

A night on Palomar Mountain

A SIGN reading "SCHOOL" is the unexpected find at the end of a hair-raising climb to 5,000 feet on a road more suited to a jeep than a rented automatic. It deflates any sense of achievement at having reached the summit. This is the community of Palomar Mountain, just like any other small town, except that the residents ranch telescopes and look after the people who come to use them.

A source of quiet pride to the residents is the giant 200-inch Hale telescope, until relatively recently the biggest and most powerful telescope in the world.

Despite the encroachment of city lights, and the construction of bigger telescopes in darker places, the Hale is still a magnet for astronomers. Why?

First, it is simply a joy to use. The spacious open design means that it is easy to install, adjust and upgrade instrumentation packages at the two main foci. Combined with this versatility, the instrument is engineered with military precision and with durability in mind. That it looks like a battleship is no coincidence — the chief engineer was a naval architect on special leave from the US Navy.

Second, cutting-edge observational astronomy does not always require the biggest telescopes. "It would be criminal to have all telescopes in the 400-inch class" says Robert Brucato, Assistant Director of the Observatory. As well as the Hale, Palomar has a 60-inch, a 48-inch and an 18-inch telescope, all in constant use. The Second Palomar Sky Survey, now half complete, is compiled with the 48-inch Oschin Telescope. The 18-inch instrument is currently being used to monitor Earth-crossing asteroids.

Not that the Hale, this Rolls-Royce of telescopes, is without its problems.

The observatory is run by Caltech; for many years, time on the Hale has been shared with the Carnegie Institution and Cornell, which each have a quarter share. What was once a gentleman's agreement is now a financial arrangement, with the Carnegie and Cornell contributing to the operating costs and the development of new instrumentation. But the Carnegie has chosen not to renew its contract in 1994, and will concentrate its efforts on the Las Campanas observatory in Chile. Caltech now has to decide whether to take up the slack itself or approach another institution.

Should Caltech decide to offer the time elsewhere, how will it sell the idea of Palomar against the competition of newer telescopes in places less prone to light-pollution? The demand for time on big telescopes is so great that a quarter-share of the Hale will be an attractive proposition.

Life in the small town of Palomar

Mountain is thus likely to continue much as it has for the past 50 years. Robert Thicksten is the Site Superintendent of the Observatory. "I sometimes call him the Mayor", says Brucato, because in addition to keeping the telescopes in working order, he and his staff fix roofs, mend broken cables, ensure that the snow-ploughs keep the roads clear and generally keep the town's amenities in good shape.

Once they get too old for the elementary school (faculty of one), Palomar kids are bussed down the mountain to the local high school (weather permitting). Luckily for them, there is an alternative

THE SALK

Oxbridge-on-Sea

WERE one to transplant an Oxford or Cambridge college to the Pacific seashore, it would look like the Salk. The building itself fits the bill and the collegiate atmosphere is as pervasive inside as out. The 45 faculty prize academic excellence above all, and the result is that the Salk has slightly fewer financial resources than required to keep it hanging on by its fingernails. Yet Salk publications have four times the citation impact of those from the flush and populous Scripps Institute.

Far from moaning about their impoverishment, Salk researchers see their institute's limitations as the key to their success. For one thing, the entire faculty can fit into a classroom, which allows for an uniquely democratic form of internal government.

Second, almost all the Salk's funds come from federal grants. The institute guarantees its faculty a salary, from which the value of current grants is deducted. In practice, it would be unable



Not biggest, but one of the best.

route down the mountain — longer, but easier on the gear-shift. □

Salkitecture

THE cover to this week's issue is an example of the Salk's striking architecture. Just before Christmas 1959, Jonas Salk ferreted bohemian architect Louis Kahn from his office at the University of Pennsylvania. Salk, famous for the eponymous polio vaccine, had had a vision of a research institute with a creative environment "in which a Picasso would be comfortable working". Kahn was an Estonian emigré who is said to have sustained a varied sex life while living with his mother-in-law, and liked nothing better than to watch women roller-skating. The two hit it off instantly. In 1960, Salk found the site, Torrey Pines Mesa, a cliff-top on the edge of the Pacific. With nothing more than a pledge from the March of Dimes Birth Defects Foundation, Salk and Kahn asked the City of San Diego for the site. After a referendum, it agreed, and in 1965, the institute opened its doors. It has since been judged one of America's ten most distinguished buildings, and has won the American Institute of Architects' 25-year award.

to honour this guarantee were more than a few researchers to lose their grants, but the rigorously selective recruitment policy ensures that successful applicants are of the kind likely to bring generous grants with them. Such risk is courted by the faculty as a way to keep their research up to scratch.

The endowment of \$20 million is far smaller than the institute would like, for all its ideals. The relationship with its commercial subsidiary, SIBIA, is born of necessity rather than desire, and will end as soon as the company goes public and can yield a return to shore up the endowment.

All in all, the collegiate philosophy here is more ascetic than the all-guns-blazing entrepreneurial approach seen, for example, at Scripps. One might say that it is more European than American in character: this is hardly surprising, in that many of the original and early fellows came here from Europe. "When I first came here in 1970", says neurobiologist Steve Heinemann, "the fellows ran the place, and it had a very European flavour."

But expansion is in the air, and by the time you read this, the foundations should be laid for a new building. The Salk badly needs a transgenic facility, more laboratory space and an auditorium. Heinemann is worried that the extension could dilute the advantages of smallness. Papers with big citation impacts, he feels, come from small places. Virologist Inder Verma is less worried, although he says that "we are not used to growing by quantum leaps". Biochemist Tony Hunter is more sanguine, in that meetings held in the auditorium could help to dispel the institute's somewhat aloof image: "we've had that reputation of not talking to the community" he says. □