

ples of stars, mainly directed towards elucidating the structure and dynamics of our own Galaxy and some aspects of stellar evolution.

### Other Australasian Astronomy

New Zealand has a long tradition of optical astronomy, and is particularly active in the international programmes to monitor bright variable stars. The principal modern observatory is the Mount John Observatory in South Island, operated jointly by the Universities of Canterbury at Christchurch, Pennsylvania and Florida, whose most important work to date is the recently published Canterbury Sky Atlas made using a 24-inch reflector telescope; this should be a useful adjunct to the forthcoming much deeper, larger scale Schmidt surveys. Mention must also be made of the Carter Observatory in Wellington, which fulfils the usual role of a government observatory.

There is another observatory of note in Australasia, the Bosscha Observatory at Lembang in the Indonesian island of Java. The two main instruments here are a 24-inch double refractor and a 20-inch Schmidt telescope, which are used to observe double stars and for photometry of star clusters.

### Future Prospects

In the immediate future, the most exciting prospects are in optical astronomy which may be able to recapture some of the glory which has rightly fallen mainly to Australian radio astronomy in recent years, and which has in fact provided much of the motivation for the new optical instruments. The United Kingdom 48-inch Schmidt telescope, owned and operated by the Science Research Council, has recently come into operation on Siding Spring Mountain. It is a specialised instrument, designed only for wide-angle direct photography of the sky, or at a later stage for very low dispersion spectroscopy using an objective prism. It was built primarily to extend the National Geographic Society-Palomar Observatory Sky Survey to the south, and is very similar to the Palomar 48-inch Schmidt; the survey will be done in collaboration with the European Southern Observatory's new 1-m Schmidt at La Silla in Chile.

Important uses of this survey will be the completion of northern catalogues of objects like peculiar galaxies and clusters of galaxies, the identification of radio and X-ray sources, and studies of the distribution of stars and galaxies over the sky. In many fields it will act as an adjunct to the 150-inch AAT, providing source lists of interesting objects for further study.

The 150-inch Anglo-Australian Telescope, with four times the light grasp of the largest telescopes operational at present in the Southern Hemisphere, should make many exciting discoveries; it may well be the first of the new large southern telescopes in regular operation since it is due for completion during 1974. The prime fields of research will probably be the Magellanic Clouds, the centre of our own Galaxy, and interesting peculiar objects such as the radio galaxy Centaurus A (NGC5128). In all these fields, there will have to be close collaboration between optical, radio and the rapidly developing astronomy at other wavelengths.

Recent astronomical research in Australia has opened up so many promising lines of research that the biggest problem at present is to decide on priorities for future instrumentation. For example, three recent major Australian proposals are for a millimetre radio telescope to continue the Parkes/Monash work on interstellar molecules, a new much larger stellar intensity interferometer to extend the Narrabri work to fainter stars, and a 60-inch conventional optical telescope as support for the 150-inch AAT. Although this last is an Australian proposal, there are strong reasons why the UK also should consider providing more supporting telescopes, so that British astronomers can make efficient use of their time while in Australia working on the AAT; the 48-inch Schmidt will only be able to meet part of the need in this respect, and the existing smaller Australian telescopes are already over-subscribed by Mount Stromlo astronomers so that there is unlikely to be much time available on them for visitors. Another obvious gap in existing Australian instrumentation is the lack of a really accurate positional radio telescope. Radio positions are now being determined in the Northern Hemisphere to accuracies of about 1 arc s, but the best southern catalogues give accuracies of only about 6 arc s which is not good enough for unambiguous optical identification of radio sources, particularly of any without obvious optical peculiarities. Furthermore, it seems likely that radio astronomy may in the future provide the basic reference frame for astrometry since it is already capable of higher positional accuracy than traditional optical techniques.

## 100 Years Ago

THE forthcoming number of Petermann's *Mittheilungen* will contain an interesting article compiled from the Australian papers, giving an account of a three months' journey during August, September, and October of last year into the interior of Australia, by Mr. Ernest Giles, accompanied by Messrs. Carmichael and Robinson. They struck off from the route of the overland telegraph at Chambers's Pillar, about 133° 55' E. long., and 24° 53' S. lat., and journeyed in a north-west direction along Finke Creek, traversing ground which has not hitherto been explored. They passed among long ranges of hills, lying in an east and west direction, and varying in height from a few hundreds to 4,000 ft., though few of the heights are apparently above 1,000 ft. At about the 24th parallel, in 133° N., they came upon multitudes of magnificent fan palms growing along the bed of the creek; they named the place the "Glen of Palms." Their journey in this direction extended to 129° 55' W., and about 23° 10' S., the utter sterility of the region and the want of water compelling them to turn back. It was only during the last few days, however, of their western journey that water became scarce. The most characteristic vegetation throughout was Spinifex; Casuarina was also of frequent occurrence.

From *Nature*, 8, 94, May 29, 1873.

## WELLINGTON N.Z. PHILOSOPHICAL SOCIETY

The President referred to the expected visit of the *Challenger* on a scientific exploration of the Southern Seas, and expressed a hope that it would add largely to our knowledge on this interesting subject. Referring to the great Southern Continent, which is full of interest with its active volcanoes amidst perpetual snows, he stated it was likely that the ensuing year will add greatly to our knowledge of that land, which is only 1,200 miles distant from New Zealand, on whose climate it probably exerts a marked influence. This little known land possesses large supplies of guano, and according to Sir James Ross, has a large and undisturbed whaling ground near it, in which whales of several different species abound. The President criticised Captain Hutton's paper on the Glacial period of New Zealand, and confirmed his dissent from the theory of a submergence of the New Zealand area on a grand scale during the post-pliocene or post-glacial period, and stated that unless palæontological evidence of recent date can be obtained from strata occupying valleys that were eroded during the last extension of the glaciers he must still adhere to his formerly expressed opinion, that the geological period previous to that which may be termed the recent period in New Zealand was characterised by a prolonged though perhaps not excessive elevation; and that especially in the South Island there is in consequence a marked absence of marine drifts and tills. The President commended the study of the subject of our soils, surface drifts, and beach rocks to the members of the Society.

From *Nature*, 9, 173, January 1, 1874.