

sunlight is of general benefit. Certain poisons and X-rays are used as curative agents, but both would do great harm if applied indiscriminately.

It is scarcely credible that sunlight alone should be prejudicial to health; the explanation probably is, that sunshine is usually associated with heat, and it is the heat that is deleterious. This is borne out by the treatment of the question by the statistical method of partial correlation, some particulars of which will be found in the Quart. Jour. Roy. Met. Soc. for October 1919, vol. 45, No. 192.

W. H. DINES.

Benson, May 12.

The Band Spectra of the Oxide and Nitride of Boron.

WITH further reference to the origin of the band spectrum which is developed when BCl_3 vapour is admitted into active nitrogen, I have now made one of the tests mentioned in my previous letter (NATURE, May 24, p. 744), namely, the observation of the uncondensed discharge through a mixture of oxygen and BCl_3 vapour, flowing continuously through the discharge tube. Previous observations of similar discharges with mixtures of oxygen and CCl_4 , SiCl_4 , and TiCl_4 respectively, have shown that the conditions are particularly favourable to the development of band-spectra of the oxides, and it was expected, therefore, that in the present case the discharge spectrum would be characterised by the bands of boron oxide.

The expectation has been fully realised. The well-known boron oxide spectrum in the visible region is even better developed in the discharge than in the sources in which it is ordinarily observed. While in the boric acid arc in air, for example, the oxide spectrum appears as a headless alternation of maxima and minima of intensity, the discharge develops the heads well enough for measurement with the view of studying their distribution in the oxide system.

The band spectrum of which the origin is in question, however, is definitely absent. This fact is irreconcilable with Dr. Mulliken's conclusion that the spectrum is due to boron monoxide—a conclusion which could be sustained only if the spectrum were strongly developed in the discharge. The original view that the spectrum (which has been observed only in sources in which both boron and nitrogen are present) is to be attributed to a nitride is, on the other hand, in accord with the present result.

W. JEVONS.

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The Spectrum of Helium in the Extreme Ultra-violet.

THE investigation of the spectrum of helium in the extreme ultra-violet, on which I have been long engaged, and which had pretty nearly come to a stand-still for want of an untarnished diffraction grating, has recently been set in motion again by the energy and kindness of Prof. R. W. Wood, who has furnished me with several instruments from the engine at Johns Hopkins University. As a result I am able to make some additions to the facts already announced.

In the first place, several new terms have been added to the $\text{oS} - \text{mP}$ series, the first member of which lies at $\lambda 584.4$, making seven lines in all. Moreover, a continuous spectrum extending from the limit of this series toward the extreme ultra-violet has been observed; the phenomenon was obtained with a disruptive discharge and its reality is subject to all the uncertainties which accompany this form of excitation. However, as this type of spectrum is of some theoretical interest its appearance is worthy of note.

Secondly, I have found two members of the first, and probably the most important, enhanced series, $4N \left(\frac{1}{1^2} - \frac{1}{m^2} \right)$; they occur, as they should, at $\lambda 303.6$ and $\lambda 256.3$.

Lastly, there is a new line at $\lambda 591.5$ which fits the relation $\text{oS} - 1\pi$, interesting because it furnishes the first experimental evidence for radiation from helium involving a so-called inter-system combination—that is to say, a jump from a doublet energy level to the fundamental singlet level.

These results have all been checked with two or more gratings.

THEODORE LYMAN.

Jefferson Laboratory, Harvard University,
April 18.

Styrax and its Refractive Index.

IN the issue of NATURE for February 2, Mr. A. Mallock requests information on styrax. I am able to supply the following information:

The styrax best suited for the mounting of diatoms is obtained from the Oriental sweet gum tree (*Liquidambar orientalis*). This tree is native to the south-western portion of Asia Minor. The balsam is a pathological secretion from the wood and inner bark. After the tree has been injured and the secretion has collected on the injured surface, the inner bark is removed and boiled in sea water—the balsam being skimmed from the surface.

Nearly all the samples of commercial styrax are adulterated. One should choose a sample that is light greyish-brown in colour with an aromatic odour similar to benzoin. The styrax after being prepared for microscopic mounting should be tested to see that the refractive index is close to 1.58. As Oriental styrax has been difficult to secure since the War, American styrax (*Liquidambar styraciflua*) has been suggested as a substitute, due to its very similar composition. I have not, however, used it for microscopic mounting.

I have devised a new method for the preparation of styrax and balsam of Tolu for use as microscopic mounting media of high refractive index. This method will be published in the May number of the Journal of the American Pharmaceutical Association, and I shall be glad to send Mr. Mallock a copy of this article after its publication.

GEORGE H. NEEDHAM.

College of Pharmacy,
University of Washington, Seattle, U.S.A.,
April 15.

Induced Asymmetry of Unsaturated Radicals in Optically Active Compounds.

IN their interesting letter in NATURE of April 19, Prof. T. M. Lowry and Dr. E. E. Walker made no reference to the work of Erlenmeyer upon induced optical activity in cinnamic acid (various papers in the *Biochemische Zeitschrift* during the last fifteen years). Erlenmeyer's results, if substantiated, would be of fundamental importance, and in view of the desirability of further investigation, I have been engaged for some time, in collaboration with Dr. S. I. Levy, in a repetition of those experiments in which Erlenmeyer claims to have obtained optically active cinnamic acid by the fusion of the acid itself, its anhydride and chloride, with *d*-tartaric acid. We hope to communicate the results of our investigation to the Chemical Society during the present year.

E. J. HOLMYARD.

Clifton College, Bristol,
April 22.