Publications of the Department of Astronomy — Beograd, № 6, 1976.

# THE CONSTANTS OF THE TRANSIT INSTRUMENT „BAMBERG" 10/100 CM OF BELGRADE OBSERVATORY

by

*M. Jovanović*

*Summary*: The values of the contact witdh of the micrometer screw $R_1$, the contact width of the quartz clock impulse $R_1'$ and the values of the revolution of the micrometer screw are given. Fot determining these values, the material from 1970. until 1974. is taken.

The results are given in Tables. The values of the contackt width of the micrometer screw and the quartz clock impulse during given period show a variable character. The answer for these variations lies in old-fashioned technical regitration.

Table 1.

| | 1970 | | 1971 | | 1972 | | 1973 | | 1974 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Month | $R_1$ | $R_1'$ | $R_1$ | $R_1'$ | $R_1$ | $R_1'$ | $R_1$ | $R_1'$ | $R_1$ | $R_1'$ |
| I | 0ˢ.057 | 0ˢ.118 | 0ˢ.057 | 0ˢ.120 | 0ˢ.067 | 0ˢ.136 | 0ˢ.067 | 0ˢ.118 | 0ˢ.054 | 0ˢ.105 |
| II | — | — | 55 | 120 | 54 | 136 | 62 | 120 | 53 | 105 |
| III | 56 | 118 | 59 | 94 | 56 | 136 | 72 | 155 | 58 | 114 |
| IV | 60 | 104 | 55 | 86 | 58 | 135 | 65 | 156 | 58 | 117 |
| V | 58 | 120 | 55 | 102 | 57 | 134 | 84 | 132 | 58 | 110 |
| VI | 61 | 119 | 54 | 107 | 78 | 135 | 59 | 107 | 58 | 115 |
| VII | 60 | 117 | 58 | 107 | 64 | 136 | 58 | 105 | 57 | 117 |
| VIII | 55 | 120 | 56 | 104 | 60 | 128 | 59 | 109 | 56 | 99 |
| IX | 56 | 120 | 56 | 105 | 58 | 125 | 60 | 116 | 60 | 101 |
| X | 53 | 123 | 56 | 105 | 58 | 118 | 58 | 105 | 58 | 105 |
| XI | 55 | 118 | 56 | 105 | 62 | 118 | 54 | 109 | 58 | 103 |
| XII | 0ˢ.058 | 0ˢ.120 | 0ˢ.059 | 0ˢ.126 | 0ˢ.064 | 0ˢ.118 | 0ˢ.056 | 0ˢ.109 | 0ˢ.054 | 0ˢ.105 |

The value of revolution of the micrometer screw is determined from 200 data. For the mean temperature of $+10°.8$ C, the value of revolution is $R = 6ˢ.827 \pm \pm 0.026$.

Using the known relation:

$$\Delta\mu + \alpha(t - t_0) + \mu_0 - \mu = 0$$

the systems of 35, 31, 41, 38 and 37 linear equations are formed for 1970, 1971, 1972, 1973. and 1974., respectively, from which the values of the variation of the revolution of the micrometer screw $\Delta\mu$ and temperature coefficient $\alpha$ are obtained.

From the obtained values it can be seen that the air temperature practicaly does not affect the variations $\Delta\mu$ and $\alpha$.

Table 2.
t=10°8 C

| Year | $\Delta\mu\ 10^{-4}$ | $\alpha\ 10^{-4}$ |
|---|---|---|
| 1970 | —66.389 | —12.766 |
| 1971 | — 9.990 | + 8.365 |
| 1972 | —22.440 | + 2.694 |
| 1973 | —48.659 | + 2.852 |
| 1974 | —40.414 | + 1.188 |

The progressive error of the micrometer acrew (Fig. 1.) is also given.

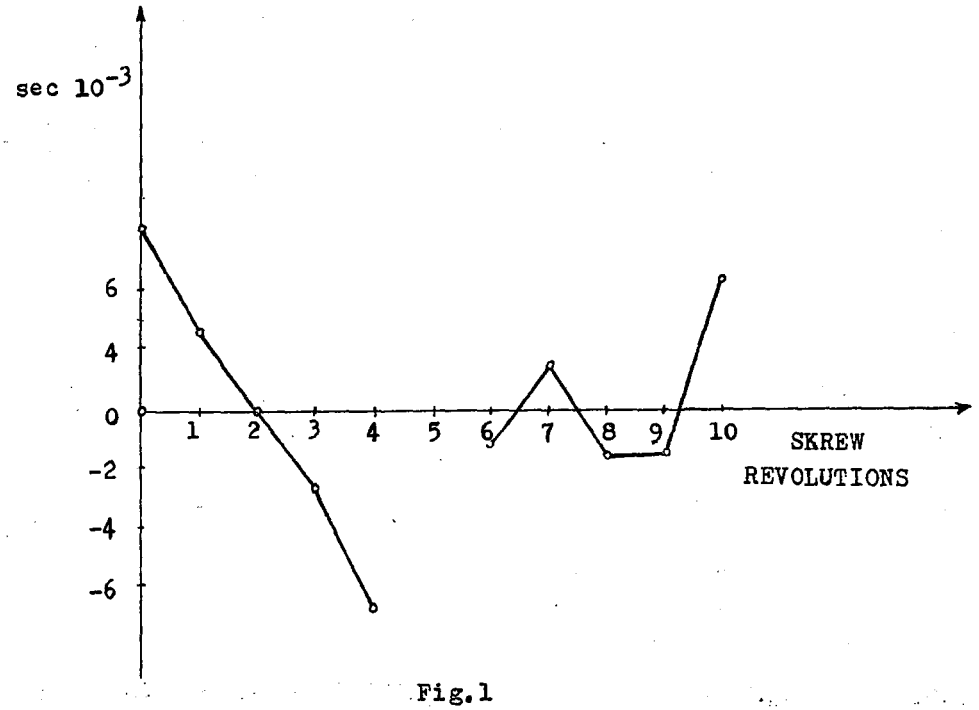


Fig.1

The details of these examinations will be published in a separate paper in Bulletin of Astr. obs. in Belgrade.