AUTOMATIC PHOTOELECTRIC TELESCOPES: STATUS AND POTENTIALS

Dr. David L. Crawford
Kitt Peak National Observatory
National Optical Astronomy Observatories
P. O. Box 26732
Tucson, AZ 85726 USA

ABSTRACT. Automatic photoelectric telescopes now exist. They are currently doing precision photometry of variable stars, fully automatically. More such telescopes will exist in the near future, and they will be doing automatic photometry of all sorts.

New generation telescopes are not limited to the giant telescopes now being designed by major observatories. Many of the same ideas and concepts that have bred plans for these large aperture telescope programs can and are being used even for telescopes as small as 10-inch aperture. Several such small NGT facilities now exist and more are planned. There exists even a viable concept for an Automatic Photoelectric Telescope Engineering Service (APTS), to build and operate a number of such instruments, on one site, each instrument to be owned by a "customer" who funds (owns) and totally controls the research use of the telescope. The APTS acquires and puts the telescope into operation, and fully maintains and monitors the use.

Russ Genet and Lou Boyd, from the Phoenix, AZ area, are the driving forces behind this concept and supply the engineering expertise. A Scientific Advisory Panel has been appointed consisting presently of Dave Crawford (Chairman), Doug Hall, and Don Hayes. Current plans call for a battery of automatic photoelectric telescopes (APTS) to be located in an existing building on Mt. Hopkins in southern Arizona, near the MMT facility. The first telescopes should begin routine operation at this site early in 1986. They will operate routinely, being checked by a human operator less than once per week.

Programs for such APTS will consist initially of variable star light curves, all sky photometry and monitoring of bright stars and standard stars, and monitoring of special interest objects for variability. Early versions of the APTS have operated automatically for the last two years, very effectively, for variable star monitoring, in Phoenix and in Ohio. See, for example, the article by Boyd, Genet, and Hall in the July issue of Sky and Telescope for a description of the APTS and of their current use on variable stars.

J. B. Hearnshaw and P. L. Cottrell (eds.), Instrumentation and Research Programmes for Small Telescopes, 87–88.

Later extensions to somewhat larger telescopes can and will include CCD area photometry, spectrophotometry, and near infrared photometry.

Such programs are a natural growth of current new technology applied to the design and use of small telescopes. We predict a revolution in the quantity and quality of photometric data from such facilities.

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