051508      | 2.30701        | 30        | 7627           | 17.9         | 25             | 56             |
| 40        | 8174           | 17.8         | 2.0051600      | 05             | 40        | 7448           | 17.9         | 27             | 60             |
| 50        | 7996           | 17.8         | 02             | 09             | 50        | 7268           | 18.0         | 29             | 64             |
| 40 22 00  | 7818           | 17.8         | 04             | 13             | 40 32 00  | 7089           | 17.9         | 31             | 68             |
| 10        | 7640           | 17.8         | 06             | 17             | 10        | 6910           | 17.9         | 33             | 72             |
| 20        | 7461           | 17.9         | 08             | 21             | 20        | 6730           | 18.0         | 35             | 77             |
| 30        | 7283           | 17.8         | 10             | 26             | 30        | 6551           | 17.9         | 37             | 81             |
| 40        | 7105           | 17.8         | 12             | 30             | 40        | 6372           | 17.9         | 39             | 85             |
| 50        | 6925           | 18.0         | 14             | 34             | 50        | 6192           | 18.0         | 41             | 90             |
| 40 23 00  | 6747           | 17.8         | 16             | 38             | 40 33 00  | 6012           | 18.0         | 43             | 94             |
| 10        | 6569           | 17.8         | 18             | 42             | 10        | 5833           | 17.9         | 45             | 2.30909        |
| 20        | 6390           | 17.9         | 20             | 47             | 20        | 5653           | 18.0         | 47             | 2.31002        |
| 30        | 6212           | 17.8         | 23             | 51             | 30        | 5474           | 17.9         | 50             | 07             |
| 40        | 6034           | 17.8         | 25             | 55             | 40        | 5295           | 17.9         | 52             | 11             |
| 50        | 5855           | 17.9         | 27             | 60             | 50        | 5114           | 18.1         | 54             | 15             |
| 40 24 00  | 5677           | 17.8         | 29             | 64             | 40 34 00  | 4935           | 17.9         | 56             | 19             |
| 10        | 5498           | 17.9         | 31             | 68             | 10        | 4756           | 17.9         | 58             | 23             |
| 20        | 5319           | 17.9         | 33             | 72             | 20        | 4577           | 17.9         | 60             | 27             |
| 30        | 5141           | 17.8         | 36             | 77             | 30        | 4397           | 18.0         | 63             | 32             |
| 40        | 4963           | 17.8         | 38             | 81             | 40        | 4217           | 18.0         | 65             | 36             |
| 50        | 4783           | 18.0         | 40             | 85             | 50        | 4038           | 17.9         | 67             | 40             |
| 40 25 00  | 4605           | 17.8         | 42             | 89             | 40 35 00  | 3858           | 18.0         | 69             | 44             |
| 10        | 4427           | 17.8         | 44             | 93             | 10        | 3679           | 17.9         | 71             | 48             |
| 20        | 4248           | 17.9         | 46             | 2.30798        | 20        | 3499           | 18.0         | 73             | 53             |
| 30        | 4070           | 17.8         | 48             | 2.30802        | 30        | 3319           | 18.0         | 75             | 57             |
| 40        | 3891           | 17.9         | 50             | 06             | 40        | 3140           | 17.9         | 77             | 61             |
| 50        | 3712           | 17.9         | 52             | 11             | 50        | 2959           | 18.1         | 79             | 66             |
| 40 26 00  | 3534           | 17.8         | 54             | 15             | 40 36 00  | 2780           | 17.9         | 81             | 70             |
| 10        | 3356           | 17.8         | 56             | 19             | 10        | 2600           | 18.0         | 83             | 74             |
| 20        | 3176           | 18.0         | 58             | 23             | 20        | 2420           | 18.0         | 85             | 78             |
| 30        | 2998           | 17.8         | 61             | 28             | 30        | 2240           | 18.0         | 88             | 83             |
| 40        | 2819           | 17.9         | 63             | 32             | 40        | 2061           | 17.9         | 90             | 87             |
| 50        | 2641           | 17.8         | 65             | 36             | 50        | 1880           | 18.1         | 92             | 91             |
| 40 27 00  | 2461           | 18.0         | 67             | 40             | 40 37 00  | 1701           | 17.9         | 94             | 2.31096        |
| 10        | 2283           | 17.8         | 69             | 44             | 10        | 1521           | 18.0         | 96             | 2.31100        |
| 20        | 2105           | 17.8         | 71             | 49             | 20        | 1341           | 18.0         | 2.0051798      | 05             |
| 30        | 1925           | 18.0         | 74             | 53             | 30        | 1161           | 18.0         | 2.0051801      | 09             |
| 40        | 1746           | 17.9         | 76             | 57             | 40        | 0981           | 18.0         | 03             | 13             |
| 50        | 1566           | 18.0         | 78             | 62             | 50        | 0801           | 18.0         | 05             | 18             |
| 40 28 00  | 1388           | 17.8         | 80             | 66             | 40 38 00  | 0621           | 18.0         | 07             | 22             |
| 10        | 1209           | 17.9         | 82             | 70             | 10        | 0441           | 18.0         | 09             | 26             |
| 20        | 1030           | 17.9         | 84             | 74             | 20        | 0262           | 17.9         | 11             | 30             |
| 30        | 0851           | 17.9         | 86             | 79             | 30        | 1.8870082      | 18.0         | 13             | 35             |
| 40        | 0672           | 17.9         | 88             | 83             | 40        | 1.8869901      | 18.1         | 15             | 39             |
| 50        | 0493           | 17.9         | 90             | 87             | 50        | 9721           | 18.0         | 17             | 43             |
| 40 29 00  | 0314           | 17.9         | 92             | 91             | 40 39 00  | 9542           | 17.9         | 19             | 47             |
| 10        | 1.8880135      | 17.9         | 94             | 2.30896        | 10        | 0362           | 18.0         | 21             | 51             |
| 20        | 1.8879956      | 17.9         | 96             | 2.30900        | 20        | 9181           | 18.1         | 23             | 55             |
| 30        | 0778           | 17.8         | 2.0051699      | 05             | 30        | 9001           | 18.0         | 26             | 60             |
| 40        | 0598           | 18.0         | 2.0051701      | 09             | 40        | 8820           | 18.1         | 28             | 64             |
| 50        | 9410           | 17.9         | 03             | 13             | 50        | 8641           | 17.9         | 30             | 68             |
| 40 30 00  | 9240           | 17.9         | 05             | 17             | 40 40 00  | 8461           | 18.0         | 32             | 72             |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.    |         |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|-----------|---------|
| ° ′ ″     |           |              |           |         | ° ′ ″     |           |              |           |           |         |
| 40 40 00  | 1.8868461 | 18.0         | 2.0051832 | 2.31172 | 40 50 00  | 1.8857617 | 18.1         | 2.0051959 | 2.31427   |         |
| 10        | 8281      | 18.0         |           | 34      | 76        | 7436      | 18.1         | 61        | 31        |         |
| 20        | 8100      | 18.1         |           | 36      | 81        | 7265      | 18.1         | 63        | 35        |         |
| 30        | 7920      | 18.0         |           | 39      | 85        | 7074      | 18.1         | 66        | 40        |         |
| 40        | 7740      | 18.0         |           | 41      | 89        | 6892      | 18.2         | 68        | 44        |         |
| 50        | 7559      | 18.1         |           | 43      | 94        | 6711      | 18.2         | 70        | 48        |         |
| 40 41 00  | 7379      | 18.0         |           | 45      | 2.31198   | 40 51 00  | 6530         | 18.1      | 72        | 52      |
| 10        | 7199      | 18.0         |           | 47      | 2.31202   | 10        | 6349         | 18.1      | 74        | 56      |
| 20        | 7018      | 18.1         |           | 49      | 06        | 20        | 6167         | 18.2      | 76        | 61      |
| 30        | 6838      | 18.0         |           | 52      | 11        | 30        | 5986         | 18.1      | 78        | 65      |
| 40        | 6658      | 18.0         |           | 54      | 15        | 40        | 5805         | 18.1      | 81        | 69      |
| 50        | 6477      | 18.1         |           | 56      | 19        | 50        | 5623         | 18.2      | 83        | 74      |
| 40 42 00  | 6297      | 18.0         |           | 58      | 23        | 40 52 00  | 5441         | 18.2      | 85        | 78      |
| 10        | 6117      | 18.0         |           | 60      | 27        | 10        | 5260         | 18.1      | 87        | 82      |
| 20        | 5936      | 18.1         |           | 62      | 31        | 20        | 5078         | 18.2      | 89        | 86      |
| 30        | 5756      | 18.0         |           | 64      | 36        | 30        | 4897         | 18.1      | 92        | 91      |
| 40        | 5575      | 18.1         |           | 66      | 40        | 40        | 4716         | 18.1      | 94        | 2.31496 |
| 50        | 5395      | 18.0         |           | 68      | 44        | 50        | 4533         | 18.3      | 96        | 2.31500 |
| 40 43 00  | 5215      | 18.0         |           | 70      | 48        | 40 53 00  | 4352         | 18.1      | 2.0051998 | 04      |
| 10        | 5035      | 18.0         |           | 72      | 52        | 10        | 4171         | 18.1      | 2.0052000 | 08      |
| 20        | 4853      | 18.2         |           | 74      | 57        | 20        | 3989         | 18.2      | 02        | 13      |
| 30        | 4673      | 18.0         |           | 77      | 61        | 30        | 3807         | 18.2      | 04        | 17      |
| 40        | 4493      | 18.0         |           | 79      | 65        | 40        | 3626         | 18.1      | 06        | 21      |
| 50        | 4311      | 18.2         |           | 81      | 70        | 50        | 3443         | 18.3      | 08        | 26      |
| 40 44 00  | 4131      | 18.0         |           | 83      | 74        | 40 54 00  | 3262         | 18.1      | 10        | 30      |
| 10        | 3951      | 18.0         |           | 85      | 78        | 10        | 3081         | 18.1      | 12        | 34      |
| 20        | 3769      | 18.2         |           | 87      | 82        | 20        | 2898         | 18.3      | 14        | 38      |
| 30        | 3589      | 18.0         |           | 90      | 87        | 30        | 2717         | 18.1      | 17        | 43      |
| 40        | 3409      | 18.0         |           | 92      | 91        | 40        | 2535         | 18.2      | 19        | 47      |
| 50        | 3227      | 18.2         |           | 94      | 2.31296   | 50        | 2353         | 18.2      | 21        | 51      |
| 40 45 00  | 3047      | 18.0         |           | 96      | 2.31300   | 40 55 00  | 2171         | 18.2      | 23        | 55      |
| 10        | 2866      | 18.1         | 2.0051898 | 04      |           | 10        | 1990         | 18.1      | 25        | 59      |
| 20        | 2685      | 18.1         | 2.0051900 | 09      |           | 20        | 1808         | 18.2      | 27        | 63      |
| 30        | 2505      | 18.0         |           | 03      | 13        | 30        | 1627         | 18.1      | 30        | 68      |
| 40        | 2324      | 18.1         |           | 05      | 17        | 40        | 1444         | 18.3      | 32        | 72      |
| 50        | 2143      | 18.1         |           | 07      | 22        | 50        | 1263         | 18.1      | 34        | 76      |
| 40 46 00  | 1962      | 18.1         |           | 09      | 26        | 40 56 00  | 1081         | 18.2      | 36        | 80      |
| 10        | 1782      | 18.0         |           | 11      | 30        | 10        | 0900         | 18.1      | 38        | 84      |
| 20        | 1601      | 18.1         |           | 13      | 34        | 20        | 0717         | 18.3      | 40        | 89      |
| 30        | 1420      | 18.1         |           | 15      | 39        | 30        | 0535         | 18.2      | 43        | 93      |
| 40        | 1239      | 18.1         |           | 17      | 43        | 40        | 0354         | 18.1      | 45        | 2.31597 |
| 50        | 1058      | 18.1         |           | 19      | 47        | 50        | 1.8850171    | 18.3      | 47        | 2.31602 |
| 40 47 00  | 0878      | 18.0         |           | 21      | 51        | 40 57 00  | 1.8849989    | 18.2      | 49        | 06      |
| 10        | 0697      | 18.1         |           | 23      | 55        | 10        | 9808         | 18.1      | 51        | 10      |
| 20        | 0515      | 18.2         |           | 25      | 59        | 20        | 9625         | 18.3      | 53        | 14      |
| 30        | 0335      | 18.0         |           | 28      | 64        | 30        | 9443         | 18.2      | 55        | 19      |
| 40        | 1.8860154 | 18.1         |           | 30      | 68        | 40        | 9261         | 18.2      | 57        | 23      |
| 50        | 1.8859972 | 18.2         |           | 32      | 72        | 50        | 9079         | 18.2      | 59        | 27      |
| 40 48 00  | 9791      | 18.1         |           | 34      | 76        | 40 58 00  | 8897         | 18.2      | 61        | 31      |
| 10        | 9611      | 18.0         |           | 36      | 80        | 10        | 8715         | 18.2      | 63        | 35      |
| 20        | 9429      | 18.2         |           | 38      | 85        | 20        | 8533         | 18.2      | 65        | 39      |
| 30        | 9248      | 18.1         |           | 41      | 89        | 30        | 8351         | 18.2      | 68        | 44      |
| 40        | 9067      | 18.1         |           | 43      | 93        | 40        | 8168         | 18.3      | 70        | 48      |
| 50        | 8885      | 18.2         |           | 45      | 2.31398   | 50        | 7986         | 18.2      | 72        | 52      |
| 40 49 00  | 8705      | 18.0         |           | 47      | 2.31402   | 40 59 00  | 7804         | 18.2      | 74        | 56      |
| 10        | 8524      | 18.1         |           | 49      | 06        | 10        | 7623         | 18.1      | 76        | 60      |
| 20        | 8342      | 18.2         |           | 51      | 10        | 20        | 7440         | 18.3      | 78        | 65      |
| 30        | 8161      | 18.1         |           | 53      | 15        | 30        | 7258         | 18.2      | 81        | 69      |
| 40        | 7980      | 18.1         |           | 55      | 19        | 40        | 7076         | 18.2      | 83        | 73      |
| 50        | 7798      | 18.2         |           | 57      | 23        | 50        | 6893         | 18.3      | 85        | 78      |
| 40 50 00  | 7617      | 18.1         |           | 59      | 27        | 41 00 00  | 6711         | 18.2      | 87        | 82      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.    |         |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|-----------|---------|
| ° ' "     |           |             |           |         | ° ' "     |           |             |           |           |         |
| 41 00 00  | 1.8846711 | 18.2        | 2.0052087 | 2.31682 | 41 10 00  | 1.8835739 | 18.3        | 2.0052214 | 2.31937   |         |
| 10        | 6529      | 18.2        |           | 89      | 10        | 5555      | 18.4        | 16        | 41        |         |
| 20        | 6346      | 18.3        |           | 91      | 20        | 5372      | 18.3        | 18        | 45        |         |
| 30        | 6163      | 18.3        |           | 94      | 30        | 5189      | 18.3        | 21        | 50        |         |
| 40        | 5981      | 18.2        |           | 96      | 40        | 5005      | 18.4        | 23        | 54        |         |
| 50        | 5798      | 18.3        | 2.0052098 | 04      | 50        | 4822      | 18.3        | 25        | 58        |         |
| 41 01 00  | 5616      | 18.2        | 2.0052100 | 08      | 41 11 00  | 4639      | 18.3        | 27        | 62        |         |
| 10        | 5434      | 18.2        |           | 02      | 10        | 4455      | 18.4        | 29        | 66        |         |
| 20        | 5251      | 18.3        |           | 04      | 20        | 4271      | 18.4        | 31        | 71        |         |
| 30        | 5069      | 18.2        |           | 06      | 30        | 4088      | 18.3        | 34        | 75        |         |
| 40        | 4886      | 18.3        |           | 08      | 40        | 3905      | 18.3        | 36        | 79        |         |
| 50        | 4603      | 18.3        |           | 10      | 50        | 3720      | 18.5        | 38        | 84        |         |
| 41 02 00  | 4521      | 18.2        |           | 12      | 33        | 41 12 00  | 3537        | 18.3      | 40        | 88      |
| 10        | 4339      | 18.2        |           | 14      | 37        | 10        | 3354        | 18.3      | 42        | 92      |
| 20        | 4155      | 18.4        |           | 16      | 42        | 20        | 3169        | 18.5      | 44        | 2.31996 |
| 30        | 3973      | 18.2        |           | 19      | 46        | 30        | 2986        | 18.3      | 46        | 2.32001 |
| 40        | 3791      | 18.2        |           | 21      | 50        | 40        | 2802        | 18.4      | 48        | 95      |
| 50        | 3608      | 18.3        |           | 23      | 55        | 50        | 2618        | 18.4      | 50        | 09      |
| 41 03 00  | 3425      | 18.3        |           | 25      | 59        | 41 13 00  | 2435        | 18.3      | 52        | 13      |
| 10        | 3243      | 18.2        |           | 27      | 63        | 10        | 2251        | 18.4      | 54        | 17      |
| 20        | 3060      | 18.3        |           | 29      | 67        | 20        | 2067        | 18.4      | 56        | 21      |
| 30        | 2878      | 18.2        |           | 32      | 72        | 30        | 1883        | 18.4      | 59        | 26      |
| 40        | 2695      | 18.3        |           | 34      | 76        | 40        | 1700        | 18.3      | 61        | 30      |
| 50        | 2512      | 18.3        |           | 36      | 80        | 50        | 1515        | 18.5      | 63        | 34      |
| 41 04 00  | 2330      | 18.2        |           | 38      | 84        | 41 14 00  | 1332        | 18.3      | 65        | 38      |
| 10        | 2147      | 18.3        |           | 40      | 88        | 10        | 1148        | 18.4      | 67        | 42      |
| 20        | 1964      | 18.3        |           | 42      | 92        | 20        | 0964        | 18.4      | 69        | 47      |
| 30        | 1781      | 18.3        |           | 45      | 2.31797   | 30        | 0780        | 18.4      | 72        | 51      |
| 40        | 1599      | 18.2        |           | 47      | 2.31801   | 40        | 0596        | 18.4      | 74        | 55      |
| 50        | 1415      | 18.4        |           | 49      | 05        | 50        | 0412        | 18.4      | 76        | 60      |
| 41 05 00  | 1223      | 18.2        |           | 51      | 09        | 41 15 00  | 0228        | 18.4      | 78        | 64      |
| 10        | 1050      | 18.3        |           | 53      | 13        | 10        | 1.8830045   | 18.3      | 80        | 68      |
| 20        | 0866      | 18.4        |           | 55      | 18        | 20        | 1.8829861   | 18.4      | 82        | 72      |
| 30        | 0684      | 18.2        |           | 57      | 22        | 30        | 9677        | 18.4      | 85        | 77      |
| 40        | 0501      | 18.3        |           | 59      | 26        | 40        | 9492        | 18.5      | 87        | 81      |
| 50        | 0318      | 18.3        |           | 61      | 31        | 50        | 9309        | 18.3      | 89        | 85      |
| 41 06 00  | 1.8840135 | 18.3        |           | 63      | 35        | 41 16 00  | 9125        | 18.4      | 91        | 89      |
| 10        | 1.8839952 | 18.3        |           | 65      | 39        | 10        | 8941        | 18.4      | 93        | 94      |
| 20        | 9770      | 18.2        |           | 67      | 43        | 20        | 8756        | 18.5      | 95        | 2.32098 |
| 30        | 9587      | 18.3        |           | 70      | 48        | 30        | 8573        | 18.3      | 97        | 2.32103 |
| 40        | 9403      | 18.4        |           | 72      | 52        | 40        | 8389        | 18.4      | 2.0052299 | 07      |
| 50        | 9220      | 18.3        |           | 74      | 56        | 50        | 8204        | 18.5      | 2.0052301 | 11      |
| 41 07 00  | 9038      | 18.2        |           | 76      | 60        | 41 17 00  | 8020        | 18.4      | 03        | 15      |
| 10        | 8855      | 18.3        |           | 78      | 64        | 10        | 7836        | 18.4      | 05        | 19      |
| 20        | 8671      | 18.4        |           | 80      | 68        | 20        | 7651        | 18.5      | 07        | 24      |
| 30        | 8488      | 18.3        |           | 83      | 73        | 30        | 7467        | 18.4      | 10        | 28      |
| 40        | 8305      | 18.3        |           | 85      | 77        | 40        | 7283        | 18.4      | 12        | 32      |
| 50        | 8121      | 18.4        |           | 87      | 81        | 50        | 7099        | 18.4      | 14        | 37      |
| 41 08 00  | 7939      | 18.2        |           | 89      | 85        | 41 18 00  | 6915        | 18.4      | 16        | 41      |
| 10        | 7756      | 18.3        |           | 91      | 89        | 10        | 6731        | 18.4      | 18        | 45      |
| 20        | 7572      | 18.4        |           | 93      | 95        | 20        | 6547        | 18.4      | 20        | 49      |
| 30        | 7389      | 18.3        |           | 96      | 2.31899   | 30        | 6363        | 18.4      | 23        | 54      |
| 40        | 7206      | 18.3        | 2.0052198 | 2.31903 | 40        | 40        | 6178        | 18.5      | 25        | 58      |
| 50        | 7022      | 18.4        | 2.0052200 | 08      | 50        | 5993      | 18.5        | 27        | 62        |         |
| 41 09 00  | 6839      | 18.3        |           | 02      | 12        | 41 19 00  | 5809        | 18.4      | 29        | 66      |
| 10        | 6656      | 18.3        |           | 04      | 16        | 10        | 5625        | 18.4      | 31        | 70      |
| 20        | 6472      | 18.4        |           | 06      | 20        | 20        | 5440        | 18.5      | 33        | 74      |
| 30        | 6289      | 18.3        |           | 08      | 25        | 30        | 5256        | 18.4      | 36        | 79      |
| 40        | 6106      | 18.3        |           | 10      | 29        | 40        | 5072        | 18.4      | 38        | 83      |
| 50        | 5922      | 18.4        |           | 12      | 33        | 50        | 4887        | 18.5      | 40        | 87      |
| 41 10 00  | 5739      | 18.3        |           | 14      | 37        | 41 20 00  | 4703        | 18.4      | 42        | 91      |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H$ . | Diff.<br>1''. | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Diff.<br>1''. | Log $K$ . | Log $L$ . |
|-----------|-----------|---------------|-----------|-----------|-----------|-----------|---------------|-----------|-----------|
| ° ′ ″     |           |               |           |           | ° ′ ″     |           |               |           |           |
| 41 20 00  | 1.8824703 | 18.4          | 2.0052342 | 2.32191   | 41 30 00  | 1.8813600 | 18.6          | 2.0052469 | 2.32445   |
| 10        | 4518      | 18.5          | 44        | 2.32195   | 10        | 3415      | 18.5          | 71        | 49        |
| 20        | 4333      | 18.5          | 46        | 2.32200   | 20        | 3230      | 18.5          | 73        | 53        |
| 30        | 4149      | 18.4          | 48        | 04        | 30        | 3045      | 18.5          | 76        | 58        |
| 40        | 3965      | 18.4          | 50        | 08        | 40        | 2858      | 18.7          | 78        | 62        |
| 50        | 3779      | 18.6          | 52        | 13        | 50        | 2673      | 18.5          | 80        | 66        |
| 41 21 00  | 3595      | 18.4          | 54        | 17        | 41 31 00  | 2487      | 18.5          | 82        | 70        |
| 10        | 3411      | 18.4          | 56        | 21        | 10        | 2302      | 18.5          | 84        | 74        |
| 20        | 3225      | 18.6          | 58        | 25        | 20        | 2115      | 18.7          | 86        | 79        |
| 30        | 3041      | 18.4          | 61        | 30        | 30        | 1930      | 18.5          | 89        | 83        |
| 40        | 2857      | 18.4          | 63        | 34        | 40        | 1745      | 18.5          | 91        | 88        |
| 50        | 2671      | 18.6          | 65        | 38        | 50        | 1558      | 18.7          | 93        | 93        |
| 41 22 00  | 2487      | 18.4          | 67        | 42        | 41 32 00  | 1373      | 18.5          | 95        | 2.32497   |
| 10        | 2303      | 18.4          | 69        | 46        | 10        | 1187      | 18.6          | 97        | 2.32501   |
| 20        | 2118      | 18.5          | 71        | 50        | 20        | 1001      | 18.6          | 2.0052499 | 05        |
| 30        | 1934      | 18.4          | 74        | 55        | 30        | 0815      | 18.6          | 2.0052502 | 10        |
| 40        | 1748      | 18.6          | 76        | 59        | 40        | 0630      | 18.5          | 04        | 14        |
| 50        | 1564      | 18.4          | 78        | 63        | 50        | 0443      | 18.7          | 06        | 18        |
| 41 23 00  | 1379      | 18.5          | 80        | 67        | 41 33 00  | 0257      | 18.6          | 08        | 22        |
| 10        | 1195      | 18.4          | 82        | 71        | 10        | 1.8810072 | 18.5          | 10        | 26        |
| 20        | 1009      | 18.6          | 84        | 75        | 20        | 1.8809885 | 18.7          | 12        | 30        |
| 30        | 0825      | 18.4          | 87        | 80        | 30        | 9700      | 18.5          | 14        | 35        |
| 40        | 0640      | 18.5          | 89        | 84        | 40        | 9514      | 18.6          | 16        | 39        |
| 50        | 0454      | 18.6          | 91        | 88        | 50        | 9327      | 18.7          | 18        | 43        |
| 41 24 00  | 0270      | 18.4          | 93        | 93        | 41 34 00  | 9141      | 18.6          | 20        | 47        |
| 10        | 1.8820085 | 18.5          | 95        | 2.32297   | 10        | 8956      | 18.5          | 22        | 51        |
| 20        | 1.8819899 | 18.6          | 2.0052397 | 2.32302   | 20        | 8770      | 18.6          | 24        | 55        |
| 30        | 9715      | 18.4          | 2.0052400 | 06        | 30        | 8584      | 18.6          | 27        | 60        |
| 40        | 9530      | 18.5          | 02        | 10        | 40        | 8397      | 18.7          | 29        | 64        |
| 50        | 9344      | 18.6          | 04        | 15        | 50        | 8212      | 18.5          | 31        | 68        |
| 41 25 00  | 9160      | 18.4          | 06        | 19        | 41 35 00  | 8020      | 18.6          | 33        | 72        |
| 10        | 8975      | 18.5          | 08        | 23        | 10        | 7840      | 18.6          | 35        | 76        |
| 20        | 8789      | 18.6          | 10        | 27        | 20        | 7653      | 18.7          | 37        | 81        |
| 30        | 8604      | 18.5          | 12        | 32        | 30        | 7467      | 18.6          | 40        | 85        |
| 40        | 8420      | 18.4          | 14        | 36        | 40        | 7281      | 18.6          | 42        | 89        |
| 50        | 8234      | 18.6          | 16        | 40        | 50        | 7094      | 18.7          | 44        | 94        |
| 41 26 00  | 8049      | 18.5          | 18        | 44        | 41 36 00  | 6909      | 18.5          | 46        | 2.32598   |
| 10        | 7864      | 18.5          | 20        | 48        | 10        | 6723      | 18.6          | 48        | 2.32602   |
| 20        | 7679      | 18.5          | 22        | 52        | 20        | 6536      | 18.7          | 50        | 06        |
| 30        | 7494      | 18.5          | 25        | 57        | 30        | 6350      | 18.6          | 53        | 11        |
| 40        | 7308      | 18.6          | 27        | 61        | 40        | 6164      | 18.6          | 55        | 15        |
| 50        | 7123      | 18.5          | 29        | 65        | 50        | 5977      | 18.7          | 57        | 19        |
| 41 27 00  | 6939      | 18.4          | 31        | 69        | 41 37 00  | 5791      | 18.6          | 59        | 23        |
| 10        | 6754      | 18.5          | 33        | 73        | 10        | 5605      | 18.6          | 61        | 27        |
| 20        | 6568      | 18.6          | 35        | 77        | 20        | 5417      | 18.8          | 63        | 31        |
| 30        | 6383      | 18.5          | 38        | 82        | 30        | 5231      | 18.6          | 66        | 36        |
| 40        | 6198      | 18.5          | 40        | 86        | 40        | 5044      | 18.7          | 68        | 40        |
| 50        | 6012      | 18.6          | 42        | 90        | 50        | 4858      | 18.6          | 70        | 44        |
| 41 28 00  | 5826      | 18.6          | 44        | 94        | 41 38 00  | 4672      | 18.6          | 72        | 48        |
| 10        | 5641      | 18.5          | 46        | 2.32398   | 10        | 4485      | 18.7          | 74        | 52        |
| 20        | 5455      | 18.6          | 48        | 2.32403   | 20        | 4300      | 18.5          | 76        | 57        |
| 30        | 5270      | 18.5          | 51        | 07        | 30        | 4113      | 18.7          | 78        | 61        |
| 40        | 5085      | 18.5          | 53        | 11        | 40        | 3926      | 18.7          | 80        | 65        |
| 50        | 4899      | 18.6          | 55        | 16        | 50        | 3740      | 18.6          | 82        | 70        |
| 41 29 00  | 4714      | 18.5          | 57        | 20        | 41 39 00  | 3554      | 18.6          | 84        | 74        |
| 10        | 4529      | 18.5          | 59        | 24        | 10        | 3367      | 18.7          | 86        | 78        |
| 20        | 4342      | 18.7          | 61        | 28        | 20        | 3180      | 18.7          | 88        | 82        |
| 30        | 4157      | 18.5          | 63        | 33        | 30        | 2994      | 18.6          | 91        | 87        |
| 40        | 3972      | 18.5          | 65        | 37        | 40        | 2807      | 18.7          | 93        | 92        |
| 50        | 3786      | 18.6          | 67        | 41        | 50        | 2620      | 18.7          | 95        | 2.32696   |
| 41 30 00  | 3600      | 18.6          | 69        | 45        | 41 40 00  | 2434      | 18.6          | 97        | 2.32700   |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| • ' "     |           |              |           |         | • ' "     |           |              |           |         |
| 41 40 00  | 1.8802434 | 18.6         | 2.0052597 | 2.32700 | 41 50 00  | 1.8791200 | 18.8         | 2.0052725 | 2.32954 |
| 10        | 2247      | 18.7         | 2.0052599 | 04      | 10        | 1013      | 18.7         | 27        | 58      |
| 20        | 2060      | 18.7         | 2.0052601 | 08      | 20        | 0825      | 18.8         | 29        | 62      |
| 30        | 1874      | 18.6         | 04        | 13      | 30        | 0638      | 18.7         | 32        | 67      |
| 40        | 1687      | 18.7         | 06        | 17      | 40        | 0449      | 18.9         | 34        | 71      |
| 50        | 1500      | 18.7         | 08        | 21      | 50        | 0262      | 18.7         | 36        | 75      |
| 41 41 00  | 1313      | 18.7         | 10        | 25      | 41 51 00  | 1.8790075 | 18.7         | 38        | 79      |
| 10        | 1127      | 18.6         | 12        | 29      | 10        | 1.8789886 | 18.9         | 40        | 83      |
| 20        | 0939      | 18.8         | 14        | 33      | 20        | 9698      | 18.8         | 42        | 87      |
| 30        | 0753      | 18.6         | 17        | 38      | 30        | 9510      | 18.8         | 45        | 92      |
| 40        | 0566      | 18.7         | 19        | 42      | 40        | 9323      | 18.7         | 47        | 2.32996 |
| 50        | 0379      | 18.7         | 21        | 46      | 50        | 9134      | 18.9         | 49        | 2.33000 |
| 41 42 00  | 0192      | 18.7         | 23        | 50      | 41 52 00  | 8946      | 18.8         | 51        | 04      |
| 10        | 1.8800005 | 18.7         | 25        | 54      | 10        | 8759      | 18.7         | 53        | 08      |
| 20        | 1.8790819 | 18.6         | 27        | 59      | 20        | 8570      | 18.9         | 55        | 12      |
| 30        | 9632      | 18.7         | 29        | 63      | 30        | 8382      | 18.8         | 57        | 17      |
| 40        | 9444      | 18.8         | 31        | 67      | 40        | 8194      | 18.8         | 59        | 21      |
| 50        | 9258      | 18.6         | 33        | 72      | 50        | 8006      | 18.8         | 61        | 25      |
| 41 43 00  | 9071      | 18.7         | 35        | 76      | 41 53 00  | 7818      | 18.8         | 63        | 29      |
| 10        | 8884      | 18.7         | 37        | 80      | 10        | 7630      | 18.8         | 65        | 33      |
| 20        | 8697      | 18.7         | 39        | 84      | 20        | 7442      | 18.8         | 67        | 37      |
| 30        | 8510      | 18.7         | 42        | 89      | 30        | 7254      | 18.8         | 70        | 42      |
| 40        | 8323      | 18.7         | 44        | 93      | 40        | 7065      | 18.9         | 72        | 46      |
| 50        | 8135      | 18.8         | 46        | 2.32797 | 50        | 6877      | 18.8         | 74        | 50      |
| 41 44 00  | 7948      | 18.7         | 48        | 2.32801 | 41 54 00  | 6690      | 18.7         | 76        | 54      |
| 10        | 7762      | 18.6         | 50        | 05      | 10        | 6502      | 18.8         | 78        | 58      |
| 20        | 7574      | 18.8         | 52        | 09      | 20        | 6313      | 18.9         | 80        | 63      |
| 30        | 7387      | 18.7         | 55        | 14      | 30        | 6125      | 18.8         | 83        | 67      |
| 40        | 7200      | 18.7         | 57        | 18      | 40        | 5937      | 18.8         | 85        | 71      |
| 50        | 7012      | 18.8         | 59        | 22      | 50        | 5748      | 18.9         | 87        | 76      |
| 41 45 00  | 6825      | 18.7         | 61        | 26      | 41 55 00  | 5560      | 18.8         | 99        | 80      |
| 10        | 6638      | 18.7         | 63        | 30      | 10        | 5372      | 18.8         | 91        | 84      |
| 20        | 6450      | 18.8         | 65        | 35      | 20        | 5183      | 18.9         | 93        | 89      |
| 30        | 6263      | 18.7         | 68        | 39      | 30        | 4995      | 18.8         | 96        | 94      |
| 40        | 6076      | 18.7         | 70        | 43      | 40        | 4806      | 18.9         | 2.0052798 | 2.33098 |
| 50        | 5888      | 18.8         | 72        | 48      | 50        | 4617      | 18.9         | 2.0052800 | 2.33102 |
| 41 46 00  | 5701      | 18.7         | 74        | 52      | 41 56 00  | 4429      | 18.8         | 02        | 06      |
| 10        | 5514      | 18.7         | 76        | 56      | 10        | 4241      | 18.8         | 04        | 10      |
| 20        | 5327      | 18.7         | 78        | 60      | 20        | 4052      | 18.9         | 06        | 14      |
| 30        | 5140      | 18.7         | 81        | 65      | 30        | 3864      | 18.8         | 09        | 18      |
| 40        | 4952      | 18.8         | 83        | 69      | 40        | 3676      | 18.8         | 11        | 23      |
| 50        | 4765      | 18.7         | 85        | 73      | 50        | 3486      | 19.0         | 13        | 27      |
| 41 47 00  | 4578      | 18.7         | 87        | 77      | 41 57 00  | 3298      | 18.8         | 15        | 31      |
| 10        | 4391      | 18.7         | 89        | 81      | 10        | 3110      | 18.8         | 17        | 35      |
| 20        | 4203      | 18.8         | 91        | 85      | 20        | 2922      | 18.8         | 19        | 39      |
| 30        | 4015      | 18.8         | 93        | 91      | 30        | 2733      | 18.9         | 21        | 44      |
| 40        | 3828      | 18.7         | 95        | 95      | 40        | 2544      | 18.9         | 23        | 48      |
| 50        | 3640      | 18.8         | 97        | 2.32899 | 50        | 2356      | 18.8         | 25        | 52      |
| 41 48 00  | 3453      | 18.7         | 2.0052699 | 2.32903 | 41 58 00  | 2167      | 18.9         | 27        | 56      |
| 10        | 3265      | 18.8         | 2.0052701 | 07      | 10        | 1979      | 18.8         | 29        | 60      |
| 20        | 3077      | 18.8         | 03        | 11      | 20        | 1789      | 19.0         | 31        | 65      |
| 30        | 2890      | 18.7         | 06        | 16      | 30        | 1601      | 18.8         | 34        | 69      |
| 40        | 2702      | 18.8         | 08        | 20      | 40        | 1413      | 18.8         | 36        | 73      |
| 50        | 2514      | 18.8         | 10        | 24      | 50        | 1223      | 19.0         | 38        | 78      |
| 41 49 00  | 2327      | 18.7         | 12        | 28      | 41 59 00  | 1035      | 18.8         | 40        | 82      |
| 10        | 2139      | 18.8         | 14        | 32      | 10        | 0846      | 18.9         | 42        | 86      |
| 20        | 1951      | 18.8         | 16        | 37      | 20        | 0657      | 18.9         | 44        | 90      |
| 30        | 1764      | 18.7         | 19        | 41      | 30        | 0468      | 18.9         | 47        | 95      |
| 40        | 1576      | 18.8         | 21        | 45      | 40        | 0280      | 18.8         | 49        | 2.33199 |
| 50        | 1388      | 18.8         | 23        | 50      | 50        | 1.8780090 | 19.0         | 51        | 2.33203 |
| 41 50 00  | 1200      | 18.8         | 25        | 54      | 42 00 00  | 1.8779902 | 18.8         | 53        | 07      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 42 00 00  | 1.8779902 | 18.8         | 2.0052853 | 2.33207 | 42 10 00  | 1.8768536 | 19.0         | 2.0052981 | 2.33460 |
| 10        | 9713      | 18.9         | 55        | 11      | 10        | 8347      | 18.9         | 83        | 64      |
| 20        | 9523      | 19.0         | 57        | 15      | 20        | 8156      | 19.1         | 85        | 68      |
| 30        | 9335      | 18.8         | 60        | 19      | 30        | 7966      | 19.0         | 87        | 72      |
| 40        | 9146      | 18.9         | 62        | 24      | 40        | 7776      | 19.0         | 90        | 77      |
| 50        | 8956      | 19.0         | 64        | 28      | 50        | 7586      | 19.0         | 92        | 82      |
| 42 01 00  | 8768      | 18.8         | 66        | 32      | 42 11 00  | 7390      | 19.0         | 94        | 86      |
| 10        | 8579      | 18.9         | 68        | 36      | 10        | 7206      | 19.0         | 96        | 90      |
| 20        | 8391      | 18.8         | 70        | 40      | 20        | 7015      | 19.1         | 2.0052998 | 95      |
| 30        | 8201      | 19.0         | 72        | 44      | 30        | 6825      | 19.0         | 2.0053000 | 2.33499 |
| 40        | 8012      | 18.9         | 74        | 49      | 40        | 6635      | 19.0         | 02        | 2.33503 |
| 50        | 7823      | 18.9         | 76        | 53      | 50        | 6446      | 18.9         | 04        | 08      |
| 42 02 00  | 7634      | 18.9         | 78        | 57      | 42 12 00  | 6255      | 19.1         | 06        | 12      |
| 10        | 7445      | 18.9         | 80        | 61      | 10        | 6065      | 19.0         | 08        | 16      |
| 20        | 7256      | 18.9         | 82        | 66      | 20        | 5875      | 19.0         | 10        | 20      |
| 30        | 7067      | 18.9         | 84        | 70      | 30        | 5684      | 19.1         | 12        | 24      |
| 40        | 6878      | 18.9         | 87        | 74      | 40        | 5494      | 19.0         | 15        | 29      |
| 50        | 6688      | 19.0         | 89        | 79      | 50        | 5304      | 19.0         | 17        | 33      |
| 42 03 00  | 6499      | 18.9         | 91        | 83      | 42 13 00  | 5114      | 19.0         | 19        | 37      |
| 10        | 6310      | 18.9         | 93        | 88      | 10        | 4924      | 19.0         | 21        | 41      |
| 20        | 6120      | 19.0         | 95        | 92      | 20        | 4733      | 19.1         | 23        | 45      |
| 30        | 5931      | 18.9         | 2.0052898 | 2.33296 | 30        | 4543      | 19.0         | 25        | 49      |
| 40        | 5742      | 18.9         | 2.0052900 | 2.33301 | 40        | 4353      | 19.0         | 28        | 54      |
| 50        | 5552      | 19.0         | 02        | 05      | 50        | 4161      | 19.2         | 30        | 58      |
| 42 04 00  | 5363      | 18.9         | 04        | 09      | 42 14 00  | 3971      | 19.0         | 32        | 62      |
| 10        | 5174      | 18.9         | 06        | 13      | 10        | 3781      | 19.0         | 34        | 66      |
| 20        | 4984      | 19.0         | 08        | 17      | 20        | 3590      | 19.1         | 36        | 70      |
| 30        | 4795      | 18.9         | 11        | 21      | 30        | 3400      | 19.0         | 38        | 74      |
| 40        | 4606      | 18.9         | 13        | 26      | 40        | 3210      | 19.0         | 41        | 79      |
| 50        | 4416      | 19.0         | 15        | 30      | 50        | 3018      | 19.2         | 43        | 83      |
| 42 05 00  | 4227      | 18.9         | 17        | 34      | 42 15 00  | 2828      | 19.0         | 45        | 87      |
| 10        | 4038      | 18.9         | 19        | 38      | 10        | 2638      | 19.0         | 47        | 91      |
| 20        | 3848      | 19.0         | 21        | 42      | 20        | 2447      | 19.1         | 49        | 2.33596 |
| 30        | 3658      | 19.0         | 23        | 46      | 30        | 2256      | 19.1         | 51        | 2.33600 |
| 40        | 3468      | 19.0         | 26        | 51      | 40        | 2066      | 19.0         | 54        | 04      |
| 50        | 3280      | 18.8         | 28        | 55      | 50        | 1875      | 19.1         | 56        | 08      |
| 42 06 00  | 3091      | 18.9         | 30        | 59      | 42 16 00  | 1684      | 19.1         | 58        | 12      |
| 10        | 2901      | 19.0         | 32        | 63      | 10        | 1494      | 19.0         | 60        | 16      |
| 20        | 2711      | 19.0         | 34        | 68      | 20        | 1304      | 19.0         | 62        | 21      |
| 30        | 2522      | 18.9         | 36        | 72      | 30        | 1112      | 19.2         | 64        | 25      |
| 40        | 2333      | 18.9         | 38        | 76      | 40        | 0922      | 19.0         | 66        | 30      |
| 50        | 2142      | 19.1         | 40        | 81      | 50        | 0731      | 19.1         | 68        | 34      |
| 42 07 00  | 1953      | 18.9         | 42        | 85      | 42 17 00  | 0541      | 19.0         | 70        | 38      |
| 10        | 1763      | 19.0         | 44        | 89      | 10        | 0350      | 19.1         | 72        | 42      |
| 20        | 1573      | 19.0         | 46        | 93      | 20        | 1.8760159 | 19.1         | 74        | 46      |
| 30        | 1384      | 18.9         | 48        | 2.33397 | 30        | 1.8759968 | 19.1         | 76        | 50      |
| 40        | 1194      | 19.0         | 50        | 2.33402 | 40        | 9778      | 19.0         | 79        | 55      |
| 50        | 1004      | 19.0         | 52        | 06      | 50        | 9586      | 19.2         | 81        | 59      |
| 42 08 00  | 0814      | 19.0         | 54        | 10      | 42 18 00  | 9396      | 19.0         | 83        | 63      |
| 10        | 0625      | 18.9         | 56        | 14      | 10        | 9205      | 19.1         | 85        | 67      |
| 20        | 0436      | 18.9         | 59        | 18      | 20        | 9013      | 19.2         | 87        | 71      |
| 30        | 0245      | 19.1         | 61        | 22      | 30        | 8822      | 19.1         | 89        | 75      |
| 40        | 1.8770055 | 19.0         | 63        | 27      | 40        | 8632      | 19.0         | 91        | 80      |
| 50        | 1.8769866 | 18.9         | 66        | 31      | 50        | 8440      | 19.2         | 93        | 85      |
| 42 09 00  | 9676      | 19.0         | 68        | 35      | 42 19 00  | 8250      | 19.0         | 95        | 89      |
| 10        | 9487      | 18.9         | 70        | 39      | 10        | 8059      | 19.1         | 2.0053097 | 93      |
| 20        | 9296      | 19.1         | 72        | 43      | 20        | 7867      | 19.2         | 2.0053100 | 2.33697 |
| 30        | 9105      | 19.1         | 74        | 47      | 30        | 7677      | 19.0         | 02        | 2.33701 |
| 40        | 8916      | 18.9         | 77        | 52      | 40        | 7486      | 19.1         | 04        | 06      |
| 50        | 8726      | 19.0         | 79        | 56      | 50        | 7294      | 19.2         | 07        | 10      |
| 42 10 00  | 8536      | 19.0         | 81        | 60      | 42 20 00  | 7102      | 19.2         | 09        | 14      |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1°. | Log K.    | Log L.   | Latitude. | Log H.    | Diff.<br>1°. | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|----------|-----------|-----------|--------------|-----------|---------|
| °   '   " |           |              |           |          | °   '   " |           |              |           |         |
| 42 20 00  | 1.8757102 | 19.2         | 2.0053109 | 2.33714  | 42 30 00  | 1.8745604 | 19.2         | 2.0053237 | 2.33967 |
| 10        | 6912      | 19.0         | 11        | 18       | 10        | 5412      | 19.2         | 39        | 71      |
| 20        | 6722      | 19.0         | 13        | 22       | 20        | 5219      | 19.3         | 41        | 75      |
| 30        | 6530      | 19.2         | 15        | 26       | 30        | 5027      | 19.2         | 43        | 79      |
| 40        | 6339      | 19.1         | 18        | 31       | 40        | 4835      | 19.2         | 46        | 84      |
| 50        | 6148      | 19.1         | 20        | 35       | 50        | 4642      | 19.3         | 48        | 88      |
| 42 21 00  | 5957      | 19.1         | 22        | 39       | 42 31 00  | 4450      | 19.2         | 50        | 92      |
| 10        | 5766      | 19.1         | 24        | 43       | 10        | 4258      | 19.2         | 52        | 2.33996 |
| 20        | 5574      | 19.2         | 26        | 48       | 20        | 4065      | 19.3         | 54        | 2.34000 |
| 30        | 5383      | 19.1         | 28        | 52       | 30        | 3873      | 19.2         | 56        | 55      |
| 40        | 5192      | 19.1         | 31        | 56       | 40        | 3681      | 19.2         | 59        | 69      |
| 50        | 5000      | 19.2         | 33        | 61       | 50        | 3487      | 19.2         | 61        | 14      |
| 42 22 00  | 4809      | 19.1         | 35        | 65       | 42 32 00  | 3295      | 19.2         | 63        | 18      |
| 10        | 4618      | 19.1         | 37        | 69       | 10        | 3103      | 19.2         | 65        | 22      |
| 20        | 4426      | 19.2         | 39        | 73       | 20        | 2911      | 19.2         | 67        | 26      |
| 30        | 4235      | 19.1         | 41        | 77       | 30        | 2718      | 19.3         | 69        | 30      |
| 40        | 4044      | 19.1         | 43        | 82       | 40        | 2525      | 19.3         | 71        | 35      |
| 50        | 3852      | 19.2         | 45        | 86       | 50        | 2333      | 19.2         | 73        | 39      |
| 42 23 00  | 3661      | 19.1         | 47        | 90       | 42 33 00  | 2141      | 19.2         | 75        | 43      |
| 10        | 3469      | 19.2         | 49        | 94       | 10        | 1949      | 19.2         | 77        | 47      |
| 20        | 3278      | 19.1         | 51        | 2.33798  | 20        | 1755      | 19.4         | 79        | 51      |
| 30        | 3086      | 19.2         | 53        | 2.33802  | 30        | 1563      | 19.2         | 81        | 55      |
| 40        | 2895      | 19.1         | 56        | 07       | 40        | 1371      | 19.2         | 84        | 60      |
| 50        | 2704      | 19.1         | 58        | 11       | 50        | 1177      | 19.4         | 86        | 64      |
| 42 24 00  | 2512      | 19.2         | 60        | 15       | 42 34 00  | 0985      | 19.2         | 88        | 68      |
| 10        | 2321      | 19.1         | 62        | 19       | 10        | 0793      | 19.2         | 90        | 72      |
| 20        | 2129      | 19.2         | 64        | 23       | 20        | 0600      | 19.3         | 92        | 76      |
| 30        | 1937      | 19.2         | 66        | 28       | 30        | 0407      | 19.3         | 94        | 81      |
| 40        | 1746      | 19.1         | 69        | 32       | 40        | 0214      | 19.3         | 97        | 86      |
| 50        | 1554      | 19.2         | 71        | 36       | 50        | 1.8740022 | 19.2         | 2.0053299 | 90      |
| 42 25 00  | 1362      | 10.2         | 73        | 40       | 42 35 00  | 1.8739829 | 19.3         | 2.0053301 | 94      |
| 10        | 1171      | 19.1         | 75        | 44       | 10        | 9637      | 19.2         | 03        | 2.34098 |
| 20        | 0979      | 19.2         | 77        | 48       | 20        | 9443      | 19.4         | 05        | 2.34102 |
| 30        | 0787      | 19.2         | 79        | 52       | 30        | 9251      | 19.2         | 07        | 06      |
| 40        | 0596      | 19.1         | 82        | 57       | 40        | 9058      | 19.3         | 10        | 10      |
| 50        | 0403      | 19.3         | 84        | 61       | 50        | 8866      | 19.2         | 12        | 15      |
| 42 26 00  | 0212      | 10.1         | 86        | 65       | 42 36 00  | 8672      | 19.4         | 14        | 19      |
| 10        | 1.8750020 | 19.2         | 88        | 69       | 10        | 8479      | 19.3         | 16        | 23      |
| 20        | 1.8749828 | 19.2         | 90        | 74       | 20        | 8286      | 19.3         | 18        | 28      |
| 30        | 9636      | 19.2         | 92        | 78       | 30        | 8093      | 19.3         | 20        | 32      |
| 40        | 9445      | 19.1         | 95        | 83       | 40        | 7900      | 19.3         | 23        | 36      |
| 50        | 9252      | 19.3         | 97        | 88       | 50        | 7707      | 19.3         | 25        | 41      |
| 42 27 00  | 9061      | 19.1         | 92        | 42 37 00 | 7514      | 19.3      | 27           | 45        |         |
| 10        | 8869      | 19.2         | 2.0053199 | 2.33896  | 10        | 7321      | 19.3         | 29        | 49      |
| 20        | 8677      | 19.2         | 03        | 2.33900  | 20        | 7127      | 19.4         | 31        | 53      |
| 30        | 8485      | 19.2         | 05        | 04       | 30        | 6935      | 19.2         | 33        | 57      |
| 40        | 8293      | 19.2         | 07        | 09       | 40        | 6742      | 19.3         | 36        | 62      |
| 50        | 8101      | 19.2         | 09        | 13       | 50        | 6548      | 19.4         | 38        | 66      |
| 42 28 00  | 7910      | 10.1         | 11        | 17       | 42 38 00  | 0355      | 19.3         | 40        | 70      |
| 10        | 7718      | 19.2         | 13        | 21       | 10        | 6162      | 19.3         | 42        | 74      |
| 20        | 7525      | 19.3         | 15        | 25       | 20        | 5970      | 19.2         | 44        | 78      |
| 30        | 7334      | 19.1         | 17        | 29       | 30        | 5776      | 19.4         | 46        | 82      |
| 40        | 7142      | 19.2         | 20        | 34       | 40        | 5583      | 19.3         | 48        | 87      |
| 50        | 6949      | 19.3         | 22        | 38       | 50        | 5390      | 19.3         | 50        | 91      |
| 42 29 00  | 6757      | 19.2         | 24        | 42       | 42 39 00  | 5197      | 19.3         | 52        | 95      |
| 10        | 6565      | 19.2         | 26        | 46       | 10        | 5004      | 19.3         | 54        | 2.34199 |
| 20        | 6372      | 19.3         | 28        | 50       | 20        | 4810      | 19.4         | 56        | 2.34203 |
| 30        | 6181      | 19.1         | 30        | 54       | 30        | 4617      | 19.3         | 58        | 07      |
| 40        | 5989      | 19.2         | 33        | 59       | 40        | 4424      | 19.3         | 61        | 12      |
| 50        | 5796      | 19.3         | 35        | 63       | 50        | 4230      | 19.4         | 63        | 16      |
| 42 30 00  | 5604      | 19.2         | 37        | 67       | 42 40 00  | 4037      | 19.3         | 65        | 20      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1''. | Log K.    | Log L.  |
|-----------|-----------|---------------|-----------|---------|-----------|-----------|---------------|-----------|---------|
| °         | '         | "             |           |         | °         | '         | "             |           |         |
| 42 40 00  | 1.8734037 | 19.3          | 2.0053365 | 2.34220 | 42 50 00  | 1.8722402 | 19.4          | 2.0053494 | 2.34474 |
| 10        | 3844      | 19.3          | 67        | 24      | 10        | 2208      | 19.4          | 96        | 78      |
| 20        | 3650      | 19.4          | 69        | 28      | 20        | 2012      | 19.6          | 2.0053498 | 82      |
| 30        | 3457      | 19.3          | 71        | 32      | 30        | 1818      | 19.4          | 2.0053500 | 86      |
| 40        | 3263      | 19.4          | 74        | 37      | 40        | 1624      | 19.4          | 02        | 91      |
| 50        | 3069      | 19.4          | 76        | 41      | 50        | 1429      | 19.5          | 04        | 95      |
| 42 41 00  | 2876      | 19.3          | 78        | 45      | 42 51 00  | 1234      | 19.5          | 06        | 2.34499 |
| 10        | 2683      | 19.3          | 80        | 49      | 10        | 1040      | 19.4          | 08        | 2.34503 |
| 20        | 2489      | 19.4          | 82        | 54      | 20        | 0845      | 19.5          | 10        | 07      |
| 30        | 2296      | 19.3          | 84        | 58      | 30        | 0650      | 19.5          | 12        | 11      |
| 40        | 2102      | 19.4          | 87        | 62      | 40        | 0456      | 19.4          | 15        | 16      |
| 50        | 1908      | 19.4          | 89        | 67      | 50        | 0261      | 19.5          | 17        | 20      |
| 42 42 00  | 1715      | 19.3          | 91        | 71      | 42 52 00  | 1.8720066 | 19.5          | 19        | 24      |
| 10        | 1521      | 19.4          | 93        | 76      | 10        | 1.8719872 | 19.4          | 21        | 28      |
| 20        | 1328      | 19.3          | 95        | 80      | 20        | 9677      | 19.5          | 23        | 32      |
| 30        | 1134      | 19.4          | 2.0053397 | 84      | 30        | 9482      | 19.5          | 25        | 36      |
| 40        | 0940      | 19.4          | 2.0053400 | 89      | 40        | 9287      | 19.5          | 28        | 41      |
| 50        | 0747      | 19.3          | 02        | 93      | 50        | 9093      | 19.4          | 30        | 45      |
| 42 43 00  | 0554      | 19.3          | 04        | 2.34297 | 42 53 00  | 8898      | 19.5          | 32        | 49      |
| 10        | 0360      | 19.4          | 06        | 2.34301 | 10        | 8704      | 19.4          | 34        | 53      |
| 20        | 1.8730166 | 19.4          | 08        | 05      | 20        | 8508      | 19.6          | 36        | 57      |
| 30        | 1.8729972 | 19.4          | 10        | 09      | 30        | 8314      | 19.4          | 38        | 61      |
| 40        | 9779      | 19.3          | 13        | 14      | 40        | 8119      | 19.5          | 41        | 66      |
| 50        | 9584      | 19.5          | 15        | 18      | 50        | 7923      | 19.6          | 43        | 70      |
| 42 44 00  | 9391      | 19.3          | 17        | 22      | 42 54 00  | 7729      | 19.4          | 45        | 74      |
| 10        | 9198      | 19.3          | 19        | 26      | 10        | 7534      | 19.5          | 47        | 78      |
| 20        | 9003      | 19.5          | 21        | 30      | 20        | 7338      | 19.6          | 49        | 83      |
| 30        | 8809      | 19.4          | 23        | 34      | 30        | 7144      | 19.4          | 51        | 87      |
| 40        | 8616      | 19.3          | 25        | 39      | 40        | 6940      | 19.5          | 54        | 91      |
| 50        | 8421      | 19.5          | 27        | 43      | 50        | 6753      | 19.6          | 56        | 2.34506 |
| 42 45 00  | 8227      | 19.4          | 29        | 47      | 42 55 00  | 6558      | 19.5          | 58        | 2.34600 |
| 10        | 8034      | 19.3          | 31        | 51      | 10        | 6364      | 19.4          | 60        | 04      |
| 20        | 7840      | 19.4          | 33        | 55      | 20        | 6168      | 19.6          | 62        | 08      |
| 30        | 7647      | 19.3          | 35        | 59      | 30        | 5973      | 19.5          | 64        | 12      |
| 40        | 7452      | 19.5          | 38        | 64      | 40        | 5778      | 19.5          | 67        | 17      |
| 50        | 7258      | 19.4          | 40        | 68      | 50        | 5582      | 19.6          | 69        | 21      |
| 2 46 00   | 7064      | 19.4          | 42        | 72      | 42 56 00  | 5387      | 19.5          | 71        | 25      |
| 10        | 6871      | 19.3          | 44        | 76      | 10        | 5192      | 19.5          | 73        | 29      |
| 20        | 6676      | 19.5          | 46        | 80      | 20        | 4998      | 19.4          | 75        | 33      |
| 30        | 6482      | 19.4          | 48        | 84      | 30        | 4802      | 19.6          | 77        | 37      |
| 40        | 6288      | 19.4          | 51        | 89      | 40        | 4607      | 19.5          | 79        | 42      |
| 50        | 6093      | 19.5          | 53        | 93      | 50        | 4412      | 19.5          | 81        | 46      |
| 42 47 00  | 5899      | 19.4          | 55        | 2.34397 | 42 57 00  | 4217      | 19.5          | 83        | 50      |
| 10        | 5706      | 19.3          | 57        | 2.34401 | 10        | 4022      | 19.5          | 85        | 54      |
| 20        | 5511      | 19.5          | 59        | 06      | 20        | 3826      | 19.6          | 87        | 58      |
| 30        | 5317      | 19.4          | 61        | 10      | 30        | 3631      | 19.5          | 89        | 62      |
| 40        | 5123      | 19.4          | 64        | 14      | 40        | 3436      | 19.5          | 92        | 67      |
| 50        | 4928      | 19.5          | 66        | 19      | 50        | 3239      | 19.7          | 94        | 72      |
| 42 48 00  | 4734      | 19.4          | 68        | 23      | 42 58 00  | 3044      | 19.5          | 96        | 76      |
| 10        | 4540      | 19.4          | 70        | 27      | 10        | 2849      | 19.5          | 2.0053598 | 80      |
| 20        | 4345      | 19.5          | 72        | 31      | 20        | 2653      | 19.6          | 2.0053600 | 84      |
| 30        | 4151      | 19.4          | 74        | 35      | 30        | 2458      | 19.5          | 02        | 88      |
| 40        | 3957      | 19.4          | 77        | 40      | 40        | 2263      | 19.5          | 05        | 93      |
| 50        | 3762      | 19.5          | 79        | 44      | 50        | 2067      | 19.6          | 07        | 2.34697 |
| 42 49 00  | 3568      | 19.4          | 81        | 48      | 42 59 00  | 1871      | 19.6          | 09        | 2.34701 |
| 10        | 3374      | 19.4          | 83        | 52      | 10        | 1676      | 19.5          | 11        | 05      |
| 20        | 3180      | 19.4          | 85        | 56      | 20        | 1480      | 19.6          | 13        | 09      |
| 30        | 2984      | 19.6          | 87        | 60      | 30        | 1285      | 19.5          | 15        | 13      |
| 40        | 2789      | 19.5          | 90        | 65      | 40        | 1089      | 19.6          | 18        | 18      |
| 50        | 2596      | 19.3          | 92        | 69      | 50        | 0893      | 19.6          | 20        | 22      |
| 42 50 00  | 2402      | 19.4          | 94        | 74      | 43 00 00  | 0698      | 19.5          | 22        | 26      |

## RELATION BETWEEN COORDINATES.

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Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.    |
|-----------|-----------|-------------|-----------|---------|-----------|-----------|-------------|-----------|-----------|
| ° ' "     |           |             |           |         | ° ' "     |           |             |           |           |
| 43 00 00  | 1.8710698 | 19.5        | 2.0053622 | 2.34726 | 43 10 00  | 1.8698926 | 19.6        | 2.0053750 | 2.34979   |
| 10        | 0502      | 19.6        | 24        | 30      | 10        | 8729      | 19.7        | 52        | 83        |
| 20        | 0307      | 19.5        | 26        | 35      | 20        | 8533      | 19.6        | 54        | 87        |
| 30        | 1.8710111 | 19.6        | 28        | 39      | 30        | 8335      | 19.8        | 56        | 91        |
| 40        | 1.8709915 | 19.6        | 31        | 43      | 40        | 8139      | 19.6        | 59        | 2.34996   |
| 50        | 9720      | 19.5        | 33        | 48      | 50        | 7942      | 19.7        | 61        | 2.35000   |
| 43 01 00  | 9524      | 19.6        | 35        | 52      | 43 11 00  | 7745      | 19.7        | 63        | 04        |
| 10        | 9329      | 19.5        | 37        | 56      | 10        | 7549      | 19.6        | 65        | 08        |
| 20        | 9132      | 19.7        | 39        | 60      | 20        | 7351      | 19.8        | 67        | 12        |
| 30        | 8937      | 19.5        | 41        | 64      | 30        | 7154      | 19.7        | 69        | 16        |
| 40        | 8741      | 19.6        | 43        | 69      | 40        | 6958      | 19.6        | 72        | 21        |
| 50        | 8545      | 19.6        | 45        | 73      | 50        | 6760      | 19.8        | 74        | 25        |
| 43 02 00  | 8349      | 19.6        | 47        | 77      | 43 12 00  | 6563      | 19.7        | 76        | 29        |
| 10        | 8154      | 19.5        | 49        | 81      | 10        | 6367      | 19.6        | 78        | 33        |
| 20        | 7957      | 19.7        | 51        | 85      | 20        | 6169      | 19.8        | 80        | 37        |
| 30        | 7761      | 19.6        | 53        | 89      | 30        | 5972      | 19.7        | 82        | 41        |
| 40        | 7566      | 19.5        | 56        | 94      | 40        | 5775      | 19.7        | 85        | 46        |
| 50        | 7369      | 19.7        | 58        | 2.34798 | 50        | 5578      | 19.7        | 87        | 50        |
| 43 03 00  | 7173      | 19.6        | 60        | 2.34802 | 43 13 00  | 5381      | 19.7        | 89        | 54        |
| 10        | 6978      | 19.5        | 62        | 66      | 10        | 5184      | 19.7        | 91        | 58        |
| 20        | 6782      | 19.6        | 64        | 10      | 20        | 4986      | 19.8        | 93        | 63        |
| 30        | 6585      | 19.7        | 66        | 14      | 30        | 4789      | 19.7        | 95        | 68        |
| 40        | 6389      | 19.6        | 69        | 19      | 40        | 4592      | 19.7        | 97        | 72        |
| 50        | 6194      | 19.5        | 71        | 23      | 50        | 4394      | 19.8        | 2.0053798 | 2.0053800 |
| 43 04 00  | 5998      | 19.6        | 73        | 27      | 43 14 00  | 4197      | 19.7        | 02        | 81        |
| 10        | 5802      | 19.6        | 75        | 31      | 10        | 4000      | 19.7        | 04        | 85        |
| 20        | 5605      | 19.7        | 77        | 35      | 20        | 3803      | 19.7        | 06        | 89        |
| 30        | 5409      | 19.6        | 79        | 39      | 30        | 3605      | 19.8        | 08        | 93        |
| 40        | 5214      | 19.5        | 82        | 44      | 40        | 3408      | 19.7        | 10        | 2.35098   |
| 50        | 5017      | 19.7        | 84        | 48      | 50        | 3211      | 19.7        | 12        | 2.35102   |
| 43 05 00  | 4821      | 19.6        | 86        | 52      | 43 15 00  | 3014      | 19.7        | 14        | 06        |
| 10        | 4625      | 19.6        | 88        | 56      | 10        | 2817      | 19.7        | 16        | 10        |
| 20        | 4428      | 19.7        | 90        | 60      | 20        | 2619      | 19.8        | 18        | 14        |
| 30        | 4232      | 19.6        | 92        | 65      | 30        | 2422      | 19.7        | 20        | 18        |
| 40        | 4036      | 19.6        | 95        | 70      | 40        | 2225      | 19.7        | 23        | 23        |
| 50        | 3839      | 19.7        | 97        | 74      | 50        | 2027      | 19.8        | 25        | 27        |
| 43 06 00  | 3643      | 19.7        | 2.0053699 | 78      | 43 16 00  | 1830      | 19.7        | 27        | 31        |
| 10        | 3447      | 19.6        | 2.0053701 | 82      | 10        | 1632      | 19.8        | 29        | 35        |
| 20        | 3250      | 19.7        | 03        | 87      | 20        | 1434      | 19.8        | 31        | 39        |
| 30        | 3054      | 19.6        | 05        | 91      | 30        | 1237      | 19.7        | 33        | 43        |
| 40        | 2858      | 19.6        | 08        | 2.34895 | 40        | 1040      | 19.7        | 36        | 48        |
| 50        | 2661      | 19.7        | 10        | 2.34900 | 50        | 0841      | 19.9        | 38        | 52        |
| 43 07 00  | 2464      | 19.7        | 12        | 04      | 43 17 00  | 0644      | 19.7        | 40        | 56        |
| 10        | 2268      | 19.6        | 14        | 08      | 10        | 0447      | 19.7        | 42        | 60        |
| 20        | 2072      | 19.6        | 16        | 12      | 20        | 0249      | 19.8        | 44        | 64        |
| 30        | 1875      | 19.7        | 18        | 16      | 30        | 1.8690051 | 19.8        | 46        | 68        |
| 40        | 1679      | 19.6        | 21        | 21      | 40        | 1.8689854 | 19.7        | 49        | 73        |
| 50        | 1482      | 19.7        | 23        | 25      | 50        | 9657      | 19.7        | 51        | 77        |
| 43 08 00  | 1286      | 19.6        | 25        | 29      | 43 18 00  | 0459      | 19.8        | 53        | 81        |
| 10        | 1090      | 19.6        | 27        | 33      | 10        | 9262      | 19.7        | 55        | 85        |
| 20        | 0893      | 19.7        | 29        | 37      | 20        | 9063      | 19.9        | 57        | 89        |
| 30        | 0696      | 19.7        | 31        | 41      | 30        | 8866      | 19.7        | 59        | 93        |
| 40        | 0500      | 19.6        | 33        | 46      | 40        | 8668      | 19.8        | 62        | 2.35198   |
| 50        | 0303      | 19.7        | 35        | 50      | 50        | 8470      | 19.8        | 64        | 2.35202   |
| 43 09 00  | 1.8700106 | 19.7        | 37        | 54      | 43 19 00  | 8272      | 19.8        | 66        | 06        |
| 10        | 1.8699910 | 19.6        | 39        | 58      | 10        | 8075      | 19.7        | 68        | 10        |
| 20        | 9712      | 19.8        | 41        | 62      | 20        | 7876      | 19.9        | 70        | 14        |
| 30        | 9516      | 19.6        | 43        | 66      | 30        | 7678      | 19.8        | 72        | 18        |
| 40        | 9320      | 19.6        | 46        | 71      | 40        | 7481      | 19.7        | 75        | 23        |
| 50        | 9122      | 19.8        | 48        | 75      | 50        | 7282      | 19.9        | 77        | 27        |
| 43 10 00  | 8926      | 19.6        | 50        | 79      | 43 20 00  | 7085      | 19.7        | 79        | 31        |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Dif.<br>1". | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Dif.<br>1". | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|-------------|---------------|---------------|-----------|---------------|-------------|---------------|---------------|
| ° ' "     |               |             |               |               | ° ' "     |               |             |               |               |
| 43 20 00  | 1.8687085     | 19.7        | 2.0053879     | 2.35231       | 43 30 00  | 1.8675174     | 19.9        | 2.0054007     | 2.35485       |
| 10        | 6887          | 19.8        |               | 81 35         | 10        | 4975          | 19.9        | 09            | 89            |
| 20        | 6688          | 19.9        |               | 83 40         | 20        | 4775          | 20.0        | 11            | 93            |
| 30        | 6491          | 19.7        |               | 85 44         | 30        | 4577          | 19.8        | 13            | 2.35497       |
| 40        | 6293          | 19.8        |               | 88 48         | 40        | 4378          | 19.9        | 16            | 2.35502       |
| 50        | 6094          | 19.9        |               | 90 53         | 50        | 4178          | 20.0        | 18            | 06            |
| 43 21 00  | 5896          | 19.8        |               | 92 58         | 43 31 00  | 3979          | 19.9        | 20            | 10            |
| 10        | 5698          | 19.8        |               | 94 62         | 10        | 3780          | 19.9        | 22            | 14            |
| 20        | 5501          | 19.7        |               | 96 66         | 20        | 3580          | 20.0        | 24            | 18            |
| 30        | 5302          | 19.9        | 2.0053898     | 70            | 30        | 3381          | 19.9        | 26            | 22            |
| 40        | 5104          | 19.8        | 2.0053900     | 75            | 40        | 3182          | 19.9        | 29            | 27            |
| 50        | 4906          | 19.8        |               | 02 79         | 50        | 2982          | 20.0        | 31            | 31            |
| 43 22 00  | 4708          | 19.8        |               | 04 83         | 43 32 00  | 2783          | 19.9        | 33            | 35            |
| 10        | 4511          | 19.7        |               | 06 87         | 10        | 2584          | 19.9        | 35            | 39            |
| 20        | 4312          | 19.9        |               | 08 91         | 20        | 2385          | 19.9        | 37            | 43            |
| 30        | 4114          | 19.8        |               | 10 2.35295    | 30        | 2185          | 20.0        | 39            | 47            |
| 40        | 3916          | 19.8        |               | 13 2.35300    | 40        | 1986          | 19.9        | 42            | 52            |
| 50        | 3717          | 19.9        |               | 15 04         | 50        | 1787          | 19.9        | 44            | 56            |
| 43 23 00  | 3519          | 19.8        |               | 17 08         | 43 33 00  | 1588          | 19.9        | 46            | 60            |
| 10        | 3321          | 19.8        |               | 19 12         | 10        | 1388          | 20.0        | 48            | 64            |
| 20        | 3122          | 19.9        |               | 21 16         | 20        | 1188          | 20.0        | 50            | 68            |
| 30        | 2924          | 19.8        |               | 23 20         | 30        | 0989          | 19.9        | 52            | 72            |
| 40        | 2726          | 19.8        |               | 26 25         | 40        | 0790          | 19.9        | 55            | 77            |
| 50        | 2527          | 19.9        |               | 28 29         | 50        | 0589          | 20.1        | 57            | 81            |
| 43 24 00  | 2329          | 19.8        |               | 30 33         | 43 34 00  | 0390          | 19.9        | 59            | 85            |
| 10        | 2130          | 19.9        |               | 32 37         | 10        | 1.8670191     | 19.9        | 61            | 89            |
| 20        | 1931          | 19.9        |               | 34 41         | 20        | 1.8669991     | 20.0        | 63            | 93            |
| 30        | 1733          | 19.8        |               | 36 45         | 30        | 9791          | 20.0        | 65            | 2.35597       |
| 40        | 1535          | 19.8        |               | 39 50         | 40        | 9592          | 19.9        | 67            | 2.35602       |
| 50        | 1336          | 19.9        |               | 41 54         | 50        | 9392          | 20.0        | 69            | 06            |
| 43 25 00  | 1138          | 19.8        |               | 43 58         | 43 35 00  | 9192          | 20.0        | 71            | 10            |
| 10        | 0939          | 19.9        |               | 45 62         | 10        | 8993          | 19.9        | 73            | 14            |
| 20        | 0741          | 19.8        |               | 47 66         | 20        | 8793          | 20.0        | 75            | 19            |
| 30        | 0542          | 19.9        |               | 49 70         | 30        | 8593          | 20.0        | 77            | 23            |
| 40        | 0343          | 19.9        |               | 52 75         | 40        | 8393          | 20.0        | 80            | 27            |
| 50        | 1.8680145     | 19.8        |               | 54 79         | 50        | 8194          | 19.9        | 82            | 32            |
| 43 26 00  | 1.8679947     | 19.8        |               | 56 83         | 43 36 00  | 7994          | 20.0        | 84            | 36            |
| 10        | 9748          | 19.9        |               | 58 87         | 10        | 7795          | 19.9        | 86            | 40            |
| 20        | 9549          | 19.9        |               | 60 91         | 20        | 7594          | 20.1        | 88            | 44            |
| 30        | 9351          | 19.8        | 2.35395       | 62 30         | 7395      | 19.9          | 90          | 48            |               |
| 40        | 9152          | 19.9        | 2.35400       | 65 40         | 7195      | 20.0          | 93          | 53            |               |
| 50        | 8953          | 19.9        |               | 67 04         | 50        | 6995          | 20.0        | 95            | 58            |
| 43 27 00  | 8754          | 19.9        |               | 69 08         | 43 37 00  | 6795          | 20.0        | 97            | 62            |
| 10        | 8556          | 19.8        |               | 71 12         | 10        | 6595          | 20.0        | 2.0054099     | 66            |
| 20        | 8356          | 20.0        |               | 73 17         | 20        | 6395          | 20.0        | 2.0054101     | 70            |
| 30        | 8158          | 19.8        |               | 75 21         | 30        | 6195          | 20.0        | 03            | 74            |
| 40        | 7959          | 19.9        |               | 78 25         | 40        | 5995          | 20.0        | 06            | 79            |
| 50        | 7760          | 19.9        |               | 80 30         | 50        | 5795          | 20.0        | 08            | 83            |
| 43 28 00  | 7561          | 19.9        |               | 82 34         | 43 38 00  | 5595          | 20.0        | 10            | 87            |
| 10        | 7363          | 19.8        |               | 84 38         | 10        | 5395          | 20.0        | 12            | 91            |
| 20        | 7164          | 19.9        |               | 86 42         | 20        | 5194          | 20.1        | 14            | 95            |
| 30        | 6965          | 19.9        |               | 88 46         | 30        | 4995          | 19.9        | 16            | 2.35699       |
| 40        | 6766          | 19.9        |               | 90 51         | 40        | 4795          | 20.0        | 19            | 2.35704       |
| 50        | 6567          | 19.9        |               | 92 55         | 50        | 4594          | 20.1        | 21            | 08            |
| 43 29 00  | 6369          | 19.8        |               | 94 60         | 43 39 00  | 4394          | 20.0        | 23            | 12            |
| 10        | 6170          | 19.9        |               | 96 64         | 10        | 4195          | 19.9        | 25            | 16            |
| 20        | 5970          | 20.0        | 2.0053998     | 68 20         | 3994      | 20.1          | 27          | 20            |               |
| 30        | 5771          | 19.9        | 2.0054000     | 72 30         | 3794      | 20.0          | 29          | 24            |               |
| 40        | 5573          | 19.8        |               | 77 40         | 40        | 3594          | 20.0        | 32            | 29            |
| 50        | 5373          | 20.0        |               | 81 50         | 50        | 3394          | 20.0        | 34            | 33            |
| 43 30 00  | 5174          | 19.9        |               | 07 85         | 43 40 00  | 3194          | 20.0        | 36            | 37            |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H$ . | Dif.<br>1''. | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Dif.<br>1''. | Log $K$ . | Log $L$ . |
|-----------|-----------|--------------|-----------|-----------|-----------|-----------|--------------|-----------|-----------|
| °   '   " |           |              |           |           | °   '   " |           |              |           |           |
| 43 40 00  | 1.8663194 | 20.0         | 2.0054136 | 2.35737   | 43 50 00  | 1.8651143 | 20.1         | 2.0054264 | 2.35989   |
| 10        | 2994      | 20.0         | 38        | 41        | 10        | 0942      | 20.1         | 66        | 93        |
| 20        | 2793      | 20.1         | 40        | 45        | 20        | 0740      | 20.2         | 68        | 2.35997   |
| 30        | 2593      | 20.0         | 42        | 49        | 30        | 0539      | 20.1         | 70        | 2.36001   |
| 40        | 2393      | 20.0         | 45        | 54        | 40        | 0337      | 20.2         | 73        | 96        |
| 50        | 2192      | 20.1         | 47        | 58        | 50        | 1.8650135 | 20.2         | 75        | 10        |
| 43 41 00  | 1992      | 20.0         | 49        | 62        | 43 51 00  | 1.8649934 | 20.1         | 77        | 14        |
| 10        | 1791      | 20.1         | 51        | 66        | 10        | 9733      | 20.1         | 79        | 18        |
| 20        | 1590      | 20.1         | 53        | 70        | 20        | 9531      | 20.2         | 81        | 22        |
| 30        | 1390      | 20.0         | 55        | 74        | 30        | 9329      | 20.2         | 83        | 26        |
| 40        | 1190      | 20.0         | 57        | 79        | 40        | 9128      | 20.1         | 86        | 31        |
| 50        | 0989      | 20.1         | 59        | 83        | 50        | 8925      | 20.3         | 88        | 35        |
| 43 42 00  | 0789      | 20.0         | 61        | 87        | 43 52 00  | 8724      | 20.1         | 90        | 39        |
| 10        | 0588      | 20.1         | 63        | 91        | 10        | 8523      | 20.1         | 92        | 43        |
| 20        | 0388      | 20.0         | 65        | 95        | 20        | 8320      | 20.3         | 94        | 48        |
| 30        | 1.8660187 | 20.1         | 67        | 2.35799   | 30        | 8119      | 20.1         | 96        | 52        |
| 40        | 1.8659987 | 20.0         | 70        | 2.35804   | 40        | 7917      | 20.2         | 2.0054299 | 56        |
| 50        | 9786      | 20.1         | 72        | 08        | 50        | 7715      | 20.2         | 2.0054301 | 61        |
| 43 43 00  | 9586      | 20.0         | 74        | 12        | 43 53 00  | 7513      | 20.2         | 03        | 65        |
| 10        | 9386      | 20.0         | 76        | 16        | 10        | 7312      | 20.1         | 05        | 69        |
| 20        | 9184      | 20.2         | 78        | 20        | 20        | 7110      | 20.2         | 07        | 73        |
| 30        | 8984      | 20.0         | 80        | 24        | 30        | 6908      | 20.2         | 09        | 77        |
| 40        | 8784      | 20.0         | 83        | 29        | 40        | 6706      | 20.2         | 12        | 82        |
| 50        | 8582      | 20.2         | 85        | 33        | 50        | 6505      | 20.1         | 14        | 86        |
| 43 44 00  | 8382      | 20.0         | 87        | 37        | 43 54 00  | 6303      | 20.2         | 16        | 90        |
| 10        | 8181      | 20.1         | 89        | 41        | 10        | 6101      | 20.2         | 18        | 94        |
| 20        | 7980      | 20.1         | 91        | 46        | 20        | 5899      | 20.2         | 20        | 2.36098   |
| 30        | 7779      | 20.1         | 93        | 51        | 30        | 5697      | 20.2         | 22        | 2.36102   |
| 40        | 7579      | 20.0         | 96        | 55        | 40        | 5495      | 20.2         | 25        | 07        |
| 50        | 7377      | 20.2         | 2.0054198 | 60        | 50        | 5293      | 20.2         | 27        | 11        |
| 43 45 00  | 7177      | 20.0         | 64        | 43 55 00  | 5091      | 20.2      | 29           | 15        |           |
| 10        | 6976      | 20.1         | 02        | 68        | 10        | 4889      | 20.2         | 31        | 19        |
| 20        | 6775      | 20.1         | 04        | 72        | 20        | 4687      | 20.2         | 33        | 23        |
| 30        | 6574      | 20.1         | 06        | 76        | 30        | 4485      | 20.2         | 35        | 27        |
| 40        | 6373      | 20.1         | 09        | 81        | 40        | 4283      | 20.2         | 37        | 32        |
| 50        | 6172      | 20.1         | 11        | 85        | 50        | 4080      | 20.3         | 39        | 36        |
| 43 46 00  | 5971      | 20.1         | 13        | 89        | 43 56 00  | 3878      | 20.2         | 41        | 41        |
| 10        | 5770      | 20.1         | 15        | 93        | 10        | 3676      | 20.2         | 43        | 45        |
| 20        | 5570      | 20.0         | 17        | 2.35897   | 20        | 3474      | 20.2         | 45        | 49        |
| 30        | 5368      | 20.2         | 19        | 2.35901   | 30        | 3271      | 20.3         | 47        | 53        |
| 40        | 5167      | 20.1         | 22        | 06        | 40        | 3070      | 20.1         | 50        | 58        |
| 50        | 4966      | 20.1         | 24        | 10        | 50        | 2868      | 20.2         | 52        | 62        |
| 43 47 00  | 4766      | 20.0         | 26        | 14        | 43 57 00  | 2666      | 20.2         | 54        | 66        |
| 10        | 4565      | 20.1         | 28        | 18        | 10        | 2464      | 20.2         | 56        | 70        |
| 20        | 4364      | 20.1         | 30        | 22        | 20        | 2261      | 20.3         | 58        | 74        |
| 30        | 4162      | 20.2         | 32        | 26        | 30        | 2059      | 20.2         | 60        | 78        |
| 40        | 3961      | 20.1         | 35        | 31        | 40        | 1857      | 20.2         | 63        | 83        |
| 50        | 3759      | 20.2         | 37        | 35        | 50        | 1653      | 20.4         | 65        | 87        |
| 43 48 00  | 3558      | 20.1         | 39        | 39        | 43 58 00  | 1451      | 20.2         | 67        | 91        |
| 10        | 3356      | 20.2         | 41        | 43        | 10        | 1249      | 20.2         | 69        | 95        |
| 20        | 3156      | 20.0         | 43        | 47        | 20        | 1046      | 20.3         | 71        | 2.36199   |
| 30        | 2955      | 20.1         | 45        | 51        | 30        | 0844      | 20.2         | 73        | 2.36203   |
| 40        | 2753      | 20.2         | 47        | 56        | 40        | 0642      | 20.2         | 76        | 08        |
| 50        | 2552      | 20.1         | 49        | 60        | 50        | 0439      | 20.3         | 78        | 12        |
| 43 49 00  | 2351      | 20.1         | 51        | 64        | 43 59 00  | 0237      | 20.2         | 80        | 16        |
| 10        | 2150      | 20.1         | 53        | 68        | 10        | 1.8640734 | 20.3         | 82        | 20        |
| 20        | 1949      | 20.1         | 55        | 72        | 20        | 1.8639831 | 20.3         | 84        | 24        |
| 30        | 1746      | 20.3         | 57        | 76        | 30        | 9629      | 20.2         | 86        | 28        |
| 40        | 1545      | 20.1         | 60        | 81        | 40        | 9427      | 20.2         | 89        | 33        |
| 50        | 1344      | 20.1         | 62        | 85        | 50        | 9223      | 20.4         | 91        | 37        |
| 43 50 00  | 1143      | 20.1         | 64        | 89        | 44 00 00  | 9021      | 20.2         | 93        | 42        |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.    | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|-----------|-----------|-----------|-------------|-----------|---------|
| ° ' "     |           |             |           |           | ° ' "     |           |             |           |         |
| 44 00 00  | 1.8639021 | 20.3        | 2.0054393 | 2.36242   | 44 10 00  | 1.8626829 | 20.3        | 2.0054522 | 2.36494 |
| 10        | 8819      | 20.2        | 95        | 46        | 10        | 6625      | 20.4        | 24        | 2.36498 |
| 20        | 8618      | 20.1        | 97        | 50        | 20        | 6422      | 20.3        | 26        | 2.36503 |
| 30        | 8415      | 20.3        | 2.0054399 | 54        | 30        | 6217      | 20.5        | 28        | 07      |
| 40        | 8211      | 20.4        | 2.0054402 | 59        | 40        | 6013      | 20.4        | 31        | 11      |
| 50        | 8008      | 20.3        | 04        | 64        | 50        | 5810      | 20.3        | 33        | 16      |
| 44 01 00  | 7806      | 20.2        | 06        | 67        | 44 11 00  | 5606      | 20.4        | 35        | 20      |
| 10        | 7603      | 20.3        | 08        | 71        | 10        | 5403      | 20.3        | 37        | 24      |
| 20        | 7400      | 20.3        | 10        | 76        | 20        | 5198      | 20.5        | 39        | 28      |
| 30        | 7197      | 20.3        | 12        | 80        | 30        | 4994      | 20.4        | 41        | 32      |
| 40        | 6995      | 20.2        | 15        | 84        | 40        | 4791      | 20.3        | 43        | 37      |
| 50        | 6791      | 20.4        | 17        | 89        | 50        | 4586      | 20.5        | 45        | 41      |
| 44 02 00  | 6589      | 20.2        | 19        | 93        | 44 12 00  | 4382      | 20.4        | 47        | 45      |
| 10        | 6386      | 20.3        | 21        | 2.36297   | 10        | 4178      | 20.6        | 49        | 49      |
| 20        | 6182      | 20.4        | 23        | 2.36301   | 20        | 3975      | 20.3        | 51        | 53      |
| 30        | 5980      | 20.2        | 25        | 05        | 30        | 3770      | 20.5        | 53        | 57      |
| 40        | 5777      | 20.3        | 27        | 10        | 40        | 3566      | 20.4        | 56        | 62      |
| 50        | 5573      | 20.4        | 29        | 14        | 50        | 3361      | 20.4        | 58        | 66      |
| 44 03 00  | 5371      | 20.2        | 31        | 18        | 44 13 00  | 3157      | 20.4        | 60        | 70      |
| 10        | 5168      | 20.3        | 33        | 22        | 10        | 2953      | 20.4        | 62        | 74      |
| 20        | 4965      | 20.3        | 35        | 26        | 20        | 2748      | 20.5        | 64        | 78      |
| 30        | 4762      | 20.3        | 37        | 30        | 30        | 2544      | 20.4        | 66        | 82      |
| 40        | 4559      | 20.3        | 40        | 35        | 40        | 2341      | 20.3        | 69        | 87      |
| 50        | 4356      | 20.3        | 42        | 39        | 50        | 2136      | 20.5        | 71        | 91      |
| 44 04 00  | 4153      | 20.3        | 44        | 43        | 44 14 00  | 1932      | 20.4        | 73        | 95      |
| 10        | 3951      | 20.2        | 46        | 47        | 10        | 1728      | 20.4        | 75        | 2.36599 |
| 20        | 3747      | 20.4        | 48        | 51        | 20        | 1524      | 20.4        | 77        | 2.36603 |
| 30        | 3544      | 20.3        | 50        | 55        | 30        | 1319      | 20.5        | 79        | 07      |
| 40        | 3341      | 20.3        | 53        | 60        | 40        | 1114      | 20.5        | 82        | 12      |
| 50        | 3137      | 20.4        | 55        | 64        | 50        | 0910      | 20.4        | 84        | 16      |
| 44 05 00  | 2934      | 20.3        | 57        | 68        | 44 15 00  | 0706      | 20.4        | 86        | 20      |
| 10        | 2731      | 20.3        | 59        | 72        | 10        | 0502      | 20.4        | 88        | 24      |
| 20        | 2527      | 20.4        | 61        | 76        | 20        | 0298      | 20.4        | 90        | 28      |
| 30        | 2324      | 20.3        | 63        | 80        | 30        | 1.8620093 | 20.5        | 92        | 33      |
| 40        | 2121      | 20.3        | 66        | 85        | 40        | 1.8619889 | 20.4        | 95        | 38      |
| 50        | 1917      | 20.4        | 68        | 89        | 50        | 9683      | 20.6        | 97        | 42      |
| 44 06 00  | 1714      | 20.3        | 70        | 93        | 44 16 00  | 9479      | 20.4        | 2.0054599 | 46      |
| 10        | 1511      | 20.3        | 72        | 2.36397   | 10        | 9275      | 20.4        | 2.0054601 | 50      |
| 20        | 1308      | 20.3        | 74        | 2.36401   | 20        | 9070      | 20.5        | 03        | 54      |
| 30        | 1104      | 20.4        | 76        | 05        | 30        | 8865      | 20.5        | 05        | 58      |
| 40        | 0901      | 20.3        | 79        | 10        | 40        | 8661      | 20.4        | 08        | 63      |
| 50        | 0697      | 20.4        | 81        | 14        | 50        | 8456      | 20.5        | 10        | 67      |
| 44 07 00  | 0495      | 20.2        | 83        | 18        | 44 17 00  | 8252      | 20.4        | 12        | 71      |
| 10        | 0292      | 20.3        | 85        | 22        | 10        | 8047      | 20.5        | 14        | 75      |
| 20        | 1.8630087 | 20.5        | 87        | 26        | 20        | 7843      | 20.4        | 16        | 79      |
| 30        | 1.8629884 | 20.3        | 89        | 30        | 30        | 7637      | 20.6        | 18        | 83      |
| 40        | 9681      | 20.3        | 92        | 35        | 40        | 7433      | 20.4        | 20        | 87      |
| 50        | 9477      | 20.4        | 94        | 40        | 50        | 7229      | 20.4        | 22        | 91      |
| 44 08 00  | 9273      | 20.4        | 96        | 44        | 44 18 00  | 7024      | 20.5        | 24        | 2.36696 |
| 10        | 9070      | 20.3        | 48        | 2.0054498 | 10        | 6820      | 20.4        | 26        | 2.36700 |
| 20        | 8866      | 20.4        | 52        | 20        | 6614      | 20.6      | 28          | 04        |         |
| 30        | 8662      | 20.4        | 56        | 30        | 6410      | 20.4      | 30          | 08        |         |
| 40        | 8459      | 20.3        | 61        | 40        | 6205      | 20.5      | 33          | 13        |         |
| 50        | 8255      | 20.4        | 65        | 50        | 5990      | 20.6      | 35          | 17        |         |
| 44 09 00  | 8051      | 20.4        | 09        | 69        | 44 19 00  | 5795      | 20.4        | 37        | 21      |
| 10        | 7848      | 20.3        | 11        | 73        | 10        | 5590      | 20.5        | 39        | 25      |
| 20        | 7644      | 20.4        | 13        | 77        | 20        | 5385      | 20.5        | 41        | 29      |
| 30        | 7440      | 20.4        | 15        | 81        | 30        | 5180      | 20.5        | 43        | 33      |
| 40        | 7237      | 20.3        | 18        | 86        | 40        | 4975      | 20.5        | 46        | 38      |
| 50        | 7032      | 20.5        | 20        | 90        | 50        | 4770      | 20.5        | 48        | 42      |
| 44 10 00  | 6829      | 20.3        | 22        | 94        | 44 20 00  | 4565      | 20.5        | 50        | 46      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Dif.<br>1". | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Dif.<br>1". | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|-------------|----------------|----------------|-----------|----------------|-------------|----------------|----------------|
| • ′ ″     |                |             |                |                | • ′ ″     |                |             |                |                |
| 44 20 00  | 1.8614565      | 20.5        | 2.0054650      | 2.36746        | 44 30 00  | 1.8602230      | 20.5        | 2.0054779      | 2.36999        |
| 10        | 4360           | 20.5        | 52             | 50             | 10        | 2024           | 20.6        | 81             | 2.37003        |
| 20        | 4155           | 20.5        | 54             | 55             | 20        | 1817           | 20.7        | 83             | 07             |
| 30        | 3950           | 20.5        | 56             | 59             | 30        | 1611           | 20.6        | 85             | 11             |
| 40        | 3745           | 20.5        | 59             | 63             | 40        | 1405           | 20.6        | 88             | 16             |
| 50        | 3539           | 20.6        | 61             | 68             | 50        | 1198           | 20.7        | 90             | 20             |
| 44 21 00  | 3334           | 20.5        | 63             | 72             | 44 31 00  | 0992           | 20.6        | 92             | 24             |
| 10        | 3130           | 20.4        | 65             | 76             | 10        | 0786           | 20.6        | 94             | 29             |
| 20        | 2925           | 20.5        | 67             | 80             | 20        | 0580           | 20.6        | 96             | 33             |
| 30        | 2719           | 20.6        | 69             | 84             | 30        | 0373           | 20.7        | 2.0054798      | 37             |
| 40        | 2514           | 20.5        | 72             | 89             | 40        | 1.8600166      | 20.7        | 2.0054801      | 42             |
| 50        | 2309           | 20.5        | 74             | 93             | 50        | 1.8599960      | 20.6        | 03             | 46             |
| 44 22 00  | 2104           | 20.5        | 76             | 2.36797        | 44 32 00  | 9754           | 20.6        | 05             | 50             |
| 10        | 1899           | 20.5        | 78             | 2.36801        | 10        | 9548           | 20.6        | 07             | 54             |
| 20        | 1693           | 20.6        | 80             | 05             | 20        | 9341           | 20.7        | 09             | 58             |
| 30        | 1488           | 20.5        | 82             | 09             | 30        | 9135           | 20.6        | 11             | 62             |
| 40        | 1283           | 20.5        | 85             | 14             | 40        | 8928           | 20.7        | 13             | 67             |
| 50        | 1077           | 20.6        | 87             | 18             | 50        | 8721           | 20.7        | 15             | 71             |
| 44 23 00  | 0872           | 20.5        | 89             | 22             | 44 33 00  | 8515           | 20.6        | 17             | 75             |
| 10        | 0667           | 20.5        | 91             | 26             | 10        | 8309           | 20.6        | 19             | 79             |
| 20        | 0461           | 20.6        | 93             | 31             | 20        | 8101           | 20.8        | 21             | 83             |
| 30        | 0256           | 20.5        | 95             | 35             | 30        | 7895           | 20.6        | 23             | 87             |
| 40        | 1.8610051      | 20.5        | 2.0054698      | 40             | 40        | 7689           | 20.6        | 26             | 92             |
| 50        | 1.8609844      | 20.7        | 2.0054700      | 44             | 50        | 7481           | 20.8        | 28             | 2.37096        |
| 44 24 00  | 9639           | 20.5        | 02             | 48             | 44 34 00  | 7275           | 20.6        | 30             | 2.37100        |
| 10        | 9434           | 20.5        | 04             | 52             | 10        | 7069           | 20.6        | 32             | 04             |
| 20        | 9229           | 20.5        | 06             | 56             | 20        | 6862           | 20.7        | 34             | 08             |
| 30        | 9023           | 20.6        | 08             | 60             | 30        | 6655           | 20.7        | 36             | 12             |
| 40        | 8817           | 20.6        | 10             | 64             | 40        | 6448           | 20.7        | 39             | 17             |
| 50        | 8612           | 20.5        | 12             | 69             | 50        | 6242           | 20.6        | 41             | 21             |
| 44 25 00  | 8407           | 20.5        | 14             | 73             | 44 35 00  | 6035           | 20.7        | 43             | 25             |
| 10        | 8201           | 20.6        | 16             | 77             | 10        | 5829           | 20.6        | 45             | 29             |
| 20        | 7995           | 20.6        | 18             | 81             | 20        | 5621           | 20.8        | 47             | 33             |
| 30        | 7790           | 20.5        | 20             | 85             | 30        | 5415           | 20.6        | 49             | 37             |
| 40        | 7583           | 20.7        | 23             | 90             | 40        | 5208           | 20.7        | 52             | 42             |
| 50        | 7378           | 20.5        | 25             | 94             | 50        | 5000           | 20.8        | 54             | 46             |
| 44 26 00  | 7173           | 20.5        | 27             | 2.36989        | 44 36 00  | 4794           | 20.6        | 56             | 50             |
| 10        | 6967           | 20.6        | 29             | 2.36902        | 10        | 4587           | 20.7        | 58             | 54             |
| 20        | 6761           | 20.6        | 31             | 06             | 20        | 4379           | 20.8        | 60             | 58             |
| 30        | 6555           | 20.6        | 33             | 10             | 30        | 4173           | 20.6        | 62             | 62             |
| 40        | 6350           | 20.5        | 36             | 15             | 40        | 3966           | 20.7        | 65             | 67             |
| 50        | 6143           | 20.7        | 38             | 19             | 50        | 3758           | 20.8        | 67             | 71             |
| 44 27 00  | 5938           | 20.5        | 40             | 23             | 44 37 00  | 3552           | 20.6        | 69             | 75             |
| 10        | 5732           | 20.6        | 42             | 27             | 10        | 3345           | 20.7        | 71             | 79             |
| 20        | 5526           | 20.6        | 44             | 31             | 20        | 3137           | 20.8        | 73             | 83             |
| 30        | 5320           | 20.6        | 46             | 35             | 30        | 2930           | 20.7        | 75             | 87             |
| 40        | 5114           | 20.6        | 49             | 40             | 40        | 2723           | 20.7        | 78             | 92             |
| 50        | 4908           | 20.6        | 51             | 44             | 50        | 2516           | 20.7        | 80             | 2.37196        |
| 44 28 00  | 4702           | 20.6        | 53             | 48             | 44 38 00  | 2309           | 20.7        | 82             | 2.37200        |
| 10        | 4496           | 20.6        | 55             | 52             | 10        | 2102           | 20.7        | 84             | 04             |
| 20        | 4291           | 20.5        | 57             | 57             | 20        | 1895           | 20.7        | 86             | 08             |
| 30        | 4084           | 20.7        | 59             | 61             | 30        | 1687           | 20.8        | 88             | 12             |
| 40        | 3878           | 20.6        | 62             | 65             | 40        | 1481           | 20.6        | 91             | 17             |
| 50        | 3672           | 20.6        | 64             | 70             | 50        | 1273           | 20.8        | 93             | 22             |
| 44 29 00  | 3467           | 20.5        | 66             | 74             | 44 39 00  | 1066           | 20.7        | 95             | 26             |
| 10        | 3261           | 20.6        | 68             | 78             | 10        | 0859           | 20.7        | 97             | 30             |
| 20        | 3056           | 20.5        | 70             | 82             | 20        | 0651           | 20.8        | 2.0054890      | 34             |
| 30        | 2848           | 20.6        | 72             | 86             | 30        | 0444           | 20.7        | 2.0054901      | 38             |
| 40        | 2642           | 20.6        | 75             | 91             | 40        | 0236           | 20.8        | 03             | 43             |
| 50        | 2435           | 20.7        | 77             | 95             | 50        | 1.8590029      | 20.7        | 05             | 47             |
| 44 30 00  | 2230           | 20.5        | 79             | 99             | 44 40 00  | 1.8589822      | 20.7        | 07             | 51             |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.     | Latitude. | Log H.    | Dif.<br>1". | Log K.    | Log L.  |
|-----------|-----------|-------------|-----------|------------|-----------|-----------|-------------|-----------|---------|
| ° ' "     |           |             |           |            | ° ' "     |           |             |           |         |
| 44 40 00  | 1.8589822 | 20.7        | 2.0054907 | 2.37251    | 44 50 00  | 1.8577341 | 20.9        | 2.0055036 | 2.37503 |
| 10        | 9615      | 20.7        |           | 09 55      | 10        | 7133      | 20.8        | 38        | 07      |
| 20        | 9407      | 20.8        |           | 11 60      | 20        | 6924      | 20.9        | 40        | 11      |
| 30        | 9199      | 20.8        |           | 13 64      | 30        | 6715      | 20.9        | 42        | 15      |
| 40        | 8992      | 20.7        |           | 16 68      | 40        | 6507      | 20.8        | 45        | 20      |
| 50        | 8784      | 20.8        |           | 18 73      | 50        | 6298      | 20.9        | 47        | 24      |
| 44 41 00  | 8577      | 20.7        |           | 20 77      | 44 51 00  | 6089      | 20.9        | 49        | 28      |
| 10        | 8370      | 20.7        |           | 22 81      | 10        | 5881      | 20.8        | 51        | 32      |
| 20        | 8162      | 20.8        |           | 24 85      | 20        | 5671      | 21.0        | 53        | 37      |
| 30        | 7954      | 20.8        |           | 26 89      | 30        | 5463      | 20.8        | 55        | 41      |
| 40        | 7747      | 20.7        |           | 29 94      | 40        | 5254      | 20.9        | 58        | 45      |
| 50        | 7539      | 20.8        |           | 31 2.37298 | 50        | 5044      | 21.0        | 60        | 50      |
| 44 42 00  | 7332      | 20.7        |           | 33 2.37302 | 44 52 00  | 4836      | 20.8        | 62        | 54      |
| 10        | 7125      | 20.7        |           | 35 06      | 10        | 4627      | 20.9        | 64        | 58      |
| 20        | 6916      | 20.9        |           | 37 10      | 20        | 4419      | 20.8        | 66        | 62      |
| 30        | 6709      | 20.7        |           | 39 14      | 30        | 4209      | 21.0        | 68        | 66      |
| 40        | 6501      | 20.8        |           | 42 19      | 40        | 4001      | 20.8        | 71        | 71      |
| 50        | 6293      | 20.8        |           | 44 23      | 50        | 3792      | 20.9        | 73        | 75      |
| 44 43 00  | 6085      | 20.8        |           | 46 27      | 44 53 00  | 3583      | 20.9        | 75        | 79      |
| 10        | 5878      | 20.7        |           | 48 31      | 10        | 3375      | 20.8        | 77        | 83      |
| 20        | 5669      | 20.8        |           | 50 35      | 20        | 3165      | 21.0        | 79        | 87      |
| 30        | 5462      | 20.7        |           | 52 39      | 30        | 2956      | 20.9        | 81        | 91      |
| 40        | 5254      | 20.8        |           | 55 44      | 40        | 2747      | 21.0        | 83        | 2.37596 |
| 50        | 5046      | 20.8        |           | 57 48      | 50        | 2537      | 21.0        | 86        | 2.37600 |
| 44 44 00  | 4838      | 20.8        |           | 59 52      | 44 54 00  | 2329      | 20.8        | 88        | 04      |
| 10        | 4631      | 20.7        |           | 61 56      | 10        | 2120      | 20.9        | 90        | 08      |
| 20        | 4422      | 20.9        |           | 64 60      | 20        | 1910      | 21.0        | 92        | 12      |
| 30        | 4214      | 20.8        |           | 66 64      | 30        | 1701      | 20.9        | 94        | 17      |
| 40        | 4007      | 20.7        |           | 68 69      | 40        | 1492      | 20.9        | 97        | 22      |
| 50        | 3798      | 20.9        |           | 70 73      | 50        | 1282      | 21.0        | 2.0055090 | 26      |
| 44 45 00  | 3590      | 20.8        |           | 72 77      | 44 55 00  | 1073      | 20.9        | 2.0055101 | 30      |
| 10        | 3383      | 20.7        |           | 74 81      | 10        | 0864      | 20.9        | 03        | 34      |
| 20        | 3175      | 20.8        |           | 76 85      | 20        | 0655      | 20.9        | 05        | 38      |
| 30        | 2966      | 20.9        |           | 78 89      | 30        | 0445      | 21.0        | 07        | 42      |
| 40        | 2758      | 20.8        |           | 81 94      | 40        | 0236      | 20.9        | 09        | 47      |
| 50        | 2550      | 20.8        |           | 83 2.37398 | 50        | 1.8570027 | 20.9        | 11        | 51      |
| 44 46 00  | 2343      | 20.7        |           | 85 2.37402 | 44 56 00  | 1.8569818 | 20.9        | 13        | 55      |
| 10        | 2135      | 20.8        |           | 87 06      | 10        | 9609      | 20.9        | 15        | 59      |
| 20        | 1926      | 20.9        |           | 89 10      | 20        | 9399      | 21.0        | 17        | 63      |
| 30        | 1718      | 20.8        |           | 91 14      | 30        | 9190      | 20.9        | 19        | 67      |
| 40        | 1510      | 20.8        |           | 94 20      | 40        | 8981      | 20.9        | 22        | 72      |
| 50        | 1301      | 20.9        |           | 96 24      | 50        | 8771      | 21.0        | 24        | 76      |
| 44 47 00  | 1093      | 20.8        | 2.0054998 | 28         | 44 57 00  | 8562      | 20.9        | 26        | 80      |
| 10        | 0885      | 20.8        | 2.0055000 | 32         | 10        | 8352      | 21.0        | 28        | 84      |
| 20        | 0676      | 20.9        |           | 02 36      | 20        | 8142      | 21.0        | 30        | 88      |
| 30        | 0468      | 20.8        |           | 04 40      | 30        | 7933      | 20.9        | 32        | 92      |
| 40        | 0260      | 20.8        |           | 06 45      | 40        | 7724      | 20.9        | 35        | 2.37697 |
| 50        | 1.8580051 | 20.9        |           | 08 49      | 50        | 7513      | 21.1        | 37        | 2.37701 |
| 44 48 00  | 1.8579843 | 20.8        |           | 10 53      | 44 58 00  | 7304      | 20.9        | 39        | 05      |
| 10        | 9635      | 20.8        |           | 12 57      | 10        | 7095      | 20.9        | 41        | 09      |
| 20        | 9427      | 20.8        |           | 14 61      | 20        | 6885      | 21.0        | 43        | 13      |
| 30        | 9218      | 20.9        |           | 16 65      | 30        | 6675      | 21.0        | 45        | 17      |
| 40        | 9009      | 20.9        |           | 19 70      | 40        | 6466      | 20.9        | 48        | 22      |
| 50        | 8801      | 20.8        |           | 21 74      | 50        | 6255      | 21.1        | 50        | 26      |
| 44 49 00  | 8593      | 20.8        |           | 23 78      | 44 59 00  | 6046      | 20.9        | 52        | 30      |
| 10        | 8385      | 20.8        |           | 25 82      | 10        | 5837      | 20.9        | 54        | 34      |
| 20        | 8176      | 20.9        |           | 27 86      | 20        | 5627      | 21.0        | 56        | 38      |
| 30        | 7967      | 20.9        |           | 29 90      | 30        | 5417      | 21.0        | 58        | 42      |
| 40        | 7759      | 20.8        |           | 32 95      | 40        | 5207      | 21.0        | 61        | 47      |
| 50        | 7550      | 20.9        |           | 34 2.37499 | 50        | 4998      | 20.9        | 63        | 51      |
| 44 50 00  | 7341      | 20.9        |           | 36 2.37503 | 45 00 00  | 4788      | 21.0        | 65        | 55      |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H$ . | Diff.<br>1". | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Diff.<br>1". | Log $K$ . | Log $L$ . |
|-----------|-----------|--------------|-----------|-----------|-----------|-----------|--------------|-----------|-----------|
| •   '   " |           |              |           |           | •   '   " |           |              |           |           |
| 45 00 00  | 1.8564788 | 21.0         | 2.0055165 | 2.37755   | 45 10 00  | 1.8552161 | 21.1         | 2.0055294 | 2.38008   |
| 10        | 4578      | 21.0         | 67        | 59        | 10        | 1950      | 21.1         | 96        | 12        |
| 20        | 4368      | 21.0         | 69        | 63        | 20        | 1738      | 21.2         | 2.0055298 | 16        |
| 30        | 4158      | 21.0         | 71        | 67        | 30        | 1528      | 21.0         | 2.0055300 | 20        |
| 40        | 3949      | 20.9         | 74        | 72        | 40        | 1317      | 21.1         | 02        | 25        |
| 50        | 3738      | 21.1         | 76        | 76        | 50        | 1105      | 21.2         | 04        | 29        |
| 45 01 00  | 3528      | 21.0         | 78        | 80        | 45 11 00  | 0894      | 21.1         | 06        | 33        |
| 10        | 3319      | 20.9         | 80        | 84        | 10        | 0683      | 21.1         | 08        | 37        |
| 20        | 3108      | 21.1         | 82        | 88        | 20        | 0471      | 21.2         | 10        | 41        |
| 30        | 2898      | 21.0         | 84        | 92        | 30        | 0260      | 21.1         | 12        | 45        |
| 40        | 2688      | 21.0         | 87        | 2.37707   | 40        | 1.8550049 | 21.1         | 15        | 50        |
| 50        | 2478      | 21.0         | 89        | 2.37801   | 50        | 1.8549837 | 21.2         | 17        | 54        |
| 45 02 00  | 2268      | 21.0         | 91        | 05        | 45 12 00  | 9626      | 21.1         | 19        | 58        |
| 10        | 2058      | 21.0         | 93        | 10        | 10        | 9415      | 21.1         | 21        | 62        |
| 20        | 1848      | 21.0         | 95        | 14        | 20        | 9204      | 21.1         | 23        | 67        |
| 30        | 1637      | 21.1         | 97        | 18        | 30        | 8992      | 21.2         | 25        | 71        |
| 40        | 1428      | 20.9         | 2.0055199 | 23        | 40        | 8781      | 21.1         | 28        | 75        |
| 50        | 1218      | 21.0         | 2.0055201 | 27        | 50        | 8570      | 21.1         | 30        | 80        |
| 45 03 00  | 1008      | 21.0         | 03        | 31        | 45 13 00  | 8359      | 21.1         | 32        | 84        |
| 10        | 0798      | 21.0         | 05        | 35        | 10        | 8148      | 21.1         | 34        | 88        |
| 20        | 0587      | 21.1         | 07        | 39        | 20        | 7935      | 21.3         | 36        | 92        |
| 30        | 0377      | 21.0         | 09        | 44        | 30        | 7724      | 21.1         | 38        | 2.38096   |
| 40        | 1.8560167 | 21.0         | 11        | 48        | 40        | 7513      | 21.1         | 41        | 2.38101   |
| 50        | 1.8559956 | 21.1         | 13        | 53        | 50        | 7301      | 21.2         | 43        | 05        |
| 45 04 00  | 9746      | 21.0         | 16        | 57        | 45 14 00  | 7089      | 21.2         | 45        | 09        |
| 10        | 9536      | 21.0         | 18        | 61        | 10        | 6878      | 21.1         | 47        | 13        |
| 20        | 9325      | 21.1         | 20        | 65        | 20        | 6666      | 21.2         | 49        | 17        |
| 30        | 9115      | 21.0         | 22        | 69        | 30        | 6455      | 21.1         | 51        | 21        |
| 40        | 8905      | 21.0         | 25        | 74        | 40        | 6243      | 21.2         | 54        | 26        |
| 50        | 8693      | 21.2         | 27        | 78        | 50        | 6031      | 21.2         | 56        | 30        |
| 45 05 00  | 8483      | 21.0         | 29        | 82        | 45 15 00  | 5819      | 21.2         | 58        | 34        |
| 10        | 8273      | 21.0         | 31        | 86        | 10        | 5608      | 21.1         | 60        | 38        |
| 20        | 8063      | 21.0         | 33        | 90        | 20        | 5396      | 21.2         | 62        | 42        |
| 30        | 7852      | 21.1         | 35        | 94        | 30        | 5184      | 21.2         | 64        | 46        |
| 40        | 7641      | 21.1         | 38        | 2.37800   | 40        | 4973      | 21.1         | 67        | 51        |
| 50        | 7431      | 21.0         | 40        | 2.37903   | 50        | 4700      | 21.3         | 69        | 55        |
| 45 06 00  | 7221      | 21.0         | 42        | 07        | 45 16 00  | 4549      | 21.1         | 71        | 59        |
| 10        | 7011      | 21.0         | 44        | 11        | 10        | 4337      | 21.2         | 73        | 63        |
| 20        | 6799      | 21.2         | 46        | 15        | 20        | 4126      | 21.1         | 75        | 67        |
| 30        | 6589      | 21.0         | 48        | 19        | 30        | 3913      | 21.3         | 77        | 71        |
| 40        | 6379      | 21.0         | 51        | 24        | 40        | 3701      | 21.2         | 79        | 76        |
| 50        | 6167      | 21.2         | 53        | 28        | 50        | 3490      | 21.1         | 81        | 80        |
| 45 07 00  | 5957      | 21.0         | 55        | 32        | 45 17 00  | 3278      | 21.2         | 83        | 84        |
| 10        | 5746      | 21.1         | 57        | 36        | 10        | 3067      | 21.1         | 85        | 88        |
| 20        | 5535      | 21.1         | 59        | 40        | 20        | 2854      | 21.3         | 87        | 92        |
| 30        | 5324      | 21.1         | 61        | 44        | 30        | 2642      | 21.2         | 89        | 2.38196   |
| 40        | 5114      | 21.0         | 64        | 49        | 40        | 2430      | 21.2         | 92        | 2.38201   |
| 50        | 4902      | 21.2         | 66        | 53        | 50        | 2218      | 21.2         | 94        | 06        |
| 45 08 00  | 4602      | 21.0         | 68        | 57        | 45 18 00  | 2006      | 21.2         | 96        | 10        |
| 10        | 4481      | 21.1         | 70        | 61        | 10        | 1794      | 21.2         | 2.0055398 | 14        |
| 20        | 4270      | 21.1         | 72        | 65        | 20        | 1581      | 21.3         | 2.0055400 | 18        |
| 30        | 4059      | 21.1         | 74        | 69        | 30        | 1369      | 21.2         | 02        | 22        |
| 40        | 3849      | 21.0         | 77        | 74        | 40        | 1158      | 21.1         | 05        | 27        |
| 50        | 3637      | 21.2         | 79        | 78        | 50        | 0945      | 21.3         | 07        | 31        |
| 45 09 00  | 3426      | 21.1         | 81        | 82        | 45 19 00  | 0733      | 21.2         | 09        | 35        |
| 10        | 3216      | 21.0         | 83        | 86        | 10        | 0521      | 21.2         | 11        | 39        |
| 20        | 3005      | 21.1         | 85        | 90        | 20        | 0309      | 21.2         | 13        | 43        |
| 30        | 2793      | 21.2         | 87        | 94        | 30        | 1.8540096 | 21.3         | 15        | 47        |
| 40        | 2583      | 21.0         | 90        | 2.37999   | 40        | 1.8539884 | 21.2         | 18        | 52        |
| 50        | 2372      | 21.1         | 92        | 2.38004   | 50        | 9672      | 21.2         | 20        | 56        |
| 45 10 00  | 2161      | 21.1         | 94        | 08        | 45 20 00  | 9460      | 21.2         | 22        | 60        |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 45 20 00  | 1.8539460 | 21.2         | 2.0055422 | 2.38260 | 45 30 00  | 1.8526684 | 21.3         | 2.0055551 | 2.38512 |
| 10        | 9248      | 21.2         | 24        | 64      | 10        | 6471      | 21.3         | 53        | 16      |
| 20        | 9035      | 21.3         | 26        | 68      | 20        | 6257      | 21.4         | 55        | 20      |
| 30        | 8823      | 21.2         | 28        | 72      | 30        | 6043      | 21.4         | 57        | 24      |
| 40        | 8611      | 21.2         | 31        | 77      | 40        | 5830      | 21.3         | 60        | 29      |
| 50        | 8398      | 21.3         | 33        | 81      | 50        | 5616      | 21.4         | 62        | 33      |
| 45 21 00  | 8186      | 21.2         | 35        | 85      | 45 31 00  | 5403      | 21.3         | 64        | 37      |
| 10        | 7974      | 21.2         | 37        | 89      | 10        | 5190      | 21.3         | 66        | 41      |
| 20        | 7760      | 21.4         | 39        | 93      | 20        | 4975      | 21.5         | 68        | 45      |
| 30        | 7548      | 21.2         | 41        | 2.38297 | 30        | 4762      | 21.3         | 70        | 49      |
| 40        | 7336      | 21.2         | 44        | 2.38302 | 40        | 4548      | 21.4         | 73        | 54      |
| 50        | 7123      | 21.3         | 46        | 06      | 50        | 4334      | 21.4         | 75        | 58      |
| 45 22 00  | 6911      | 21.2         | 48        | 10      | 45 32 00  | 4120      | 21.4         | 77        | 62      |
| 10        | 6698      | 21.3         | 50        | 14      | 10        | 3907      | 21.3         | 79        | 66      |
| 20        | 6485      | 21.3         | 52        | 19      | 20        | 3692      | 21.5         | 81        | 71      |
| 30        | 6273      | 21.2         | 54        | 23      | 30        | 3479      | 21.3         | 83        | 75      |
| 40        | 6060      | 21.3         | 57        | 27      | 40        | 3265      | 21.4         | 86        | 79      |
| 50        | 5847      | 21.3         | 59        | 32      | 50        | 3051      | 21.4         | 88        | 84      |
| 45 23 00  | 5635      | 21.2         | 61        | 36      | 45 33 00  | 2837      | 21.4         | 90        | 88      |
| 10        | 5422      | 21.3         | 63        | 40      | 10        | 2623      | 21.4         | 92        | 93      |
| 20        | 5210      | 21.2         | 65        | 44      | 20        | 2410      | 21.3         | 94        | 2.38598 |
| 30        | 4996      | 21.4         | 67        | 48      | 30        | 2195      | 21.5         | 96        | 2.38602 |
| 40        | 4784      | 21.2         | 70        | 53      | 40        | 1981      | 21.4         | 2.0055598 | 06      |
| 50        | 4571      | 21.3         | 72        | 57      | 50        | 1768      | 21.3         | 2.0055600 | 10      |
| 45 24 00  | 4359      | 21.2         | 74        | 61      | 45 34 00  | 1554      | 21.4         | 02        | 14      |
| 10        | 4146      | 21.3         | 76        | 65      | 10        | 1340      | 21.4         | 04        | 18      |
| 20        | 3933      | 21.3         | 78        | 69      | 20        | 1125      | 21.5         | 06        | 22      |
| 30        | 3720      | 21.3         | 80        | 73      | 30        | 0911      | 21.4         | 08        | 26      |
| 40        | 3508      | 21.2         | 82        | 78      | 40        | 0698      | 21.3         | 11        | 31      |
| 50        | 3294      | 21.4         | 84        | 82      | 50        | 0483      | 21.5         | 13        | 35      |
| 45 25 00  | 3081      | 21.3         | 86        | 86      | 45 35 00  | 0260      | 21.4         | 15        | 39      |
| 10        | 2869      | 21.2         | 88        | 90      | 10        | 1.8520055 | 21.4         | 17        | 43      |
| 20        | 2655      | 21.4         | 90        | 94      | 20        | 1.8519840 | 21.5         | 19        | 47      |
| 30        | 2442      | 21.3         | 92        | 2.38399 | 30        | 9626      | 21.4         | 21        | 51      |
| 40        | 2230      | 21.2         | 95        | 2.38404 | 40        | 9412      | 21.4         | 24        | 56      |
| 50        | 2016      | 21.4         | 97        | 08      | 50        | 9197      | 21.5         | 26        | 60      |
| 45 26 00  | 1803      | 21.3         | 2.0055490 | 12      | 45 36 00  | 8983      | 21.4         | 28        | 64      |
| 10        | 1590      | 21.3         | 2.0055501 | 16      | 10        | 8769      | 21.4         | 30        | 68      |
| 20        | 1378      | 21.2         | 03        | 20      | 20        | 8554      | 21.5         | 32        | 72      |
| 30        | 1164      | 21.4         | 05        | 24      | 30        | 8340      | 21.4         | 34        | 76      |
| 40        | 0951      | 21.3         | 08        | 29      | 40        | 8126      | 21.4         | 37        | 81      |
| 50        | 0738      | 21.3         | 10        | 33      | 50        | 7911      | 21.5         | 39        | 85      |
| 45 27 00  | 0525      | 21.3         | 12        | 37      | 45 37 00  | 7697      | 21.4         | 41        | 89      |
| 10        | 0312      | 21.3         | 14        | 41      | 10        | 7483      | 21.4         | 43        | 93      |
| 20        | 1.8530098 | 21.4         | 16        | 45      | 20        | 7268      | 21.5         | 45        | 2.38697 |
| 30        | 1.8529886 | 21.2         | 18        | 49      | 30        | 7053      | 21.5         | 47        | 2.38701 |
| 40        | 9673      | 21.3         | 21        | 54      | 40        | 6839      | 21.4         | 50        | 06      |
| 50        | 9459      | 21.4         | 23        | 58      | 50        | 6625      | 21.4         | 52        | 10      |
| 45 28 00  | 9246      | 21.3         | 25        | 62      | 45 38 00  | 6411      | 21.4         | 54        | 14      |
| 10        | 9033      | 21.3         | 27        | 66      | 10        | 6196      | 21.5         | 56        | 18      |
| 20        | 8819      | 21.4         | 29        | 70      | 20        | 5981      | 21.5         | 58        | 22      |
| 30        | 8605      | 21.4         | 31        | 74      | 30        | 5767      | 21.4         | 60        | 26      |
| 40        | 8392      | 21.3         | 34        | 79      | 40        | 5552      | 21.5         | 63        | 31      |
| 50        | 8178      | 21.4         | 36        | 83      | 50        | 5337      | 21.5         | 65        | 35      |
| 45 29 00  | 7965      | 21.3         | 38        | 87      | 45 39 00  | 5123      | 21.4         | 67        | 39      |
| 10        | 7752      | 21.3         | 40        | 91      | 10        | 4908      | 21.5         | 69        | 43      |
| 20        | 7538      | 21.4         | 42        | 95      | 20        | 4693      | 21.5         | 71        | 47      |
| 30        | 7325      | 21.3         | 44        | 2.38499 | 30        | 4478      | 21.5         | 73        | 51      |
| 40        | 7111      | 21.4         | 47        | 2.38504 | 40        | 4264      | 21.4         | 76        | 56      |
| 50        | 6897      | 21.4         | 49        | 08      | 50        | 4049      | 21.5         | 78        | 60      |
| 45 30 00  | 6684      | 21.3         | 51        | 12      | 45 40 00  | 3835      | 21.4         | 80        | 64      |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H$ . | Diff.<br>$1''$ . | Log $K$ . | Log $L$ . | Latitude. | Log $H$ . | Diff.<br>$1''$ . | Log $K$ . | Log $L$ . |
|-----------|-----------|------------------|-----------|-----------|-----------|-----------|------------------|-----------|-----------|
| • ′ ″     |           |                  |           |           | • ′ ″     |           |                  |           |           |
| 45 40 00  | 1.8513835 | 21.4             | 2.0055680 | 2.38764   | 45 50 00  | 1,8500909 | 21.6             | 2.0055808 | 2.39017   |
| 10        | 3619      | 21.6             | 82        | 68        | 10        | 0692      | 21.7             | 10        | 21        |
| 20        | 3404      | 21.5             | 84        | 72        | 20        | 0477      | 21.5             | 12        | 25        |
| 30        | 3189      | 21.5             | 86        | 76        | 30        | 0261      | 21.6             | 14        | 29        |
| 40        | 2975      | 21.4             | 89        | 81        | 40        | 1.8500045 | 21.6             | 17        | 34        |
| 50        | 2760      | 21.5             | 91        | 86        | 50        | 1.8499829 | 21.6             | 19        | 38        |
| 45 41 00  | 2546      | 21.4             | 93        | 90        | 45 51 00  | 9613      | 21.6             | 21        | 42        |
| 10        | 2331      | 21.5             | 95        | 94        | 10        | 9397      | 21.6             | 23        | 46        |
| 20        | 2115      | 21.6             | 97        | 2.38798   | 20        | 9180      | 21.7             | 25        | 50        |
| 30        | 1901      | 21.4             | 2.0055690 | 2.38802   | 30        | 8964      | 21.6             | 27        | 54        |
| 40        | 1685      | 21.6             | 2.0055701 | 07        | 40        | 8748      | 21.6             | 30        | 59        |
| 50        | 1469      | 21.6             | 03        | 11        | 50        | 8531      | 21.7             | 32        | 63        |
| 45 42 00  | 1255      | 21.4             | 05        | 15        | 45 52 00  | 8315      | 21.6             | 34        | 67        |
| 10        | 1041      | 21.4             | 07        | 19        | 10        | 8099      | 21.6             | 36        | 71        |
| 20        | 0825      | 21.6             | 09        | 23        | 20        | 7882      | 21.7             | 38        | 76        |
| 30        | 0610      | 21.5             | 11        | 27        | 30        | 7666      | 21.6             | 40        | 80        |
| 40        | 0395      | 21.5             | 14        | 32        | 40        | 7450      | 21.6             | 43        | 84        |
| 50        | 1.8510179 | 21.6             | 16        | 36        | 50        | 7233      | 21.7             | 45        | 89        |
| 45 43 00  | 1.8509964 | 21.5             | 18        | 40        | 45 53 00  | 7016      | 21.7             | 47        | 93        |
| 10        | 9750      | 21.4             | 20        | 45        | 10        | 6800      | 21.6             | 49        | 2.39097   |
| 20        | 9534      | 21.6             | 22        | 50        | 20        | 6584      | 21.6             | 51        | 2.39101   |
| 30        | 9319      | 21.5             | 24        | 54        | 30        | 6367      | 21.7             | 53        | 05        |
| 40        | 9104      | 21.5             | 27        | 58        | 40        | 6151      | 21.6             | 56        | 10        |
| 50        | 8888      | 21.6             | 29        | 62        | 50        | 5934      | 21.7             | 58        | 14        |
| 45 44 00  | 8673      | 21.5             | 31        | 66        | 45 54 00  | 5718      | 21.6             | 60        | 18        |
| 10        | 8458      | 21.5             | 33        | 70        | 10        | 5502      | 21.6             | 62        | 22        |
| 20        | 8243      | 21.5             | 35        | 74        | 20        | 5285      | 21.7             | 64        | 26        |
| 30        | 8027      | 21.6             | 37        | 78        | 30        | 5068      | 21.7             | 66        | 30        |
| 40        | 7812      | 21.5             | 40        | 83        | 40        | 4852      | 21.6             | 69        | 35        |
| 50        | 7596      | 21.6             | 42        | 87        | 50        | 4635      | 21.7             | 71        | 39        |
| 45 45 00  | 7381      | 21.5             | 44        | 91        | 45 55 00  | 4418      | 21.7             | 73        | 43        |
| 10        | 7166      | 21.5             | 46        | 95        | 10        | 4202      | 21.6             | 75        | 47        |
| 20        | 6950      | 21.6             | 48        | 2.38899   | 20        | 3984      | 21.8             | 77        | 51        |
| 30        | 6735      | 21.5             | 50        | 2.38903   | 30        | 3768      | 21.6             | 79        | 55        |
| 40        | 6520      | 21.5             | 53        | 08        | 40        | 3551      | 21.7             | 81        | 60        |
| 50        | 6303      | 21.7             | 55        | 12        | 50        | 3334      | 21.7             | 83        | 64        |
| 45 46 00  | 6088      | 21.5             | 57        | 16        | 45 56 00  | 3117      | 21.7             | 85        | 68        |
| 10        | 5873      | 21.5             | 59        | 20        | 10        | 2901      | 21.6             | 87        | 72        |
| 20        | 5657      | 21.6             | 61        | 24        | 20        | 2683      | 21.8             | 89        | 76        |
| 30        | 5441      | 21.6             | 63        | 28        | 30        | 2467      | 21.6             | 91        | 80        |
| 40        | 5226      | 21.5             | 66        | 33        | 40        | 2250      | 21.7             | 94        | 86        |
| 50        | 5009      | 21.7             | 68        | 37        | 50        | 2033      | 21.7             | 96        | 90        |
| 45 47 00  | 4794      | 21.5             | 70        | 41        | 45 57 00  | 1816      | 21.7             | 2.0055898 | 94        |
| 10        | 4579      | 21.5             | 72        | 45        | 10        | 1599      | 21.7             | 2.0055900 | 2.39198   |
| 20        | 4363      | 21.6             | 74        | 49        | 20        | 1383      | 21.6             | 02        | 2.39202   |
| 30        | 4147      | 21.6             | 76        | 53        | 30        | 1165      | 21.8             | 04        | 06        |
| 40        | 3931      | 21.6             | 78        | 58        | 40        | 0948      | 21.7             | 07        | 11        |
| 50        | 3716      | 21.5             | 80        | 62        | 50        | 0731      | 21.7             | 09        | 15        |
| 45 48 00  | 3500      | 21.6             | 82        | 66        | 45 58 00  | 0515      | 21.6             | 11        | 19        |
| 10        | 3285      | 21.5             | 84        | 70        | 10        | 0298      | 21.7             | 13        | 23        |
| 20        | 3068      | 21.7             | 86        | 74        | 20        | 1.8490080 | 21.8             | 15        | 27        |
| 30        | 2853      | 21.5             | 88        | 78        | 30        | 1.8489863 | 21.7             | 17        | 31        |
| 40        | 2637      | 21.6             | 91        | 83        | 40        | 9646      | 21.7             | 20        | 36        |
| 50        | 2421      | 21.6             | 93        | 88        | 50        | 9428      | 21.8             | 22        | 40        |
| 45 49 00  | 2205      | 21.6             | 95        | 92        | 45 59 00  | 9212      | 21.6             | 24        | 44        |
| 10        | 1989      | 21.6             | 97        | 2.38996   | 10        | 8995      | 21.7             | 26        | 48        |
| 20        | 1774      | 21.5             | 2.0055799 | 2.39000   | 20        | 8777      | 21.8             | 28        | 52        |
| 30        | 1557      | 21.7             | 2.0055801 | 04        | 30        | 8560      | 21.7             | 30        | 56        |
| 40        | 1341      | 21.6             | 04        | 09        | 40        | 8343      | 21.7             | 33        | 61        |
| 50        | 1125      | 21.6             | 06        | 13        | 50        | 8125      | 21.8             | 35        | 65        |
| 45 50 00  | 0909      | 21.6             | 08        | 17        | 46 00 00  | 7908      | 21.7             | 37        | 69        |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>JJ.</i> | Dif.<br>1°. | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Dif.<br>1°. | Log <i>K.</i> | Log <i>L.</i> |
|-----------|----------------|-------------|---------------|---------------|-----------|---------------|-------------|---------------|---------------|
| ° ° "     |                |             |               |               | ° ° "     |               |             |               |               |
| 46 00 00  | 1.8487908      | 21.7        | 2.0055037     | 2.39269       | 46 10 00  | 1.8474831     | 21.8        | 2.0056066     | 2.39521       |
| 10        | 7691           | 21.7        | 39            | 73            | 10        | 4612          | 21.9        | 68            | 25            |
| 20        | 7473           | 21.8        | 41            | 77            | 20        | 4393          | 21.9        | 70            | 30            |
| 30        | 7256           | 21.7        | 43            | 81            | 30        | 4175          | 21.8        | 72            | 34            |
| 40        | 7048           | 21.8        | 46            | 86            | 40        | 3956          | 21.9        | 74            | 38            |
| 50        | 6820           | 21.8        | 48            | 90            | 50        | 3737          | 21.9        | 76            | 43            |
| 46 01 00  | 6603           | 21.7        | 50            | 94            | 46 11 00  | 3518          | 21.9        | 78            | 47            |
| 10        | 6386           | 21.7        | 52            | 2.39298       | 10        | 3300          | 21.8        | 80            | 51            |
| 20        | 6169           | 21.7        | 54            | 2.39303       | 20        | 3081          | 21.9        | 82            | 55            |
| 30        | 5951           | 21.8        | 56            | 08            | 30        | 2862          | 21.9        | 84            | 59            |
| 40        | 5733           | 21.8        | 59            | 12            | 40        | 2643          | 21.9        | 87            | 64            |
| 50        | 5516           | 21.7        | 61            | 16            | 50        | 2425          | 21.8        | 89            | 68            |
| 46 02 00  | 5299           | 21.7        | 63            | 20            | 46 12 00  | 2206          | 21.9        | 91            | 72            |
| 10        | 5082           | 21.7        | 65            | 24            | 10        | 1988          | 21.8        | 93            | 77            |
| 20        | 4863           | 21.9        | 67            | 28            | 20        | 1768          | 22.0        | 95            | 81            |
| 30        | 4646           | 21.7        | 69            | 33            | 30        | 1550          | 21.8        | 2.0056097     | 85            |
| 40        | 4428           | 21.8        | 71            | 37            | 40        | 1331          | 21.9        | 2.0056100     | 90            |
| 50        | 4210           | 21.8        | 73            | 41            | 50        | 1111          | 22.0        | 02            | 94            |
| 46 03 00  | 3903           | 21.7        | 75            | 45            | 46 13 00  | 0893          | 21.8        | 04            | 2.39598       |
| 10        | 3775           | 21.8        | 77            | 49            | 10        | 0674          | 21.9        | 06            | 2.39602       |
| 20        | 3557           | 21.8        | 79            | 53            | 20        | 0454          | 22.0        | 08            | 06            |
| 30        | 3339           | 21.8        | 81            | 57            | 30        | 0235          | 21.9        | 10            | 10            |
| 40        | 3122           | 21.7        | 84            | 62            | 40        | 1.8470017     | 21.8        | 13            | 15            |
| 50        | 2903           | 21.9        | 86            | 66            | 50        | 1.8469797     | 22.0        | 15            | 19            |
| 46 04 00  | 2686           | 21.7        | 88            | 70            | 46 14 00  | 9578          | 21.9        | 17            | 23            |
| 10        | 2468           | 21.8        | 90            | 74            | 10        | 9359          | 21.9        | 19            | 27            |
| 20        | 2251           | 21.7        | 92            | 78            | 20        | 9139          | 22.0        | 21            | 31            |
| 30        | 2032           | 21.9        | 94            | 83            | 30        | 8921          | 21.8        | 23            | 35            |
| 40        | 1815           | 21.7        | 97            | 88            | 40        | 8702          | 21.9        | 26            | 40            |
| 50        | 1597           | 21.8        | 92            | 50            |           | 8482          | 22.0        | 28            | 44            |
| 46 05 00  | 1379           | 21.8        | 2.0056001     | 2.39396       | 46 15 00  | 8263          | 21.9        | 30            | 48            |
| 10        | 1162           | 21.7        | 03            | 2.39400       | 10        | 8045          | 21.8        | 32            | 52            |
| 20        | 0943           | 21.9        | 05            | 04            | 20        | 7825          | 22.0        | 34            | 56            |
| 30        | 0725           | 21.8        | 07            | 08            | 30        | 7605          | 22.0        | 36            | 60            |
| 40        | 0507           | 21.8        | 10            | 13            | 40        | 7386          | 21.9        | 39            | 65            |
| 50        | 0289           | 21.8        | 12            | 17            | 50        | 7167          | 21.9        | 41            | 69            |
| 46 06 00  | 1.8480071      | 21.8        | 14            | 21            | 46 16 00  | 6948          | 21.9        | 43            | 73            |
| 10        | 1.8479853      | 21.8        | 16            | 25            | 10        | 6729          | 21.9        | 45            | 77            |
| 20        | 9634           | 21.9        | 18            | 29            | 20        | 6509          | 22.0        | 47            | 81            |
| 30        | 9416           | 21.8        | 20            | 33            | 30        | 6289          | 22.0        | 49            | 85            |
| 40        | 9198           | 21.8        | 23            | 38            | 40        | 6070          | 21.9        | 52            | 90            |
| 50        | 8980           | 21.8        | 25            | 42            | 50        | 5850          | 22.0        | 54            | 94            |
| 46 07 00  | 8762           | 21.8        | 27            | 46            | 46 17 00  | 5631          | 21.9        | 56            | 2.39698       |
| 10        | 8544           | 21.8        | 29            | 50            | 10        | 5412          | 21.9        | 58            | 2.39702       |
| 20        | 8325           | 21.9        | 31            | 54            | 20        | 5192          | 22.0        | 60            | 06            |
| 30        | 8107           | 21.8        | 33            | 58            | 30        | 4972          | 22.0        | 62            | 11            |
| 40        | 7889           | 21.8        | 36            | 63            | 40        | 4753          | 21.9        | 64            | 15            |
| 50        | 7670           | 21.9        | 38            | 67            | 50        | 4533          | 22.0        | 66            | 19            |
| 46 08 00  | 7452           | 21.8        | 40            | 71            | 46 18 00  | 4313          | 22.0        | 68            | 23            |
| 10        | 7234           | 21.8        | 42            | 75            | 10        | 4094          | 21.9        | 70            | 27            |
| 20        | 7016           | 21.8        | 44            | 79            | 20        | 3875          | 21.9        | 72            | 32            |
| 30        | 6796           | 22.0        | 46            | 83            | 30        | 3654          | 22.1        | 74            | 36            |
| 40        | 6578           | 21.8        | 49            | 88            | 40        | 3435          | 21.9        | 77            | 40            |
| 50        | 6360           | 21.8        | 51            | 92            | 50        | 3215          | 22.0        | 79            | 45            |
| 46 09 00  | 6142           | 21.8        | 53            | 2.39496       | 46 19 00  | 2996          | 21.9        | 81            | 49            |
| 10        | 5924           | 21.8        | 55            | 2.39500       | 10        | 2777          | 21.9        | 83            | 53            |
| 20        | 5705           | 21.9        | 57            | 04            | 20        | 2556          | 22.1        | 85            | 57            |
| 30        | 5486           | 21.9        | 59            | 08            | 30        | 2337          | 21.9        | 87            | 61            |
| 40        | 5268           | 21.8        | 62            | 13            | 40        | 2117          | 22.0        | 90            | 66            |
| 50        | 5049           | 21.9        | 64            | 17            | 50        | 1896          | 22.1        | 92            | 70            |
| 46 10 00  | 4831           | 21.8        | 66            | 21            | 46 20 00  | 1677          | 21.9        | 94            | 75            |

Table for transformation of coordinates—Continued.

| Latitude. | Log $H_i$ . | Dif.<br>$1''$ . | Log $K_i$ . | Log $L_i$ . | Latitude. | Log $H_i$ . | Dif.<br>$1''$ . | Log $K_i$ . | Log $L_i$ . |
|-----------|-------------|-----------------|-------------|-------------|-----------|-------------|-----------------|-------------|-------------|
| • • "     |             |                 |             |             | • • "     |             |                 |             |             |
| 46 20 00  | 1.8461677   | 21.9            | 2.0056194   | 2.39775     | 46 30 00  | 1.8448446   | 22.1            | 2.0056323   | 2.40027     |
| 10        | 1457        | 22.0            | 96          | 79          | 10        | 8225        | 22.1            | 25          | 31          |
| 20        | 1237        | 22.0            | 2.0056198   | 83          | 20        | 8003        | 22.2            | 27          | 35          |
| 30        | 1017        | 22.0            | 2.0056200   | 87          | 30        | 7782        | 22.1            | 30          | 40          |
| 40        | 0797        | 22.0            | 03          | 92          | 40        | 7561        | 22.1            | 32          | 44          |
| 50        | 0577        | 22.0            | 05          | 2.39796     | 50        | 7339        | 22.2            | 34          | 48          |
| 46 21 00  | 0357        | 22.0            | 07          | 2.39800     | 46 31 00  | 7118        | 22.1            | 36          | 52          |
| 10        | 1.8460137   | 22.0            | 09          | 04          | 10        | 6897        | 22.1            | 38          | 56          |
| 20        | 1.8459916   | 22.1            | 11          | 08          | 20        | 6675        | 22.2            | 40          | 60          |
| 30        | 9697        | 21.9            | 13          | 12          | 30        | 6454        | 22.1            | 42          | 65          |
| 40        | 9477        | 22.0            | 16          | 17          | 40        | 6233        | 22.1            | 44          | 69          |
| 50        | 9256        | 22.1            | 18          | 21          | 50        | 6011        | 22.2            | 46          | 73          |
| 46 22 00  | 9036        | 22.0            | 20          | 25          | 46 32 00  | 5790        | 22.1            | 48          | 77          |
| 10        | 8816        | 22.0            | 22          | 29          | 10        | 5569        | 22.1            | 50          | 81          |
| 20        | 8597        | 21.9            | 24          | 33          | 20        | 5348        | 22.1            | 52          | 85          |
| 30        | 8376        | 22.1            | 26          | 37          | 30        | 5126        | 22.2            | 55          | 90          |
| 40        | 8156        | 22.0            | 29          | 42          | 40        | 4904        | 22.2            | 57          | 94          |
| 50        | 7936        | 22.0            | 31          | 46          | 50        | 4683        | 22.1            | 59          | 2.40098     |
| 46 23 00  | 7716        | 22.0            | 33          | 50          | 46 33 00  | 4462        | 22.1            | 61          | 2.40102     |
| 10        | 7496        | 22.0            | 35          | 55          | 10        | 4241        | 22.1            | 63          | 66          |
| 20        | 7275        | 22.1            | 37          | 59          | 20        | 4018        | 22.3            | 65          | 10          |
| 30        | 7055        | 22.0            | 39          | 63          | 30        | 3797        | 22.1            | 68          | 15          |
| 40        | 6835        | 22.0            | 42          | 67          | 40        | 3576        | 22.1            | 70          | 19          |
| 50        | 6614        | 22.1            | 44          | 71          | 50        | 3353        | 22.3            | 72          | 23          |
| 46 24 00  | 6394        | 22.0            | 46          | 75          | 46 34 00  | 3132        | 22.1            | 74          | 27          |
| 10        | 6173        | 22.1            | 48          | 79          | 10        | 2910        | 22.2            | 76          | 31          |
| 20        | 5952        | 22.1            | 50          | 83          | 20        | 2688        | 22.2            | 78          | 36          |
| 30        | 5732        | 22.0            | 52          | 87          | 30        | 2467        | 22.1            | 81          | 40          |
| 40        | 5512        | 22.0            | 54          | 92          | 40        | 2245        | 22.2            | 83          | 44          |
| 50        | 5291        | 22.1            | 56          | 2.39896     | 50        | 2023        | 22.2            | 85          | 49          |
| 46 25 00  | 5071        | 22.0            | 58          | 2.39900     | 46 35 00  | 1801        | 22.2            | 87          | 53          |
| 10        | 4850        | 22.1            | 60          | 04          | 10        | 1580        | 22.1            | 89          | 57          |
| 20        | 4630        | 22.0            | 62          | 08          | 20        | 1357        | 22.3            | 91          | 61          |
| 30        | 4409        | 22.1            | 64          | 12          | 30        | 1135        | 22.2            | 94          | 66          |
| 40        | 4189        | 22.0            | 67          | 17          | 40        | 0914        | 22.1            | 96          | 71          |
| 50        | 3968        | 22.1            | 69          | 21          | 50        | 0691        | 22.3            | 2.0056398   | 75          |
| 46 26 00  | 3748        | 22.0            | 71          | 25          | 46 36 00  | 0470        | 22.1            | 2.0056400   | 79          |
| 10        | 3527        | 22.1            | 73          | 29          | 10        | 0248        | 22.2            | 02          | 83          |
| 20        | 3306        | 22.1            | 75          | 33          | 20        | 1.8440026   | 22.2            | 04          | 87          |
| 30        | 3086        | 22.0            | 77          | 37          | 30        | 1.8439804   | 22.2            | 07          | 92          |
| 40        | 2865        | 22.1            | 80          | 42          | 40        | 9582        | 22.2            | 09          | 2.40196     |
| 50        | 2644        | 22.1            | 82          | 46          | 50        | 9360        | 22.2            | 11          | 2.40200     |
| 46 27 00  | 2423        | 22.1            | 84          | 50          | 46 37 00  | 9138        | 22.2            | 13          | 04          |
| 10        | 2203        | 22.0            | 86          | 54          | 10        | 8916        | 22.2            | 15          | 08          |
| 20        | 1981        | 22.2            | 88          | 59          | 20        | 8694        | 22.2            | 17          | 12          |
| 30        | 1761        | 22.0            | 90          | 63          | 30        | 8472        | 22.2            | 19          | 17          |
| 40        | 1540        | 22.1            | 93          | 68          | 40        | 8250        | 22.2            | 21          | 21          |
| 50        | 1319        | 22.1            | 95          | 73          | 50        | 8027        | 22.3            | 23          | 25          |
| 46 28 00  | 1098        | 22.1            | 97          | 77          | 46 38 00  | 7805        | 22.2            | 25          | 29          |
| 10        | 0877        | 22.1            | 81          | 2.0056299   | 10        | 7583        | 22.2            | 27          | 33          |
| 20        | 0656        | 22.1            | 85          | 2.0056301   | 20        | 7360        | 22.3            | 29          | 37          |
| 30        | 0435        | 22.1            | 03          | 89          | 30        | 7138        | 22.2            | 32          | 42          |
| 40        | 1.8450214   | 22.1            | 06          | 94          | 40        | 6916        | 22.2            | 34          | 46          |
| 50        | 1.8449993   | 22.1            | 08          | 2.39998     | 50        | 6693        | 22.3            | 36          | 50          |
| 46 29 00  | 9772        | 22.1            | 10          | 2.40002     | 46 39 00  | 6471        | 22.2            | 38          | 54          |
| 10        | 9551        | 22.1            | 12          | 06          | 10        | 6249        | 22.2            | 40          | 58          |
| 20        | 9330        | 22.1            | 14          | 10          | 20        | 6027        | 22.2            | 42          | 62          |
| 30        | 9109        | 22.1            | 16          | 14          | 30        | 5805        | 22.2            | 45          | 67          |
| 40        | 8888        | 22.1            | 19          | 19          | 40        | 5682        | 22.3            | 47          | 71          |
| 50        | 8667        | 22.1            | 21          | 23          | 50        | 5360        | 22.2            | 49          | 75          |
| 46 30 00  | 8446        | 22.1            | 23          | 27          | 46 40 00  | 5138        | 22.2            | 51          | 79          |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H</i> . | Dif.<br>1''. | Log <i>K</i> . | Log <i>L</i> . | Latitude. | Log <i>H</i> . | Dif.<br>1''. | Log <i>K</i> . | Log <i>L</i> . |
|-----------|----------------|--------------|----------------|----------------|-----------|----------------|--------------|----------------|----------------|
| ° ′ ″     |                |              |                |                | ° ′ ″     |                |              |                |                |
| 46 40 00  | 1.8435138      | 22.2         | 2.0056451      | 2.40279        | 46 50 00  | 1.8421750      | 22.4         | 2.0056580      | 2.40532        |
| 10        | 4915           | 22.3         | 53             | 83             | 10        | 1527           | 22.3         | 82             | 36             |
| 20        | 4692           | 22.3         | 55             | 87             | 20        | 1303           | 22.4         | 84             | 40             |
| 30        | 4470           | 22.2         | 58             | 92             | 30        | 1080           | 22.3         | 87             | 45             |
| 40        | 4248           | 22.2         | 60             | 2.40296        | 40        | 0855           | 22.5         | 89             | 49             |
| 50        | 4025           | 22.3         | 62             | 2.40300        | 50        | 0632           | 22.3         | 91             | 53             |
| 46 41 00  | 3802           | 22.3         | 64             | 04             | 46 51 00  | 0408           | 22.4         | 93             | 58             |
| 10        | 3580           | 22.2         | 66             | 08             | 10        | 1.8420184      | 22.4         | 95             | 62             |
| 20        | 3357           | 22.3         | 68             | 12             | 20        | 1.8419960      | 22.4         | 97             | 66             |
| 30        | 3134           | 22.3         | 71             | 17             | 30        | 9736           | 22.4         | 2.0056599      | 71             |
| 40        | 2912           | 22.2         | 73             | 21             | 40        | 9512           | 22.4         | 2.0056601      | 75             |
| 50        | 2688           | 22.4         | 75             | 25             | 50        | 9288           | 22.4         | 03             | 79             |
| 46 42 00  | 2466           | 22.2         | 77             | 29             | 46 52 00  | 9064           | 22.4         | 05             | 83             |
| 10        | 2244           | 22.2         | 79             | 33             | 10        | 8840           | 22.4         | 07             | 87             |
| 20        | 2020           | 22.4         | 81             | 38             | 20        | 8615           | 22.5         | 09             | 91             |
| 30        | 1798           | 22.2         | 84             | 42             | 30        | 8392           | 22.3         | 12             | 2.40596        |
| 40        | 1575           | 22.3         | 86             | 46             | 40        | 8168           | 22.4         | 14             | 2.40600        |
| 50        | 1352           | 22.3         | 88             | 51             | 50        | 7943           | 22.5         | 16             | 04             |
| 46 43 00  | 1129           | 22.3         | 90             | 55             | 46 53 00  | 7719           | 22.4         | 18             | 08             |
| 10        | 0906           | 22.3         | 92             | 59             | 10        | 7495           | 22.4         | 20             | 12             |
| 20        | 0684           | 22.2         | 94             | 64             | 20        | 7270           | 22.5         | 22             | 16             |
| 30        | 0461           | 22.3         | 97             | 69             | 30        | 7046           | 22.4         | 25             | 21             |
| 40        | 0238           | 22.3         | 73             | 2.0056499      | 40        | 6822           | 22.4         | 27             | 25             |
| 50        | 1.8430015      | 22.3         | 2.0056501      | 77             | 50        | 6598           | 22.4         | 29             | 29             |
| 46 44 00  | 1.8429792      | 22.3         | 03             | 81             | 46 54 00  | 6374           | 22.4         | 31             | 33             |
| 10        | 9570           | 22.2         | 05             | 85             | 10        | 6150           | 22.4         | 33             | 37             |
| - 20      | 9346           | 22.4         | 07             | 89             | 20        | 5925           | 22.5         | 35             | 41             |
| 30        | 9123           | 22.3         | 09             | 94             | 30        | 5701           | 22.4         | 38             | 46             |
| 40        | 8900           | 22.3         | 11             | 2.40398        | 40        | 5476           | 22.5         | 40             | 50             |
| 50        | 8677           | 22.3         | 13             | 2.40402        | 50        | 5252           | 22.4         | 42             | 54             |
| 46 45 00  | 8454           | 22.3         | 15             | 06             | 46 55 00  | 5028           | 22.4         | 44             | 58             |
| 10        | 8231           | 22.3         | 17             | 10             | 10        | 4804           | 22.4         | 46             | 62             |
| 20        | 8007           | 22.4         | 19             | 14             | 20        | 4579           | 22.5         | 48             | 67             |
| 30        | 7784           | 22.3         | 22             | 19             | 30        | 4355           | 22.4         | 51             | 71             |
| 40        | 7561           | 22.3         | 24             | 23             | 40        | 4130           | 22.5         | 53             | 75             |
| 50        | 7337           | 22.4         | 26             | 27             | 50        | 3905           | 22.5         | 55             | 80             |
| 46 46 00  | 7114           | 22.3         | 28             | 31             | 46 56 00  | 3681           | 22.4         | 57             | 84             |
| 10        | 6891           | 22.3         | 30             | 35             | 10        | 3457           | 22.4         | 59             | 88             |
| 20        | 6668           | 22.3         | 32             | 39             | 20        | 3231           | 22.6         | 61             | 92             |
| 30        | 6445           | 22.3         | 35             | 44             | 30        | 3007           | 22.4         | 64             | 2.40697        |
| 40        | 6221           | 22.4         | 37             | 48             | 40        | 2783           | 22.4         | 66             | 2.40701        |
| 50        | 5998           | 22.3         | 39             | 52             | 50        | 2557           | 22.6         | 68             | 05             |
| 46 47 00  | 5775           | 22.3         | 41             | 56             | 46 57 00  | 2333           | 22.4         | 70             | 09             |
| 10        | 5552           | 22.3         | 43             | 60             | 10        | 2109           | 22.4         | 72             | 13             |
| 20        | 5328           | 22.4         | 45             | 64             | 20        | 1884           | 22.5         | 74             | 17             |
| 30        | 5105           | 22.3         | 48             | 69             | 30        | 1660           | 22.4         | 76             | 22             |
| 40        | 4882           | 22.3         | 50             | 73             | 40        | 1434           | 22.6         | 78             | 26             |
| 50        | 4658           | 22.4         | 52             | 77             | 50        | 1210           | 22.4         | 80             | 30             |
| 46 48 00  | 4434           | 22.4         | 54             | 81             | 46 58 00  | 0985           | 22.5         | 82             | 34             |
| 10        | 4211           | 22.3         | 56             | 85             | 10        | 0761           | 22.4         | 84             | 38             |
| 20        | 3987           | 22.4         | 58             | 89             | 20        | 0535           | 22.6         | 86             | 42             |
| 30        | 3764           | 22.3         | 61             | 94             | 30        | 0311           | 22.4         | 88             | 47             |
| 40        | 3540           | 22.4         | 63             | 2.40498        | 40        | 1.8410086      | 22.5         | 91             | 51             |
| 50        | 3316           | 22.4         | 65             | 2.40502        | 50        | 1.8409860      | 22.6         | 93             | 56             |
| 46 49 00  | 3093           | 22.3         | 67             | 06             | 46 59 00  | 9636           | 22.4         | 95             | 60             |
| 10        | 2869           | 22.4         | 69             | 10             | 10        | 9411           | 22.5         | 97             | 64             |
| 20        | 2645           | 22.4         | 71             | 15             | 20        | 9185           | 22.6         | 2.0056600      | 68             |
| 30        | 2422           | 22.3         | 74             | 19             | 30        | 8961           | 22.4         | 2.0056702      | 73             |
| 40        | 2198           | 22.4         | 76             | 23             | 40        | 8736           | 22.5         | 04             | 77             |
| 50        | 1974           | 22.4         | 78             | 28             | 50        | 8510           | 22.6         | 06             | 81             |
| 46 50 00  | 1750           | 22.4         | 80             | 32             | 47 00 00  | 8285           | 22.5         | 08             | 85             |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| °   '   " |           |              |           |         | °   '   " |           |              |           |         |
| 47 00 00  | 1.8408285 | 22.5         | 2.0056708 | 2.40785 | 47 10 00  | 1.8394741 | 22.6         | 2.0056837 | 2.41038 |
| 10        | 8061      | 22.4         | 10        | 89      | 10        | 4515      | 22.6         | 39        | 42      |
| 20        | 7835      | 22.6         | 12        | 93      | 20        | 4288      | 22.7         | 41        | 46      |
| 30        | 7610      | 22.5         | 15        | 2.40798 | 30        | 4062      | 22.6         | 43        | 51      |
| 40        | 7385      | 22.5         | 17        | 2.40802 | 40        | 3836      | 22.6         | 45        | 55      |
| 50        | 7159      | 22.6         | 19        | 06      | 50        | 3609      | 22.7         | 47        | 59      |
| 47 01 00  | 6934      | 22.5         | 21        | 10      | 47 11 00  | 3382      | 22.7         | 49        | 63      |
| 10        | 6709      | 22.5         | 23        | 14      | 10        | 3156      | 22.6         | 51        | 67      |
| 20        | 6484      | 22.5         | 25        | 19      | 20        | 2930      | 22.6         | 53        | 71      |
| 30        | 6259      | 22.5         | 28        | 23      | 30        | 2703      | 22.7         | 56        | 76      |
| 40        | 6033      | 22.6         | 30        | 27      | 40        | 2476      | 22.7         | 58        | 80      |
| 50        | 5808      | 22.5         | 32        | 32      | 50        | 2250      | 22.6         | 60        | 84      |
| 47 02 00  | 5583      | 22.5         | 34        | 36      | 47 12 00  | 2023      | 22.7         | 62        | 88      |
| 10        | 5358      | 22.5         | 36        | 40      | 10        | 1797      | 22.6         | 64        | 92      |
| 20        | 5132      | 22.6         | 38        | 44      | 20        | 1570      | 22.7         | 66        | 2.41096 |
| 30        | 4907      | 22.5         | 41        | 49      | 30        | 1343      | 22.7         | 69        | 2.41101 |
| 40        | 4682      | 22.5         | 43        | 53      | 40        | 1117      | 22.6         | 71        | 05      |
| 50        | 4456      | 22.6         | 45        | 57      | 50        | 0889      | 22.8         | 73        | 09      |
| 47 03 00  | 4231      | 22.5         | 47        | 61      | 47 13 00  | 0663      | 22.6         | 75        | 13      |
| 10        | 4005      | 22.6         | 49        | 65      | 10        | 0436      | 22.7         | 77        | 17      |
| 20        | 3779      | 22.6         | 51        | 69      | 20        | 1.8390209 | 22.7         | 79        | 21      |
| 30        | 3554      | 22.5         | 54        | 74      | 30        | 1.8389982 | 22.7         | 82        | 26      |
| 40        | 3329      | 22.5         | 56        | 78      | 40        | 9756      | 22.6         | 84        | 30      |
| 50        | 3102      | 22.7         | 58        | 82      | 50        | 9528      | 22.8         | 86        | 34      |
| 47 04 00  | 2877      | 22.5         | 60        | 86      | 47 14 00  | 9301      | 22.7         | 88        | 38      |
| 10        | 2652      | 22.5         | 62        | 90      | 10        | 9075      | 22.6         | 90        | 42      |
| 20        | 2426      | 22.6         | 64        | 94      | 20        | 8847      | 22.8         | 92        | 47      |
| 30        | 2201      | 22.5         | 66        | 2.40899 | 30        | 8620      | 22.7         | 95        | 52      |
| 40        | 1975      | 22.6         | 68        | 2.40903 | 40        | 8393      | 22.7         | 97        | 56      |
| 50        | 1749      | 22.6         | 70        | 07      | 50        | 8166      | 22.7         | 2.0056899 | 61      |
| 47 05 00  | 1524      | 22.5         | 72        | 11      | 47 15 00  | 7939      | 22.7         | 2.0056901 | 65      |
| 10        | 1298      | 22.6         | 74        | 15      | 10        | 7712      | 22.7         | 03        | 69      |
| 20        | 1072      | 22.6         | 76        | 19      | 20        | 7486      | 22.6         | 05        | 73      |
| 30        | 0846      | 22.6         | 79        | 24      | 30        | 7259      | 22.7         | 08        | 78      |
| 40        | 0621      | 22.5         | 81        | 28      | 40        | 7031      | 22.8         | 10        | 82      |
| 50        | 0394      | 22.7         | 83        | 32      | 50        | 0804      | 22.7         | 12        | 86      |
| 47 06 00  | 1.8400169 | 22.5         | 85        | 36      | 47 16 00  | 6577      | 22.7         | 14        | 90      |
| 10        | 1.8399943 | 22.6         | 87        | 40      | 10        | 6350      | 22.7         | 16        | 94      |
| 20        | 9716      | 22.7         | 89        | 44      | 20        | 6122      | 22.8         | 18        | 2.41198 |
| 30        | 9491      | 22.5         | 92        | 49      | 30        | 5895      | 22.7         | 20        | 2.41203 |
| 40        | 9265      | 22.6         | 94        | 54      | 40        | 5668      | 22.7         | 22        | 07      |
| 50        | 9038      | 22.7         | 96        | 58      | 50        | 5440      | 22.8         | 24        | 11      |
| 47 07 00  | 8813      | 22.5         | 2.0056798 | 62      | 47 17 00  | 5213      | 22.7         | 26        | 15      |
| 10        | 8587      | 22.6         | 66        | 10      | 10        | 4986      | 22.7         | 28        | 19      |
| 20        | 8360      | 22.7         | 70        | 20      | 20        | 4758      | 22.8         | 30        | 23      |
| 30        | 8135      | 22.5         | 05        | 75      | 30        | 4531      | 22.7         | 33        | 28      |
| 40        | 7909      | 22.6         | 07        | 79      | 40        | 4304      | 22.7         | 35        | 32      |
| 50        | 7682      | 22.7         | 09        | 83      | 50        | 4076      | 22.8         | 37        | 36      |
| 47 08 00  | 7456      | 22.6         | 11        | 87      | 47 18 00  | 3849      | 22.7         | 39        | 40      |
| 10        | 7230      | 22.6         | 13        | 91      | 10        | 3621      | 22.8         | 41        | 44      |
| 20        | 7004      | 22.6         | 15        | 2.41996 | 20        | 3393      | 22.8         | 43        | 48      |
| 30        | 6778      | 22.6         | 18        | 2.41000 | 30        | 3166      | 22.7         | 46        | 53      |
| 40        | 6552      | 22.6         | 20        | 04      | 40        | 2939      | 22.7         | 48        | 57      |
| 50        | 6326      | 22.6         | 22        | 09      | 50        | 2710      | 22.9         | 50        | 61      |
| 47 09 00  | 6100      | 22.6         | 24        | 13      | 47 19 00  | 2483      | 22.7         | 52        | 65      |
| 10        | 5874      | 22.6         | 26        | 17      | 10        | 2256      | 22.7         | 54        | 69      |
| 20        | 5647      | 22.7         | 28        | 21      | 20        | 2028      | 22.8         | 56        | 73      |
| 30        | 5421      | 22.6         | 31        | 26      | 30        | 1801      | 22.7         | 59        | 78      |
| 40        | 5195      | 22.6         | 33        | 30      | 40        | 1573      | 22.8         | 61        | 82      |
| 50        | 4967      | 22.8         | 35        | 34      | 50        | 1345      | 22.8         | 63        | 86      |
| 47 10 00  | 4741      | 22.6         | 37        | 38      | 47 20 00  | 1118      | 22.7         | 65        | 90      |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|--------------|---------------|---------------|-----------|---------------|--------------|---------------|---------------|
| °         | '             | "            |               |               | °         | '             | "            |               |               |
| 47 20 00  | 1.8381118     | 22.7         | 2.0056965     | 2.41290       | 47 30 00  | 1.8367414     | 22.9         | 2.0057093     | 2.41544       |
| 10        | 0890          | 22.8         | 67            | 94            | 10        | 7186          | 22.8         | 95            | 48            |
| 20        | 0662          | 22.8         | 69            | 2.41209       | 20        | 6956          | 23.0         | 2.0057097     | 53            |
| 30        | 0434          | 22.8         | 72            | 2.41303       | 30        | 6727          | 22.9         | 2.0057100     | 57            |
| 40        | 1.8380207     | 22.7         | 74            | 07            | 40        | 6498          | 22.9         | 02            | 61            |
| 50        | 1.8379978     | 22.9         | 76            | 12            | 50        | 6268          | 23.0         | 04            | 66            |
| 47 21 00  | 9751          | 22.7         | 78            | 16            | 47 31 00  | 6039          | 22.9         | 06            | 70            |
| 10        | 9523          | 22.8         | 80            | 20            | 10        | 5810          | 22.9         | 08            | 74            |
| 20        | 9295          | 22.8         | 82            | 24            | 20        | 5581          | 22.9         | 10            | 78            |
| 30        | 9067          | 22.8         | 85            | 29            | 30        | 5352          | 22.9         | 13            | 83            |
| 40        | 8839          | 22.8         | 87            | 33            | 40        | 5123          | 22.9         | 15            | 87            |
| 50        | 8611          | 22.8         | 89            | 37            | 50        | 4893          | 23.0         | 17            | 91            |
| 47 22 00  | 8383          | 22.8         | 91            | 41            | 47 32 00  | 4664          | 22.9         | 19            | 95            |
| 10        | 8155          | 22.8         | 93            | 46            | 10        | 4434          | 23.0         | 21            | 2.41599       |
| 20        | 7928          | 22.7         | 95            | 50            | 20        | 4204          | 23.0         | 23            | 2.41603       |
| 30        | 7700          | 22.8         | 97            | 55            | 30        | 3975          | 22.9         | 26            | 08            |
| 40        | 7471          | 22.9         | 59            |               | 40        | 3746          | 22.9         | 28            | 12            |
| 50        | 7243          | 22.8         | 63            |               | 50        | 3516          | 23.0         | 30            | 16            |
| 47 23 00  | 7015          | 22.8         | 03            | 67            | 47 33 00  | 3287          | 22.9         | 32            | 20            |
| 10        | 6788          | 22.7         | 05            | 71            | 10        | 3058          | 22.9         | 34            | 24            |
| 20        | 6559          | 22.9         | 07            | 75            | 20        | 2828          | 23.0         | 36            | 28            |
| 30        | 6331          | 22.8         | 10            | 80            | 30        | 2599          | 22.9         | 38            | 33            |
| 40        | 6103          | 22.8         | 12            | 84            | 40        | 2369          | 23.0         | 40            | 37            |
| 50        | 5874          | 22.9         | 14            | 88            | 50        | 2140          | 22.9         | 42            | 41            |
| 47 24 00  | 5646          | 22.8         | 16            | 92            | 47 34 00  | 1910          | 23.0         | 44            | 45            |
| 10        | 5418          | 22.8         | 18            | 2.41396       | 10        | 1681          | 22.9         | 46            | 49            |
| 20        | 5189          | 22.9         | 20            | 2.41400       | 20        | 1451          | 23.0         | 48            | 53            |
| 30        | 4961          | 22.8         | 23            | 05            | 30        | 1221          | 23.0         | 51            | 58            |
| 40        | 4733          | 22.8         | 25            | 09            | 40        | 0992          | 22.9         | 53            | 62            |
| 50        | 4504          | 22.9         | 27            | 13            | 50        | 0762          | 23.0         | 55            | 66            |
| 47 25 00  | 4276          | 22.8         | 29            | 17            | 47 35 00  | 0532          | 23.0         | 57            | 70            |
| 10        | 4048          | 22.8         | 31            | 21            | 10        | 0303          | 22.9         | 59            | 74            |
| 20        | 3818          | 23.0         | 33            | 26            | 20        | 1.8360072     | 23.1         | 61            | 79            |
| 30        | 3590          | 22.8         | 36            | 30            | 30        | 1.8359842     | 23.0         | 64            | 83            |
| 40        | 3362          | 22.8         | 38            | 34            | 40        | 9613          | 22.9         | 66            | 87            |
| 50        | 3133          | 22.9         | 40            | 39            | 50        | 9383          | 23.0         | 68            | 92            |
| 47 26 00  | 2905          | 22.8         | 42            | 43            | 47 36 00  | 9153          | 23.0         | 70            | 2.41696       |
| 10        | 2676          | 22.7         | 44            | 47            | 10        | 8923          | 23.0         | 72            | 2.41700       |
| 20        | 2448          | 22.8         | 46            | 51            | 20        | 8693          | 23.0         | 74            | 04            |
| 30        | 2220          | 22.8         | 49            | 56            | 30        | 8463          | 23.0         | 77            | 09            |
| 40        | 1991          | 22.9         | 51            | 60            | 40        | 8233          | 23.0         | 79            | 13            |
| 50        | 1762          | 22.9         | 53            | 64            | 50        | 8003          | 23.0         | 81            | 17            |
| 47 27 00  | 1534          | 22.8         | 55            | 68            | 47 37 00  | 7773          | 23.0         | 83            | 21            |
| 10        | 1305          | 22.9         | 57            | 72            | 10        | 7543          | 23.0         | 85            | 25            |
| 20        | 1076          | 22.9         | 59            | 76            | 20        | 7314          | 22.9         | 87            | 29            |
| 30        | 0848          | 22.8         | 62            | 81            | 30        | 7084          | 23.0         | 90            | 34            |
| 40        | 0619          | 22.9         | 64            | 85            | 40        | 6853          | 23.1         | 92            | 38            |
| 50        | 0390          | 22.9         | 66            | 89            | 50        | 6623          | 23.0         | 94            | 43            |
| 47 28 00  | 1.8370161     | 22.9         | 68            | 93            | 47 38 00  | 6393          | 23.0         | 96            | 47            |
| 10        | 1.8369933     | 22.8         | 70            | 2.41407       | 10        | 6163          | 23.0         | 2.0057198     | 51            |
| 20        | 9703          | 23.0         | 72            | 2.41501       | 20        | 5933          | 23.0         | 2.0057200     | 55            |
| 30        | 9475          | 22.8         | 74            | 06            | 30        | 5703          | 23.0         | 03            | 60            |
| 40        | 9246          | 22.9         | 76            | 10            | 40        | 5473          | 23.0         | 05            | 64            |
| 50        | 9016          | 23.0         | 78            | 14            | 50        | 5242          | 23.1         | 07            | 68            |
| 47 29 00  | 8788          | 22.8         | 80            | 18            | 47 39 00  | 5012          | 23.0         | 09            | 72            |
| 10        | 8559          | 22.9         | 82            | 22            | 10        | 4752          | 23.0         | 11            | 76            |
| 20        | 8330          | 22.9         | 84            | 26            | 20        | 4551          | 23.1         | 13            | 80            |
| 30        | 8102          | 22.8         | 87            | 31            | 30        | 4321          | 23.0         | 15            | 85            |
| 40        | 7872          | 23.0         | 89            | 35            | 40        | 4091          | 23.0         | 17            | 89            |
| 50        | 7643          | 22.9         | 91            | 39            | 50        | 3860          | 23.1         | 19            | 93            |
| 47 30 00  | 7414          | 22.9         | 93            | 44            | 47 40 00  | 3629          | 23.1         | 21            | 97            |

Table for transformation of coordinates—Continued.

| Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> | Latitude. | Log <i>H.</i> | Diff.<br>1". | Log <i>K.</i> | Log <i>L.</i> |
|-----------|---------------|--------------|---------------|---------------|-----------|---------------|--------------|---------------|---------------|
| ° ' "     |               |              |               |               | ° ' "     |               |              |               |               |
| 47 40 00  | 1.8353629     | 23.1         | 2.0057221     | 2.41797       | 47 50 00  | 1.8339764     | 23.2         | 2.0057349     | 2.42050       |
| 10        | 3399          | 23.0         | 23            | 2.41801       | 10        | 9533          | 23.1         | 51            | 54            |
| 20        | 3169          | 23.0         | 25            | 06            | 20        | 9300          | 23.3         | 53            | 59            |
| 30        | 2939          | 23.0         | 28            | 10            | 30        | 9069          | 23.1         | 56            | 63            |
| 40        | 2708          | 23.1         | 30            | 14            | 40        | 8837          | 23.2         | 58            | 67            |
| 50        | 2478          | 23.0         | 32            | 19            | 50        | 8605          | 23.2         | 60            | 72            |
| 47 41 00  | 2247          | 23.1         | 34            | 23            | 47 51 00  | 8373          | 23.2         | 62            | 76            |
| 10        | 2017          | 23.0         | 36            | 27            | 10        | 8142          | 23.1         | 64            | 80            |
| 20        | 1786          | 23.1         | 38            | 31            | 20        | 7910          | 23.2         | 66            | 84            |
| 30        | 1555          | 23.1         | 41            | 36            | 30        | 7678          | 23.2         | 69            | 89            |
| 40        | 1325          | 23.0         | 43            | 40            | 40        | 7446          | 23.2         | 71            | 93            |
| 50        | 1094          | 23.1         | 45            | 44            | 50        | 7214          | 23.2         | 73            | 2.42097       |
| 47 42 00  | 0863          | 23.1         | 47            | 48            | 47 52 00  | 6982          | 23.2         | 75            | 2.42101       |
| 10        | 0633          | 23.0         | 49            | 52            | 10        | 6750          | 23.2         | 77            | 05            |
| 20        | 0402          | 23.1         | 51            | 56            | 20        | 6518          | 23.2         | 79            | 09            |
| 30        | 1.8350171     | 23.1         | 54            | 61            | 30        | 6286          | 23.2         | 82            | 14            |
| 40        | 1.8349941     | 23.0         | 56            | 65            | 40        | 6054          | 23.2         | 84            | 18            |
| 50        | 9709          | 23.2         | 58            | 69            | 50        | 5821          | 23.3         | 86            | 22            |
| 47 43 00  | 9479          | 23.0         | 60            | 73            | 47 53 00  | 5589          | 23.2         | 88            | 26            |
| 10        | 9248          | 23.1         | 62            | 77            | 10        | 5357          | 23.2         | 90            | 30            |
| 20        | 9017          | 23.1         | 64            | 81            | 20        | 5124          | 23.3         | 92            | 34            |
| 30        | 8786          | 23.1         | 67            | 86            | 30        | 4892          | 23.2         | 95            | 39            |
| 40        | 8555          | 23.1         | 69            | 90            | 40        | 4660          | 23.2         | 97            | 44            |
| 50        | 8324          | 23.1         | 71            | 94            | 50        | 4428          | 23.2         | 2.0057399     | 48            |
| 47 44 00  | 8093          | 23.1         | 73            | 2.41898       | 47 54 00  | 4195          | 23.3         | 2.0057401     | 52            |
| 10        | 7862          | 23.1         | 75            | 2.41902       | 10        | 3963          | 23.2         | 03            | 56            |
| 20        | 7632          | 23.0         | 77            | 06            | 20        | 3730          | 23.3         | 05            | 61            |
| 30        | 7401          | 23.1         | 79            | 11            | 30        | 3498          | 23.2         | 08            | 65            |
| 40        | 7169          | 23.2         | 81            | 15            | 40        | 3266          | 23.2         | 10            | 69            |
| 50        | 6938          | 23.1         | 83            | 19            | 50        | 3033          | 23.3         | 12            | 74            |
| 47 45 00  | 6708          | 23.0         | 85            | 23            | 47 55 00  | 2801          | 23.2         | 14            | 78            |
| 10        | 6477          | 23.1         | 87            | 27            | 10        | 2569          | 23.2         | 16            | 82            |
| 20        | 6245          | 23.2         | 89            | 32            | 20        | 2337          | 23.2         | 18            | 86            |
| 30        | 6014          | 23.1         | 92            | 36            | 30        | 2104          | 23.3         | 20            | 91            |
| 40        | 5783          | 23.1         | 94            | 41            | 40        | 1871          | 23.3         | 22            | 95            |
| 50        | 5551          | 23.2         | 96            | 46            | 50        | 1639          | 23.2         | 24            | 2.42199       |
| 47 46 00  | 5320          | 23.1         | 2.0057298     | 50            | 47 56 00  | 1407          | 23.2         | 26            | 2.42203       |
| 10        | 5090          | 23.0         | 2.0057300     | 54            | 10        | 1174          | 23.3         | 28            | 07            |
| 20        | 4858          | 23.2         | 02            | 58            | 20        | 0941          | 23.3         | 30            | 11            |
| 30        | 4627          | 23.1         | 05            | 63            | 30        | 0709          | 23.2         | 33            | 16            |
| 40        | 4396          | 23.1         | 07            | 67            | 40        | 0476          | 23.2         | 35            | 20            |
| 50        | 4163          | 23.3         | 09            | 71            | 50        | 0243          | 23.3         | 37            | 24            |
| 47 47 00  | 3932          | 23.1         | 11            | 75            | 47 57 00  | 1.8330010     | 23.3         | 39            | 28            |
| 10        | 3701          | 23.1         | 13            | 79            | 10        | 1.8329778     | 23.2         | 41            | 32            |
| 20        | 3470          | 23.1         | 15            | 83            | 20        | 9545          | 23.3         | 43            | 36            |
| 30        | 3239          | 23.1         | 18            | 88            | 30        | 9312          | 23.3         | 46            | 41            |
| 40        | 3007          | 23.2         | 20            | 92            | 40        | 9080          | 23.2         | 48            | 45            |
| 50        | 2776          | 23.1         | 22            | 2.41996       | 50        | 8846          | 23.4         | 50            | 49            |
| 47 48 00  | 2545          | 23.1         | 24            | 2.42000       | 47 58 00  | 8613          | 23.3         | 52            | 53            |
| 10        | 2313          | 23.2         | 26            | 04            | 10        | 8381          | 23.2         | 54            | 57            |
| 20        | 2081          | 23.2         | 28            | 08            | 20        | 8147          | 23.4         | 56            | 61            |
| 30        | 1850          | 23.1         | 31            | 13            | 30        | 7915          | 23.2         | 59            | 66            |
| 40        | 1619          | 23.1         | 33            | 17            | 40        | 7682          | 23.3         | 61            | 70            |
| 50        | 1386          | 23.3         | 35            | 21            | 50        | 7448          | 23.4         | 63            | 74            |
| 47 49 00  | 1155          | 23.1         | 37            | 25            | 47 59 00  | 7216          | 23.2         | 65            | 78            |
| 10        | 0924          | 23.1         | 39            | 29            | 10        | 6983          | 23.3         | 67            | 82            |
| 20        | 0691          | 23.3         | 41            | 33            | 20        | 6750          | 23.3         | 69            | 87            |
| 30        | 0460          | 23.1         | 43            | 38            | 30        | 6517          | 23.3         | 72            | 91            |
| 40        | 1.8340228     | 23.2         | 45            | 42            | 40        | 6284          | 23.3         | 74            | 2.42295       |
| 50        | 1.833996      | 23.2         | 47            | 46            | 50        | 6051          | 23.3         | 76            | 2.42300       |
| 47 50 00  | 9764          | 23.2         | 49            | 50            | 48 00 00  | 5818          | 23.3         | 78            | 04            |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ' "     |           |              |           |         | ° ' "     |           |              |           |         |
| 48 00 00  | 1.8325818 | 23.3         | 2.0057475 | 2.42304 | 48 10 00  | 1.8311788 | 23.5         | 2.0057606 | 2.42558 |
| 10        | 5585      | 23.3         | 80        | 08      | 10        | 1554      | 23.4         | 08        | 62      |
| 20        | 5351      | 23.4         | 82        | 12      | 20        | 1320      | 23.4         | 10        | 66      |
| 30        | 5117      | 23.4         | 84        | 17      | 30        | 1086      | 23.4         | 12        | 71      |
| 40        | 4885      | 23.2         | 86        | 21      | 40        | 0850      | 23.6         | 14        | 75      |
| 50        | 4651      | 23.4         | 88        | 25      | 50        | 0616      | 23.4         | 16        | 79      |
| 48 01 00  | 4418      | 23.3         | 90        | 29      | 48 11 00  | 0382      | 23.4         | 18        | 83      |
| 10        | 4185      | 23.3         | 92        | 33      | 10        | 1.8310147 | 23.5         | 20        | 87      |
| 20        | 3951      | 23.4         | 94        | 38      | 20        | 1.8309912 | 23.5         | 22        | 92      |
| 30        | 3718      | 23.3         | 97        | 43      | 30        | 9677      | 23.5         | 25        | 42596   |
| 40        | 3485      | 23.3         | 47        |         | 40        | 9443      | 23.4         | 27        | 42400   |
| 50        | 3251      | 23.4         | 51        |         | 50        | 9208      | 23.5         | 29        | 05      |
| 48 02 00  | 3018      | 23.3         | 03        | 55      | 48 12 00  | 8973      | 23.5         | 31        | 09      |
| 10        | 2785      | 23.3         | 05        | 59      | 10        | 8739      | 23.4         | 33        | 13      |
| 20        | 2552      | 23.3         | 07        | 63      | 20        | 8503      | 23.6         | 35        | 17      |
| 30        | 2319      | 23.3         | 10        | 68      | 30        | 8269      | 23.4         | 38        | 22      |
| 40        | 2085      | 23.4         | 12        | 72      | 40        | 8034      | 23.5         | 40        | 26      |
| 50        | 1851      | 23.4         | 14        | 76      | 50        | 7798      | 23.6         | 42        | 30      |
| 48 03 00  | 1618      | 23.3         | 16        | 80      | 48 13 00  | 7564      | 23.6         | 44        | 34      |
| 10        | 1385      | 23.3         | 18        | 84      | 10        | 7329      | 23.5         | 46        | 38      |
| 20        | 1151      | 23.4         | 20        | 89      | 20        | 7093      | 23.6         | 48        | 42      |
| 30        | 0917      | 23.4         | 23        | 93      | 30        | 6859      | 23.4         | 51        | 47      |
| 40        | 0684      | 23.3         | 25        |         | 40        | 6624      | 23.5         | 53        | 51      |
| 50        | 0450      | 23.4         | 27        | 2.42397 | 50        | 6388      | 23.6         | 55        | 55      |
| 48 04 00  | 1.8320216 | 23.4         | 29        | 06      | 48 14 00  | 6154      | 23.4         | 57        | 59      |
| 10        | 1.8319983 | 23.3         | 31        | 10      | 10        | 5919      | 23.5         | 59        | 63      |
| - 20      | 9748      | 23.5         | 33        | 14      | 20        | 5684      | 23.5         | 61        | 67      |
| 30        | 9515      | 23.3         | 36        | 19      | 30        | 5449      | 23.5         | 64        | 72      |
| 40        | 9281      | 23.4         | 38        | 23      | 40        | 5213      | 23.6         | 66        | 76      |
| 50        | 9047      | 23.4         | 40        | 27      | 50        | 4978      | 23.5         | 68        | 80      |
| 48 05 00  | 8813      | 23.4         | 42        | 31      | 48 15 00  | 4744      | 23.4         | 70        | 84      |
| 10        | 8580      | 23.3         | 44        | 35      | 10        | 4509      | 23.5         | 72        | 88      |
| 20        | 8345      | 23.5         | 46        | 39      | 20        | 4273      | 23.6         | 74        | 93      |
| 30        | 8112      | 23.3         | 48        | 44      | 30        | 4038      | 23.5         | 76        | 2.42697 |
| 40        | 7878      | 23.4         | 50        | 48      | 40        | 3803      | 23.5         | 78        | 2.42701 |
| 50        | 7644      | 23.4         | 52        | 52      | 50        | 3567      | 23.6         | 80        | 06      |
| 48 06 00  | 7410      | 23.4         | 54        | 56      | 48 16 00  | 3332      | 23.5         | 82        | 10      |
| 10        | 7176      | 23.4         | 56        | 60      | 10        | 3097      | 23.5         | 84        | 14      |
| 20        | 6942      | 23.4         | 58        | 64      | 20        | 2861      | 23.6         | 86        | 18      |
| 30        | 6709      | 23.3         | 61        | 69      | 30        | 2626      | 23.5         | 89        | 23      |
| 40        | 6474      | 23.5         | 63        | 73      | 40        | 2390      | 23.6         | 91        | 27      |
| 50        | 6240      | 23.5         | 65        | 77      | 50        | 2154      | 23.6         | 93        | 32      |
| 48 07 00  | 6006      | 23.4         | 67        | 81      | 48 17 00  | 1919      | 23.5         | 95        | 36      |
| 10        | 5773      | 23.3         | 69        | 85      | 10        | 1684      | 23.5         | 97        | 40      |
| 40        | 5538      | 23.5         | 71        | 90      | 20        | 1448      | 23.6         | 2.0057699 | 44      |
| 30        | 5304      | 23.4         | 74        | 94      | 30        | 1212      | 23.6         | 2.0057702 | 49      |
| 40        | 5070      | 23.4         | 76        |         | 40        | 0977      | 23.5         | 04        | 53      |
| 50        | 4835      | 23.5         | 78        | 2.42498 | 50        | 0741      | 23.6         | 06        | 57      |
| 48 08 00  | 4601      | 23.4         | 80        | 07      | 48 18 00  | 0506      | 23.5         | 08        | 61      |
| 10        | 4367      | 23.4         | 82        | 11      | 10        | 0270      | 23.6         | 10        | 65      |
| 20        | 4132      | 23.5         | 84        | 15      | 20        | 1.8300035 | 23.5         | 12        | 70      |
| 30        | 3898      | 23.4         | 87        | 20      | 30        | 1.8299800 | 23.5         | 15        | 74      |
| 40        | 3664      | 23.4         | 89        | 24      | 40        | 9563      | 23.7         | 17        | 78      |
| 50        | 3429      | 23.5         | 91        | 28      | 50        | 9328      | 23.5         | 19        | 83      |
| 48 09 00  | 3195      | 23.4         | 93        | 33      | 48 19 00  | 9092      | 23.6         | 21        | 87      |
| 10        | 2961      | 23.4         | 95        | 37      | 10        | 8857      | 23.5         | 23        | 91      |
| 20        | 2726      | 23.5         | 41        |         | 20        | 8620      | 23.7         | 25        | 42795   |
| 30        | 2492      | 23.4         | 46        |         | 30        | 8385      | 23.5         | 28        | 42800   |
| 40        | 2258      | 23.4         | 02        |         | 40        | 8149      | 23.6         | 30        | 04      |
| 50        | 2023      | 23.5         | 04        | 54      | 50        | 7913      | 23.6         | 32        | 08      |
| 48 10 00  | 1788      | 23.5         | 06        | 58      | 48 20 00  | 7677      | 23.6         | 34        | 12      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| ° ′ ″     |           |              |           |         | ° ′ ″     |           |              |           |         |
| 48 20 00  | 1.8297677 | 23.6         | 2.0057734 | 2.42812 | 48 30 00  | 1.8283483 | 23.7         | 2.0057861 | 2.43005 |
| 19        | 7441      | 23.6         | 36        | 16      | 3246      | 23.7      | 63           | 69        |         |
| 20        | 7205      | 23.6         | 38        | 20      | 3008      | 23.8      | 65           | 74        |         |
| 30        | 6969      | 23.6         | 40        | 25      | 2771      | 23.7      | 68           | 78        |         |
| 40        | 6734      | 23.5         | 42        | 29      | 2534      | 23.7      | 70           | 82        |         |
| 50        | 6497      | 23.7         | 44        | 33      | 2295      | 23.9      | 72           | 87        |         |
| 48 21 00  | 6261      | 23.6         | 46        | 37      | 48 31 00  | 2058      | 23.7         | 74        | 91      |
| 10        | 6025      | 23.6         | 48        | 41      | 1821      | 23.7      | 76           | 95        |         |
| 20        | 5790      | 23.5         | 50        | 45      | 1583      | 23.8      | 78           | 2.43099   |         |
| 30        | 5554      | 23.6         | 53        | 50      | 1346      | 23.7      | 81           | 2.43104   |         |
| 40        | 5317      | 23.7         | 55        | 54      | 1109      | 23.7      | 83           | 08        |         |
| 50        | 5081      | 23.6         | 57        | 58      | 0870      | 23.9      | 85           | 12        |         |
| 48 22 00  | 4845      | 23.6         | 59        | 62      | 48 32 00  | 0033      | 23.7         | 87        | 16      |
| 10        | 4609      | 23.6         | 61        | 66      | 0396      | 23.7      | 89           | 20        |         |
| 20        | 4373      | 23.6         | 63        | 71      | 1.8280158 | 23.8      | 91           | 24        |         |
| 30        | 4137      | 23.6         | 66        | 75      | 1.8279920 | 23.8      | 94           | 29        |         |
| 40        | 3901      | 23.6         | 68        | 79      | 9683      | 23.7      | 96           | 34        |         |
| 50        | 3664      | 23.7         | 70        | 84      | 9445      | 23.8      | 2.0057898    | 38        |         |
| 48 23 00  | 3428      | 23.6         | 72        | 88      | 48 33 00  | 9207      | 23.8         | 2.0057900 | 42      |
| 10        | 3192      | 23.6         | 74        | 92      | 8970      | 23.7      | 02           | 46        |         |
| 20        | 2955      | 23.7         | 76        | 2.42896 | 8732      | 23.8      | 04           | 51        |         |
| 30        | 2719      | 23.6         | 79        | 2.42901 | 8495      | 23.7      | 06           | 55        |         |
| 40        | 2482      | 23.7         | 81        | 05      | 8256      | 23.9      | 08           | 59        |         |
| 50        | 2245      | 23.7         | 83        | 09      | 8019      | 23.7      | 10           | 64        |         |
| 48 24 00  | 2008      | 23.7         | 85        | 13      | 48 34 00  | 7781      | 23.8         | 12        | 68      |
| 10        | 1773      | 23.5         | 87        | 17      | 7544      | 23.7      | 14           | 72        |         |
| 20        | 1536      | 23.7         | 89        | 21      | 7305      | 23.9      | 16           | 76        |         |
| 30        | 1300      | 23.6         | 91        | 26      | 7068      | 23.7      | 19           | 81        |         |
| 40        | 1063      | 23.7         | 93        | 31      | 6830      | 23.8      | 21           | 85        |         |
| 50        | 0826      | 23.7         | 95        | 35      | 6591      | 23.9      | 23           | 89        |         |
| 48 25 00  | 0590      | 23.6         | 97        | 39      | 48 35 00  | 6354      | 23.7         | 25        | 93      |
| 10        | 0354      | 23.6         | 2.0057799 | 43      | 10        | 6116      | 23.8         | 27        | 2.43197 |
| 20        | 1.8290117 | 23.7         | 2.0057801 | 47      | 20        | 5877      | 23.9         | 29        | 2.43201 |
| 30        | 1.8289881 | 23.6         | 04        | 52      | 30        | 5640      | 23.7         | 32        | 06      |
| 40        | 9643      | 23.8         | 06        | 56      | 40        | 5402      | 23.8         | 34        | 10      |
| 50        | 9407      | 23.6         | 08        | 60      | 50        | 5163      | 23.9         | 36        | 14      |
| 48 26 00  | 9171      | 23.6         | 10        | 64      | 48 36 00  | 4925      | 23.8         | 38        | 18      |
| 10        | 8934      | 23.7         | 12        | 68      | 4687      | 23.8      | 40           | 22        |         |
| 20        | 8697      | 23.7         | 14        | 73      | 4443      | 23.9      | 42           | 27        |         |
| 30        | 8460      | 23.7         | 17        | 77      | 4211      | 23.7      | 45           | 31        |         |
| 40        | 8224      | 23.6         | 19        | 81      | 3973      | 23.8      | 47           | 35        |         |
| 50        | 7986      | 23.8         | 21        | 86      | 3734      | 23.9      | 49           | 40        |         |
| 48 27 00  | 7750      | 23.6         | 23        | 90      | 48 37 00  | 3496      | 23.8         | 51        | 44      |
| 10        | 7513      | 23.7         | 25        | 94      | 10        | 3258      | 23.8         | 53        | 48      |
| 20        | 7276      | 23.7         | 27        | 2.42998 | 20        | 3010      | 23.8         | 55        | 52      |
| 30        | 7039      | 23.7         | 30        | 2.43003 | 30        | 2782      | 23.8         | 58        | 57      |
| 40        | 6802      | 23.7         | 32        | 07      | 40        | 2543      | 23.9         | 60        | 61      |
| 50        | 6565      | 23.7         | 34        | 11      | 50        | 2305      | 23.8         | 62        | 65      |
| 48 28 00  | 6328      | 23.7         | 36        | 15      | 48 38 00  | 2067      | 23.8         | 64        | 69      |
| 10        | 6091      | 23.7         | 38        | 19      | 10        | 1828      | 23.9         | 66        | 73      |
| 20        | 5853      | 23.8         | 40        | 23      | 20        | 1589      | 23.9         | 68        | 86      |
| 30        | 5617      | 23.6         | 43        | 28      | 30        | 1351      | 23.8         | 70        | 90      |
| 40        | 5380      | 23.7         | 45        | 32      | 40        | 1113      | 23.8         | 72        | 77      |
| 50        | 5142      | 23.8         | 47        | 36      | 50        | 0874      | 23.9         | 74        | 82      |
| 48 29 00  | 4905      | 23.7         | 49        | 40      | 48 39 00  | 0636      | 23.8         | 76        | 94      |
| 10        | 4668      | 23.7         | 51        | 44      | 10        | 0397      | 23.9         | 78        | 2.43298 |
| 20        | 4431      | 23.7         | 53        | 48      | 20        | 1.8270158 | 23.9         | 80        | 2.43303 |
| 30        | 4195      | 23.6         | 55        | 53      | 30        | 1.8269920 | 23.8         | 83        | 07      |
| 40        | 3957      | 23.8         | 57        | 57      | 40        | 9681      | 23.9         | 85        | 11      |
| 50        | 3720      | 23.7         | 59        | 61      | 50        | 9442      | 23.9         | 87        | 16      |
| 48 30 00  | 3483      | 23.7         | 61        | 65      | 48 40 00  | 9204      | 23.8         | 89        | 20      |

Table for transformation of coordinates—Continued.

| Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  | Latitude. | Log H.    | Diff.<br>1". | Log K.    | Log L.  |
|-----------|-----------|--------------|-----------|---------|-----------|-----------|--------------|-----------|---------|
| • ' "     |           |              |           |         | • ' "     |           |              |           |         |
| 48 40 00  | 1.8269204 | 23.8         | 2.0057989 | 2.43320 | 48 50 00  | 1.8254841 | 24.0         | 2.0058117 | 2.43575 |
| 10        | 8965      | 23.9         | 91        | 24      | 10        | 4602      | 23.9         | 19        | 79      |
| 20        | 8726      | 23.9         | 93        | 29      | 20        | 4361      | 24.1         | 21        | 83      |
| 30        | 8487      | 23.9         | 96        | 34      | 30        | 4121      | 24.0         | 23        | 88      |
| 40        | 8249      | 23.8         | 2.0057998 | 38      | 40        | 3881      | 24.0         | 25        | 92      |
| 50        | 8009      | 24.0         | 2.0058000 | 42      | 50        | 3640      | 24.1         | 27        | 2.43596 |
| 48 41 00  | 7771      | 23.8         | 02        | 46      | 48 51 00  | 3400      | 24.0         | 29        | 2.43600 |
| 10        | 7532      | 23.9         | 04        | 50      | 10        | 3160      | 24.0         | 31        | 04      |
| 20        | 7294      | 23.8         | 06        | 54      | 20        | 2919      | 24.1         | 33        | 08      |
| 30        | 7055      | 23.9         | 09        | 59      | 30        | 2679      | 24.0         | 36        | 13      |
| 40        | 6816      | 23.9         | 11        | 63      | 40        | 2439      | 24.0         | 38        | 17      |
| 50        | 6577      | 23.9         | 13        | 67      | 50        | 2198      | 24.1         | 40        | 21      |
| 48 42 00  | 6338      | 23.9         | 15        | 71      | 48 52 00  | 1958      | 24.0         | 42        | 25      |
| 10        | 6100      | 23.8         | 17        | 75      | 10        | 1718      | 24.0         | 44        | 29      |
| 20        | 5860      | 24.0         | 19        | 79      | 20        | 1477      | 24.1         | 46        | 34      |
| 30        | 5621      | 23.9         | 21        | 84      | 30        | 1237      | 24.0         | 49        | 38      |
| 40        | 5382      | 23.9         | 23        | 88      | 40        | 0997      | 24.0         | 51        | 42      |
| 50        | 5143      | 23.9         | 25        | 92      | 50        | 0755      | 24.2         | 53        | 47      |
| 48 43 00  | 4904      | 23.9         | 27        | 2.43396 | 48 53 00  | 0515      | 24.2         | 55        | 51      |
| 10        | 4665      | 23.9         | 29        | 2.43400 | 10        | 0275      | 24.0         | 57        | 55      |
| 20        | 4425      | 24.0         | 31        | 05      | 20        | 1.8250035 | 24.0         | 59        | 59      |
| 30        | 4186      | 23.9         | 34        | 09      | 30        | 1.8249794 | 24.1         | 62        | 64      |
| 40        | 3947      | 23.9         | 36        | 13      | 40        | 9553      | 24.1         | 64        | 68      |
| 50        | 3708      | 23.9         | 38        | 18      | 50        | 9313      | 24.0         | 66        | 72      |
| 48 44 00  | 3469      | 23.9         | 40        | 22      | 48 54 00  | 9072      | 24.1         | 68        | 76      |
| 10        | 3230      | 23.9         | 42        | 26      | 10        | 8832      | 24.0         | 70        | 80      |
| -20       | 2991      | 23.9         | 44        | 30      | 20        | 8591      | 24.1         | 72        | 84      |
| -30       | 2752      | 23.9         | 47        | 35      | 30        | 8350      | 24.1         | 74        | 89      |
| 40        | 2512      | 24.0         | 49        | 39      | 40        | 8110      | 24.0         | 76        | 93      |
| 50        | 2273      | 23.9         | 51        | 43      | 50        | 7868      | 24.2         | 78        | 2.43697 |
| 48 45 00  | 2034      | 23.9         | 53        | 47      | 48 55 00  | 7628      | 24.0         | 80        | 2.43701 |
| 10        | 1794      | 24.0         | 55        | 51      | 10        | 7387      | 24.1         | 82        | 05      |
| 20        | 1554      | 24.0         | 57        | 55      | 20        | 7146      | 24.1         | 84        | 10      |
| 30        | 1315      | 23.9         | 60        | 60      | 30        | 6905      | 24.1         | 87        | 14      |
| 40        | 1076      | 23.9         | 62        | 64      | 40        | 6665      | 24.0         | 89        | 18      |
| 50        | 0836      | 24.0         | 64        | 68      | 50        | 6423      | 24.2         | 91        | 23      |
| 48 46 00  | 0597      | 23.9         | 66        | 72      | 48 56 00  | 6182      | 24.1         | 93        | 28      |
| 10        | 0357      | 24.0         | 68        | 76      | 10        | 5942      | 24.0         | 95        | 32      |
| 20        | 1.8260117 | 24.0         | 70        | 81      | 20        | 5701      | 24.1         | 97        | 36      |
| 30        | 1.8259878 | 23.9         | 72        | 85      | 30        | 5460      | 24.1         | 99        | 41      |
| 40        | 9638      | 24.0         | 74        | 89      | 40        | 5219      | 24.1         | 02        | 45      |
| 50        | 9398      | 24.0         | 76        | 94      | 50        | 4978      | 24.1         | 04        | 49      |
| 48 47 00  | 9159      | 23.9         | 78        | 2.43498 | 48 57 00  | 4737      | 24.1         | 06        | 53      |
| 10        | 8919      | 24.0         | 80        | 2.43502 | 10        | 4496      | 24.1         | 08        | 57      |
| 20        | 8679      | 24.0         | 82        | 06      | 20        | 4255      | 24.1         | 10        | 61      |
| 30        | 8440      | 23.9         | 85        | 11      | 30        | 4014      | 24.1         | 13        | 66      |
| 40        | 8200      | 24.0         | 87        | 15      | 40        | 3773      | 24.1         | 15        | 70      |
| 50        | 7960      | 24.0         | 89        | 19      | 50        | 3531      | 24.2         | 17        | 74      |
| 48 48 00  | 7720      | 24.0         | 91        | 23      | 48 58 00  | 3290      | 24.1         | 19        | 78      |
| 10        | 7481      | 23.9         | 93        | 28      | 10        | 3049      | 24.1         | 21        | 82      |
| 20        | 7241      | 24.0         | 95        | 32      | 20        | 2807      | 24.2         | 23        | 87      |
| 30        | 7002      | 23.9         | 2.0058098 | 37      | 30        | 2566      | 24.1         | 26        | 91      |
| 40        | 6761      | 24.1         | 2.0058100 | 41      | 40        | 2325      | 24.1         | 28        | 2.43795 |
| 50        | 6521      | 24.0         | 02        | 45      | 50        | 2083      | 24.2         | 30        | 2.43800 |
| 48 49 00  | 6282      | 23.9         | 04        | 49      | 48 59 00  | 1842      | 24.1         | 32        | 04      |
| 10        | 6012      | 24.0         | 06        | 53      | 10        | 1601      | 24.1         | 34        | 08      |
| 20        | 5801      | 24.1         | 08        | 58      | 20        | 1359      | 24.2         | 36        | 12      |
| 30        | 5562      | 23.9         | 11        | 62      | 30        | 1118      | 24.1         | 38        | 17      |
| 40        | 5322      | 24.0         | 13        | 66      | 40        | 0877      | 24.1         | 40        | 21      |
| 50        | 5081      | 24.1         | 15        | 71      | 50        | 0634      | 24.3         | 42        | 25      |
| 48 50 00  | 4841      | 24.0         | 17        | 75      | 49 00 00  | 0393      | 24.1         | 44        | 29      |

## APPENDIX.

### DEVELOPMENT OF FORMULAS FOR CONSTRUCTION OF TABLES.

The formulas on page 6 are obtained as given below. In figure 1 let  $P$  be a triangulation point whose latitude and longitude are known. It is desired to obtain the plane coordinates,  $x$  and  $y$  with reference to the origin,  $O$ .

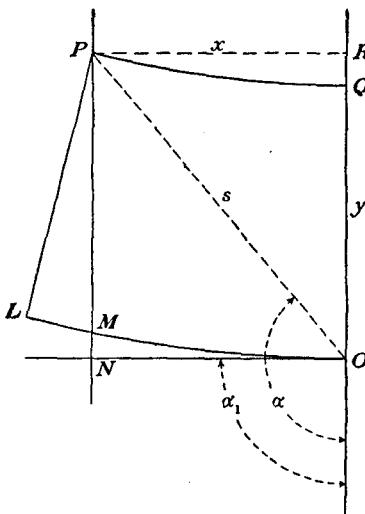


FIG. 1.

For all distances used in a plane system, we may assume  $PR = PQ$ , that is,  $x$  equals the length of the arc of the parallel  $PQ$ . The  $y$ -coordinate equals  $PN$ , which equals  $PL$ , the difference in latitude, plus  $MN$ , the offset from the great circle to the parallel.

The formulas<sup>1</sup> used in the computation of geographic positions are as follows:

$$-\Delta\varphi'' = s \cos \alpha \cdot B + s^2 \sin^2 \alpha \cdot C + (\delta\varphi'')^2 D - \dots, \quad (1)$$

$$\Delta\lambda'' = s \sin \alpha \sec \varphi' \cdot A' \quad (2)$$

in which  $\Delta\varphi''$  is the difference in latitude in seconds between the known and new stations,  $\Delta\lambda''$  is the corresponding difference in longitude in seconds,  $s$  is the distance between the stations in meters,  $\alpha$  is the azimuth of the line from the known station to the new station,  $\varphi'$  is the latitude of the new station, and  $\delta\varphi''$  is the approximate difference of latitude in seconds which for short lines may be assumed equal to  $s \cos \alpha \cdot B$ .  $A'$ ,  $B$ ,  $C$ , and  $D$  are given in tables in Special Publication No. 8.

Now, in the figure above, if we call the origin  $O$  the known station and  $P$  the new station then

$$x = s \sin \alpha, \quad (3)$$

$$y = s \cos \alpha. \quad (4)$$

<sup>1</sup> See pp. 8 and 92-97 of U. S. Coast and Geodetic Survey Special Publication No. 8 (seventh edition).

Substituting in equations (1) and (2)

$$x \text{ (in meters)} = \frac{\Delta\lambda'' \cos \varphi'}{A'}, \quad (5)$$

$$y \text{ (in meters)} = -\frac{1}{B} [\Delta\varphi'' + Cx^2 + D(\delta\varphi'')^2 - \dots] \quad (6)$$

A more convenient formula for  $y$  (see equation 12) may be derived as follows:

$$y = PN = PL + MN \text{ (see fig. 1).}$$

But

$$PL = \Delta\varphi'',$$

or

$$PL \text{ (in meters)} = \frac{\Delta\varphi''}{B}. \quad (7)$$

Let us designate by  $\delta\varphi''$  the distance  $MN$  in seconds (which is the difference in latitude of points  $O$  and  $N$ ), and by  $\alpha_1$  the azimuth from  $O$  to  $N$  which is equal to  $90^\circ$ . The difference of latitude of points  $O$  and  $N$  is given with sufficient accuracy by the approximate formula on page 95 of Special Publication No. 8, namely,

$$\begin{aligned} -\delta\varphi'' &= \frac{s}{R \text{arc } 1''} \cos \alpha_1 + \frac{s^2}{2RN \text{arc } 1''} \sin^2 \alpha_1 \tan \varphi \\ &\quad - \frac{s^3}{6RN^2 \text{arc } 1''} \sin^2 \alpha_1 \cos \alpha_1 (1 + 3 \tan^2 \varphi) + \dots, \end{aligned} \quad (8)$$

where  $R$  is the radius of curvature along the meridian and  $N$  is the length of the normal produced to the minor axis. The other symbols have the same meaning as in equation (1).

Since  $\alpha_1$  is equal to  $90^\circ$ , equation (8) becomes

$$\delta\varphi'' = \frac{s^2 \tan \varphi}{2RN \text{arc } 1''}. \quad (9)$$

But

$$C = \frac{\tan \varphi}{2RN \text{arc } 1''} \text{ and } s = x, \text{ for this case.}$$

Therefore

$$\delta\varphi'' = x^2 C. \quad (10)$$

In order to reduce  $\delta\varphi''$  from seconds to meters we must multiply by  $R \text{arc } 1''$  which is equal to  $1/B$ .

Therefore

$$\delta\varphi \text{ (in meters)} = \frac{x^2 C}{B}. \quad (11)$$

Combining equations (7) and (11),

$$y \text{ (in meters)} = \frac{\Delta\varphi''}{B} + \frac{x^2 C}{B}. \quad (12)$$

Equations (5) and (12) give  $x$  and  $y$  in meters. It is usually more convenient to have these coordinates expressed in feet, and since the factors  $A'$  and  $B$  represent the reciprocal of a linear distance expressed in meters and  $C$  the reciprocal of the product of two linear distances expressed in meters, the formulas for  $x$  and  $y$  become,

$$x \text{ (in feet)} = \frac{\Delta\lambda'' \cos \varphi'}{A'} \times 3.2808\frac{1}{3}, \quad (13)$$

$$y \text{ (in feet)} = \frac{\Delta\varphi''}{B} \times 3.2808\frac{1}{3} + \frac{x^2 C}{B \times 3.2808\frac{1}{3}}. \quad (14)$$

To aid in making the computations the following factors are used:

$$H = \frac{\cos \varphi'}{A'} \times 3.2808\frac{1}{3}. \quad (15)$$

$$K = \frac{3.2808\frac{1}{3}}{B}, \quad (16)$$

$$L = \frac{C}{B \times 3.2808\frac{1}{3}} \quad (17)$$

The logarithms of these factors are given in the tables in this publication for every  $10''$  of latitude from latitude  $24^\circ$  to  $49^\circ$ . The final working forms of the plane coordinate formulas become, therefore,

$$\begin{aligned} x \text{ (in feet)} &= \Delta\lambda'' H, \\ y \text{ (in feet)} &= \Delta\varphi'' K + Lx^2. \end{aligned}$$

#### SAMPLE CONVERSION OF GEOGRAPHIC POSITIONS OF FIVE TRIANGULATION POINTS TO PLANE COORDINATES.

Below is given a table of geographic positions of five triangulation stations as they would appear in the U. S. Coast and Geodetic Survey triangulation publications. There are given also the computations necessary to obtain the plane coordinates of four of these stations, using the tables as given in this publication. In this scheme, Bogart is considered the origin, that is, its coordinates are 0, 0. The plane coordinates of the other four stations are referred to Bogart as origin.

*Geographic positions.*

| Station.             | Latitude<br>and<br>longitude. | Azimuth.              | Back<br>azimuth.      | To station.           | Dis-<br>tance. | Loga-<br>rithm of<br>distance. |
|----------------------|-------------------------------|-----------------------|-----------------------|-----------------------|----------------|--------------------------------|
| Bogart.....          | °   '   "   . . . . .         | °   '   "   . . . . . | °   '   "   . . . . . | .....                 | .....          | .....                          |
| Bogart.....          | 40 36 07.650                  | .....                 | .....                 | .....                 | .....          | .....                          |
| Fort Tompkins 2..... | 74 06 58.013                  | .....                 | .....                 | .....                 | .....          | .....                          |
| Fort Tompkins 2..... | 40 36 15.867                  | 87 08 35.36           | 267 06 15.71          | Bogart.....           | 5051.38        | 3.7034100                      |
| Great Kills.....     | 74 03 23.433                  | .....                 | .....                 | Bogart.....           | 7467.93        | 3.8732000                      |
| Great Kills.....     | 40 32 09.312                  | 190 07 10.21          | 10 07 46.50           | Fort Tomp-<br>kins 2. | 9914.16        | 3.9962558                      |
| Jessup.....          | 74 07 53.821                  | 219 52 54.41          | 30 55 50.26           | Bogart.....           | 8613.11        | 3.9366699                      |
| Jessup.....          | 40 32 53.353                  | 226 04 32.91          | 40 07 25.13           | Great Kills....       | 5101.72        | 3.7077169                      |
| Rossville.....       | 74 11 22.789                  | 285 25 25.81          | 105 27 41.64          | Bogart.....           | 10807.88       | 4.0337403                      |
| Rossville.....       | 40 32 39.605                  | 233 32 33.50          | 53 36 33.97           | Jessup.....           | 2505.70        | 3.3989282                      |
|                      | 74 13 07.737                  | 260 14 49.16          | 50 15 57.38           |                       |                |                                |

*Computation of plane coordinates.*

Formulas used in conversion;  $x = \Delta\lambda'' H$        $y = \Delta\varphi'' K + Lx^2$ :

|                      | Latitude.                | Longitude.                                    |
|----------------------|--------------------------|---|
| Fort Tompkins 2..... | 40° 36' 15''.867         | 74° 03' 23''.433                              |
| Bogart (origin)..... | 40 36 07 .650            | 74 06 58 .013                                 |
|                      | $\Delta\phi'' = +8 .217$ | $\Delta\lambda'' = -3' 34''.580 = -214''.580$ |

$$\begin{aligned} \log \Delta\lambda'' &= 2.3315892n \\ \log H &= 1.8872494 \end{aligned}$$

$$\begin{aligned} \log x &= 4.2188386n \\ x &= -16551.55 \text{ feet (east).} \end{aligned}$$

$$\begin{aligned} \log x^2 &= 8.43768 \\ \log L &= 2.31073 - 10 \log K = 2.0051783 \end{aligned}$$

$$\begin{aligned} \log Lx^2 &= 0.74841 \\ Lx^2 &= 5.603 \text{ feet.} \end{aligned}$$

$$\begin{aligned} \log \Delta\varphi'' K &= 2.9198916 \\ \Delta\varphi'' K &= +831.556 \text{ feet.} \end{aligned}$$

$$y = 5.603 + 831.556 = +837.16 \text{ feet (north).}$$

|   | Latitude.                                    |                                     | Longitude.                     |
|---|--|-------------------------------------|--------------------------------|
| Great Kills.....                                    | $40^{\circ} 32' 09'' .312$                   |                                     | $74^{\circ} 07' 53'' .821$     |
| Bogart (origin).....                                | $40 36 07 .650$                              |                                     | $74 06 58 .013$                |
|   | $\Delta\phi'' = -3' 58'' .338 = -238'' .338$ |                                     | $\Delta\lambda'' = +55'' .808$ |
| $\log \Delta\lambda'' = 1.7466965$                  | $\log x^2 = 7.26878$                         | $\log \Delta\phi'' = 2.3771933n$    |                                |
| $\log H = 1.8876922$                                | $\log L = 2.31073 - 10$                      | $\log K = 2.0051758$                |                                |
| $\log x = 3.6343887$                                | $\log Lx^2 = 9.57951$                        | $\log \Delta\phi'' K = 4.3823691n$  |                                |
| $x = +4309.12$ feet (west).                         | $Lx^2 = 0.380$ foot                          | $\Delta\phi'' K = -24 119.544$ feet |                                |
| $y = 0.380 - 24 119.544 = -24 119.16$ feet (south). |  |                                     |                                |

|   | Latitude.                                    |   | Longitude.                 |
|---|--|---|----------------------------|
| Jessup.....   | $40^{\circ} 32' 53'' .353$                   |   | $74^{\circ} 11' 22'' .789$ |
| Bogart (origin).....                                | $40 36 07 .650$                              |   | $74 06 58 .013$            |
|   | $\Delta\phi'' = -3' 14'' .297 = -194'' .297$ | $\Delta\lambda'' = +4' 24'' .776 = +264'' .776$ |                            |
| $\log \Delta\lambda'' = 2.4228786$                  | $\log x^2 = 8.62098$                         | $\log \Delta\phi'' = 2.2884661n$                |                            |
| $\log H = 1.8876132$                                | $\log L = 2.31073 - 10$                      | $\log K = 2.0051763$                            |                            |
| $\log x = 4.3104918$                                | $\log Lx^2 = 0.93171$                        | $\log \Delta\phi'' K = 4.2936424n$              |                            |
| $x = +20 440.51$ feet (west).                       | $Lx^2 = 8.545$ feet                          | $\Delta\phi'' K = -19662.665$ feet              |                            |
| $y = 8.545 - 19 662.665 = -19 654.12$ feet (south). |  |   |                            |

|  | Latitude.                                    |   | Longitude.                 |
|--|--|---|----------------------------|
| Rossville.....                                       | $40^{\circ} 32' 39'' .605$                   |   | $74^{\circ} 13' 07'' .737$ |
| Bogart (origin).....                                 | $40 36 07 .650$                              |   | $74 06 58 .013$            |
|  | $\Delta\phi'' = -3' 28'' .045 = -208'' .045$ | $\Delta\lambda'' = +6' 09'' .724 = +369'' .724$ |                            |
| $\log \Delta\lambda'' = 2.5678776$                   | $\log x^2 = 8.91103$                         | $\log \Delta\phi'' = 2.3181572n$                |                            |
| $\log H = 1.8876379$                                 | $\log L = 1.31073 - 10$                      | $\log K = 2.0051761$                            |                            |
| $\log x = 4.4555155$                                 | $\log Lx^2 = 1.22176$                        | $\log \Delta\phi'' K = 4.3233333n$              |                            |
| $x = +28 544.05$ feet (west).                        | $Lx^2 = 16.663$ feet                         | $\Delta\phi'' K = -21 053.937$ feet             |                            |
| $y = 16.663 - 21 053.937 = -21 037.27$ feet (south). |  |   |                            |

The five stations whose geographic positions and plane coordinates are given above are in a closed circuit, that is, starting with Bogart, the origin, and going through Rossville, Jessup, Great Kills, and Fort Tompkins 2, the figure closes on itself at Bogart.

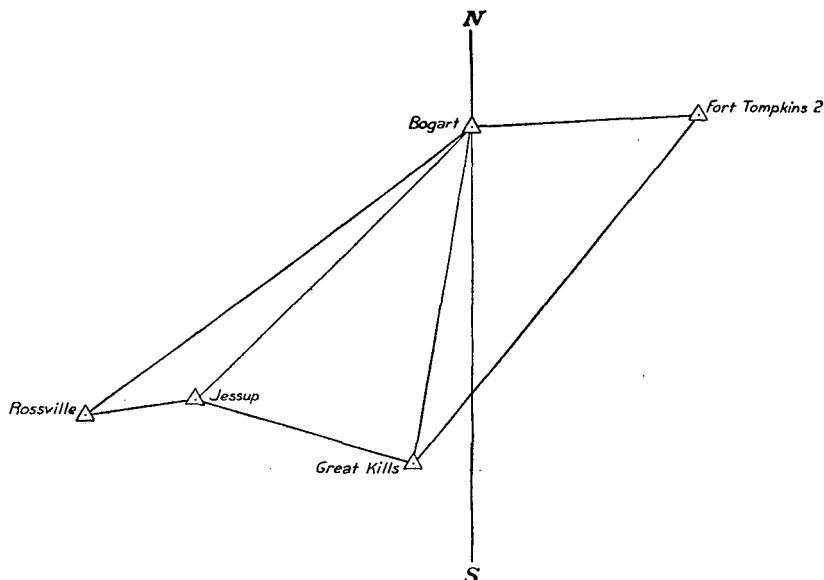


FIG. 2.

*Computation of circuit.*

## INTERIOR ANGLES.

| Station.             | Plane angles. | Spherical excess. | Spherical angles. |
|----------------------|---------------|-------------------|-------------------|
| Bogart.....          | 146° 30'      | "                 | "                 |
| Fort Tompkins 2..... | 12° 45.05     | 0.05              | 18.26             |
| Great Kills.....     | 12.73         | 0.05              | 45.10             |
| Jessup.....          | 28.39         | 0.04              | 12.77             |
| Rossville.....       | 15.62         | 0.04              | 28.43             |
|                      | 540° 00'      | 0.00              | 15.66             |
|                      |               | 0.22              | 00.22             |

COMPUTATION OF BEARINGS REFERRED TO THE Y AXIS ( $\alpha_y$ ).

|   |    |          |          |
|---|----|----------|----------|
| Bogart to Fort Tompkins 2 (from azimuth)..... | N. | 87° 06'  | 15.71 E. |
| Angle at Bogart.....                          |    | 146° 30' | 18.21    |
| Bogart to Rossville.....                      | N. | 233° 36' | 33.92 E. |
| Bogart to Rossville.....                      | S. | 53° 36'  | 33.92 W. |
| Rossville to Bogart.....                      | N. | 53° 36'  | 33.92 E. |
| Angle at Rossville.....                       |    | 26° 42'  | 15.62    |
| Rossville to Jessup.....                      | N. | 80° 18'  | 49.54 E. |
| Jessup to Rossville.....                      | S. | 80° 18'  | 49.54 W. |
| Angle at Jessup.....                          |    | 205° 09' | 28.39    |
| Jessup to Great Kills.....                    | S. | 285° 28' | 17.93 W. |
| Jessup to Great Kills.....                    | S. | 74° 31'  | 42.07 E. |
| Great Kills to Jessup.....                    | N. | 74° 31'  | 42.07 W. |
| Angle at Great Kills.....                     |    | 114° 25' | 12.73    |
| Great Kills to Fort Tompkins 2.....           | N. | 39° 53'  | 30.66 E. |

|                                     |    |    |    |          |
|-------------------------------------|----|----|----|----------|
| Fort Tompkins 2 to Great Kills..... | S. | 39 | 53 | 30.66 W. |
| Angle at Fort Tompkins 2.....       |    | 47 | 12 | 45.05    |
| Fort Tompkins 2 to Bogart.....      | S. | 87 | 06 | 15.71 W. |
| Bogart to Fort Tompkins 2.....      | N. | 87 | 06 | 15.71 E. |

## COMPUTATION OF LATITUDES AND DEPARTURES.

[Distances are all given in meters.]

*Bogart to Rossville.*

|                    | Logarithms. | Latitudes<br>and<br>departures. |                |
|--------------------|-------------|---------------------------------|----------------|
| Distance.....      |             |                                 | <i>Meters.</i> |
| Cos 53° 36' 33".92 | 4.0337403   |                                 |                |
| sin 53° 36' 33".92 | 9.7732644   |                                 |                |
| Latitude.....      | 9.9057912   |                                 |                |
| Departure.....     | 3.8070047   | S. 6412.17                      |                |
|                    | 3.9395315   | W. 8700.25                      |                |

*Rossville to Jessup.*

|                    |           |            |  |
|--------------------|-----------|------------|--|
| Distance.....      | 3.3989282 |            |  |
| Cos 80° 18' 49".54 | 9.2259618 |            |  |
| sin 80° 18' 49".54 | 9.9937641 |            |  |
| Latitude.....      | 2.6248900 | N. 421.59  |  |
| Departure.....     | 3.3926923 | E. 2469.97 |  |

*Jessup to Great Kills.*

|                    |           |            |  |
|--------------------|-----------|------------|--|
| Distance.....      | 3.7077169 |            |  |
| Cos 74° 31' 42".07 | 9.4261232 |            |  |
| sin 74° 31' 42".07 | 9.9839700 |            |  |
| Latitude.....      | 3.1338401 | S. 1360.94 |  |
| Departure.....     | 3.6916869 | E. 4916.85 |  |

*Great Kills to Fort Tompkins 2.*

|                    |           |            |  |
|--------------------|-----------|------------|--|
| Distance.....      | 3.9962558 |            |  |
| Cos 39° 53' 30".66 | 9.8849405 |            |  |
| sin 39° 53' 30".66 | 9.8070886 |            |  |
| Latitude.....      | 3.8811963 | N. 7606.70 |  |
| Departure.....     | 3.8033444 | E. 6358.35 |  |

*Fort Tompkins 2 to Bogart.*

|                    |           |            |  |
|--------------------|-----------|------------|--|
| Distance.....      | 3.7034100 |            |  |
| Cos 87° 06' 15".71 | 8.7034365 |            |  |
| sin 87° 06' 15".71 | 9.9994452 |            |  |
| Latitude.....      | 2.4068465 | S. 255.18  |  |
| Departure.....     | 3.7028552 | W. 5044.93 |  |

## CLOSURE OF THE COMPUTED LATITUDES AND DEPARTURES.

| Station.             | North<br>latitude. | South<br>latitude. | East<br>departure. | West<br>departure. |
|----------------------|--------------------|--------------------|--------------------|--------------------|
|                      | <i>Meters.</i>     | <i>Meters.</i>     | <i>Meters.</i>     | <i>Meters.</i>     |
| Rossville.....       | 421.59             | 6412.17            | 2469.97            | 8700.25            |
| Jessup.....          |                    |                    | 4916.85            |                    |
| Great Kills.....     |                    | 1360.94            |                    |                    |
| Fort Tompkins 2..... | 7606.70            |                    | 6358.35            |                    |
| Bogart.....          |                    | 255.18             |                    | 5044.93            |
| Total.....           | 8028.29            | 8028.29            | 13745.17           | 13745.18           |