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NEW PERIODS FOR ST Pic AND XZ Cet

In many variable stars the period may be incorrectly determined if observations are only obtained once a night. This occurs since several integral periods may elapse during a 24 hour period.The true period P_n will be one of the family $1/P_n = 1/P_{obs}-n$, where P_{obs} is the apparent period in an integer. ST Pic, one of about twenty cepheids observed at SAAO in 1973 is described in the General Catalogue of Variable Stars, GCVS, as a 9th Magnitude C_δ of 18.75 day period. One spectrum was taken each night during several observing sessions using a grating spectrograph on the 40-inch reflector, and simultaneous V, B and I photometry was obtained on the 20-inch.

Since the spectra appeared rather too early in type, and the colour indices appeared too blue for a classical cepheid, it was decided to observe the star several times during one night. A change of 0.25 magnitudes was obtained in V over an interval of 3 hours, indicating that ST Pic is a short period variable. The available photometry suggests 0.486 days as the most likely period. We hope to complete the visual light curve, and confirm the period next summer.

XZ Cet, described in GCVS as a 9th magnitude RR Lyrae variable of 0.451 day period was observed spectroscopically and also in V,B, I on 14 nights between August and December 1973. On plotting the light curve it was found that the portions of curve derived from runs taken on certain nights disagreed in phase with the light curve derived on other nights. On investigations, one of the "reciprocal" periods of 0.45 days, 0.823 days, was found to give a smooth light curve with no discrepancies. The radial velocity curve appears to fit both periods equally well. It is possible that the discrepancies in the 0.451 day light curve are due to arbitrary phase shifts rather than an incorrect period. To check this photometric observations will be taken 12 hours apart when XZ Ceti is suitably placed.

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