In June this year, GEMINI North was officially dedicated by HRH Prince Andrew and is now preparing for the first observers scheduled in June 2000. The first engineering data from GEMINI North came at the time of the dedication ceremony and, using adaptive optics, produced some of the sharpest astronomical images ever obtained from the ground.

The GEMINI North telescope on Mauna Kea, Hawaii, is now in its final few months of preparation before submission of the first observing proposals from astronomers in the seven partner countries. UK astronomers will have a 25% share of the two 8 metre GEMINI telescopes – this one and the identical GEMINI South, situated on Cerro Pachon in the foothills of the Andes in Chile.

The GEMINI Observatory has used many new techniques to produce telescopes capable of such imaging performance. The telescopes themselves have extremely low infrared emissivity and there is also excellent thermal control of both the dome and mirror surfaces in an effort to minimize the background radiation seen on the astronomical array detectors. Active optics precisely retain the figure and alignment of the 8 metre primary mirrors by controlling dozens of actuators, both under the mirrors and around their edges, when the telescopes are driven from zenith to horizon.

Over the next few years, high throughput, ultra-sensitive optical (0.3 to 1 μm), near-IR (1 to 3 μm) and mid-IR (3 to 50 μm) instruments for direct imaging and spectroscopy with adaptive optics will come on-line. The first of these is called NIRI (Near-IR Imager) and is being constructed by the University of Hawaii, Institute for Astronomy (IfA). NIRI will allow 1 to 5 μm imaging at a variety of pixel scales together with grism spectroscopy at resolutions (R) of a few 1000. This instrument is due for delivery in the third quarter of 1999 and will be one of the primary instruments for the first observation period. At this time three other instruments will be available to users.

CIRPASS (being built by the University of Cambridge) is the Cambridge InfraRed Panoramic Survey Spectrograph and will allow 0.8 to 1.8 μm fibre-fed integral field spectroscopy. Hokupa’a (the Hawaiian name for Polaris) is a near-IR adaptive optics imager built by the University of Hawaii, IfA. Finally, OSCIR (built by the University of Florida and NASA Marshall Space Flight Centre) is a mid-infrared imager and low-resolution (R=100 to 1000) spectrograph. CIRPASS, Hokupa’a and OSCIR will be on loan until the corresponding GEMINI facility instruments arrive.

Within a year of the start of allocated observing time, GMOS (GEMINI Multi-Object Spectrograph), an optical imager/spectro-meter, Michelle, a mid-IR imager/spectrograph (shared with the United Kingdom InfraRed Telescope, and to replace OSCIR) and the adaptive optics unit, ALTAIR (replacing Hokupa’a), will be commissioned on GEMINI North.

In addition to novel instrumentation and an easily accessible on-line data archive, an efficient operational model is being established involving both classical and queued observing. Classical observing involves the observers travelling to Hawaii or Chile in person. Queued observing involves observers submitting detailed plans for their observational requirements (site/weather characteristics and data quality etc) electronically to GEMINI where a computer program will select the best observation to perform under the conditions encountered on nights set aside for queued observation. GEMINI staff collect the data. It is anticipated that eventually, half of the observing on GEMINI will be queued, to maximize both efficiency and the quality of the results obtained.

In Hawaii, the Northern Operations Centre is now well established in the University of Hawaii’s Hilo Science Park and will contain a replica of the control room in the GEMINI North mountain-top buildings. Soon, astronomers will be able to control the GEMINI telescopes and common-user instruments from this ops room without needing to visit the 14,000 feet summit of Mauna Kea, where thought processes are considerably slowed and even the hardest of observers can feel at the mildest, unwell.

The first call for proposals for GEMINI observing time should be in December 1999, with a deadline of late January 2000 for observing time beginning in June 2000. For further information, see the UK GEMINI Support Group home page at: “http://gemini.physics.ox.ac.uk”.

Appointments and awards

Prof. Alec Boksenberg, CBE FRS, currently PPARC Research Professor in the University of Cambridge, has recently been awarded the Glazebrook Medal and Prize by the Institute of Physics and the Hughes Medal by the Royal Society.

The Hughes Medal of the Royal Society was awarded in recognition of Prof. Boksenberg’s landmark discoveries concerning the nature of active galactic nuclei, the physics of the interstellar medium and of the interstellar gas in primordial galaxies. Prof. Boksenberg is also noted for his exceptional contributions to astronomical instrumentation including the Image Photon Counting System.

The Glazebrook Medal and Prize is one of the premier awards of the Institute of Physics, given for contributions to applied physics. On behalf of the Fellowship, Council sends its congratulations to Prof. Boksenberg.

GEMINI North – closing in on real observing

Colin Aspin, Senior UK GEMINI Support Astronomer, reports on progress at Gemini North.

From the RAS Archives

Thomas Skaiife’s pistolgraphs

Some of the rarest relics of photographic history in the RAS Archives are a group of ‘pistolgraphs’ by Thomas Skaife (now designated RAS ADD MS 91/1).

Skaife was an inventor who in 1856 developed one of the first means of producing “instantaneous” photographic images, in this case on disks of sensitized glass plate. The invention of the wet plate had shortened exposures considerably but they still usually took seconds or even minutes.

There is a pistolgraph in the National Museum of Photography, Film and Television, Bradford, which has supplied the photograph here. The gadget produced small oval negatives about 0.75 inches on the major axis. Some of the RAS cards are evidently direct prints; others have been re-photographed and enlarged.

It is said that Skaife tried to photograph Queen Victoria with his device and, due to its superficial resemblance to a gun, was promptly arrested by the police, who thought he was an assassin. Alas, the image of the Queen (who was doubtless not in the least amused) was lost because Skaife had to open the camera to demonstrate that it contained only harmless film.

The RAS images include two self-portraits, an image of the aged Mrs Skaiife’s pistolgraph camera, 1858. Skaiife and a bombshell fired from the “Monster Mortar” at Plumstead, Kent, in 1858. Skaiife was an early exponent of the use of artificial illumination for photography using burning magnesium strip or powder, a hazardous method which survived into living memory. Larry Schaaf wrote on Skaiife in a now defunct magazine called The Photographic Collector. P D Hingley, Librarian of the RAS. Assistance is gratefully acknowledged from Michael Harvey and Colin Harding (NMPFT) and Larry Schaaf (Baltimore).