

Fig. 2: Radial velocity curves of two cepheids in the Large Magellanic Cloud. The observations cover nearly one cycle; they show the high quality of measurements made on very faint objects ( $B = 14.1$  to  $15.1$  for HV 909 and  $B = 13.8$  to  $14.4$  for HV 2338).

(2) Programmes beyond the limit of classical spectrographic methods:

- Individual radial velocities of 350 stars in the globular clusters  $\omega$  Cen and 47 Tuc, for which a few poor quality velocities exist. The main aim concerns the kinematic study of globular clusters and the fit of their velocity fields to theoretical models.

- Pulsations of extragalactic cepheids: this programme concerns 15 LMC and 5 SMC long period cepheids for studying their pulsation modes and determining their radii.

- Radial velocities in the Magellanic Clouds: 400 LMC and 150 SMC red supergiants must be observed in order to go further into the knowledge of the Population I velocity fields in these galaxies.

A first period of observations (January-February 1981) allowed us to obtain 1,500 radial velocities for stars up to  $B = 15.3$ , with an accuracy of around  $1 \text{ km s}^{-1}$  for the faintest objects. We were able to undertake all programmes and none of them has proved unfeasible. Most of the bright stars have been measured once; this represents several hundreds of new radial velocities. High velocities have been found for some, among the Population II F-G stars. One hundred and fifty radial velocities have been determined for luminous cepheids in the LMC. The observations cover nearly one cycle for the objects

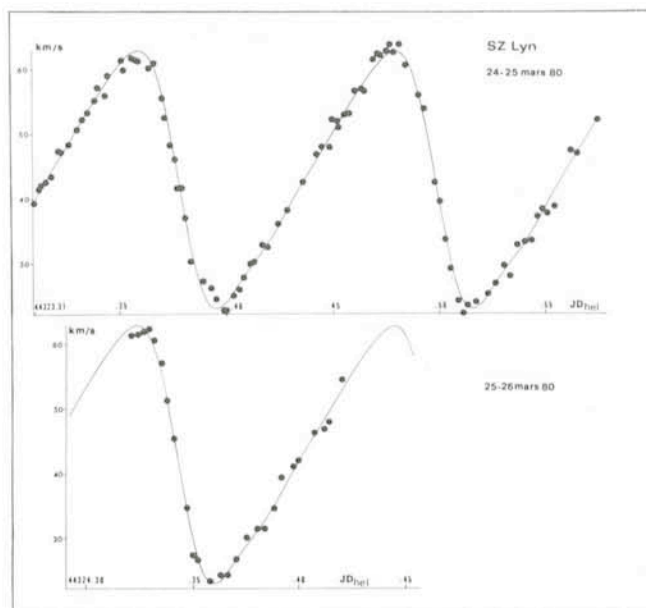


Fig. 3: Another aspect of the performances of CORAVEL, the high time resolution, is illustrated by this figure which reproduces the radial velocity variations of the dwarf cepheid SZ Lyn (Period  $2^{\text{d}}49^{\text{m}}$ ,  $V = 9.2$  to  $9.6$ ) observed at the Haute-Provence Observatory with integration times around 1 min.

of shorter period ( $P = 30$  to  $40$  days). The results show clearly that there exist variations in the amplitudes and in the shapes of the velocity curves for stars of similar periods (Fig. 2). One hundred and fifty red giants were measured in  $\omega$  Cen, some in the centre of the cluster. A rough analysis of the velocities shows a relative complexity of the stellar motions. Around 120 LMC red supergiants were also measured; among them 100 stars were confirmed as members on the basis of radial velocities. Despite their unfavourable position at the time of the observations, some stars in the globular cluster 47 Tuc and in the SMC could be measured in order to prove that these objects are accessible with CORAVEL.

In short, the first observing period (30 nights) has allowed us to obtain an exceptional number of highly accurate radial velocities. Such large and difficult programmes were totally outside the range of the performance of classical instruments. In the near future, two additional periods, already allotted by ESO, will be used to collect additional data for the programmes undertaken, particularly the pulsation of cepheids in the Magellanic Clouds and the kinematics of 47 Tuc.

Thus, the mounting of CORAVEL on a highly automated instrument like the 1.54 m Danish telescope has been a full success. It is hoped that future runs may be as positive and take place with a similar collaboration.

## New Head of the Scientific Division

Professor P. O. Lindblad has resigned as of 31 August from his position as Head of the Scientific Division, following his election to be Director of the Stockholm Observatory.

The Director-General has appointed in his place Professor Giancarlo Setti who will take up his duties on 1 January 1982.