

column, and is operated by a milled head outside the balance-case. It is claimed that in this way the rapidity and accuracy of weighing are much increased.

AMONG the papers read at the annual meeting of the British Pharmaceutical Conference recently held in Liverpool was one by Messrs. Bernard F. Howard and Oliver Chick upon "Some Recent Samples of 'Grey' Cinchona Bark." A "parcel" consisting of 138 bales of South American cinchona bark received in March, 1920, and analysed by the authors, was found to contain 6.302 per cent. of total alkaloid, the bulk being cinchonine, the figure for which was 5.49 per cent. The bark contained only 0.027 per cent. of quinine. Mr. E. M. Holmes, curator of the Pharmaceutical Society's Museum, has examined the bark, and has expressed the opinion that it is the product of one, or possibly more forms of *Cinchona peruviana*, Howard. The large percentage of cinchonine found in the bark is probably due to the elevation at which the trees grow, as this factor, and the accompanying differences of heat and moisture, are known to influence the character of the alkaloids present.

At the recent annual meeting of the British Pharmaceutical Conference a paper entitled "Cresineol" was contributed by Mr. T. Tusting Cocking, who showed that when oil of eucalyptus and ortho-cresol are mixed heat is evolved, and on cooling a mass of glistening crystals, consisting of an equimolecular combination of cineole and ortho-cresol, is formed. This is a new compound, which has been named "cresineol." It may be recrystallised from various solvents, and forms beautiful white, transparent, prismatic crystals, melting at 55.2° C. and boiling at 185° C. Cresineol is volatile, and possesses a pleasant camphoraceous odour. It is not caustic in its action on the skin, and yet contains 41 per cent. of cresol. Having high germicidal properties, it is likely to prove of great value as an antiseptic for both internal and external application. The fact that a solid compound is formed when oil of eucalyptus and ortho-cresol are mixed can be made use of as a means of determining the amount of cineole in oil of eucalyptus. The method is based on the determination of the freezing point of a mixture of the oil with ortho-cresol; having observed this point, one may read off directly from a curve given by the author the percentage of cineole contained in the oil.

MESSRS. W. HEFFER AND SONS, LTD., Cambridge, have in the press a book by Dr. A. Harker entitled "Notes on Geological Map Reading," the object of which is to teach the student to visualise a geological map as in three dimensions, and to show that the questions which present themselves to the field-geologist reduce to exercises in very elementary geometry. This simplicity is gained by reckoning all slopes and dips as gradients, thus enabling trigonometry and the protractor to be dispensed with. The amount of dip, the thickness of a formation, the throw of a fault, etc., are measured directly upon a contoured geological map by the use of the scale alone.

NO. 2649, VOL. 105]

Our Astronomical Column.

THE HILL OBSERVATORY, SIDMOUTH.—The council of this observatory has just issued its annual report for the year ending June, 1920, and it is satisfactory to note that all instruments and other equipment are in good condition and that the observatory is now in full working order again. The chief work undertaken consists in photographing the spectra of stars down to magnitude 5.30 and classifying them according to Sir Norman Lockyer's scheme of increasing and decreasing temperatures. Spectra are also photographed of nebulae and other special objects. An interesting addition has recently been made to the regular work of the observatory in the form of a line of investigation suggested by Prof. W. S. Adams. Prof. Adams has found that the relative intensities of certain lines in stellar spectra vary with the absolute magnitude of the star, and thus, provided the apparent magnitudes are known, a fairly simple method is available for the determination of stellar parallaxes. The line intensities referred to are measured by means of a wedge of dark glass specially made for the purpose, the position of the wedge being noted at which the lines are just obliterated. Some encouraging results have been obtained from preliminary work. A party of members of the British Association visited the observatory at the close of the Bournemouth meeting. The party included several eminent astronomers, some of whom have consented to form a research committee, intended to act as an advisory body on all matters connected with the research work of the observatory.

THE INFRA-RED ARC SPECTRA OF SEVEN ELEMENTS.—No. 372 of the Scientific Papers of the U.S. Bureau of Standards gives the results of an investigation on the wave-lengths longer than 5500 Å. in the arc spectra of seven elements made by Messrs. C. C. Kiess and W. F. Meggers. The yellow, red, and infra-red regions of the arc spectrum of titanium, vanadium, chromium, manganese, molybdenum, tungsten, and uranium were photographed with a large concave grating spectrograph. The photographs were made on plates sensitised to these spectral regions by means of pinacyanol and dicyanin dyes. The wave-lengths of more than 2500 spectral lines were measured, extending from the green at 5500 Å. into the infra-red beyond 9700 Å. So far as is known, impurity lines and spurious lines have been eliminated from the wave-length tables. Frequency differences which were suspected of being constant have been found in each of the spectra. Those who are specially interested in this work may obtain a copy of the paper by applying to the Bureau of Standards, Washington.

NEW SOLAR RADIATION STATION IN ARIZONA.—An anonymous benefactor has given funds to the Smithsonian Institution for the establishment of a new solar observing station in the Haqua Hala mountains in the Arizona desert. The site was chosen as "being probably the most consistently cloudless region in the United States." Dr. C. G. Abbot has gone to set up this station, which will duplicate the work that has been done for some years at Calama, Chile; it is stated that the results obtained there are of assistance in predicting the weather and temperature in Argentina. As is well known, Dr. Abbot considers that, besides the 11-year variation, there are irregular changes in the solar radiation from day to day amounting to as much as 5 per cent., which he suggests may be due either to alterations in the circulation in the sun and consequent variation in the amount of hotter matter brought from the interior, or to changes in the transparency of the solar envelopes.