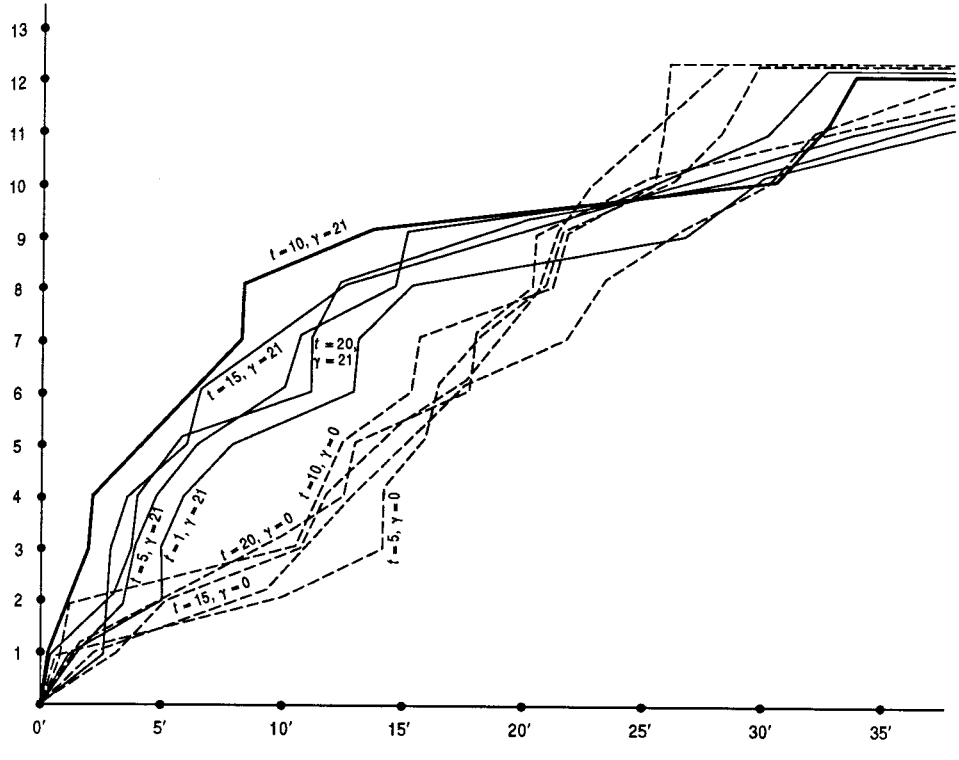

Figure 121. Empirical distribution functions for the Almagest star catalogue. All twelve named stars are presented here

is obtained if we eliminate Arcturus, the second by eliminating Antares. The second solution is preferable to the first because it realizes the absolute minimum of the mean deviation in latitude. Moreover, the value $\Delta_{\min}$ in the second interval is less than in the first interval.

The traditional date assumed for Tycho Brahe's observations is about 1580 A.D., which is within the second time interval.

If we consider as the a priori interval the entire 16th century (i.e., $3 \leqslant t \leqslant 4$), then we obtain a unique solution which corresponds to $\Delta = 1'$ (i.e., to the accuracy claimed by Tycho Brahe). This solution is 1589 A.D. ± 10 years (Fig. 122).

The method of dating which is based on the distribution function of the errors yields the following optimal date for the observations: $t^* = 3.5$ (i.e., about 1550 A.D.) as shown in Fig. 123. It is obvious that the curve $t = 3.5$ is the optimal curve because at almost every point it is higher than the other curves (corresponding to smaller or larger values of t).