Bureaus of twenty-six States and of five societies, and is therefore truly international. The International Catalogue has four regulations for the abbreviation of titles: (*a*) the abbreviated title must be intelligible without a key; (*b*) in the abbreviated title the words, whether entire or abbreviated, must follow each other in the same order as in the original title; (*c*) titles of proceedings, reports, or scientific periodicals in general which are edited or published by learned societies, academies, etc., must, however, begin with the name of the place where the society resides; (*d*) in the case of other periodicals the name of the town where they are edited follows the abbreviated title. The regulations of the Consilium Bibliographicum contain the first two rules of the International Catalogue, but the names of towns are used only when necessary to avoid confusion. It would be a great convenience to readers of chemical works if a uniform system could be adopted, and it is to be hoped that Guye's suggestions will be carried out.

Engineering for May 8 gives particulars of the arrangements made at the Royal Air-craft Factory, Farnborough, for the aeroplane engine competition instituted by the British Government, and now proceeding. The engines are to be of British manufacture throughout (magneto excepted), and in view of the successful performances of British aeroplanes fitted with foreign engines, it is satisfactory to note that there has been a good entry, and that a large number of engines has actually been delivered for test. The test-house has been arranged with six test-beds and friction brakes, each contained in a separate cubicle, and supplied with a wind current of sixty miles an hour. The brakes are the latest pattern of Heenan and Froude's water dynamometer. The War Office proposes to publish a report at the conclusion of the trials.

THE new Cunard liner *Aquitania* was towed successfully from the Clydebank yard of Messrs. John Brown and Co., Ltd., to Greenock on Sunday, May 10. After her trial trips this week, she will proceed to Liverpool to be prepared for her maiden voyage to New York on May 30. *Engineering* for May 8 contains an illustrated article dealing with the propelling machinery of this ship. There are twenty-one cylindrical double-ended boilers, each having eight furnaces. The turbine machinery driving the four propeller shafts has been arranged to work on the triple system. The high-pressure ahead turbine, which, along with a high-pressure astern turbine, occupies a separate compartment on the port-wing turbine-room, receives boiler steam direct, which is passed in turn to the intermediate-pressure turbine, occupying, along with a high-pressure astern turbine, a similar compartment on the starboard wing. Two low-pressure ahead turbines on the two inner shafts receive their steam from the intermediate-pressure turbine. Some idea of the enormous size of these turbines may be obtained from the diameter of 15 ft. 4 in. over the tips of the blades of the low-pressure turbine. The combined weight of the low-pressure ahead and astern turbines on one shaft is 445 tons.

OUR ASTRONOMICAL COLUMN.

A REGISTERING MICROPHOTOMETER.—In 1912 Dr P. Paul Koch described a registering microphotometer designed by himself; the apparatus records photographically the varying intensities of a series of objects such as the lines in a spectrum or a set of interference rings and show their distance apart. The principle involved is to move the negative to be measured slowly in front of an opening through which a beam of light from a constant source is passed, and the resulting changes in the intensity of this light are recorded on a moving photographic plate. Dr. Koch now describes (Contributions from the Mount Wilson Solar Observatory, No. 77) an application of this instrument to the study of certain types of laboratory spectra, and displays in diagrams the resulting curves obtained. Thus, there are types of curves for furnace lines for different temperatures, for lines displaced by pressure, reversed lines, tube-arc lines, etc. While the observations described are stated to be only preliminary and very limited in scope, they are sufficient to indicate the usefulness of the instrument in those branches of spectroscopy in which it is desired to investigate quantitatively measures of line-intensity and structure.

VARIABLE STAR OBSERVATIONS.—No. iii. of the Publications of the Vassar College Observatory contains a most useful series of variable star observations made during the period 1901 to 1912, totalling in all 4797 observations. In the publication two points in particular have been aimed at, namely, first to reduce all magnitudes to a uniform standard, that of the Harvard photometry; and secondly, to give the original observations with the exact identification of the companion stars, in order that they may be reduced to any other desired photometric scale. In the introductory remarks, written by the present director, Caroline E. Furness, a detailed account is given of the instruments used, methods of observation employed, etc. Table I., which occupies the greater portion of the publication, gives the details of the observation of each variable; Table II. deals with some photometric observations; Table III. gives the magnitude on the Harvard photometric scale for every tenth grade of the Hagen, while the observed maxima and minima are compared with the ephemeris in Table IV.

ENHANCED MANGANESE LINES AND α ANDROMEDÆ.—The spectrum of α Andromedæ displays peculiarities which have rendered it difficult to couple it up with other stars in stellar classifications. Both the Harvard and the South Kensington classifications have indicated this star as an anomaly. The lines which are responsible for this peculiarity have now been run to earth by Mr. F. E. Baxandall, and he finds that in the main they are due to a form of manganese known as proto-manganese (Monthly Notices R.A.S., vol. 74, No. iii., p. 250). In his paper, Mr. Baxandall publishes three independent sets of measures of the stellar lines, and he states that while there is no proto manganese line which does not agree in position—within the limits of error in measurement—with an α Andromedæ line, this long succession of close agreements leaves little or no doubt that the two sets are identical. Attention is directed to the interesting fact that while in α Cygni and α Canis Majoris the enhanced lines of iron, chromium, and titanium are strongly shown, and the proto-manganese lines are comparatively weak or lacking, on the other hand, in α Andromedæ the case is the opposite. It will thus be seen that important criteria are being accumulated to help in the task of stellar classification, a former prominent case of another proto-substance being that of chromium in the spectrum of ε Ursæ Majoris shown at South Kensington.