six classes according to the ratio of the equivalent width W_λ to the wave length λ. For each group we compute an average profile from the observed data. The rotational velocity, or the convective velocity as the case may be, can be determined by a simple method. The principle of the method consists in comparing the observed profiles with the theoretical ones in logarithmic scales instead of in the ordinary scales. In this way not only the rotational velocities but also the widths of the original lines, assumed to be Gaussian, are determined. The results are given in Table 1, the last column representing the half half-width of the original line in km/sec.

The empirical results given in the table can be explained by assuming that regular mass motion (rotation or convection) prevails in the lower layers of the atmosphere. But the regular mass motion breaks up into irregular mass motion, i.e. large-scale turbulence, in the upper layers of the atmosphere. Therefore we suggest two models:

Model (1). The star rotates but rotation is not shared by the outermost layers of the atmosphere.

Model (2). A field of prominences (or convective currents) exists in the atmosphere. The motion of prominences is vertical in the lower part of the atmosphere, but becomes orientated at random in the upper atmosphere.

TABLE I. ROTATIONAL VELOCITIES, ETC., DETERMINED FROM THE AVERAGE LINE PROFILES

Group	$10^5 \frac{W_\lambda}{\lambda}$	No. of Lines	Rot. Vel. (km/sec)	Half Half-Width (km/sec)
I	2–3	8	59.0	33.0
II	3–4	6	69.0	28.8
III	4–5	7	60.0	33.4
IV	5–6	7	61.0	34.0
V	6–7	3	52.4	43.8
VI	8–11	4	<25.0	≈45.0

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Jones, Sir Harold Spencer. Non-seasonal changes in the rate of rotation of the earth.

The rate of rotation of the earth, in addition to changes of a seasonal character, is known to be subject to a slow secular decrease and to irregular changes which appear to be of a random character. These irregular changes limit the accuracy with which the secular change can be determined. The result of the discussion by Brouwer and van Woerkom is a secular acceleration of the moon of $+2''.2 \pm 9''.5$ (m.e.) and of the sun $+1''.01 \pm 0''.70$ (m.e.) per century. The theoretical discussion by Jeffreys requires the ratio of these secular accelerations to have a value 5.0 or greater. But Holmberg has drawn attention to an investigation by Kelvin in 1882 and shown that the phase of the atmospheric tidal oscillation is such that there is an accelerating couple on the earth. When this is taken into consideration the theoretical ratio of the secular accelerations of the moon and sun can be brought into agreement with the observed values.

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Kameny, Franklin E. Photoelectric light and color curves of V Vulpeculae.

The RV Tauri variable V Vulpeculae was observed photoelectrically from September 3 until December 4, 1952, at the Agassiz Station of Harvard College Observatory. The observations were made with a 1P21 photomultiplier with a Corning 3384 yellow filter and a Corning 5543 blue filter. The 61-inch and the 24-inch reflectors, with aluminized mirrors, were employed.

As comparison stars, BD + 25°4312 and BD + 25°4306 were used. The international visual magnitude and the color of these two stars were found to be:

	V	$P-V$
+25°4312	6.99	+1.19
+25°4306	8.85	+0.98

The observed magnitudes and colors were converted to the international system by means of a tie-in with C-12. Eggen's magnitudes were used.[1]

The individual probable errors of the 16 observed points averaged about 0.02 magnitude, with many smaller than 0.01, and some as large as 0.04 magnitude.

The star was observed through three maxima and two minima. The curves of yellow light, blue light, and color parallel each other approximately, but not accurately. The blue maxima usually occurred on the same day as the yellow ones, but the blue minima preceded the yellow ones by about 3 days. The maxima of color preceded the maxima in yellow light by about 2 days; the color minima, i.e. reddest color, preceded the yellow minima by about 6 days.

The following table gives the magnitudes of the maxima and minima of yellow light with their dates, together with the magnitudes of the associated maxima and minima of blue light and color, although without dates.