in symmetric double-line binaries. Four new cases of spurious periods are found in the 130 orbits examined.

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Thomas, R. N. Stellar atmospheric "turbulence" and stellar kinematics.

Earlier, the likelihood of stellar atmospheric kinetic temperatures that exceed the radiation temperature has been suggested by the author. Here, the situation in regard to the cause and consequences of such high kinetic temperatures in the solar chromosphere is considered first, as an illustration. The observed chromospheric kinetic temperature of $35,000^\circ$, from the work of Wildt and Redman, is adopted. Considering mechanical energy transport as the immediate cause of the kinetic temperature, as earlier suggested, the spicule system found by Roberts is discussed as a possible mechanism in which the velocities are superthermic. Next, the consequences of such a kinetic temperature are considered and found to require appreciable deviation from thermodynamic equilibrium, with 99 per cent of the hydrogen ionized. The heretofore anomalous observations of the behavior of chromospheric helium no longer seem anomalous on this basis. The results of these investigations indicate a pseudo-kinematic effect in radial velocity measures for stars in which the effect is more pronounced than in the sun, if the jet system be the cause, and an anomalous spectroscopic behavior. Attention is called to just such anomalies in the Wolf-Rayet stars, and their harmonious interpretation on the basis of the suggested model. In particular, the simultaneous presence of many stages of ionization for the same element may be laid to departure from thermodynamic equilibrium rather than to stratification. A kinetic temperature of 10^6 °K is indicated by these spectroscopic results. An independent confirmation of this temperature value is found from an analysis of the density gradient in the Wolf-Rayet star V444 Cygni, presented by Mrs. Shapley and Kopal, for kinetic temperature.

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Walther, Miriam E. On the frequency of peculiar A stars.

This paper is a preliminary report on the frequency of peculiar A-type stars as discovered in the course of the classification of objective prism

spectra taken recently at the Harvard College Observatory. The material examined to date reveals that approximately 10 per cent of the A stars, between magnitudes 6.0 and 8.5, at low galactic latitudes, are characterized by peculiarities.

The plates referred to above were taken as part of a program to adapt the Morgan, Keenan, Kellman system of spectral classification to objective prism spectra. Considerable experimentation showed that a combination of Eastman emulsion IIa-O and development in DK20 for 15 minutes at 65°F gave spectra of the highest quality. With good seeing the plates obtained with a dispersion of approximately 100 Å/mm at H_γ are of sufficient quality to assign three luminosity classes to most of the spectral types. A detailed luminosity classification of the A stars is possible only for plates of superior quality. On the other hand, a number of peculiar features are very marked, and these are distinguished easily from luminosity effects on all plates.

Only those peculiar A stars which are characterized by strong lines or blends or by asymmetrical hydrogen lines can be easily detected. Within these categories fall the stars specified by Morgan and Deutsch as "chromium-europium," "chromium-europium-strontium," "silicon," "chromium-strontium," and "strontium" stars. Examples of each of these types appear in the fields examined thus far, though the first three types are most frequent. The so-called metallic-line A stars are not so easily distinguished from the normal A stars. A number of A stars suspected of belonging to this group have been found, but their identification is uncertain.

None of the stars found in the present investigation were listed as peculiar in the Henry Draper Catalogue. Deutsch, in an unpublished survey, has found that the percentage of peculiar A stars falls off rapidly for fainter magnitudes. This shows clearly that a higher dispersion is required for detecting peculiar features in A stars fainter than sixth magnitude.

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Whitford, A. E. An infra-red survey of the Sagittarius region at wave length 2μ .

A lead-sulfide photoconductive cell, furnished by R. J. Cashman of Northwestern University, has been used at the focus of a searchlight mirror to detect the radiation from the central region of the Milky Way in a band of wave lengths