achieve a very good tracking performance even in the worst wind conditions. However, the question is much more critical for the 8-m primary mirror.

Wind tunnel tests were performed to evaluate the air flow patterns in the retractable enclosure: these measurements showed that the primary mirror is located in a recirculation region in which the local flow speed will reach up to 3 m/s when the wind blows outside with a speed of 18 m/s (the maximum operational mean wind speed for the VLT). Air flows of 3 m/s would be considered in other circumstances a light and welcome breeze but here it has to be considered that this will already cause pressure fluctuations on the primary up to about 4.5 N/m^2 rms depending on mirror orientation. This level of pressure fluctuations does not cause any problems for conventional 4-m class mirrors, but the aspect ratio of the 8-m VLT primary is so large (as a comparison term, the VLT primary is intrinsically 37 times less rigid than the 3.5-m NTT mirror) that it can maintain an optimal figure only under pressure fluctuations of up to about 1 N/m^2 rms. The conclusions of these analyses were rather obvious: because of the high sensitivity of the VLT primary mirrors to wind buffeting, the retractable enclosure may not provide adequate protection in all cases, even if it would probably provide the best seeing conditions.

A "closed" enclosure, that would provide under all wind conditions a good protection of the primary mirror had to be preferred. Nevertheless, in order to achieve an optimal optical performance in all circumstances, it was deemed desirable to keep the possibility of some degree of natural ventilation of the telescope volume. Therefore, the selected cylindrical enclosure includes a number of flexible ventilation possibilities with a semi-permeable wind screen across the slit, louvers in the upper part and some large opening in the lower fixed part. Wind tunnel tests have shown that the critical speed range with respect to pressure fluctuations on the mirror starts already between 1.5 and 2.5 m/s. Therefore, it is clear that the margin for getting some useful natural ventilation is small, although it will exist in some circumstances.

In general, however, the VLT will be able to achieve a consistently low mirror seeing only by means of a tight temperature control of the primary. Computations based on reduced scale experiments and the application of relevant similarity laws indicate that, for instance, if the mirror can be brought at the start of the night within a ΔT of 0.2° with respect to ambient air and then made to follow the relatively small (on the average) temperature changes during the night that are experienced at Paranal, then the mirror seeing of the VLT will be limited to about 0.1–0.2 arcsec in the worst cases and be reduced to something like 0.03 arcsec, if and when natural ventilation of the primary has been optimally trimmed.

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Something is Going On in the ESO-Libraries

U. MICHOLD, ESO-Library, Garching

Did you happen to visit the ESO-Libraries lately? And did you notice the librarians sitting in front of their computer terminals, staring at the screen, sometimes smiling as if in a trance or – on the contrary – sighing deeply? Looking at this unusual scene, you might have wondered what has changed, and then come to the conclusion: There is something going on in the ESO-Libraries.

You are right. Actually, we are in the middle of an important project: the computerization of the ESO-Libraries.

The Start: Just Pretending

A move from the traditional way of operating a library to an integrated computerized library system had been intended for some time already. Early this year, we eventually found an automated system that meets nearly all our requirements regarding features and functionality, ease of use, and compatibility with the ESO computer environment. The name of the software is Unicorn, and we expect it to turn a myth into a legend, as the vendor claims in his advertisement.

In July 1992 the software was installed on ESO's Sun-machine ns0. From the start, Miguel Albrecht kindly took care of all technical aspects including security and back-ups. At the beginning of August all librarians from Garching and La Silla attended a 5-day training course in Garching. After this intensive learning, we knew how to use all modules of the Unicorn system, and fortunately we were able to test everything on a trial database first. At this time we also started to look for a contractor who could carry out the retrospective conversion of the existing card catalogue.

Now it's for Real

The "luxury" of being "happy-go-lucky" and doing whatever we liked on the system came to an end in September, when the whole database and every modification we had made so far was deleted. Since then it has been "sink or swim", any mistake we make from now on will have an impact on our own database (although everything regarding setting up policies, entering and deleting data, etc. can be changed later if it turns out not to be the right decision).

Our new colleague, Uwe Glas, took up work in mid-September. In early November we are approaching 2,000 online bibliographic records already! Believe it or not, it's so much fun to see your "own" database grow – and it makes your incredibly proud! Now you might think that it's not the purpose of a library system to make the librarians feel proud – and again you're right. So why all this activity?

Why it is Worthwhile

An automated library system means a lot of advantages. Let me describe

some of the improvements to explain why it is worthwhile committing a large amount of manpower to getting the new system running.

Online Access

One of the main advantages is the online accessibility of the whole library catalogue. Via the so-called OPAC (Online Public Access Catalogue) users will have access to the catalogue from their own terminals. No knowledge of any retrieval language will be required because of a self-explanatory, menu-driven user interface. All available options will be displayed on the screen, the user only has to choose one and enter his search terms. In addition to this well-guided query mode, experienced users may search in a more sophisticated way, e.g. using Boolean operators (AND, OR, NOT), proximity searching (words within a specified distance) and other options.

The bibliographic record of every "hit" which has been retrieved can be displayed and will give details about the item including information about the status (on shelf/on loan). This facility reduces the time library users have to spend at present on their search: Often they go to the trouble of finding out the exact shelf number of the required item, only to find out that it is already on loan.

Retrieving Items

You will probably know that at present you should better come prepared with exact bibliographic data if you want to be sure of finding an item that is actually available in the library. If so, you can use the card catalogue and look up e.g. the author's name.

If you are looking for literature related to a given subject, it will be harder to find appropriate items. No keyword indexing is provided at the moment, and the only access to the contents of a book is via the ESO classification system. This classification system has been developed in-house over the years, and it is neither very detailed nor up-to-date regarding several of the sub-divisions. Therefore, users often browse directly through the books on shelf, hoping to find interesting items just by chance. Unfortunately, the chances are not very high, since books on similar subjects might be spread over several classification groups.

This situation will improve to a large extent. The computerized system will offer access to every word or phrase in the bibliographic record, regardless of whether it appears in the subtitle, in the General-notes-field or somewhere else.

A major argument against computerized library catalogues is the concern that users have about being forced to follow the rules of the system when searching and not being able to switch between several enquiries intuitively. To ensure a really convenient way of searching, we have chosen a software that makes use of an application of the hypertext technique. Hypertext simulates the way users usually search by allowing to "browse and navigate" through the database intuitively. Based on hits the user has already retrieved, he can continue the search under a different aspect without having to leave several sub-menus to start again.

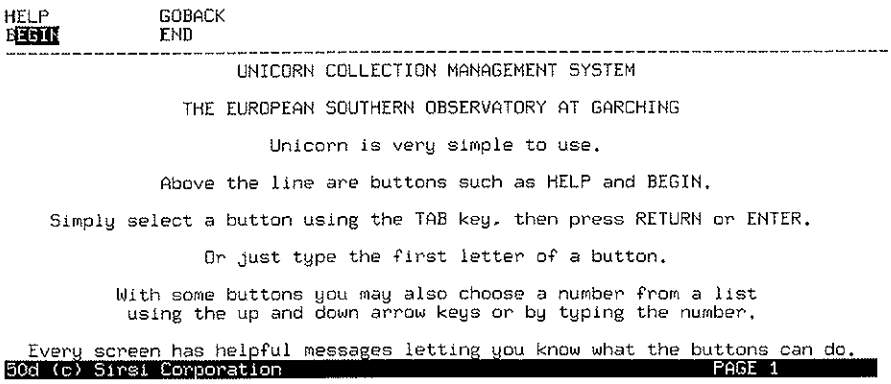

Figure 1: *UNICORN Collection Management System welcoming screen.*

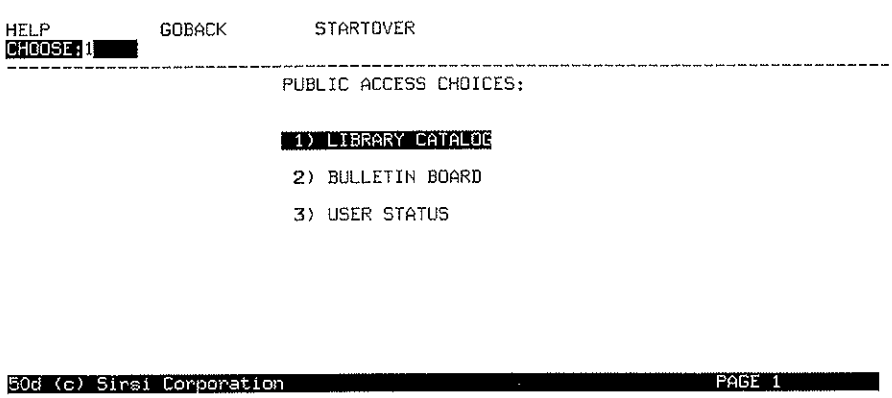

Figure 2: *Starting a sample in the Library Catalogue.*

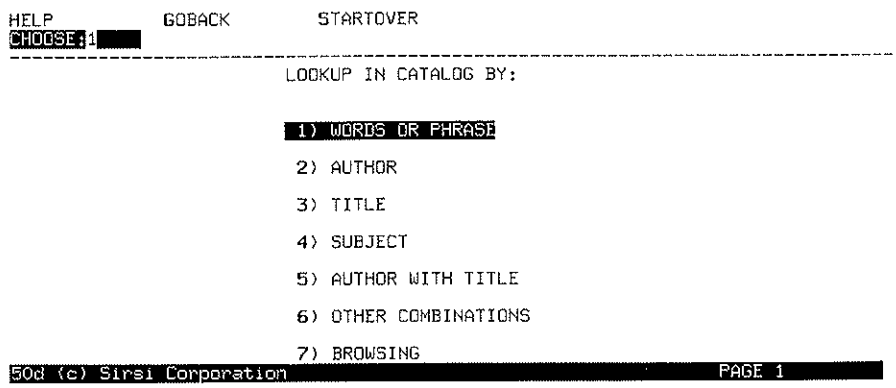

Figure 3: *Lookup in Catalogue by words or phrase.*

Items can be retrieved not only once they have arrived in the library, but as soon as any data have been entered into the database, e.g. for acquisition purposes. Thus, users can check whether a book is already on order.

Information About New Acquisitions

At any time, users will be able to obtain information about the latest acquisitions in the libraries. The "Bulletin Board" will offer lists of new items available in Garching, La Silla, La Serena, and later also Paranal. Of course, these

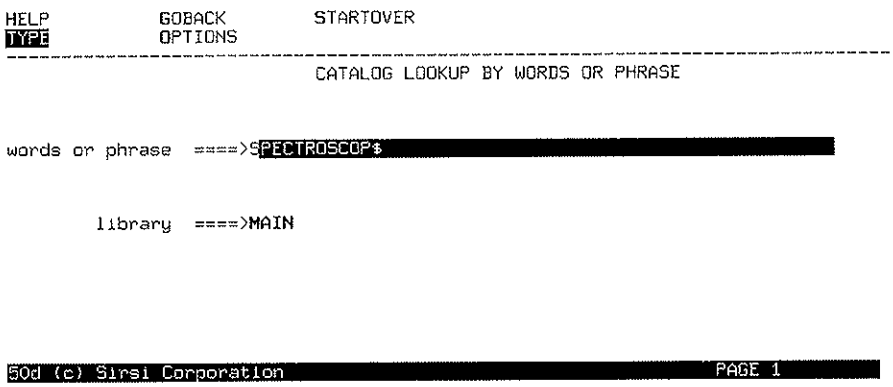

Figure 4: *Searching the database for the word SPECTROSCOP$ (includes spectroscopy, spectroscopical, etc.*

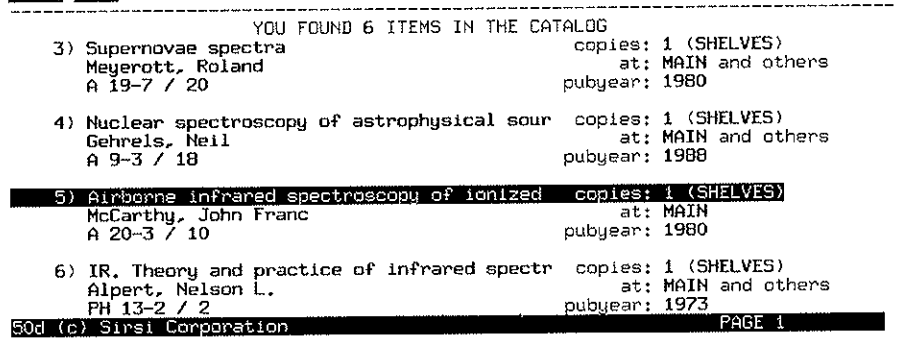

Figure 5: *Choosing item 5 of 6 retrieved items.*

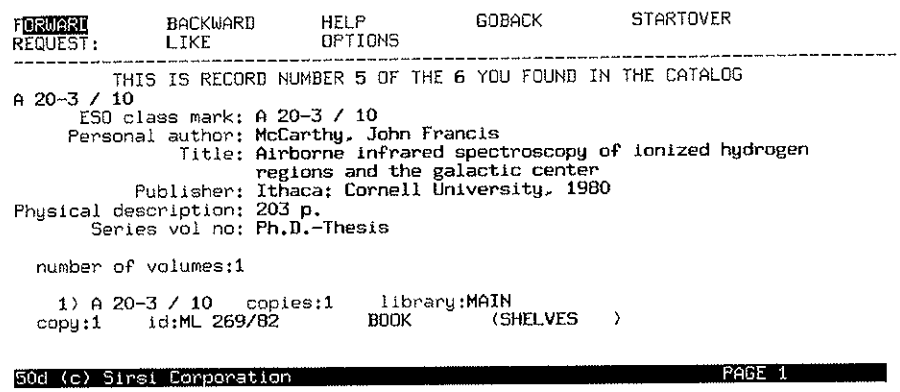

Figure 6: *Displaying item 5 in full.*

books are also retrievable via the normal library catalogue.

In addition, the catalogue will inform you about the latest issues of journals that have been received in one of the libraries.

Placing Reservations

If a required item is on loan at the moment, users might want to place a reservation on it. For this purpose, a REQUEST-option will be available which reserves an item instantaneously. The user will be notified as soon as the item has been returned to the library.

Using Research Results

If you don't need a retrieved item right now, but would like to keep the reference, it will be possible to print search results or send and file to your account for further usage.

Circulation

The present circulation system in the ESO-Libraries is not at all sufficient. It is time-intensive and inefficient for the users as well as for the librarians. To tell you the truth, it doesn't even provide us with the necessary data we would need to control circulation actions or chase missing issues. How does it work at the moment?

- Borrowers have to sign book cards if they want to lend a book. One of these cards will be put in the shelf to replace the book. If the card is removed from there, it is very difficult to trace to whom an item has been issued
- Enquiries of patrons regarding a complete list of books they have borrowed cannot be answered easily
- Renewals require the filling out again of all relevant book cards
- There is no control over which items are borrowed and for how long.

Users usually consider the circulation process to be an interruption of their work, and taking into account the several steps they have to follow at present, we understand their annoyance. Therefore, improving this situation had a high priority when we compared the library systems that are currently on the market. We want to turn the circulation activity into a process as smooth and painless as possible. Probably in the course of next year, all items will be equipped with barcode labels, and barcode readers will be attached to terminals in the libraries. Reading in item and user numbers will then be enough to circulate an item.

Of course, these changes won't save us from missing one book or another, because a user has taken it out of the library without checking it out properly – either by mistake or willingly. There won't be a robot crawling through the offices every morning, trying to find hidden books that ought to be in the library, nowhere else. A library that is open 24 hours a day has to count on the honesty and solidarity of the users. But maybe our users will like the new system so much that they enjoy the fun of using it and no longer feel that having to behave according to the rules causes them pain ...

Still a Long Way to Go

We have achieved a lot in a relatively short time during the last months. Nevertheless, there is still a long way to go before the database is completed and finally accessible for everybody. We hope to finish retrospective conversion in the first half of next year, and further tasks, like creating user records, converting the current circulation management into machine-readable form, assigning special locations to particular items, etc. can easily be foreseen.

Until now, we have had to cope only with rather small difficulties, but according to the experience of several colleagues, it is quite normal to have to

SEST Users Meeting

The third SEST Users Meeting will be held in Onsala, Sweden, on 18–19 March 1993. Those wishing to attend should write to:

SEST Users Meeting
Onsala Space Observatory
S-43900 Onsala
Sweden

face major problems in the course of changing to automated library management. Of course, we are sticking to "positive thinking" and are keeping our fingers crossed that the going won't get extremely tough. However, it will be worthwhile to concentrate forces on this project in order to make life easier and much more efficient for both librarians and library users.

On October 28, a three-child delegation walked into the Director General's office to talk about the Children's Christmas Party. Of the concessions they pressed for, the request to invite Saint Nicolas to participate in person was foremost and the DG was left little choice but to grant this.

Judging by the picture, showing from left to right Cornee Ravensbergen, Harry van der Laan, Nadja Dekker and Adriaan van Dijsseldonk, all were happy with the agreement reached! *Photo: H.-H. Heyer*

"Exploring the Universe" from the Desert Gate

Antofagasta describes itself as "Gate to the Desert, Window on the Sea". For 17 days a window on the Universe was opened for the population as ESO in collaboration with the University of Antofagasta opened its travelling exhibition at the foyer of the Municipal Theatre right in the centre of the town.

Days before the opening, a group of enthusiastic students from the University of Antofagasta went through an astronomy crash-course including a visit to La Silla, ending with an "exam" conducted by the Head of the La Silla Astronomy group, Jorge Melnick. The students then took over the job as exhibition guides.

The ESO exhibition occupied two floors, one devoted to astronomy and one to ESO and its activities, including a presentation of the VLT and Paranal. It is the first time that the ambitious VLT plans were presented to the local population, and the ESO exhibition was met by a wide-spread interest. This was evident already at a well-attended press conference, which was held in the morning of October 27, the day of the inauguration. Jorge Melnick, Patrice Bouchet and ESO Administrator Armelle Cabillic answered a whole range of questions.

At the inauguration, a large number of invited guests, including the Intendente for the 2nd region, Don Blas Espinoza, and the Mayor of Antofagasta, Pedro Araya Ortiz, listened to speeches by Don Jorge Peralta Hidalgo, Rector of the University, and Jorge Melnick, after which they enjoyed a guided tour through the exhibition, with the small corps of student-guides demonstrating their skills in a very convincing way.

After being dismantled in Antofagasta, the ESO travelling exhibition will take a small break for the (southern) summer. However, ESO has received a number of invitations for new exhibitions, among others from the University of Concepción.

C. MADSEN, ESO

Figure 1: *From the Antofagasta press conference: Jorge Melnick presents the VLT project to the press.*

Figure 2: *A student explains the wonders of the Milky Way to the invited guests at the inauguration.*