

## О пяти переменных звездах в окрестностях SA 57

*Н. Б. Перова*

Блеск переменных звезд X Com, TX Com, КЗП 1969, КЗП 2000 и КЗП 1988 был оценен на пластинках Московской обсерватории. Приводятся карты окрестностей, звездные величины звезд сравнения и оценки переменных звезд.

Переменность звезды КЗП 1988 сомнительна.

The light of variable stars X Com, TX Com, K3Π 1969, K3Π 2000 and K3Π 1988 was estimated on the plates of Moscow Observatory. Maps of the surroundings, stellar magnitudes of the comparison stars and estimates of variable stars are given. The variability of the star K3Π 1988 is doubtful.

Переменные звезды X Com, TX Com, СПЗ 383=КЗП 1969, СПЗ 384=КЗП 2000 и КЗП 1988=S 4765 были оценены по московским пластинкам, полученным за период J. D. 2418801—35932.

Ниже указано количество оценок.

| Звезда   | Количество оценок |
|----------|-------------------|
| X Com    | 100               |
| TX Com   | 155               |
| СПЗ 383  | 195               |
| СПЗ 384  | 218               |
| КЗП 1988 | 183               |

Звездные величины звезд сравнения, за исключением величин звезд сравнения для КЗП 1988, определены привязкой к SA 57 на микрофото-метре МФ-6. Для звезды КЗП 1988 привязка осуществлена глазомерным способом.

| Переменная |      | Звезды сравнения |          |          |          |
|------------|------|------------------|----------|----------|----------|
|            |      | <i>a</i>         | <i>b</i> | <i>c</i> | <i>d</i> |
| TX         | Com  | 13.48            | 14.10    | 14.51    | 14.76    |
| СПЗ        | 383  | 13.74            | 13.84    | 14.34    | 14.67    |
| СПЗ        | 384  | 12.77            | 13.21    | 13.73    | 14.32    |
| КЗП        | 1988 | 13.15            | 13.48    | —        | —        |

## X Com

На месте переменной X Com на пластинках с предельной звездной величиной  $16^m.5$ — $17^m$  звезда не обнаружена, хотя на пяти пластинках можно заподозрить присутствие звезды  $17^m.5$ . На карте Вольфа — Пализы № 145 (от 11<sup>й</sup> мая 1904 г.) видна звезда  $16^m$ .

## TX Com

Переменная относится к типу RR Lyr. Получены следующие элементы:

$$\text{Max} = \text{J. D. } 2435550.435 + 0.536470 \cdot E.$$

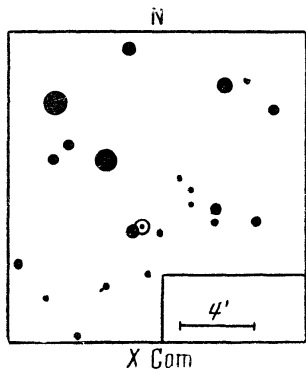


Рис. 1.

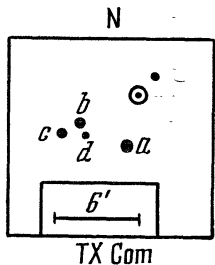


Рис. 2.

Пределы изменения блеска 13<sup>m</sup>5—14<sup>m</sup>8;  $M - m = 0^p 10$ . Наблюдаемые моменты максимумов:

| Max             | $E$   | $O - C$      | Max               | $E$   | $O - C$      |
|-----------------|-------|--------------|-------------------|-------|--------------|
| 2433005.410     | -4744 | -0.011       | 2434151.350 $\pm$ | -2608 | +0.029 $\pm$ |
| 035.425 $\pm$   | -4688 | -0.039 $\pm$ | 454.419 $\pm$     | -2043 | -0.008       |
| 358.425         | -4086 | +0.007       | 35182.414 $\pm$   | -686  | -0.002 $\pm$ |
| 408.310 $\pm$   | -3993 | 0.000        | 219.420           | -617  | -0.013       |
| 711.422 $\pm$   | -3428 | +0.006 $\pm$ | 550.435           | 0     | 0.000        |
| 34123.444 $\pm$ | -2660 | +0.019 $\pm$ | 924.355           | +697  | +0.001       |
| 144.348         | -2621 | +0.001       | 932.395           | +712  | -0.007       |

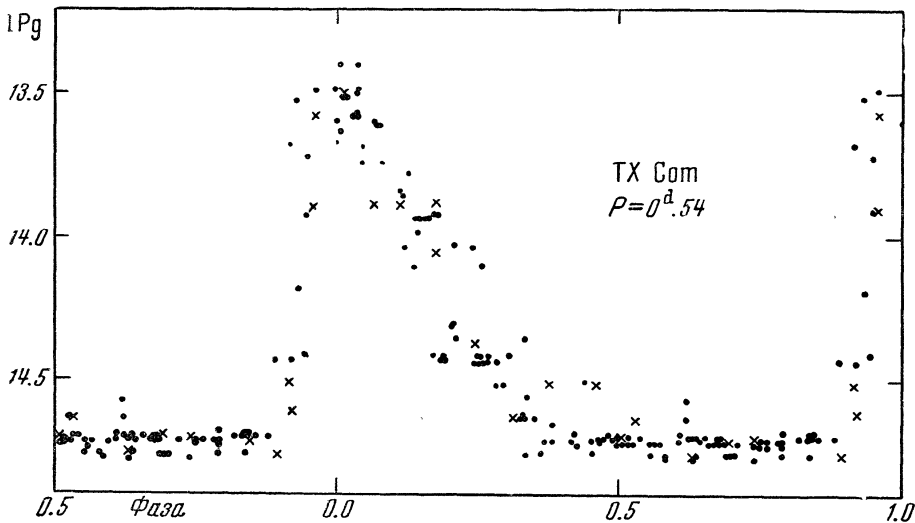


Рис. 3.

### КЗП 1969=СПЗ 383

Переменная относится к типу RR Lyr. Получены следующие элементы:

$$\text{Max} = 2435550.286 + 0.532335 \cdot E.$$

Пределы изменения блеска 13<sup>m</sup>7—14<sup>m</sup>7;  $M - m = 0^p 10$ . Ниже приводятся наблюдаемые моменты максимумов:

| Max         | E      | O-C     | Max          | E    | O-C     |
|-------------|--------|---------|--------------|------|---------|
| 2428630.44± | -12999 | -0.02±  | 2435165.426± | -723 | +0.018± |
| 654.39±     | -12954 | -0.03±  | 182.414±     | -691 | -0.028± |
| 33025.440   | -4743  | +0.019  | 246.368±     | -571 | +0.045± |
| 362.415     | -4110  | +0.026  | 480.568±     | -131 | +0.018± |
| 34118.310   | -2690  | +0.005  | 546.560±     | -7   | 0.000   |
| 126.324±    | -2675  | +0.034± | 550.284      | 0    | -0.002  |
| 151.340     | -2628  | +0.030  | 577.430      | +51  | -0.005  |
| 456.382±    | -2055  | +0.044± | 578.490      | +53  | -0.010  |
| 458.517±    | -2051  | +0.050± | 907.485      | +671 | +0.002  |
| 480.310     | -2010  | +0.017  | 923.419±     | +701 | -0.034± |
| 513.353±    | -1948  | +0.056± | 924.518      | +703 | 0.000   |
| 810.358     | -1390  | +0.018  | 930.383      | +714 | +0.010  |

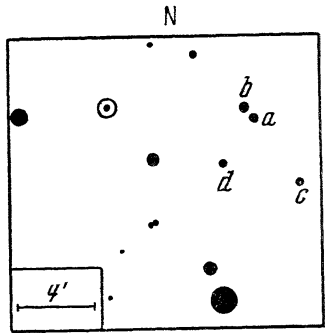


Рис. 4.

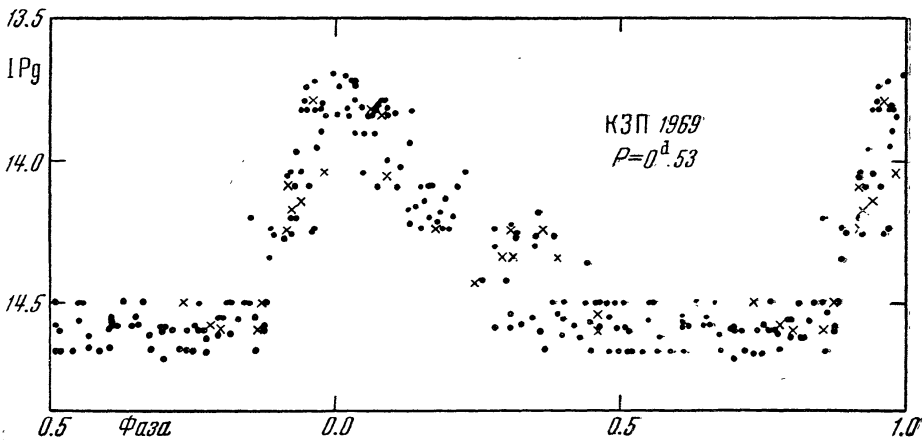


Рис. 5.

КЗП 1988=S 4765

Переменность сомнительна. Изменение блеска не превосходит 0<sup>m</sup>.3, что может объясняться ошибками оценок.

КЗП 2000=СПЗ 384

Переменная относится к типу RR Lyr. Получены следующие элементы:

$$\text{Max} = 2435577.460 + 0.7369265 \cdot E.$$

Пределы изменения блеска 13<sup>m</sup>.0—14<sup>m</sup>.1;  $M - m = 0^m$ .15. Ниже приводятся наблюдаемые моменты максимумов:

| Max          | E     | O - C    | Max           | E     | O - C    |
|--------------|-------|----------|---------------|-------|----------|
| 2428630.44 ± | -9427 | -0.01 ±  | 2434810.290 ± | -1041 | -0.030 ± |
| 653.31 ±     | -9396 | +0.01 ±  | 824.346 ±     | -1022 | +0.025 ± |
| 33358.550 ±  | -3011 | -0.024 ± | 35540.620 ±   | - 50  | +0.006 ± |
| 34118.350    | -1980 | +0.004   | 546.500       | - 42  | -0.009   |
| 146.350 ±    | -1942 | +0.001 ± | 547.260       | - 41  | +0.014   |
| 457.330 ±    | -1520 | -0.002 ± | 550.230 ±     | - 37  | +0.036 ± |
| 471.329 ±    | -1501 | -0.004 ± | 577.430       | 0     | -0.030   |
| 479.430 ±    | -1490 | -0.010 ± | 924.530       | + 471 | -0.022   |
| 510.400 ±    | -1448 | +0.010 ± | 925.312 ±     | + 472 | +0.023 ± |
| 513.353 ±    | -1444 | +0.015 ± | 930.440       | + 479 | -0.008   |

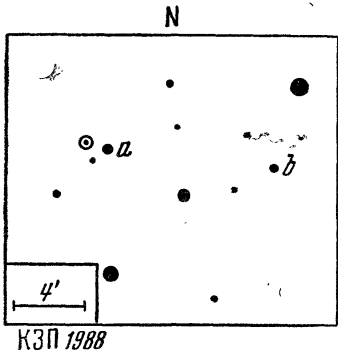


Рис. 6.

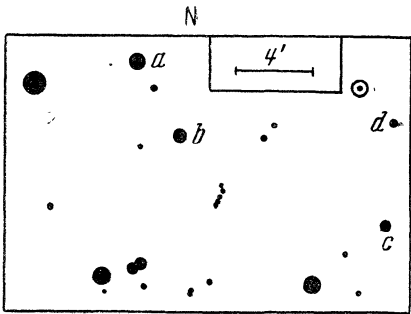


Рис. 7.

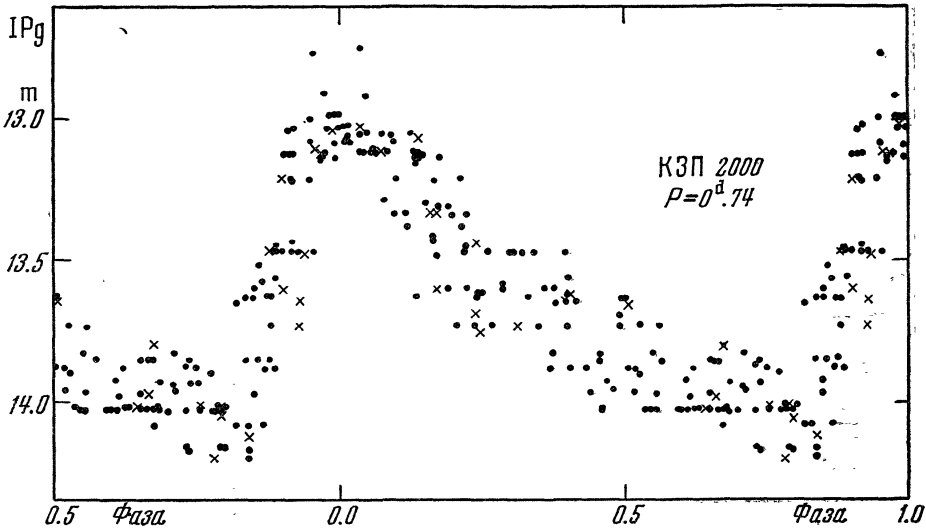


Рис. 8.

Кривые блеска по всем наблюдениям TX Com, КЗП 1969 и КЗП 2000 представлены на рис. 3, 5, 8. Неуверенные оценки отмечены крестиком. Наблюдения переменных звезд:

| J. D.     | TX Com | КЗП 1969 | КЗП 2000 | J. D.     | TX Com | КЗП 1969 | КЗП 2000 |
|-----------|--------|----------|----------|-----------|--------|----------|----------|
| 24...     |        |          |          | 24...     |        |          |          |
| 18801.354 | —      | —        | 13.03:   | 19122.387 | —      | —        | 13.80:   |
| 802.363   | —      | —        | 13.62:   | 157.337   | —      | —        | 13.21    |
| 19116.370 | —      | —        | 13.65:   | 160.375   | —      | —        | 13.60    |
| 118.380   | —      | —        | 13.68:   | 486.485   | —      | —        | 13.88    |

| J. D.      | TX Com | K3П 1969 | K3П 2000 | J. D.     | TX Com | K3П 1969 | K3П 2000 |
|------------|--------|----------|----------|-----------|--------|----------|----------|
| 24...      |        |          |          | 24...     |        |          |          |
| 19512.428  | —      | —        | 13.47    | 33410.448 | —      | 14.30    | —        |
| 857.461    | —      | —        | 13.33:   | 711.422   | 13.52  | —        | —        |
| 864.433    | —      | —        | 13.88    | 718.454   | 14.03  | 14.50:   | —        |
| 27916.41   | 14.76: | 14.58    | 13.12    | .504      | —      | 14.24    | —        |
| 918.39     | 14.78  | 14.60    | 13.85    | 733.385   | —      | 14.17:   | —        |
| 925.39     | 14.76  | 14.67    | 13.63    | 34078.452 | —      | 14.16    | 14.08    |
| 28629.39   | —      | 13.84    | 13.97    | 116.314   | —      | —        | 13.76:   |
| 630.40     | —      | 14.34    | 13.73:   | .361      | 14.70  | 14.26    | 13.47    |
| .44        | —      | 13.79:   | 13.03    | 117.362   | 14.76  | —        | 14.03    |
| .48        | —      | —        | 13.12    | 118.328   | 14.70  | 13.81    | 13.13    |
| 631.41     | —      | 14.58:   | —        | .343      | 14.63: | 14.09    | 12.99    |
| 652.34     | —      | —        | 14.03    | .386      | 14.71  | —        | 13.11    |
| .38        | —      | 14.24:   | 14.03    | .411      | 14.70  | 14.24    | 13.06    |
| 653.31     | 14.70: | 14.09:   | 13.05    | 121.392   | 14.35  | 14.60:   | 13.15    |
| .40        | —      | 14.05:   | 13.14    | .415      | 14.10  | —        | 13.42    |
| 654.39     | 14.70  | 13.74    | 13.95    | 123.342   | 14.71: | 14.60:   | 14.03    |
| .33005.408 | —      | —        | 14.03:   | .444      | 13.57  | 14.58    | 13.44    |
| .436       | 13.58  | 14.54:   | 14.03    | 124.364   | 14.71  | 14.27    | 13.22    |
| .462       | 13.61  | 14.58    | 14.08    | 126.324   | —      | 13.84    | —        |
| 006.394    | —      | 14.42    | 13.34    | .351      | 14.76  | 14.02    | 13.56    |
| .421       | —      | 14.24:   | 13.63    | 127.330   | 14.51  | 14.09    | 13.31    |
| .449       | 14.51: | —        | 13.60:   | .361      | 14.35  | —        | —        |
| 010.354    | 14.43  | 14.58    | 13.93    | 128.310   | 13.84  | 14.62    | 13.90    |
| .381       | 14.43: | 14.58    | 13.88    | .343      | 14.41  | 14.67    | 13.85    |
| .420       | —      | —        | 13.73    | 131.354   | 14.71  | 14.60    | 13.97    |
| .450       | 14.51: | 14.58    | 14.03    | 133.379   | 14.72  | 14.27    | 13.62    |
| .506       | —      | 14.04:   | 14.08    | 137.350   | 13.58: | 14.63    | 14.03    |
| 011.397    | 14.10  | —        | 13.88    | 144.316   | 14.41  | 14.60:   | 13.43:   |
| .424       | 14.41  | —        | 13.21    | .348      | 13.40  | 14.26    | 13.60    |
| .451       | —      | 14.50    | 13.12:   | 146.353   | 14.70: | —        | 13.03    |
| 025.402    | 14.37: | —        | 13.47    | .379      | 14.72  | 14.60    | 13.12    |
| .430       | —      | 13.81    | 13.47    | 148.406   | 14.72  | —        | 14.03:   |
| 026.418    | 13.93  | 14.60    | 13.73    | 151.359   | 13.61  | 13.81    | 14.03    |
| 029.306    | 14.63  | 14.42    | 13.60    | .415      | 13.92  | 14.13    | 13.47    |
| 032.410    | —      | 14.22    | 13.73    | 420.542   | 14.70  | 14.60    | 13.29    |
| 033.414    | 13.93  | 14.27    | —        | 454.382   | 13.68  | 14.58    | 13.14    |
| .439       | —      | 13.81:   | 14.17    | .396      | 13.93  | 14.18    | 13.05    |
| 034.425    | 13.60  | 14.26    | 13.12    | .446      | 13.58  | 14.36    | 13.12    |
| .357.430   | 14.03  | 14.50:   | —        | .469      | 13.74  | 14.50    | 13.34    |
| .455       | 14.03  | 14.50:   | —        | 455.418   | —      | —        | 13.56    |
| .484       | 14.41  | 14.42    | —        | .456      | —      | —        | 13.83    |
| .509       | 14.41  | 14.24    | —        | .460      | —      | 14.30    | 14.03    |
| .358.395   | 13.90: | 14.24    | —        | 456.382   | 14.71  | 13.79    | 13.83    |
| .421       | 13.63  | 14.56    | 14.17    | 457.307   | 14.71  | 14.50    | 13.14    |
| .455       | 13.88: | 14.58    | 14.20    | .338      | 14.72  | 14.50    | 13.08    |
| .484       | 13.96  | 14.50    | 13.63    | 458.517   | —      | 13.84    | 14.03    |
| .510       | 14.05: | 14.60    | 13.12    | 459.460   | 14.71  | 14.55    | 13.47    |
| .513       | 13.88: | 14.67    | 13.21    | 471.329   | 14.72  | 14.20    | 13.08    |
| .360.424   | —      | 14.34:   | 14.17:   | 472.405   | 14.72  | 14.18    | 13.85    |
| .451       | 14.76  | —        | 14.03    | 473.409   | 14.72  | 13.90    | 14.08    |
| .483       | —      | 14.58    | 14.03    | .451      | 14.51: | 14.24    | 13.63    |
| .522       | 14.61: | —        | —        | 476.358   | 14.70  | 14.56    | 13.65    |
| .361.412   | 14.76: | 14.09    | 13.97    | 477.334   | 14.76  | 14.67    | 13.06:   |
| .439       | 14.76: | 14.09    | 13.56    | .356      | 14.78  | 14.50    | 13.31    |
| .362.408   | 14.50  | 13.90    | 13.73    | .452      | 14.43  | 14.60    | 13.47    |
| .436       | 14.70  | 14.00    | 13.63    | 479.430   | 14.69  | 14.50    | 12.99    |
| 382.319    | 14.76  | 14.50    | 13.47    | 480.331   | 14.43  | 13.80    | 13.21    |
| .356       | 14.63  | 14.50    | —        | .374      | 14.76  | 14.14    | —        |
| .386       | 14.70  | 14.67    | 13.73:   | 484.323   | —      | —        | 14.03:   |
| .384.456   | —      | 14.50    | 13.38    | 485.446   | 14.70  | 14.58    | 13.30    |
| 389.329    | 14.57  | 14.67    | 14.17    | 507.332   | —      | —        | 13.60    |
| .364       | 14.70  | 14.67    | 14.03    | 510.400   | 14.56  | 14.50    | 13.02    |
| .448       | 14.76  | 14.58    | 13.14    | 513.353   | 14.70  | 13.83    | 13.08    |
| .408.334   | 13.68  | 14.22    | 13.73    | 795.338   | 14.71  | 14.50    | 13.85    |
| .377       | 13.78  | 14.34:   | —        | 810.358   | 14.70  | 13.73    | 13.05    |

| J. D.     | TX Com | KЗП 1969 | KЗП 2000 | J. D.     | TX Com | KЗП 1969 | KЗП 200 |
|-----------|--------|----------|----------|-----------|--------|----------|---------|
| 24...     |        |          |          | 24...     |        |          |         |
| 34810.445 | 14.76  | 14.24    | 13.44    | 35550.577 | 14.43  | 14.50    | 13.96   |
| 823.323   | 14.70  | 14.54    | 13.85    | 564.356   | —      | —        | 13.38   |
| 824.346   | 14.70  | 14.54    | 13.05    | 577.356   | —      | 14.20    | 13.52   |
| 826.337   | —      | 13.90    | 13.93    | .393      | —      | 14.04    | 13.04   |
| .420      | —      | 14.20    | 13.93    | .422      | —      | 13.82    | 13.00   |
| 834.392   | 14.43  | —        | 13.85    | .506      | —      | 13.94    | 13.12   |
| .552      | —      | 14.67    | 13.73    | 578.302   | —      | 14.50    | 13.12   |
| 35165.426 | 14.76  | 13.71    | 13.85    | .463      | —      | 14.20    | 13.60   |
| 182.414   | 13.48  | 13.79    | 13.64:   | .472      | —      | 13.82    | 13.60   |
| 197.496   | 13.90: | 14.24    | 13.63    | 595.401   | —      | 14.67    | 13.47   |
| 219.367   | —      | 14.24:   | 13.12:   | 598.386   | —      | —        | 13.47   |
| .438      | 13.52  | —        | 13.34:   | 601.347   | —      | 14.24:   | —       |
| .439      | 13.53  | 14.67    | 13.48    | 602.283   | —      | 14.61    | 13.93   |
| .486      | 13.67  | 14.67    | 13.73    | 907.450   | —      | 14.14:   | 14.02:  |
| 237.363   | 14.68  | 14.09    | 13.73    | .485      | —      | 13.74    | 14.12:  |
| 246.368   | 14.30  | 13.79    | 13.96    | .563      | 14.76  | 14.09    | 13.21   |
| 460.566   | —      | 14.50    | 13.83    | 918.278   | 14.71  | 14.59    | 13.63   |
| 480.568   | 14.71  | 13.79    | 13.88    | .324      | —      | 14.67    | 13.83   |
| 522.436   | —      | —        | 13.63    | .369      | 14.68  | 14.67    | 13.93   |
| .464      | —      | —        | 13.88    | .416      | 14.18  | 14.67    | 14.03   |
| .490      | —      | —        | 13.88    | 923.242   | 14.43  | 14.59    | 13.34   |
| .517      | —      | —        | 13.97    | .419      | 14.41  | 13.82    | 14.03   |
| .561      | 13.74  | 14.09    | 13.63    | 924.355   | 13.60  | 14.59    | 14.03   |
| .584      | —      | 14.25    | 14.02    | .431      | 13.98  | 14.50    | 13.85   |
| 537.468   | —      | 14.05    | 13.87    | .433      | —      | —        | 14.17   |
| 540.354   | —      | 14.55    | 14.03    | .456      | —      | 14.24    | 13.88   |
| .400      | 14.51  | 14.62    | 13.95    | .478      | —      | 14.09    | 13.60:  |
| .447      | 14.66  | 14.67    | 13.90    | .479      | —      | 13.96    | 13.21:  |
| .494      | 14.71  | 14.55    | 13.63    | .504      | —      | 13.81    | 13.47:  |
| .541      | 14.72  | 14.60    | 13.47    | .518      | 14.63  | 13.84    | 12.77   |
| .579      | 14.70  | 14.60    | 13.08    | .528      | —      | 13.70    | 13.15   |
| 546.398   | 14.68  | 14.70    | 13.63    | .552      | —      | —        | 13.03   |
| .449      | 14.71  | 14.56    | 13.02    | 925.312   | 14.68  | 14.59    | 12.75   |
| .495      | 14.72  | 14.25    | 12.99    | 929.291   | 14.31  | 13.95    | 13.88   |
| .542      | 14.72  | 13.90    | 12.92    | .336      | 14.43  | 14.04    | 13.63   |
| 547.303   | 13.94  | 14.50    | 13.05    | .374      | 14.63  | 14.17    | 14.03   |
| .348      | 14.03  | 14.55    | 13.14    | .425      | 14.71  | —        | 13.98   |
| .394      | 14.62  | 14.62    | 13.34    | .438      | —      | 14.42:   | 14.02   |
| .439      | 14.71  | 14.57    | 13.47    | .463      | —      | 14.34:   | 13.97:  |
| .483      | 14.71  | 14.67    | 13.47    | .470      | 14.70  | 14.59    | 14.03   |
| .527      | 14.72  | 14.61    | 13.65    | .517      | 14.70  | 14.61    | 14.17   |
| 550.264   | 14.72  | 13.72    | 13.08    | .550      | 14.70: | 14.61    | 14.20:  |
| .284      | 14.72  | 13.70    | 13.05    | 930.340   | 13.94  | 14.04    | 13.85   |
| .301      | 14.72  | 13.72    | 13.14    | .354      | —      | 13.82    | 13.47:  |
| .323      | 14.70  | 13.82    | 13.14    | .383      | —      | 13.84    | 13.12   |
| .357      | 14.70  | 13.82    | 13.45    | .387      | 14.44  | 13.82    | 13.47   |
| .380      | —      | 14.22    | 13.62    | .413      | 14.63  | 13.84    | 13.12:  |
| .407      | 13.72  | 14.04    | 13.58    | .431      | —      | 14.09    | 12.91   |
| .453      | 13.40  | 14.26    | 13.73    | 932.382   | 13.48  | 14.67    | 14.03   |
| .498      | 13.86  | 14.56    | 13.64    | .423      | 13.50  | 14.50    | 14.03   |

Государственный астрономический институт  
им. П. К. Штернберга  
Москва, апрель 1957 г.