temperature of transition of sodium bromide dihydrate into the anhydrous salt as a fixed point in accurate thermometry. As the result of their investigations they conclude that when the salt is quite pure the transition of the dihydrate into the anhydrous salt takes place at a temperature of 50°·674 C., but that the exact value of the transition point is slightly modified by the presence of traces of impurity. Considerable difficulty is experienced in preparing pure sodium bromide free from sodium chloride: it cannot be obtained by re-crystallising the ordinary bromide, but must be made from pure bromine and pure sodium carbonate. Details are given of the methods used in purifying these materials, the sodium bromide ultimately obtained giving a value of 23 008 for the atomic weight of sodium; this value agrees closely with that recently found for the atomic weight by the same investigators using a method based on the analysis of sodium chloride.

THE variation of the properties of the hydroxyl group of alcohols as the nature and number of the alkyl radicals attached to the carbon atom are varied forms the subject of a suggestive paper by Prof. Louis Henry in No. 12 of the Bulletin of the Royal Academy of Belgium. The observations are of interest both from practical and classificatory standpoints. It is pointed out that as the number of alkyl groups is increased in passing from a primary to a tertiary alcohol, the properties characterising the hydroxyl pass from those associated with the hydroxyl radical of water to those characteristic of the hydroxyl of bases, such as potash. In particular the different behaviour is emphasised of the three classes of alcohols towards the halogen hydrides, towards acetyl chloride, and during esterification by means of hydrogen chloride and a fatty acid. The generalities established can be utilised as a means of predicting the behaviour of the mixed alkyl ethers when subjected to the decomposing action of the halogen acids.

A WELL-ILLUSTRATED price-list of sundials and sundial pedestals has just been issued by Messrs. Newton and Co. Many forms of horizontal and vertical dials, and also pocket dials, are described in the catalogue, which should be seen by anyone who desires to possess a timekeeper of this kind as a reminder of the days when hours were marked by shadows on a dial.

A COPY of the report for 1905 of the Rugby School Natural History Society has been received. It is to be regretted that "a distinct falling off in the keenness of the sections taken as a whole" during 1905 was, according to the preface, noticed by the officers of the society. It may be hoped that the present year will, by its exceptional exhibition of vigour, retrieve the character of what has been a hard-working society.

THE Journal of the Royal Sanitary Institute (vol. xxvii., No. 3) contains the full text of the important series of papers read at the conference on smoke abatement in December, 1905. The list includes the address by Sir W. H. Preece, K.C.B., on factory and trade smoke abatement; and papers on stoking, by Commander W. F. Caborne; on the abatement of smoke from factories, by *Dr. S. Rideal; on the artificial production of persistent* fog, by the Hon. Rollo Russell; on the destructive effect of smoke in relation to plant life, by Mr. Arthur Rigg; on the work of the Hamburg Smoke Abatement Society, by Mr. J. B. C. Kershaw; on observations on smoke densities, by Mr. J. W. Lovibond; and on the effect of smoke on plant life, by Miss M. Agar.

OUR ASTRONOMICAL COLUMN.

THE CONTINUOUS SPECTRUM OF THE CHROMOSPHERE.—An interesting communication dealing with the question of the existence of a continuous spectrum in the radiations emitted by the chromosphere was communicated to the Paris Academy of Sciences by M. Deslandres on March 26.

M. Deslandres made special preparations for the eclipse in August last in order to determine whether the continuous spectrum (*i.e.* the radiations emitted by solid or liquid *particles*) of the chromosphere is brighter, as bright, or less bright than that of the neighbouring corona. Employing coloured screens, which absorbed the gaseous radiations, he photographed the uneclipsed ring of chromosphere and corona directly, and, in order to determine what proportion of the transmitted radiations was due to the light emitted by the metallic prominences, &c., he simultaneously employed two grating cameras which disclosed the presence and intensity of the latter.

Comparing the images photographed through screens with similar ones obtained in the usual manner by Count de la Baume Pluvinel, it was seen that the former exhibited many striking peculiarities in the large group of prominences in the north-east quadrant. On the screen photographs the prominences were much shorter than on the ordinary photographs, whilst their base and a series of nuclei towards the north were much brighter than the other portions, features not noticeable on the ordinary negatives. Spectrograms of the corona secured at Palma by Dr. W. J. S. Lockyer confirmed the results of this comparison.

M. Deslandres concludes that these prominences did emit a continuous spectrum which was more intense than that of the neighbouring parts of the corona, and were far richer in incandescent particles. A programme for the prosecution of this important research in future eclipses accompanies M. Deslandres's communication (*Comptes rendus*, No. 13).

OBJECTIVE-PRISM DETERMINATIONS OF STELLAR RADIAL VELOCITIES.—Circular No. 110 of the Harvard College Observatory contains a brief description of some results recently obtained with the objective-prism method of determining radial velocities. In this method an exposure is made in the usual way, then the prism is turned through 180° and a similar exposure made, or the telescope may be reversed and the photographic plate turned through 180°. Stars with known velocities serve as standards for the displacement of the corresponding lines in the two spectra.

A reproduction of a spectrogram of the Pleiades, taken on January 29 with the 11-inch Draper telescope, is given in the Circular. On this plate about a dozen stars could be measured, and the probable error in the resulting velocities would be about ±3·5 km. The scale is 52″·6 = 0·1 cm., and the exposures were thirty-seven and thirty minutes respectively. On another plate, secured on January 29 with two exposures of about twenty minutes each, about 100 stars could be measured, although a number of them, owing to distortion at the edge of the plate, could only be employed to ascertain the corrections necessary.

In No. 2, vol. xxiii., of the *Astrophysical Journal*, Mr. Geo. C. Comstock discusses a similar method for determining radial velocities, but he proposes two similar direct-vision prisms placed in front of the objective. Formulæ for calculating the velocities from the measures obtained accompany Mr. Comstock's paper.

THE OBSERVATION OF LONG-PERIOD VARIABLES.—In Circular No. 112 of the Harvard College Observatory Prof. Pickering publishes a plea for the organised observations of long-period variable stars, observations which are especially suitable for amateur observers. In order to facilitate this work various catalogues of such stars have already been published by the Harvard observers, and a new one, bringing the results up to date, is now in the printer's hands. When published, copies of this catalogue will be given to all observers who can make use of it.

A number of enlarged copies of Father Hagen's charts of the fainter variables are also being prepared, and will be supplied at cost, or given, to observers qualified to use them. Instructions as to the improved method of making these observations are included in the present Circular.