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TIMES OF MINIMA AND LIGHT ELEMENTS  
OF S VELORUM

S Velorum has been observed photoelectrically in the UB<sub>V</sub> system at Cerro Tololo Inter-American Observatory, Chile, with a 16 inch reflecting telescope. Since the primary minimum of the system has a duration of about 15<sup>h</sup> there is no possibility to observe the entire minimum during an observing night. In two observing seasons four times of minimum at partial phases were observed. Comparisons of individual observations at these phases with a mean light curve give the following times of minimum for each light curve.

Epoch T<sub>1</sub> V) JDhel 2438868.4994 ± 0.0012 m.e.  
B) .4983 ± 0.0008  
U) .4992 ± 0.0015

Epoch T<sub>2</sub> V) JDhel 2438874.4334 ± 0.0005  
B) .4325 ± 0.0007  
U) .4314 ± 0.0007

Epoch T<sub>3</sub> V) JDhel 2438880.3663 ± 0.0003  
B) .3662 ± 0.0003  
U) .3660 ± 0.0009

Epoch  $T_4$  V) JDhel 2439099.9121  $\pm$  0.0009  
 B) .9120  $\pm$  0.0004  
 U) .9110  $\pm$  0.0011.

These values were averaged giving weights  $w = 2, 2,$   
 and 1 for V, B, and U respectively, the results are:

	Minima	E	(O - C)
$T_1$ )	JDhel 2438868.49911 $\pm$ 0.00053 m.e.	-9	-0.00012
$T_2$ )	JDhel 2438874.43264 $\pm$ 0.00071	-8	+0.00002
$T_3$ )	JDhel 2438880.36620 $\pm$ 0.00010	-7	+0.00013
$T_4$ )	JDhel 2439099.91202 $\pm$ 0.00037	+30	-0.00004

A least square solution gives the linear light elements:

$$\text{Min} = \text{JDhel } 2438921.90199 + 5^d 9336663 . E$$

$$+ .00014 \pm .0000025 \text{ p.e.}$$

The minimum  $E = 0$  of the linear photoelectric light elements has been included with the older data as published by O'Connell (1954); the assigned weight is  $w = 9$ . These minima have been represented: a) by a linear ephemeris, b) by a linear representation excluding Roberts' observations (visual) before 1900, since O'Connell suggested that an abrupt change in the period occurred then. And c) a parabolic formula representing all times of minimum. The least square solutions with an IBM 7040 computer are:

$$\text{a) Min} = \text{JDhel } 2427612.3663 + 5.9336432 . E$$

$$+ .00057 \pm .0000012 \text{ p.e.}$$

$$\text{b) Min} = \text{JDhel } 2431119.14527 + 5^d 93365874 . E$$

$$+ .00074 \pm .00000097 \text{ p.e.}$$

$$\text{c) Min} = \text{JDhel } 2427612.3560 + 5^d 9336475 . E + 4.47 \cdot 10^{-9} E^2$$

$$+ .0016 \pm .0000009 \pm .55 \text{ p.e.}$$

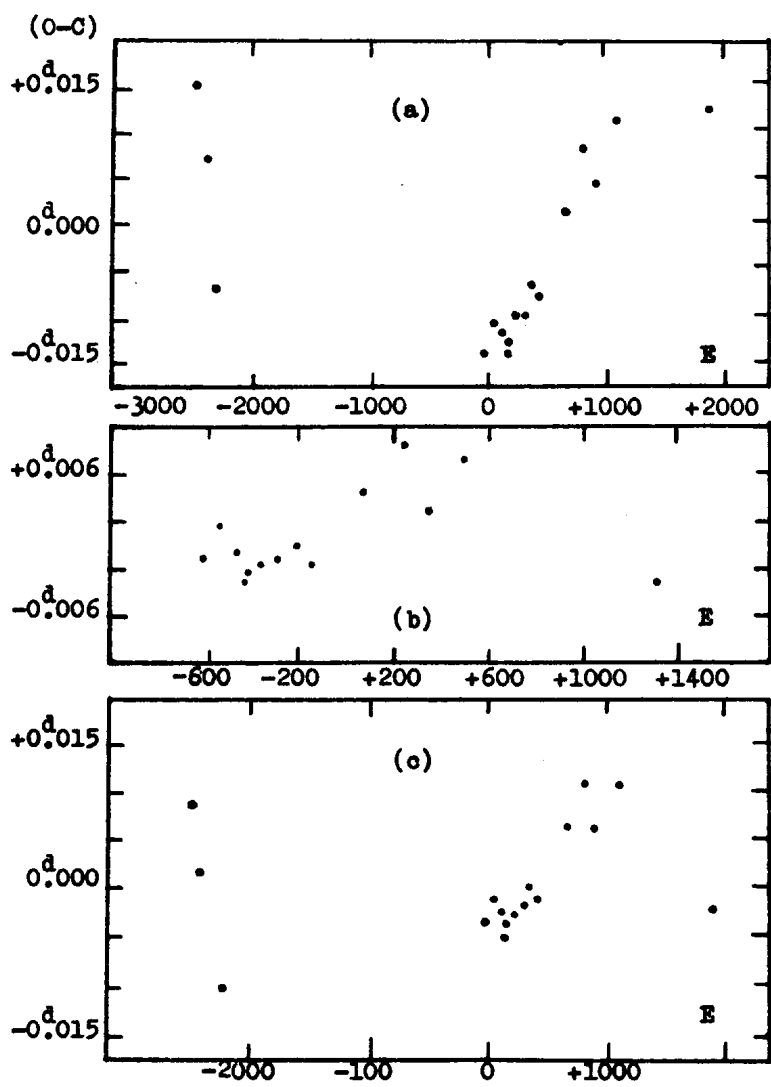


Figure 1. Residuals from eqs. a, b, and c.

The residuals (O-C) are given in Fig.1. There is no conclusive evidence that the period changed abruptly in ~1900, neither that the period increases continuously. However, more photoelectric data should be obtained in the future.

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Reference:

O'Connell D.J.K., S.J., 1954, Ric.Astr., 3, 90.