# Hα Photographs of Southern Galaxies

A number of splendid photographs were recently obtained of selected southern galaxies, in the light of the Hα line (6562 Å), by Drs. Courtès and Boulesteix (*Messenger* No. 14, p. 2). We here reproduce four of these that show an incredible number of H II regions, thanks to the superior resolving power of the 3.6 m telescope.

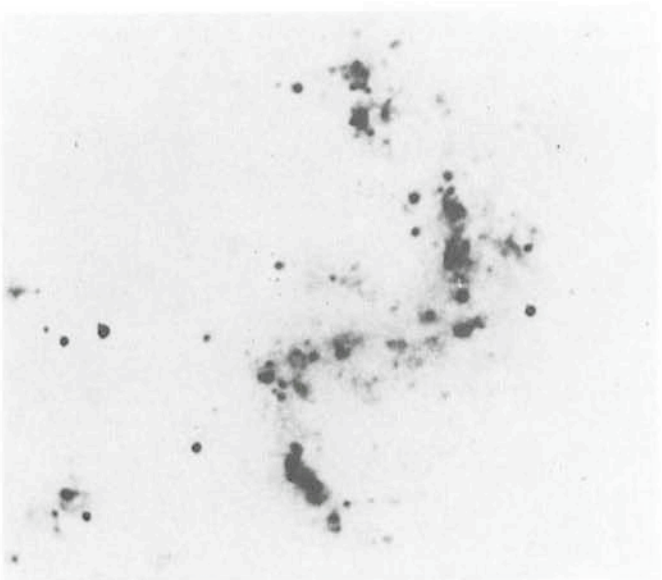

Fig. 1: *NGC 1313, as photographed through a 15 Å wide Hα filter with a focal reducer (f/8 to f/2), RCA two-stage magnetic intensifier and IIIa-J emulsion. This galaxy is a nearby irregular, Magellanic type and the "barred" structure is clearly visible on the photo. Exposure time 15 min.*

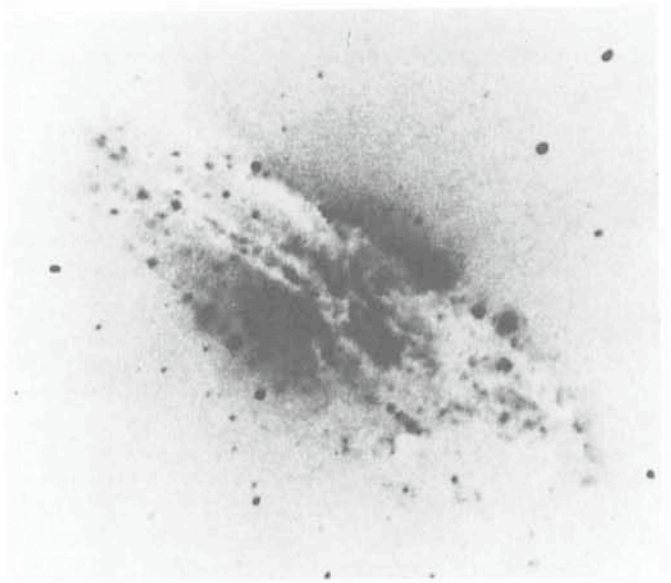

Fig. 3: *Direct Hα photograph of the giant galaxy NGC 5128 (the interferogram was shown on the frontpage of* Messenger *No. 14). Same equipment as NGC 1313. Exposure time 15 min. The giant H II complexes are clearly seen with a very good contrast.*

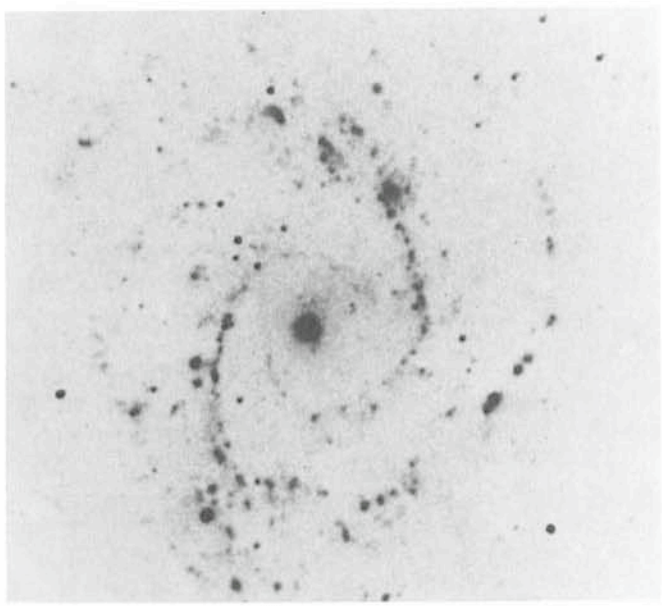

Fig. 2: *NGC 2997 photographed with the same equipment; exposure time 10 min. Note the multiple arm spiral structure.*

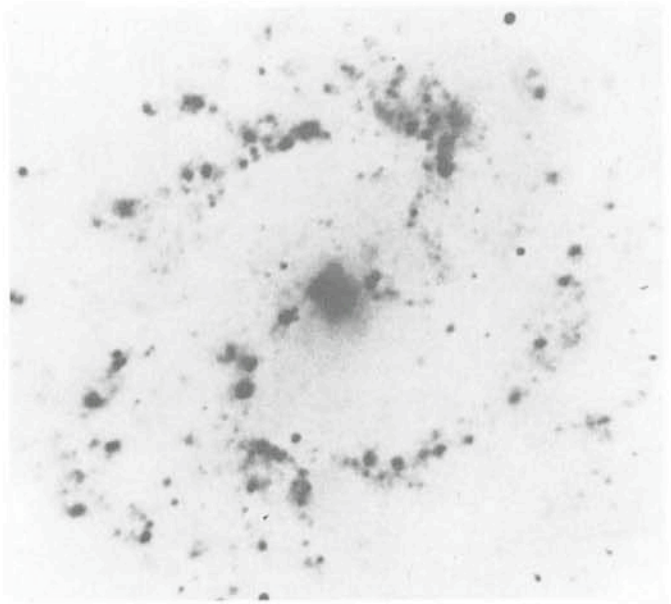

Fig. 4: *NGC 5236 in the light of Hα; 20-min exposure. More than 600 (!) H II regions are detected on this plate.*

## NEWS and NOTES

### No New Hildas and Thules, but...

In the last issue of the *Messenger* (No. 14), Drs. Schubart and Schmadel from Heidelberg informed us about a search with the ESO Schmidt telescope for "out-of-the-Ecliptic" minor planets. Some plates were obtained early in September 1978 at ecliptical latitude 42° and a total of five interesting minor planets were found. Further plates have made it possible to improve the computed orbits and it now appears that (unfortunately) none are of the types looked for, i.e. Hilda- or Thule-type. Nevertheless, all the five are unusual and all have high orbital inclinations.

*1978 PA* belongs to the moderately rare Hungaria group, *1978 PC* is most probably of the very rare Phocaea type and

*1978 PD* may well be of the extremely rare Griqua class (2:1 resonance), but more observations are necessary to confirm this preliminary result. *1978 RB* turned out to be identical with *1974 KA* which was originally discovered by Helin, Smith and Sanders with the Palomar Schmidt. Its orbit can now be determined with excellent accuracy. The fifth object has not yet received an official designation, but has evidently a rather high inclination and a large eccentricity.

## Confirmation of the Possible 97-minute Periodicity for the X-ray Binary 4U 1700-37/HD 153919

In the last issue of the *Messenger* (No. 14, p. 8), G. Hammerschlag-Hensberge and E. van den Heuvel (Astronomical Institute of the University of Amsterdam) discussed the possible 97-minute periodicity discovered from *X-ray* pulsations in the X-ray binary 4U 1700-37/HD 153919 by T. Matilski (Rutgers University) and J. Jessen (Massachusetts Institute of Technology) on April 1978.

Though good evidence was reported by A. Kruszewski (Warsaw University Observatory) for the presence of *optical* pulses in the light-curve of 4U 1700-37 and later on by G. Hammerschlag-Hensberge and E. van den Heuvel, the latter concluded that more data were required to definitely confirm the existence of this periodicity.

Kindly adviced by A. Kruszewski and I. Semeniuk (Warsaw University Observatory/ESO), J. Surdej (ESO) observed the star HD 153919 with the 60 cm Bochum telescope at La Silla on June 15, 1978. Broad-band UBV observations and measurements through an interferential filter centered at λ 4686 (He II) were carried out during more than 9 consecutive hours while the binary phase was about 0.5 (X-ray source in front of the companion). The results are shown in figure 1 and figure 2, for the V and He II λ 4686 filters, respectively. Oscillations in the V light-curve of 4U 1700-37 with a period of $95^m \pm 3^m$ ($0^d.0666 \pm 0^d.0021$) and an amplitude of 0.01 mag are clearly seen in figure 1. The variations in the narrow-band filter are of similar amplitude (see fig. 2) and show an interesting secondary minimum. The confirmation of the possible 97-minute periodicity first reported by T. Matilski and J. Jessen is now well established.

Combining all X-ray and photometric observations now available, A. Kruszewski noticed that they seem to indicate a decrease for the pulsar period. The rate of this decrease is such that the period may become one order of magnitude shorter during one human life-time!

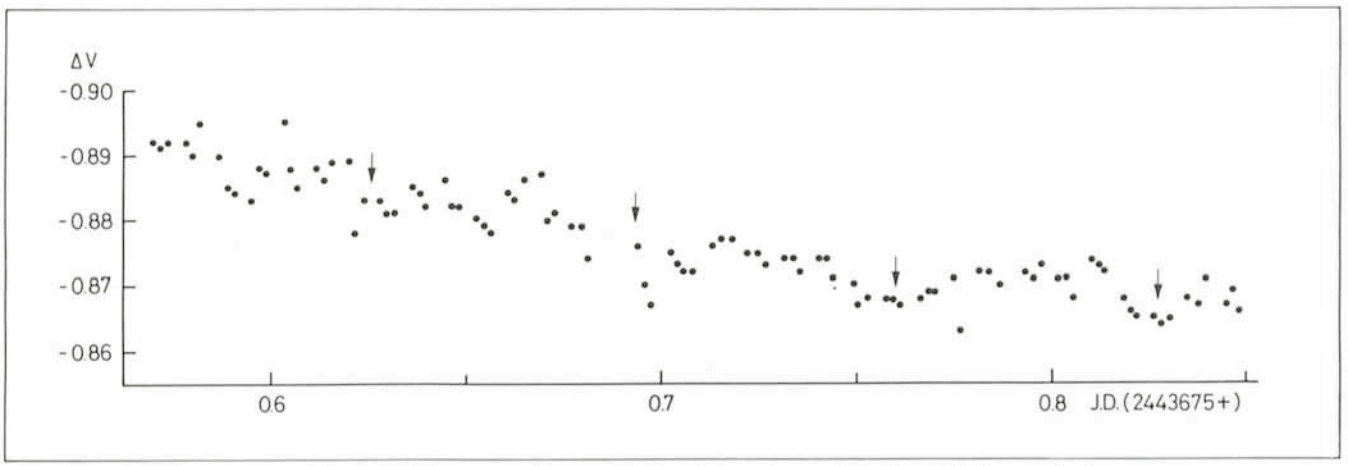


Fig. 1: *The V light-curve of 4U 1700-37. The arrows ↓ separate time intervals equal to the pulsation period.*

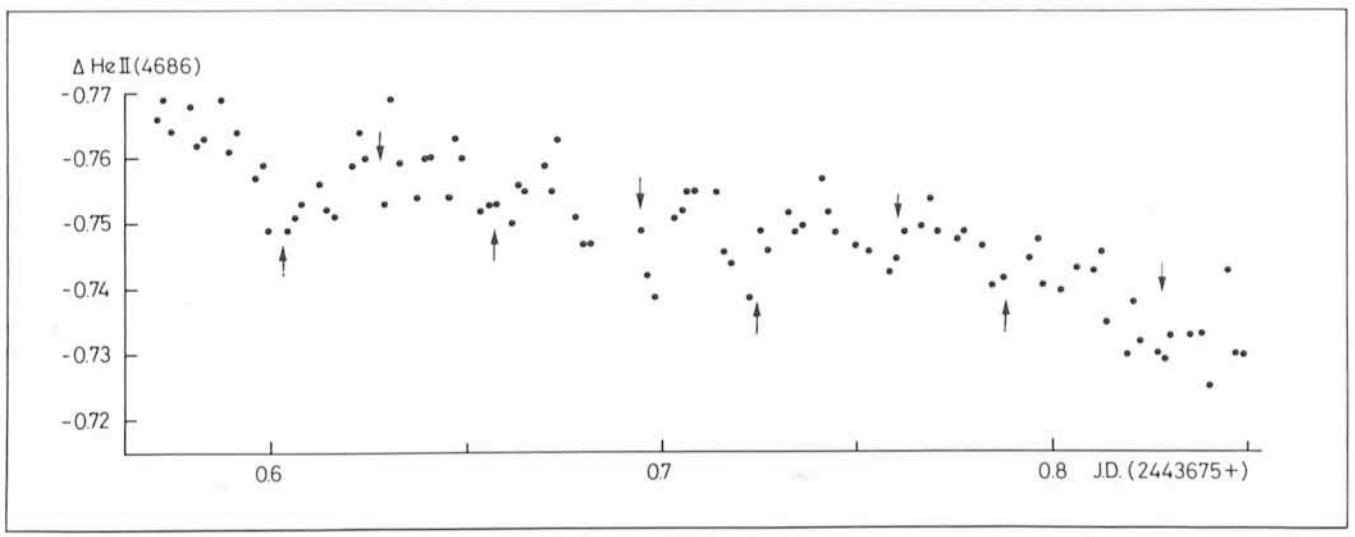


Fig. 2: *The λ 4686 He II light-curve of 4U 1700-37. The arrows ↓ separate time intervals equal to the pulsation period whereas the arrows ↑ denote secondary minima.*