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COMMUNICATIONS FROM THE OBSERVATORY AT LEIDEN.

The solar motion from radial velocities of the absolutely brightest stars of spectra F, G, K and M, by *J. H. Oort* and *N. W. Doorn*.

In his article "The sun's motion and the mean parallax of stars of different apparent magnitudes"*) SEARES reaches the conclusion that the velocity of the sun varies with the magnitude of the stars used as reference system and that, with respect to the very bright stars, the velocity is considerably smaller than the value of 19.5 or 20 *km/sec* usually assumed with respect to the giants. As this conclusion is reached exclusively from the consideration of proper motions and of a previously determined luminosity law, a direct confirmation from radial velocities appears desirable.

VAN RHIJN **) has determined the solar velocity from radial motions of K type stars between various limits of *apparent* brightness and does not find a confirmation of SEARES' results. In the present note the stars have been selected according to *absolute* brightness, all the stars of absolute magnitude brighter than 0.0 in *Victoria Publications*, 3, No. 1, being considered. The corresponding limits on the Mt Wilson system were read from the graphs on pp. 37-39 of the quoted publication; they are given below together with those on VAN RHIJN's system: ***)

Spectrum	Victoria M	Mt Wilson M	Van Rhijn M
Fo to F9	0.0	+ 0.3	- 1.3
Go ,, G9	0.0	- 0.5	- 0.4

Spectrum	Number	Aver. rad. vel. ****)	Sun's velocity	α Apex	δ Apex
Fo to F9	24	12.0 <i>km/sec</i>	16.7 <i>km/sec</i> \pm 2.2 (m. e.)	280° \pm 11° (m. e.)	+ 33° \pm 11° (m. e.)
Go ,, G9	64				
Ko ,, K9	191	18.2	22.8 \pm 2.0	265 \pm 6	+ 34 \pm 7
Ma ,, Mc	48				
Ko ,, K9	186	16.6	20.8 \pm 1.9	264 \pm 6	+ 29 \pm 5
Ma ,, Mc	44				

Although the mean errors do not allow any very

*) *Astrophysical Journal*, 60, 50, 1924; *Mt Wilson Contr.* N° 281.

**) *Groningen Publications*, 37, p. 11, 1925.

***) *Groningen Publications*, 37, p. 27.

****) Corrected for solar motion.

Spectrum	Victoria M	Mt Wilson M	Van Rhijn M
Ko to K9	0.0	+ 0.6	- 0.3
Ma ,, Mc	0.0	+ 1.0	+ 1.2

These limits were used with the selection of stars from the Mt Wilson catalogue of spectroscopic magnitudes. *) In cases of doubt owing to differences between the two authorities the stars were included in our list.

The radial velocities were taken from:

VOÛTE, *First catalogue of radial velocities*,
Mt Wilson Contr. N° 258,
Cape Annals, 10, part 5,
Victoria Publications, 2, Nos 1 and 10, and 3, N° 1.

Equal weights were given to each independent determination.

F and G, and also K and M types were taken together. For the K and M group a second solution has been given, in which, in order to exclude the effect of the asymmetrical motion stars of velocity above 62 *km/sec*, 9 stars with proper motions exceeding 0".300 or with peculiar radial velocities larger than 62 *km/sec* were omitted. The F and G group did not contain any such stars.

The results of the least squares solution are as follows:

definite numerical conclusion, these results, showing a normal solar motion for the very brightest stars, must be considered the best direct evidence that can be advanced at present.

*) *Astrophysical Journal*, 53, 13, 1921; *Mt Wilson Contr.* N° 199.