Books

*Astronomers at the Royal Observatory, Cape of Good Hope*, by Brian Warner. A. A. Balkema, Cape Town 1979; pp. 144, with 32 illustrations. R10.00 = (£5.50 approx.).

The Royal Observatory, Cape, is well-known to the very large number of astronomers who have worked there since the Second World War. In its present form it constitutes the South African Astronomical Observatory, funded jointly by the Science Research Council and the South African Council for Scientific and Industrial Research. In this guise it continues to provide a premier southern hemisphere observing site to the British astronomical community at Sutherland, about 400 km by road from Cape Town.

My own introduction to the Royal Observatory dates from 1971, when as an inexperienced graduate research student, I passed through Cape Town en route to the Boyden Observatory. The then Officer-in-Charge, George Harding, very kindly showed me the Observatory and the city of Cape Town. This connection was further strengthened when I worked at the University of Cape Town during 1977. Since then I have used the Sutherland facilities on a number of occasions and have come to realize that the hospitality shown me was no isolated incident but rather a long-standing tradition at Cape Town.

So when I had an opportunity to read Brian Warner’s book I had a special interest, as will those many others familiar with R.O. Cape. Professor Warner’s approach is very much biographical, as the title suggests, yet we gain an insight into the work of the Observatory through the details of the astronomer’s lives. When the first of their Majesties’ Astronomers at the Cape, Fearon Fallows, took up his appointment conditions were very far removed from those at European observatories of the day (1821). The local labourers hired to work at building the Observatory were so violent that “it became quite unsafe to trust oneself alone without being well-armed”. Fallows is further quoted as follows. “I was compelled to be there (in the grounds) during the night—my situation would have been dangerous indeed had I not protected myself by firearms and my excellent dogs”. Eventually a guard of “a corporal and nine privates” was assigned. How about that for technical back-up on site?

Frequent quotations from diaries kept by the astronomers such as those above help to spice this history throughout. In particular there are many contemporary pen-sketches, some in a quite amusing vein. The primitive conditions during the early years are vividly described. Piazzi-Smyth is quoted as follows. “There was no road to Cape Town other than by wading through the river (Salt River) and crossing a piece of marshy ground”. The hill on which the Observatory was built (actually it is not a hill but rather a gentle swelling of the ground in an otherwise flat area) was called Slangkop or Snake Hill. The hill lived up to its name viz. “when the workmen were clearing the way for the building they destroyed from 70 to 100 snakes”. This struck me as a curious coincidence since the hill on which Boyden Observatory was built had a similar reputation and I recall hearing the same thing about the hill on which the Radcliffe Observatory was built at Pretoria. Does this mean that snakes enjoy clear skies and good seeing conditions or is every bit of high ground in South Africa similarly afflicted?

Although in his 11 years at the Cape, Fallows managed to see the founding of the Observatory, the many difficulties prevented him making a significant contribution.
to the astronomy of the day. No sooner had the main instruments been installed (a Dollond Transit telescope and a large Mural Circle) than he fell prey of a series of illnesses which ultimately led to his death from scarlet fever in 1831. His successor, Thomas Henderson, barely stayed at the Observatory a year before resigning in a bout of anger and frustration at the lack of support coming from the Admiralty in London. Fortuitously however, he had made sufficient accurate observations of α Centauri to be able on his return to England to derive its parallax. This remains the first determination of stellar parallax, although not the first to be published. It was left to his successor in turn, Thomas Maclear, who was born in Newton Stewart, Co. Tyrone, to make a very considerable contribution to the science of his day.

Maclear’s early years at the Cape were shared with Sir John Herschel who was busy extending his father’s survey of the northern sky to the other hemisphere. The second great asset to Maclear was a new young assistant called Charles Piazzi Smith. Herschel and Maclear set about remeasuring the arc of the meridian which could, on comparison with similar measurements made in the northern hemisphere, be used to determine the shape of the Earth. An earlier attempt had been made by Lacaille but this was widely believed to be in error. Unfortunately Herschel, his survey of the southern sky completed, departed for England before the work on the meridian arc was complete. For ten years Maclear, Piazzi Smith and a new assistant, Mann, worked on the determination of this fundamental quantity. Their remarkable success in this and in extending the survey work throughout the Cape peninsula formed the basis of the South African trigonometric survey. Curiously it also proved that Lacaille’s observations had been entirely accurate but that he had failed to allow for the gravitational attraction of the Cape’s mountains in reducing his results.

Piazzi Smith left Cape Town to become the Astronomer Royal at Edinburgh. He is often remembered for his advocacy of mountain tops as sites for observatories, a very far-sighted view, but one based on his own experiences with Maclear while making measurements for the determination of the meridian arc in the mountains about Cape Town. Maclear himself was knighted for his efforts and remained director for 37 years in all. Although Maclear was a tireless worker he never completed the reductions of his many meridian observations which were intended to form a southern catalogue of star positions. It was left to his successor, Edward Stone, to reduce and finally publish in catalogue form, the accumulated positional observations of over 12,000 southern stars. In addition to this mammoth work he also measured the distance to the Moon, by comparing observations made at the Cape with those made at Greenwich, and successfully made spectroscopic observations of the solar atmosphere during an eclipse. His time at the Royal Observatory also saw the inauguration of a daily photographic reconnaissance of the solar disk.

Although he was a hard worker, Stone had let the buildings get into a serious state of decay. The last of the nineteenth century directors, David Gill, was left with the task of effecting a resurrection of the Observatory and, during his 28 years there, saw the Observatory completely re-equipped and ready to face the demands of the twentieth century. Gill was a Scottish businessman who set up a private observatory in his home town of Aberdeen. After being appointed director of the Dun Echt observatory he travelled to Mauritius to observe a transit of the planet Venus across