IAU REGIONAL MEETING AT BANDUNG

The second Asian-Pacific meeting of the International Astronomical Union was held in Bandung, Indonesia from 24 to 29 August 1981. The purpose of such meetings is to bring the astronomers in a specific region together and to discuss and encourage new activities falling within the scope of the IAU. The first meeting for the Asian-Pacific region was held in New Zealand in 1978 and the next one will probably be hosted by Japan in 1984. The Bandung meeting was attended by astronomers from Australia, Hawaii, India, Indonesia, Japan, New Zealand etc.

The topics discussed at the meeting (through invited and contributed papers) were naturally dictated by regional interests. Nevertheless the participation by astronomers from U.S. and Holland added to the interest. For example van den Heuvel from Holland reviewed the status of binary stars and their relationship to X-ray sources. It is now apparent that the battle between two rival theories to account for the X-ray sources in globular clusters has been lost by the supermassive black hole and won by neutron stars! Even the binary X-ray sources are known to be due to the neutron star as the compact member, with the exception of Cygnus X-1. Cygnus X-1 has hitherto been considered as containing a black hole in the binary system. But since no other black hole candidates have emerged in the last 10 years, van den Heuvel suggested a review of Cygnus X-1 to see if a black hole was really necessary.

F. Kerr from Australia reviewed the structure of our Galaxy, pointing out two features which have gradually emerged. First, the rotation curve does not seem to fall off even at a distance of 16 kpc from the centre of the Galaxy. The mass contained within this distance (if Newtonian inverse square law of gravity holds) is already as high as $3 \times 10^{11} \, M_\odot$. The previous estimate of the mass of the Galaxy was only $\sim 1.4 \times 10^{11} \, M_\odot$. Secondly, the disc of the galaxy is warped at one end and has a dip at the other. What dynamical instability could have produced such an effect?

Wynn Williams from Hawaii reviewed the central region of the Galaxy about which more details are known and expected in the infrared. There is now no real evidence for a black hole in the centre of the Galaxy. M. W. Feast from South Africa discussed the methods of measuring the Sun’s distance from the centre of the Galaxy pointing out that Mira variable stars provide a more stable distance indicator than the RR Lyre stars. The ‘best’ estimate for this distance today is $9.2 \pm 0.6$ kpc.

Venturing further out in the Galaxy, D. Morton from Australia discussed how the star count increases with faintness. As yet no model is known which accounts for the observed star counts and the rotation curves. One has to postulate missing mass. At faint levels there is also the observational confusion between star counts, galaxy counts and quasar counts. Several groups all over the world are now tackling the count problems with more sophisticated gadgetry so that eventually these difficulties will be ironed out.
Beyond the Galaxy, van den Bergh from Canada took on the difficult task of telling us what the ‘true value’ of Hubble’s constant is. He and Hanes from Cambridge outlined the various sources of uncertainties in the measurement so that the safest limits on this constant are between 50 to 100 in units of \( \text{km s}^{-1} \text{ Mpc}^{-1} \). Hanes argued strongly in favour of 100.

Some aspects of cosmology were reviewed by J. V. Narlikar, highlighting quantum cosmology, the present attempts to understand the early universe (GUT and all that), the status of the proton decay experiment, the present ideas on massive neutrinos, as well as the observational status of the attempts to measure the rate of change of the gravitational constant.

The session arranged to discuss teaching of astronomy did not generate sufficient momentum for lack of time. The organization of the conference by Dr. Hidayat of the Lembang Observatory was very efficient and the Indonesian hospitality made this meeting as much of a highlight in gastronomy as it was in astronomy.

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T.I.F.R.