9. THE SOUTHERN PROGRAM OF ABSOLUTE PROPER MOTIONS

Dirk Brouwer

The Southern Astrograph is designed especially for the purpose of extending to the south celestial pole the program of the Lick Observatory of referring stellar proper motions to a background of distant galaxies.

Funds for building the instrument were received from the Ford Foundation in the summer of 1960. Since then, the optics have been ordered from the Perkin-Elmer Corporation. The mounting, according to a fork-type design by Engineer B. G. Hooghoudt of Leiden, the Netherlands, will be constructed by the firm of Rademakers in Rotterdam, the Netherlands.

A site survey in Western Argentina has been in progress, and we hope soon to be able to make a definite choice of site.

The program will be carried out as a joint project by the observatories of Yale and Columbia Universities. It is hoped that observing can begin in the course of the year 1963.

10. PROPER MOTIONS WITH RESPECT TO FAINT BLUE STARS

W. J. Luyten

We now know that faint blue stars exist in very large numbers in high galactic latitudes—at least 25 to 50 per square degree down to $m = 21$ pg on the Palomar 48-inch Schmidt plates. We do not yet know what the distribution of absolute magnitudes is, but among the brighter representatives there are a number with luminosities around $M = -1$ to $M = +4$. If—but this is a pretty big if—it turns out to be possible to distinguish these more luminous ones from the UBV colors alone, then we would have here objects at distances of the order of 25 000 parsecs or more. These may then be expected to have proper motions of the order of only 0″001 annually. And, let us remember that if we speak of 'absolute' proper motions we really mean only 'relatively absolute' for they are referred to the Sun and we have just been told that there is still an uncertainty of almost 25% in the value of the Sun's velocity around the galactic center.

Since these faint blue objects are *stars* they are more accurately measurable than galaxies. Since they are more numerous we can measure small areas—with a concomitant simplification in the reductions and increase in accuracy. Hence these stars may well present, if not an improvement, at least a separate and independent mode of attacking the problem of absolute proper motions.

I do not say—and of course no one could guarantee—that this will work, but at the very least it seems to be worth trying out. At any rate I would strongly urge—in taking up Vasilevskis' offer—that several hundred of these faint blue stars in high galactic latitudes be included among the objects to be measured in the Lick program.