

close to the coast in the middle of nowhere by some foreigners could easily have been misinterpreted. Subsequently, we passed by Montezuma and visited S. Pedro de Atacama to see the area further to the east. It did not seem easy to find there fully free standing mountains with heights of less than 4000 m – about the highest possible for normal work without special provisions for oxygen.

We planned to fly back from S. Pedro via Paranal, and then over some inland mountains near the Salar de Punta Negra. Accordingly a plane was chartered which landed on the airstrip of S. Pedro, but it got stuck in the sand. All of us had to push to get the plane to a harder part of the surface, and when finally we were taking off, not all passengers looked very happy. Since the pilot had deliberately taken only a small amount of fuel, the plane managed to take to the air and half an hour later we landed at Antofagasta. The subsequent flight over Paranal was interesting. Flying over the narrow strip of mountains between the old Panamericana and the ocean, the atmosphere was absolutely stable, but as soon as we came east of the road, strong turbulence was felt. The view was spectacular with the blue ocean and white low clouds on one side and the steep cliffs and absolute desert on the other. After circling Paranal a few times, we continued the flight south-

ward, still more convinced that measurements should begin there as soon as possible. A few months later Dr. Ardeberg had the observing station installed and manned by Mr. Gomez and son, who measured the H₂O content every two hours around the clock and, of course, also made observations of cloudiness and other meteorological parameters.

A site may be very dry and the sky very transparent and free of clouds; however, if the “seeing” conditions are not very good, it is all in vain. Fortunately, the seeing monitor installed by Dr. Sarazin some years later showed that also as far as atmospheric turbulence is concerned, Paranal is excellent, in fact better than La Silla.

The Future

Paranal has now been chosen as the site for the VLT. This gives a unique chance to rationally construct a new observatory which may look rather different from La Silla with a smaller resident staff and a more intensive direct communication to Europe. It will be particularly important to place at and around Paranal only telescopes and instruments that use the essential characteristics of the site, and especially during the installation phase of the VLT to avoid the plethora of small telescopes

which have made the La Silla operation rather heavy.

Paranal is probably the observatory site with the lowest cloudiness in the world and also among the best in “seeing” and water vapour content. Are there still better sites to be discovered? Some astronomers think that the central area of the antarctic plateau – closer to the pole than the region of strong winds – may be particularly suitable because of its very low humidity. Since the sun is never far below the horizon, the number of hours of darkness is rather small and the site seems appropriate only for IR and sub-mm observations. The cost per hour of observation would be very high, and it is clear that only special-purpose instruments could justify this cost. On a longer time scale the lunar base currently under study may offer unique possibilities for astronomy at all wavelengths. None of this, however, is likely to endanger the role of Paranal as one of the world’s leading observatories for the next half century.

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ESO Awards VLT Contracts to Dutch and Danish Firms

The decision to place the world’s largest telescope, the ESO 16-metre equivalent Very Large Telescope (VLT) on the Paranal mountain in the Chilean Atacama desert, taken by the ESO Council on 4 December 1990, has now been followed up by an important next step. During a small ceremony on April 26, 1991 at the ESO Headquarters in Garching, two major contracts were signed which will together define the future shape of the VLT Observatory and its infrastructure.

Following a call for tenders which was responded to by a large number of engineering companies in the ESO member countries, ESO awarded contracts to INTERBETON of The Hague, the Netherlands, and COWIconsult of Copenhagen, Denmark. The contracts were signed by Mr. A.J.M. Boersma, Area Director (INTERBETON), and Mr. K. Østergaard Hansen, Executive Director (COWIconsult), and Professor H. van der Laan, Director General of ESO.

INTERBETON will carry out the leveling and landscaping of the Paranal

mountain, so that it can accommodate the entire array of 8-metre and auxiliary telescopes as well as associated buildings that together make up the VLT Ob-

servatory. About 23 metres will be cut off the Paranal peak by blasting and ripping, leaving a fiat area of about 20,000 m² at 2640 m altitude. In July



From left to right: Mr. K. Østergaard Hansen, Executive Director of COWIconsult; Prof. H.v.d. Laan, Director General of ESO; Mr. A.J.M. Boersma, Area Director of INTERBETON.

1991, INTERBETON will establish a base camp for the temporary housing of its personnel in the hostile desert surroundings, and the actual blasting will start in September 1991. It is expected that this work will be terminated in February or March 1992, after the removal of no less than 250,000 m³ of rock and gravel.

COWIconsult will perform an in-depth engineering design study of all the

structures and buildings which will later be erected at Paranal as well as of the optimal lay-out of the necessary access roads and also the entire infrastructure. The Paranal site is one of the most pristine in the world and ESO is placing great emphasis on the need to preserve it in a condition that is as close to the original as possible. The COWIconsult study will therefore include the innovative use of alternative sources of energy,

for instance wind turbines and photovoltaic solar cells for providing electricity and thermal solar cells to heat the buildings. Water tanks must be provided to store the water which will be trucked from Antofagasta to this absolutely dry, remote location. This study will take about 12 months, following which the actual construction work will begin in the second half of 1992.

The Editor

ESO'S EARLY HISTORY, 1953–1975

XI. Policy, Payments and a Bit of Politics*

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“German astronomers would be very happy if in the long run not only the [ESO] Administration, but also scientific activities could be located in our country”.

From a statement by the German astronomical Council delegate in December 1973.

Introduction

The present article concludes my account of ESO's early history. We first followed the developments leading to the signing and ratification of the ESO Convention in 1962 and 1964, and the simultaneous searches for sites, first in South Africa and later in Chile; next the first phase of constructions in Chile concluded with the dedication ceremonies on La Silla in March 1969, and then first scientific activities. We saw that by the time of the dedications first thoughts were given by Directorate and Scientific Programmes Committee to developments of ESO beyond the Initial Programme of the Convention, but that their follow-up was stifled by the growing concern about the completion of the 3.6-m and the Schmidt telescopes. Subsequent progress in these two telescope projects was described in the last three articles.

In dealing with these latter subjects, I entered into the period of my own Directorate of the Organization. As a matter of principle I did not want to cover that period except for those items for which developments were well under way in preceding years and hence would naturally ask for an account of their follow-up, as was the case with the 3.6-m and Schmidt telescopes. Thus, my account did not cover a wide range of developments following the 1969 dedications, such as: the scientific work by ESO staff in Chile and by visiting astronomers; the large construction programmes carried out in Chile; the more detailed account on the work of the TP Division; and the

steadily progressing effort of the ESO Administration and Finance Committee in establishing the framework of rules and arrangements governing staff positions.

This concluding article will again deal with two subjects that rooted in ESO's earliest days. First, we take up some matters of general policy that were on and off the subject of, sometimes rather pithy, discussion. Next we shall deal briefly with an important aspect that so far was hardly touched: the financial one – what it all cost and how it was paid for.

MATTERS OF POLICY

Two matters of policy ran, since the earliest days, as a continuous thread through the deliberations of Directorate and Council: a) the question, to what extent ESO should have a nucleus of research-oriented astronomical staff, and b) the problem of ESO's geographical dispersion, particularly the dispersion in Chile. Although the two subjects are interrelated, let me deal with them consecutively.

A. ESO, A Centre for Research?

In article VII I quoted the opening statement by the advisory committee that in 1965 submitted to Council recommendations on the way the Observatory should operate: *“Whereas the role of the Observatory as an astronomical institute in its own right – – – should be of great importance, the facilities should particularly be available to serve the national interests of the member states”.* We recognize here two conceptions between which the Organization

swung since then, a role as *“observatoire de mission”* and one as a research institute in its own right. I referred to this ambiguity earlier, in article VI in connection with the creation of the Santiago Headquarters.

In 1968, as described in article VII, the newly created Scientific Programmes Committee proposed the creation of an ESO Centre in Europe, to serve a double purpose: offering a meeting ground for astronomers, and a place where auxiliary measuring equipment could be developed, to be used in conjunction with the observational work on La Silla. As we have seen, this suggestion as well as others of the SPC met little response when early in 1969 the problem of the realization of ESO's main telescopes began to dominate Council deliberations. However, the proposal contained elements that in the following years would recur with increasing urgency in discussions between Directorate and Scientific Policy Committee on the one hand, and Council on the other hand.

The matter was expressly brought up in part II of document Cou-60 of December 1969 (to the first part of which I referred in article IX), written in preparation for the new policy to be adopted for the realization of the 3.6-m telescope and resulting in preference for the collaboration with CERN. With the prospect of the strong technical group to be built up at CERN that would absorb anyhow the small but growing technical group at Hamburg-Bergedorf, and with the threatening dispersion of ESO's establishments in Europe (on top of that in Chile), it seemed attractive to move to the vicinity of this technical group also the other services of Hamburg and es-

* Previous articles in this series appeared in the *Messenger* Nos. 54 to 63.