



• La Silla
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EL MENSAJERO

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ESO Workshop on Populations in the Magellanic Clouds

The second ESO workshop took place in Geneva, at the ESO Scientific-Technical Centre from April 27 to 29, 1977. Over fifteen groups working in this field in Europe were represented at this workshop. About thirty-five invited scientists from all ESO countries, as well as England, South Africa and Canada, discussed and compared their recent activities, results and future plans.

A series of review talks took place on the first day; they dealt with the stellar populations of the Clouds (photometric and spectroscopic analysis), the variable stars, the radio properties of the Clouds and the Magellanic Clouds as members of the Local Group.

The various groups then presented their activities on the second day. Details were given of the work on the chemical composition of the interstellar matter and supergiant stars which have allowed an analysis of the heavy-element underabundance in terms of the proportion of matter in the form of interstellar gas. An estimate of the supernova rate was given together with some new supernova remnant candidates. Preliminary results on UV observations allowed a rough determination of the reddening law in the Clouds. The structure of the Clouds appeared still to be controversial, in particular for the Large Cloud. More work should be devoted to determine the mass centre of different stellar populations and to compare the rotation curves for the stars and the gas. Photometric and spectroscopic results for different stellar populations were also presented, and the difficulty of finding clear criteria for spectral classifications was emphasized.

A subsequent general discussion showed the importance of the Clouds for our understanding of galactic evolution. It dealt with the rate of star formation in the Clouds and their evolution compared to that of our Galaxy. Further UV observations are necessary to solve the problem of the nature of the grains in the Clouds. IR observations were proposed to determine an evolutionary sequence of nova shells, and to check the assumption of the formation of grains in these shells. Simultaneous optical and X-ray observations, once HEAO B is flying, will be very valuable for the study of supernova remnants and X-ray stellar sources.

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ANNOUNCEMENT

A conference is being planned at the European Southern Observatory on the topic:

Optical Telescopes of the Future

It is expected that this conference will take place in Geneva, 12–16 December, 1977. Topics will include: large dishes, coherent and incoherent arrays, intensity and speckle interferometry, multi-mirror telescopes, space telescopes, IR heterodyne interferometry, live optics and related aspects of detectors and radio arrays.

Information on this conference should become available during this summer.

PROFILE OF A VISITOR'S PROGRAMME:

A Galactic Window at $l = 311^\circ$

There are reasons to believe that several nearby galaxies (possibly even members of the Local Group) still hide behind the absorbing layers of the galactic plane. Last month, a new, local dwarf elliptical galaxy was discovered in the constellation Carina by a group of astronomers at the Edinburgh Observatory and a thorough investigation of another, the so-

called *Circinus galaxy*, was published in *Astronomy & Astrophysics*. The discoverer of this galaxy, Dr. Gösta Lyngå of the Lund Observatory, discusses some aspects of this research and also reports on electronographic observations with the new ESO Spectracon camera.

The Circinus Galaxy

Distant parts of our own galaxy are obscured from sight by the concentration of dust near the plane of our galaxy. This dust layer also dims the light from external galaxies; there is a "zone of avoidance" of galaxies near the galactic

plane. In some longitudes it appears, however, that there is much less than the average amount of dust. This is an interesting fact in itself, but it can also be a fortunate circumstance making distant objects available for observations. Twenty-one years ago Erika Böhm-Vitense (*Publ. Astron. Soc. Pacific*, Vol. 68, 430, 1956) drew attention to some directions in the galactic plane in which external galaxies are observable near the galactic equator. Other directions of low obscuration have been discovered since then. The usual term for such a field is "galactic window".

A few years ago I accidentally came upon a large unknown galaxy in the southern constellation Circinus (i. e. the Compass) at longitude 311° and latitude -4° when inspecting a plate from the Uppsala Schmidt telescope in Australia. The galaxy was named *Circinus Galaxy* and it

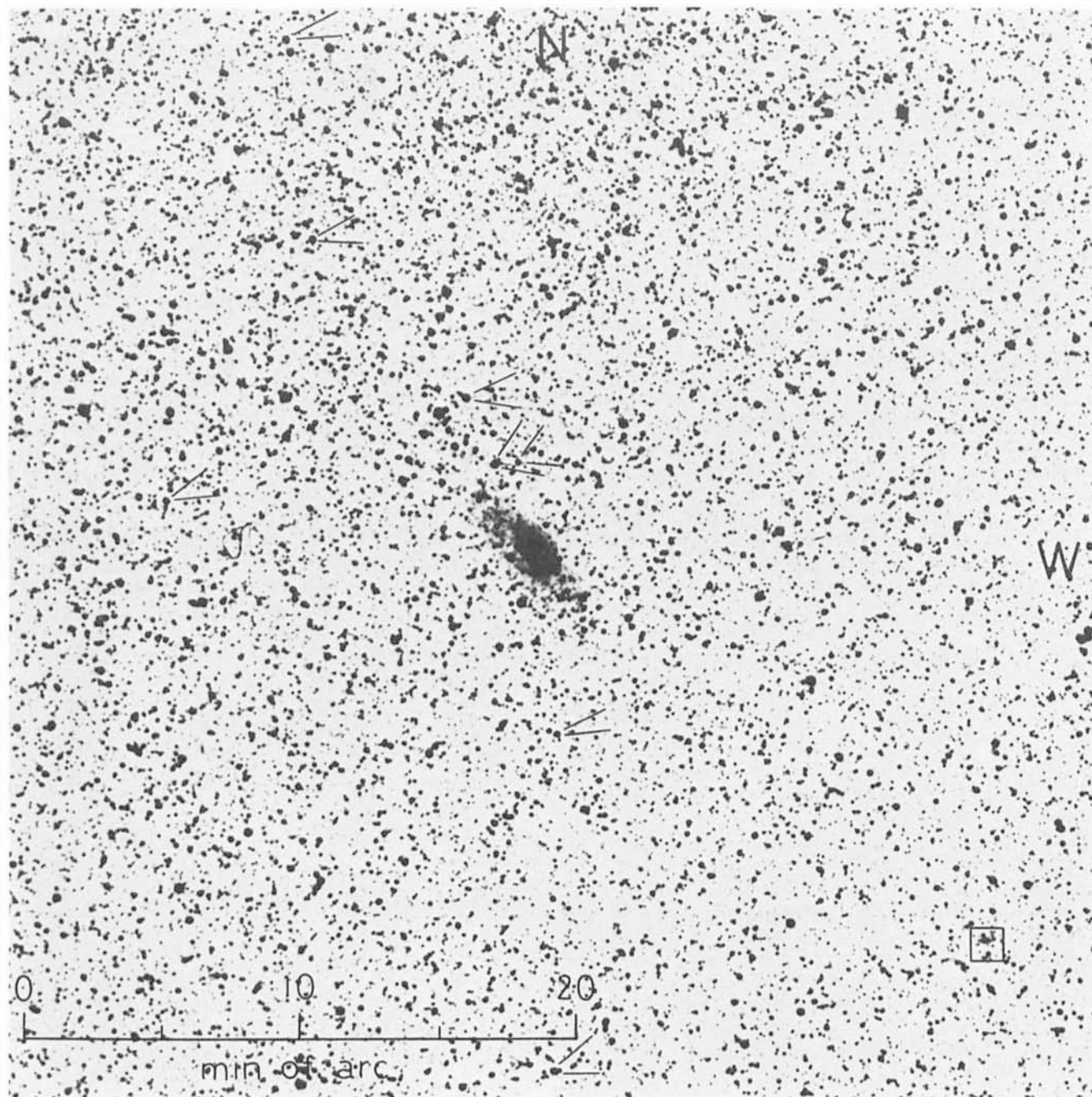


Fig. 1. — The Circinus Galaxy is in a rich field of stars—some of them very distant. The original is a 90-min exposure in H α with the Uppsala Schmidt telescope at Mount Stromlo.



Fig. 2 a. — A small, extended object (a galaxy?) electrographed with the Spectracon on the ESO 1-metre telescope on La Silla.

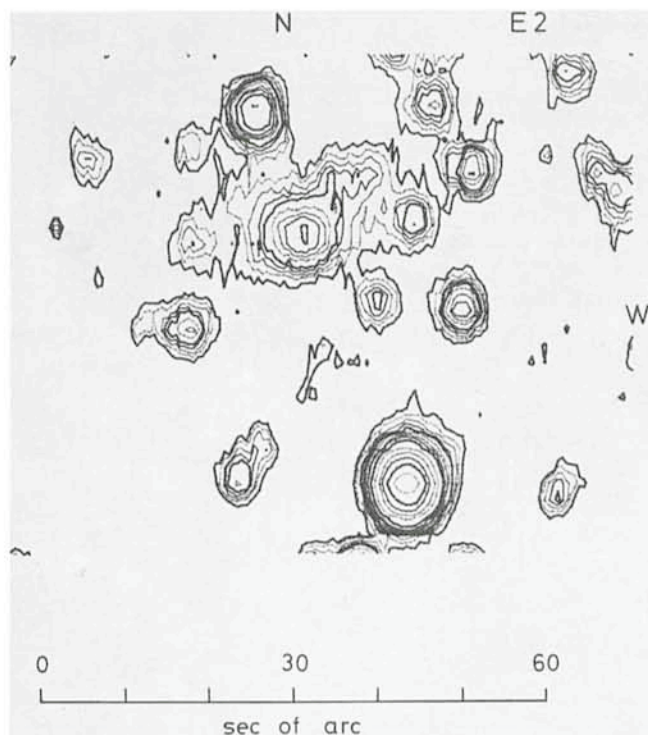


Fig. 2 b. — Contours from the electrograph of Fig. 2 a corresponding to densities between 0.1 and 1.0 unit. Graph obtained by H. Lindgren with the ASTOL measuring system at the Lund Observatory.

turned out to be one of the fifty brightest galaxies. A study of the galaxy in optical as well as in radio wavelengths was made in cooperation with several colleagues (Freeman, Karlsson, Lyngå, Burrell, van Woerden, Goss and Mebold, *Astron. & Astrophys.*, Vol. 55, 445, 1977). The Circinus Galaxy was shown to have a strong radio source in the nucleus and to contain a lot of neutral hydrogen over a large volume. Of other results I shall here only report that the distance is about 4 Mpc, thus placing the Circinus Galaxy just outside the Local Group of galaxies.

Early-type Stars in the Galactic Window

Some important aspects of having a galactic window at $l = 311^\circ$ are that the distribution and motion of stars inside the Sun's galactic orbit can be studied and that the interstellar extinction can be determined in these regions.

There are many early-type galactic stars in the Circinus galactic window and with the 1-metre photometric telescope at La Silla I have observed some of them and determined their distances (*Astron. & Astrophys.*, Vol. 54, 71, 1977). The field of interest is shown in Fig. 1, where the Circinus Galaxy is in the centre and the richness of the stellar field is obvious. Some stars marked in Fig. 1 seem to be more than 3 kpc away and to have much less interstellar extinction than normal for such distances. This again shows the lack of dust in that particular direction. The photometry from the 1-metre telescope is also a starting point for a future programme which will study the radial velocities of the distant early-type stars in the field.

Electrographic Observations on La Silla

One could well ask if there are more galaxies in the Circinus field. I have in fact noticed some faint, extended ob-

jects, and to investigate them closer I have used the new ESO Spectracon electrographic camera. This camera was adapted for use with the ESO 1-metre and 1.5-metre telescopes in cooperation with Dr. Martin Cullum of the ESO-Geneva staff. The great thing with electrography is the linearity of response to light. Fig. 2 a is a reproduction of one of the faint objects and Fig. 2 b shows contours of the plate density corresponding to the luminosity distribution in the object. Compare this information to that of the original Uppsala Schmidt plate; in Fig. 1 the rectangle marks the area of Fig. 2. It is gratifying to have such equipment aiding observations and one can only hope soon to be able to use electrography with the 3.6-metre telescope, giving much larger sensitivity and increased definition for galactic and extragalactic objects.

ESO Santiago Offices Let to UN

On March 7, a lease contract was signed between ESO and the United Nations for the rental of the vacant ESO offices, the previous astro-workshop and part of the storage area at the Vitacura Headquarters in Santiago.

The space rented by the UN had become available after most ESO services had been transferred from Santiago to La Silla. The transfer to the observatory site was part of the reorganization of ESO in Chile, which was initiated in 1975 in order to insure a better functioning of the observatory.

As a result of this reorganization, all technical and most scientific and administrative services are now concentrated on La Silla. Only a few offices and part of the storage area in the basement of the main building in Vitacura are still being used by ESO.