demonstrated by the sample of astronomical results obtained at Calar Alto, CFHT, ESO, TIRGO, UKIRT and with aircraft and balloon-borne telescopes which were reviewed by some of the invited speakers. The major trend in future instrumentation was evident from the large number of presentations on array detectors and their application in infrared imaging, spectroscopy and speckle interferometry. An impressive illustration that these devices are already beginning to revolutionize observational possibilities came in the form of 2D "photographs" at 10 μm shown of such old infrared favourites as the BN/KL complex in the Orion Nebula and NGC 7027.

The main theme of the Workshop, explored during several discussion sessions, was the future relationship between ground-based, air-borne and space observations. Of immediate general interest in this area was the question of how best to provide the follow-up observations necessary to fully exploit the IRAS all-sky satellite survey due to start later this year. Although heated at times, this discussion unfortunately only served to confirm that any coordinated approach on the ground during the survey itself is likely to prove extremely difficult for a number of reasons. It also became clear, however, that much of the desired follow-up will in any case have to await the even higher sensitivities promised by other cold space telescopes such as GIRL and, hopefully, ISO and SIRTF. These facilities offer unparalleled opportunities for a wide range of infrared observations.

Even these facilities cannot fully exploit the astronomical potential of the entire infrared waveband, however, and there appears good reason to believe that other projects such as the VLT (probably an array of 8–10 m diameter telescopes) being studied by ESO, the European Astroplane, the Large Deployable Reflector being studied by NASA and even possibly the Space Telescope promise equally exciting prospects for Infrared Astronomy in the future.

It is intended to publish the Proceedings of the Workshop which will hopefully be available in September/October 1982.

A.F.M.M

Study of the Large Magellanic Cloud with the Fehrenbach Objectiv-Prism

Ch. Fehrenbach, M. Duflot, R. Burnage and the radial velocities staff of the Marseille and Haute-Provence Observatories

The 40 cm Objective-Prism (GPO or Grand Prism Objectif in French), now at La Silla, had first been used in the Southern Hemisphere, at Zeekoegat, in South Africa. ESO, then looking for a site for its observatory, had accepted its installation on one of the tested sites.

It is Ch. Fehrenbach who, as early as in 1958, thought that the detection of the members of the Large Magellanic Cloud (LMC) from their radial velocity (RV) would be well suited to the GPO then operating at the Haute-Provence Observatory. Indeed, because of its velocity relative to the Galaxy and of its galactic longitude of about 280°, the stars of the LMC have a RV of the order of 250 km s^{-1}, well outside the range of RV of the galactic stars.

The Fehrenbach's POs are mainly built for the measurement of radial velocities. With the GPO it is possible to measure the RV of all stars brighter than magnitude 13 in a $2 \times 2°$ field; so the LMC supergiants are measurable. Sixteen fields are needed for a proper coverage of the LMC.

The first plates, obtained in 1961, showed the efficiency of the method. A first list of 102 stars, probable members of the LMC, was published in 1964 (Duflot et al.) and about one hundred were added in 1965 (Fehrenbach et al.). At the present time, one last catalogue (in press) of stars known to be members of the LMC from their RV, contains 711 stars.

During this study, we have discovered a group of LMC stars having abnormal spectral characteristics of a type unknown in our Galaxy. These stars have abnormally strong hydrogen lines (Fehrenbach and Duflot, 1972). Similar stars have since been found by other astronomers in the Small Magellanic Cloud.

On the other hand, we have been surprised to find in the direction of the LMC a large number of galactic stars with a large radial velocity, in the 100–350 km s^{-1} range (same reference).

Our work was not limited to the detection of the LMC stars; we have also measured the RV of all the stars appearing on our plates, either in the LMC or galactic. To achieve this, it has been necessary to get a large number of plates: 6 to 9 for each field. Many of these plates have been obtained in Chile after the move of the GPO from Zeekoegat to La Silla where it is now, being taken care of by ESO.

The measurements made at the Marseille Observatory with a spectrocomparator (Compelec) do not have the same accuracy as the one obtained by the Haute-Provence Observatory group; there, the plates are measured by a correlation method (Mesucor). However, the density of stars and nebulae on the LMC plates is very large and the Mesucor is not suited to this work. Only an experienced eye can detect the lines in spectra which are generally blended with other spectra, blurred in nebulae or at the limit of detection; stars called CON in the HD catalogue. In a paper in press, the accuracy is estimated to be 11.5 km s^{-1} for the Compelec measurements, which is good enough for a statistical study.

We have now at our disposal radial velocities for 418 stars in the LMC and for 2,560 galactic stars in the direction of the LMC.

We have made the following observations:

1. For two regions of the LMC, the velocity dispersion is significantly different:

Region I: the densest part is at about 5^h32^m, −67°10′ and the velocity dispersion is about 18 km s^{-1}.

Region II: The densest part is at about 4^h55^m, −69°40′ and the velocity dispersion is about 48 km s^{-1}.

These two regions are about symmetrically placed with respect to the centre of the LMC and could correspond to the neutral points of the de Vaucouleurs and Freeman (1972) theory: region I stable, region II unstable.

2. The histograms of the distribution of the galactic RV (Fig. 1) show maxima in agreement with the velocity of the Sun toward its apex. In the west of the LMC and even more in the south-west, another strong maximum appears at about 45 km s^{-1}. Is it a group of more distant stars?

Let us note that the systematic study of the plates has allowed us to build

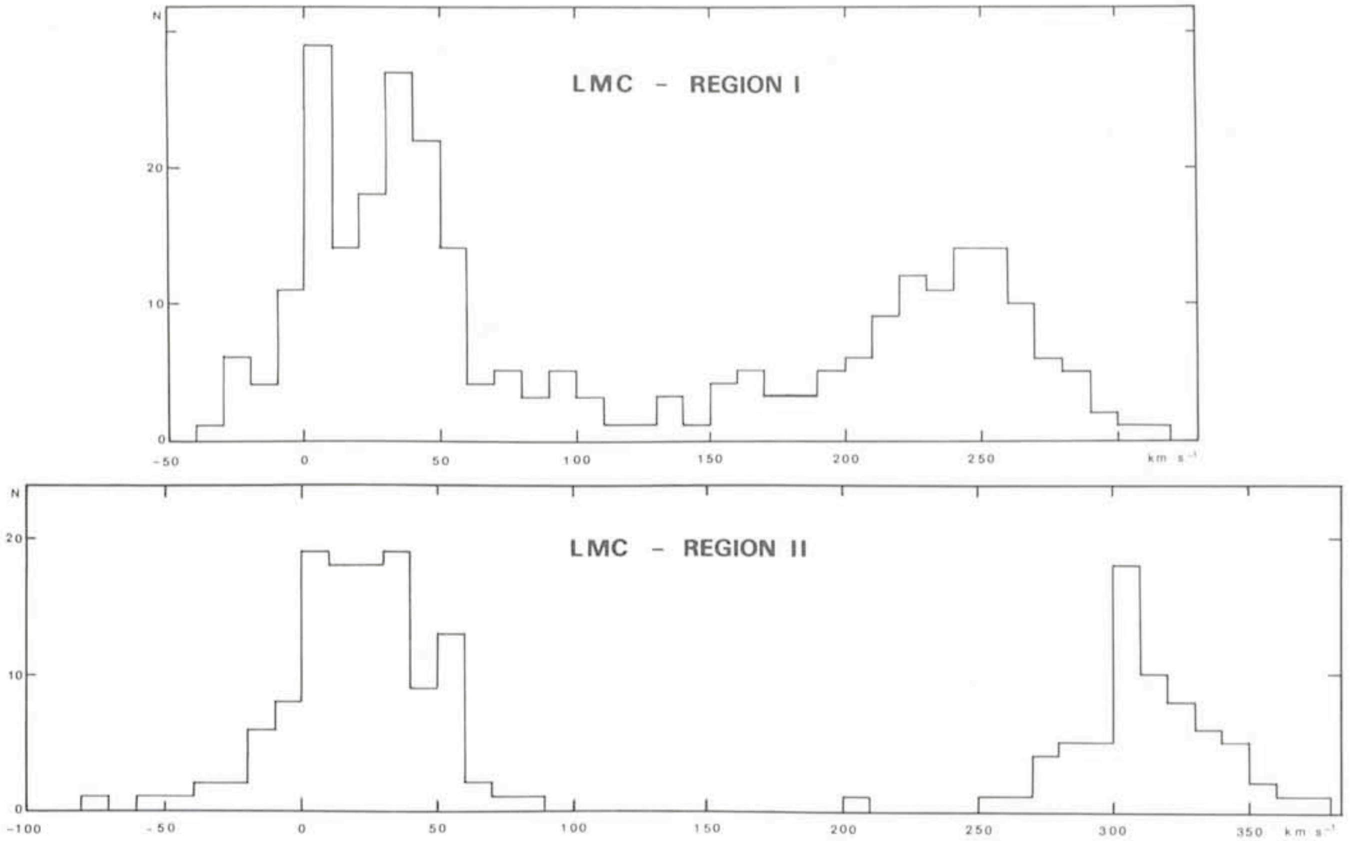

Fig. 1: *Radial velocity histograms in regions I and II. The peak at small velocities, which appears at about the same location in the two fields, represents galactic stars. In contrast, the peaks corresponding to the LMC stars are at very different velocities in the two regions; this difference is due to the rotation of the Large Magellanic Cloud.*

(1) a catalogue of WR stars (Fehrenbach et al. 1976)
(2) a list of star-like or small emission-line objects, planetary nebulae or H II regions (Fehrenbach et al. 1978). We have described the spectral characteristics of some of them.

In addition we have found a galactic star showing very strong CH bands and having a RV of 450 km s^{-1}.

The study of the LMC itself is now almost finished but we are presently studying several fields at –30° galactic latitude to find out if the number of high velocity galactic stars is larger in the direction of the LMC than in other directions.

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TAURUS – The Imaging Fabry-Perot at La Silla

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During August–September 1981 TAURUS, a scanning Fabry-Perot system used in conjunction with the University College London Image Photon Counting System, was installed at the Cassegrain focus of the 3.6 m telescope at La Silla. It was used in a variety of programmes, all requiring velocity information as a function of position in extended objects, such projects being especially suited to this type of observing technique. Programmes included velocity structure in barred spiral galaxies, velocity structure in merging and interacting "active" galaxies, velocity structure in supernova remnants, including an attempt to measure the velocity structure of the Fe XIV 5303 emission N 49, a SNR in the LMC.

TAURUS, an imaging Fabry-Perot system, was developed as a collaborative project by the Royal Greenwich Observatory and Imperial College London (*Monthly Notices of the Royal Astronomical Society* **191**, 675, 1980; *M.N.R.A.S.* in press) and is capable of obtaining seeing-limited velocity field information over a 9 arcminute field on a 4 m telescope. At the detector (the IPCS) the image of the source is modified by the fringe pattern of the capacitatively stabilized servo-controlled Fabry-Perot. As the Fabry-Perot is scanned, this fringe pattern tracks radially across the field and each pixel of the detector maps out a spectral line profile within the bandpass of the "blocking" interference filter. At each F-P spacing a picture (200 × 200