night-sky bands until observations[10] are secured with spectrographs having a spectral purity at least twice as high as the highest heretofore used!

9. *J. Dufay (Lyons), "Remarks on the Spectral Distribution of Solar Energy in the Violet and Ultraviolet Regions"* (**5**, 85–92).—The author discusses Pettit's results[11] and suggests that the curve may have been undercorrected for the ozone absorption beyond λ 3200. He also attributes the three depressions found by Pettit near λλ 4200, 3900–3800, and 3500 to undercorrection of the cyanogen absorption in the solar atmosphere.

10. *J. Dufay (Lyons), "The Spectrum of the Setting Sun, from 4600 to 6900 A"* (**5**, 93–113).—This is the first paper of a series in which the author will discuss the selective absorption in the earth's atmosphere on the basis of (*a*) the light transmitted by the atmosphere through different masses of air (setting sun); (*b*) the light diffused at twilight by the higher layers (twilight spectrum); and (*c*) the light of the eclipsed lunar disk, at various distances from the center of the geometrical umbra. Since the ozone is mainly present in the high layers, water vapor in the low strata, and oxygen more or less uniformly over the whole mass, variations in the relative intensities of the absorption bands should be found among the three classes of atmospheric spectra mentioned above.

On low-dispersion spectrograms of the setting sun the telluric bands become so outstanding that they change entirely the appearance of the spectrum.[12] According to Dufay, all the absorption features receive satisfactory identification with bands of water vapor, oxygen, $(O_2)_2$, and ozone. Among the diffuse bands of $(O_2)_2$, only the λ 4774 band shows clearly on Dufay's plates, the others (λ 5770 and λ 6290) being superimposed over the δ bands of H_2O and the *a* and *a'* bands of O_2: the absorption by $(O_2)_2$ appears only when the sun is 2° or 3° above the horizon.

11. *P. Guintini, "Possibility of Improving the Statistical Determination of Distances of B-Type Stars"* (**5**, 114–22).—From the catalogue of color indices of 1332 B stars by Stebbins and collaborators, the author tries to establish a formula relating the interstellar absorption to the galactic longitude.

P. SWINGS

PASADENA, CALIFORNIA
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SOLAR RESEARCH IN BELGIUM DURING 1942

A copy has been received of an important Liége publication, dated December 15, 1942, by Dr. Marcel V. Migeotte, entitled "First Application of a New Self-Recording Infrared Spectrograph of High Dispersion to the Solar Spectrum." The department of astrophysics of the University of Liége engaged in a program of astronomical infrared spectroscopy in 1933, the idea being to utilize a spectrograph having as high a resolving-power as possible. The solar tower equipped with a 12-inch vertical coelostat and the constant-temperature basement room were almost completed in 1940, as was also a self-recording spectrograph designed by Migeotte. This instrument consisted of a monochromator in KBr and of a large plane-grating spectrograph. It was intended to use four plane echelette gratings with 15,000, 3,600, 2,400, and 1,200 lines per inch, respectively, the last three of 225 × 175-mm size. In this way the whole spectrum from 1 to 20 μ could be covered with a resolving-power such that lines distant by about 1 cm^{-1} would be separated. At present only gratings with 15,000 and 2,400 lines per inch are available.

The spectrograph and all its accessories were installed in June, 1942, and the first re-

[10] Such as have been started by D. Barbier, according to one of the reports.

[11] *Ap. J.*, **91**, 159, 1940.

[12] The material collected by H. D. Babcock at the Mount Wilson Observatory illustrates this very clearly.

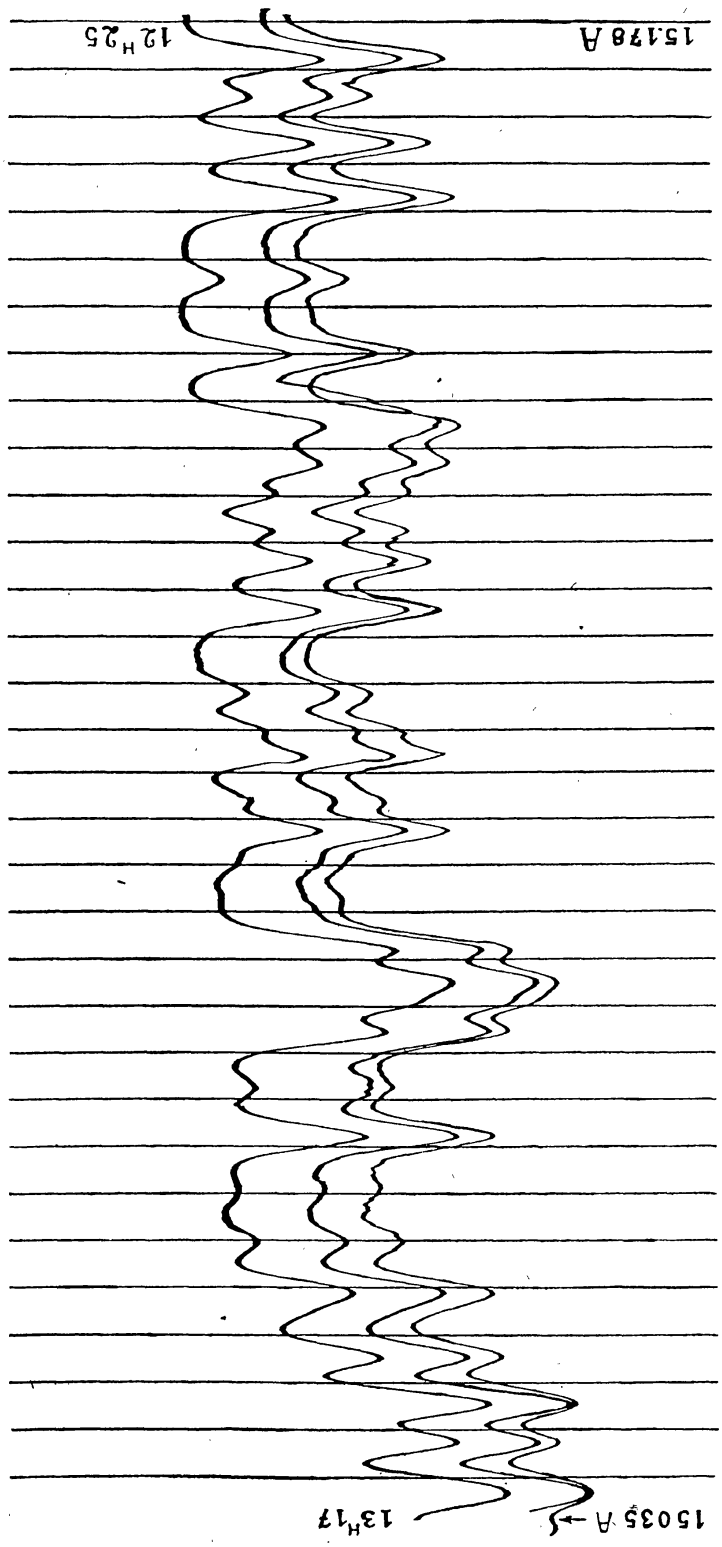

FIG. 1.—Region from λ 15,035, to λ 15,178 of the solar spectrum, recorded at the Observatory of Liége (Belgium), October 4, 1942, at three different hours. Scale 2/3.

cordings of the solar spectrum were made in July, 1942. The paper by Migeotte gives a general account of the results in the region from 1.35 to 2 μ, using a 15,000-line grating. In the region around 1.5 μ, absorption lines distant by 1.5 A can be separated, hence corresponding to a resolving-power of 10,000; this was still further ameliorated in 1943. The separation between solar and telluric lines is usually easy. As an example, the region from $\lambda\lambda$ 14,662–15,178, in which Abbot and Freeman's recordings gave only a dozen absorption features, shows at least 87 clearly separated lines on Migeotte's tracings. The reproducibility of the instrument is illustrated by Figure 1, showing the region from λ 15,035 to λ 15,178 A taken at three different hours.

Migeotte has almost completed a study of the water-vapor spectrum in the same region (thus extending Nielsen's work, which had not been received in Belgium). According to recent news, the new infrared spectrograph is in continuous operation.

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