On the influence of pressure on the viscosity of liquids

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are all given, the table containing in all a record of about 4600 lines, extending from the region of the lithium (red) line to the extreme ultra-violet. After this follows a table of the air-lines of the solar spectrum, with their relative intensities when the sun is on the horizon and at medium altitude. The measurements from which this table was compiled are those of Becker, and the lines number about 1000. The volume is completed by a list of 14 lines in the spectrum of gadolinium chloride, the work of Lecoq de Boisbaudran, and 74 lines in the spectrum of a vacuum tube containing hydrogen, measured by Ames of the Johns Hopkins University. The latter measurements are rendered more interesting by their being compared with the values obtained from Balmer's formula, in which the oscillation frequency is taken as $27418.3(1 - 4/m^2)$, different values of m giving different lines. The agreement between the theoretical and actual frequencies is in many cases very remarkable.

JAMES L. HOWARD.

LV. Intelligence and Miscellaneous Articles.

ON THE INFLUENCE OF PRESSURE ON THE VISCOSITY OF LIQUIDS.

BY R. COHEN.

THE results of a long experimental investigation on this subject are stated by the author as follows:—

I. The viscosity of water is diminished by pressure up to temperatures of 40° , as had already been found by Röntgen, Warburg, and Sachs.

II. No minimum of viscosity can be observed up to pressures of 900 atmospheres, and temperatures of 25° ; the change of viscosity is not proportional to the pressure, but increases more slowly.

III. In the case of water the viscosity changes greatly with the temperature, and in the interval of temperature from 0 to 23° it is greatest near 0° . It has not been decided whether the viscosity of water increases with pressure for temperatures above 40° .

IV. With concentrated aqueous solutions of NaCl and of NH_4Cl the viscosity of the solution increases with the pressure, and the percentage change is almost proportional to the pressure. The influence of temperature is small.

V. The more dilute a solution of NaCl the more does the influence of the anomalous deportment of water preponderate, both as regards the influence of temperature, and also the influence of a further increase of pressure. From a 5-per-cent. to a 10-per-cent. solution there is for each concentration a definite temperature between 2° and 22.5° , at which the influence of a pressure of 600 atmospheres on the viscosity is zero.

VI. In oil of turpentine the change of viscosity with the pressure is twenty times as great as with a saturated solution of NaCl, and is nearly proportional to the pressure. The direction of the change is the same. The influence of temperature is small, and is in the opposite direction to that of a solution of NaCl.—Wiedemann's *Annalen*, No. 4, 1892.