

Citation:

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also in the spectrum of θ Orionis observed by HUGGINS in 1894 and 1897 (An Atlas of representative Stellar Spectra, p. 140), etc. In those cases the explanation suggested by EBERT would require the addition of special hypotheses.

Our fundamental hypothesis that the structure of most stars is similar to that of the Sun (it being admitted, of course, that the stars may greatly differ as to the extent of their respective gaseous envelopes, the average steepness of the density gradients in them, their chemical composition, temperature, etc.) seems to admit of the interpretation of a greater variety of facts. It makes displacements of the dispersion bands towards the long and the short waves almost equally probable — if we leave the asymmetry in the form of the dispersion curves out of question and provisionally assume the directions of the axes of the stars to be distributed at random through space.

The direction in which we see a star may be regarded as a steady line in space, allowance being made for aberration and parallax. If, now, the distribution of the matter constituting that celestial body remains nearly unchanged for a long time, then after each rotation of the star our line of sight will again pass through the same points of the "optical system", and we shall observe an accurately periodical course in the star's brightness and in the appearance of its spectral lines. In most cases, however, currents and vortices will cause more or less considerable alterations to arise in the distribution of the density of the gaseous mass, and, consequently, in the composition of the beam of light reaching the Earth at a given phase of the star's rotary motion. Thus the strictly periodical succession of phenomena is open to any degree of disturbance. The very irregular and sometimes rapid changes in the brightness of objects like α Ceti, δ Cygni, μ Cephei, etc. are much more intelligible from this point of view, than from interpretations based on the assumption of violent eruptions, large spots, or eclipses caused by dark companions. And it is so difficult to make a sharp distinction between variables of long period and Novae, that we should not resent the idea of comparing even the appearance of a new star to the sudden gleam of a revolving coast-light when the optical system, giving to the beam a considerable decrease in divergence, passes our line of sight.

Chemistry. — Prof. C. A. LOBRY DE BRUYN presents a paper of J. OLIE JR.: "*The transformation of the phenylpotassium sulphate into p-phenolsulphonate of potassium*".

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(This paper will not be published in these Proceedings).