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# 3.6 m Telescope Receives First Visiting Astronomers

The 3.6 m telescope is now ready to receive the first visiting astronomers. For most astronomers in Europe, this will be the first time they have access to a large telescope and it is therefore of some interest to learn how European astronomers expect to make use of their new instrument.

Preliminary information is available from the programme proposals that were received by the Observing Programmes Committee by April 15, 1977, soliciting observing time during period 20, from October 1, 1977 to April 1, 1978.

A total of 49 applicants submitted 54 programmes, of which 26 could be accepted within the time available (see p. 9). These programmes can be divided as follows (number of accepted programmes in parentheses):

| | | |
|---|---|---|
| 1 | (1) | Solar system |
| 16 | (7) | Milky Way (among these 9 for stars, 4 for star clusters, 2 for interstellar matter, 1 for galactic structure) |
| 11.5 | (3) | Magellanic Clouds |
| 1 | (1) | Sculptor dwarf galaxy |
| 21 | (12) | Other galaxies |
| 3.5 | (2) | Quasars. |

The lack of large telescopes in Europe has traditionally restricted European investigations of distant objects like quasars and galaxies, but these figures clearly show that the interest in doing extragalactic research with the 3.6 m telescope is strong among European astronomers. The quantitative balance between galactic and extragalactic proposals is worth noticing as well as the continuation of research in the Magellanic Clouds, since long underway with the ESO 1 m, 1.52 m and Schmidt telescopes.

The accepted programmes span a wide range of subjects, from "The Iapetus eclipse on January 8, 1978" (Dr. A. Brahic, Paris) to "Spectroscopy of variable quasars" (Dr. J. P. Swings, Liège). In addition to the standard ESO equipment for photometry and spectroscopy, special equipment will be used by Drs. Y. Georgelin and G. Comte (Marseille) for "H II regions and kinematics of southern galaxies" and Drs. G. Schultz and E. Kreysa (Bonn) for "Submillimetre and IR investigations of radio sources".

## ESO's Fifteenth Anniversary (1962–1977)

On October 5, 1977, ESO celebrates its fifteenth anniversary. As the first international organization for astronomy in Europe, ESO was born in October 1962 when representatives of five of the present six member states signed the ESO Convention in Paris. Ratification followed a year later and the La Silla site was chosen in 1964 where astronomical observations started in 1968 with the 1 m photometric telescope. Eight other telescopes have been added since.

The creation of ESO has had a large impact on European astronomy and the influence of the organization is increasingly being felt—also beyond the boundaries of the member states.

PROFILE OF A VISITOR'S PROGRAMME:

# The Bright Cloud B in Sagittarius

*A detailed study of stars in the direction of the centre of the Milky Way is underway at the Observatoire de Lyon in France by Dr. A. Terzan and his collaborators. Important material has been obtained with the ESO telescopes during the past years. Dr. Terzan outlines his programme:*

A photometric study in R ($\lambda_{eff} \sim 6400$ Å) and IR ($\lambda_{eff} \sim 8100$ Å) of certain regions in the bright stellar cloud B in Sagittarius has been undertaken by the Lyon Observatory since

1959. Photographic observations at Observatoire de Haute-Provence (OHP) with the 80 cm (f/6, Newton focus) and 193 cm (f/5, Newton focus) telescopes have enabled us to discover 11 stellar clusters of which 8 are globular as well as a very large number of variable stars for which a photometric study is now being carried out.

A long series of B and R observations of the same fields were obtained in 1968 by means of the 48-inch Schmidt telescope on Mount Palomar. Many of these photographic plates have not yet been studied, because until recently the Lyon Observatory did not have a blink comparator that could accommodate plates larger than 25 x 25 cm. However, a new blink comparator has now been built which permits measurements on plates up to 30 x 30 cm and detection of magnitude variations of less than $0^m.2$. The (X, Y) position of a star is measured in an orthogonal system with arbitrary origo ($X_0$, $Y_0$).

In 1972 we started another series of photographic observations with an image-tube camera (ITT 4708, S20 extended red photocathode) at the f/15 Cassegrain focus of the ESO 1.52 m telescope. The aim was to find and to study the RR Lyr-type variables in a number of globular clusters which had already been observed at OHP.

Now, with the improved blink comparator and a fully digitized Iris photometer (Askania, automatic iris) available, a group of astronomers consisting of scientists from the Institut d'Astrophysique in Paris and the Lyon Observatory is proposing to perform a detailed photometric study of the bright cloud B in Sagittarius, within the area:

$17^h \leqq$ R.A. $\leqq 18^h$ and $-24° \geqq$ Decl. $\geqq -33°$,

centred approximately on the star 45 Oph (R.A. = $17^h\,26^m$; Decl. = $-29°\,59'$). The principal aims are:

(1) the study of known variables in that region,
(2) the detection of new variable stars by
— the new blink comparator and
— photoelectric photometry, in particular to find the δ Scuti variables,
(3) the measurement of particularly red stars, either intrinsically red or reddened by interstellar absorption,
(4) the estimate of the interstellar absorption in the direction of the galactic centre,
(5) the search for a possible correlation between the type and the spectral distribution of the identified variable stars,
(6) the determination of the distances to the numerous globular clusters which are either situated or projected into this direction.

The photographic observations commenced in June 1976 with the ESO Schmidt telescope. H.-E. Schuster and his collaborators have already obtained 21 plates in B and R of excellent photometric quality, mostly under good seeing conditions. They cover a field of about 10° square, centred on 45 Oph. Each field has been photographed at least twice with the following exposures: B (IIa-O + GG 385) 20 and 40 minutes; R (103a-E + RG 630) 30 and 60 minutes.

A preliminary study of some of these plates was carried out in January 1977 with the blink comparator at the Sky Atlas Laboratory in Geneva and some variable stars were found around the globular cluster Terzan 2. We are now continuing the measurements of the entire set of plates and of the 1968 Palomar plates. The results will be included in a forthcoming publication.

In parallel to this work we expect to:
— complement the photographic plates with exposures in U and V, in collaboration with H.-E. Schuster, and
— establish photometric sequences in UBVRI with stars in the sky area under study. These sequences should cover a magnitude interval from V = 8.0 to V = 17.0 or, if possible, preferably fainter. We expect to use the ESO 50 cm, 1 m and 3.6 m telescopes for this purpose.

Although a large number of observational data have been gathered during the past 18 years at OHP and ESO (a total of more than 2,000 plates), they only cover relatively small fields (60 x 60 arcminutes at OHP and 3 arcminutes circular at ESO). It is therefore obvious that general conclusions concerning the structure of the Milky Way in the direction of the centre can only be made after an extended study of the observations which have been proposed in the present programme.

# The Exciting Star of Planetary Nebula NGC 3132

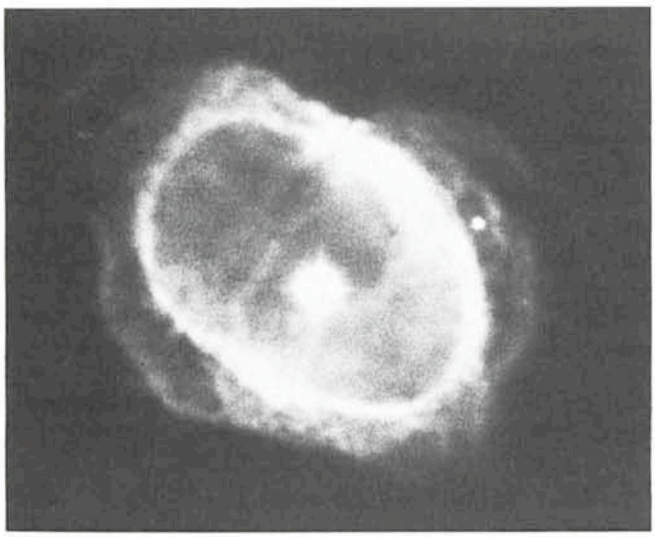

Fig. 1. — *Ultraviolet photo of NGC 3132, obtained on Feb. 14, 1977 at the 3.6 m telescope (plate no. 393). Exposure 8 minutes, IIIa-J + UG 1. The diameter of the nebula is about one arcminute.*

The term "Planetary Nebula" was coined when 18th-century astronomers discovered celestial objects that looked similar to the solar-system planets in their small-aperture telescopes. We now know that these nebulae have their origin in stellar outbursts (explosions) during which a star throws away consecutive shells of matter which afterwards expand around the central star. Spectroscopic analyses of the nebulae indicate that these stars are intense sources of ultraviolet radiation that excite the atoms in the nebulae. This is almost always confirmed when direct spectroscopic observations are made of the stars situated at the centres of the planetary nebulae: they are exceedingly hot, often the surface temperature is of the order of 100,000 °K.

A dilemma has existed for some time in the planetary nebula NGC 3132 in the constellation Pictor (Painter's easel) at R.A. = $6^h\,05^m$; Decl. = –60°. Whereas the nebula indicates a temperature of about 100,000 degrees of the central star, HD 87892, this is not observed. As a matter of fact, HD 87892 is an A-type star which certainly is not hotter than 10,000 to 12,000 °K.

Recent observations by Dr. L. Kohoutek of the Hamburg Observatory, in collaboration with Dr. S. Laustsen of ESO,