result of the recalculation of the catalogues to eliminate the precession effect [321].

(C) The compilers of medieval and ancient star catalogues were neither aware of the *refraction effect* nor of the effect of the *accumulation of errors* in the observation and calculation of the coordinates of the stars, using the finite system of fixed basic points (named stars). Such errors actually do occur in these catalogues.

(D) Errors in the catalogues may have been introduced by copyists. In the original manuscripts of the Almagest, letters were used to denote figures, and this has caused difficulties in the interpretation of its numerical data. For example, the letters (or figures) Δ, λ, α are easily confused [320].

If we consider errors in the coordinates to have a random value, then (within the limits of the claimed accuracy of the catalogue corresponding to the value of the unit in the catalogue's scale) we can take this random value as a value, chosen from some homogeneous sequence (for example, normal). "Large deviations" or "spikes" can be attributed to the causes listed (see C and D). The hypothesis of randomness is unnatural for "spikes", making it necessary to examine all suspicious cases individually. Final conclusions cannot be drawn from calculations based on these "suspicious stars", so they must be removed from the list at the start. Several such cases are discussed in [320] and [321] and have been given careful consideration in our work.

5. Preliminary Analysis of the Almagest

We base our work on the summarized version of the Almagest as it appears in the fundamental work of Peters and Knobel [320]. The list of stars (about 1000 in all) contains some variants listed in [320]. At the first stage of our investigation, we did not question the star coordinates of the Almagest or the traditional assumption that their ecliptical coordinates correspond to the year 60 A.D. The numeration of the Almagest stars is that of F. Baily.

Identification of the dim stars of the Almagest with modern stars is a complicated problem which cannot be solved in all cases. In other words, "who is who" among the unnamed stars is not at all clear. For the most part, the stars of the Almagest are identified only by their coordinates or by non-modern verbal descriptions, and these have many different interpretations. Identification of most of the Almagest stars with the corresponding modern stars was made by Peters and Knobel [320].

In order to satisfy our need for firm data, we have solved the problem of identification anew. For this purpose, we chose from the modern star catalogue the set of 30 named stars and 50 stars with $v \geqslant 0.5''$ per year, where v is the velocity of proper motion. To solve the problem of "who is who" in the Almagest, we used Newcomb's theory. Namely, we calculated (using a computer) the ecliptical coordinates of all the above stars at the times $t = 1, 2, \ldots, 25$ (i.e., from 600 B.C. to 1800 A.D.). Then we compared these coordinates with those given in the Almagest.

This work appears to confirm in general the traditional identifications of the Almagest stars (see [320]) in almost all cases. We obtained some additional informa-