A PLAN FOR A NEW GENERATION 2M-CLASS TELESCOPE IN INDONESIA*

KAREL A. VAN DER HUCHT

Space Research Laboratory, The Astronomical Institute at Utrecht, Holland

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Abstract. One of the prime astrophysical interests of the Observatorium Bosscha is, and has always been, double star research: visual double star research with the double-60 cm Zeiss telescope (dedicated in 1928), and theoretical research of evolved massive spectroscopic binaries (since 1972). For one thing, this is the very reason that this IAU Colloquium No. 80, celebrating the 60th anniversary of the Observatorium Bosscha in Lembang, is devoted to binary astrophysics.

Up to now, visual, photographic, and photometric tools have been used for binary research at the Observatorium Bosscha. An important, essential additional tool for binary research is spectrographic equipment, in order to measure radial velocities of binary components.

Therefore, we suggest to make a plan for a new modern telescope, a reflector with a primary mirror of about 2 m in diameter and with a modern spectrograph/detector combination for radial velocity measurements.

At a number of major astronomical observatories scientists have been considerating to erect new telescopes devoted primarily to radial velocity measurements. The reason for this is that at the end of this decade the parallax and proper motion measurements to be made by the ESA astrometric satellite Hipparcos will become available of more than 100 000 single stars and double stars. At that time there will be a compelling need for radial velocity measurements of all these stars to complement the parallax and proper motion measurements. With the combination of this data enormous progress will be made in double star research, and in the study of galactic dynamics, another topic of interest of the Observatorium Bosscha. If it could be realized to build such a dedicated radial velocity telescope in Indonesia, Indonesian astronomers could take a leading role in this field of research.

Without going into technical details, we would like to emphasize here that such a new instrument should be a true *New Generation Telescope*, and that the Institut Teknologi Bandung should participate from the very beginning in its design, construction and assembling, and the subsequent servicing; ITB could participate in the field of optics, mechanics, and electronics. Modern astronomy offers tremendous challenges to technology, which are of great interest to technological institutes. The new telescope should be computer controlled, and the spectrograph should have a modern digital read-out

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(Reticon, IPCS, or CCD). The telescope should have one of those recently becoming available *thin mirrors*, allowing more mechanical freedom. It could be a telescope with a siderostat which feeds the light into a fixed telescope, thus improving both the stability of the telescope and that of the spectrograph. In this way the staff and students of ITB, as well as the technical staff of the Observatorium Bosscha will be drawn into modern techniques of many varieties. And for ITB such an enterprise may even have a spin-off into other fields than astronomy.

One aspect which is of great importance for the new telescope is the selection of its site. The present site of the Observatorium Bosscha in Lembang is a good one, but for a new modern telescope one wants to make sure that it is going to be located at the most ideal site.

Therefore an Indonesian site-survey should be initiated promptly. Site survey equipment is available at many big observatories and could be borrowed. The site survey should extend over at least 4–5 years to monitor the meteorological and environmental situation at many sites.

In the meantime the design and fund rainsing can be considered. Modern day astronomy depends on financial support from governments and inter-governmental organizations. Therefore it is urged that a proposal for a new telescope as indicated above clearly describes the advantages of such a new telescope both for astrophysical research in Indonesia, and for the introduction of new technologies in Indonesian technological institutes.

The recently formed Steering Committee for Indonesian-Netherlands Astrophysics (INA) is willing to explore the possibilities for this plan. We hope that after investigating the interest of ITB in this matter, a proposal could be made before the end of this year.