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LONG-TERM LIGHT-CURVE OF THE IRREGULAR VARIABLE OR ANDROMEDAE

The variability of OR And (206.1940 = NSV 14419) was announced by Hoffmeister (1940), who described the star provisionally as "slowly varying, probably irregular, with long standstills". Huth (1956) discovered non-periodic short-term fluctuations of small amplitude (0.6 mag) and a time scale of hours: in the time interval covered by 224 plates available to him (242 7955...243 3977) the star did not exhibit large long-term variations (see also the upper part of Figure 1).

Downes (1986), without knowing these findings, independently detected the outstanding nature of the object in the course of a spectroscopic survey for potential novae. He found narrow H α , β , γ and He II 4686 emission lines and a fairly flat Balmer decrement which is typical of cataclysmic variables: for the Harvard plate collection the star proved to be too faint to be investigated properly.

Kurochkin (1987) observed the variable on 83 Moscow 40cm astrograph plates and found three conspicuous minima and also short-term variations of several time-scales: unfortunately, however, the exposures are rather irregularly spaced.

In the course of a routine investigation of variables in the Sonneberg field 23^h09^m +52^s.5 (Häussler 1990) OR And again attracted attention. With the help of nearly 450 plates a fairly dense long-term light-curve from 242 7955 to 244 7770 (gaps are from 243 4200 to 5700 and from 244 2400 to 5600) could be constructed and thus the photometric pattern, described by the above authors, greatly improved. The light-curve resembles that of MV Lyr prior to its great minimum (Wenzel and Fuhrmann 1983) or of V 425 Cas (Wenzel 1987): The star was bright with minor changes from 1935 to 1952. It was very active from 1956 to 1974 with alternating bright and low states: the latter lasted several years in general and were as deep as some magnitudes below "normal" light. A much narrower minimum (duration 50 days) hap-

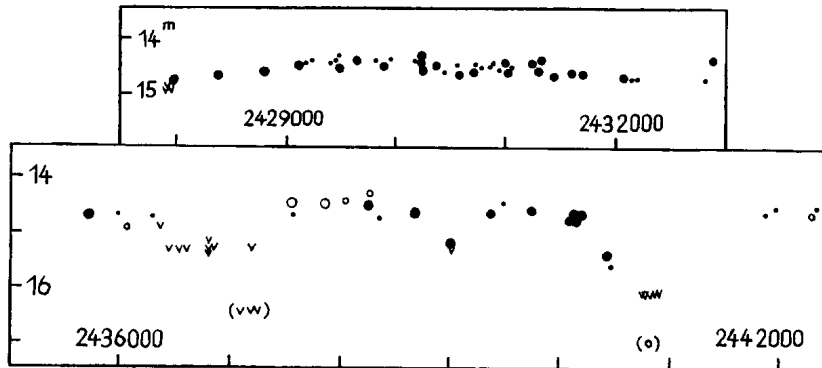


Figure 1

pened in the autumn of 1985 (Kurochkin 1987), with a subsequent high state till summer 1989. The comparison stars were linked to Mt. Wilson Selected Area 42.

Figure 1 shows two representative parts of the light-curve. Observations of Kurochkin are included (open circles). Larger signs denote average brightness data composed from up to 10 individual values. The four signs in brackets are derived from Kurochkin's data, whose magnitudes in the lower part seem to be too faint by about 1 mag.

We conclude that our light-curve supports the supposition first expressed by Downes that the star is a cataclysmic variable. Spectroscopic and photoelectric observations are strongly recommended.

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