of America will hold its fifteenth annual meeting on May 31 and June 1 at Xavier University, Cincinnati. The chairman of the section is Professor Arthur C. Ruge, of the Massachusetts Institute of Technology, and the secretary is Professor William A. Lynch, of Fordham University.

THE tenth annual summer Research Conference of the Johns Hopkins University will be held at the Henlopen Hotel, Rehoboth Beach, Delaware, from June 3 to 7 and 10 to 14. The first week will be devoted to various aspects of biocatalysis; the second to some fundamental topics concerning organic reactions. The conference affords an opportunity for a group of specialists to discuss informally various fundamental topics in biochemistry and in organic chemistry. The attendance is kept sufficiently small to allow all present to participate in the discussions. The schedule of the various sessions is so arranged as to leave time for taking advantage of the many recreational facilities, including surf bathing, golf, fishing, boating and tennis. Further information may be obtained from P. H. Emmett, The Johns Hopkins University, Baltimore, Md.

DISCUSSION

COLOR EFFECTS OBSERVABLE FROM FLUORESCENT LAMPS

IN the April 12 number of SCIENCE for this year, page 357, Scull, Grosscup and Witting draw attention to an "Apparent Splitting of Light from Fluorescent Lamps into Component Parts by Moving Objects." When for instance a wire which had been made to vibrate by a magnetic field produced by 60 cycle current, was illuminated by a "daylight" fluorescent lamp operated also on 60 cycle, they observed two images of the wire, one red and the other blue. This effect and other similar ones they ascribed to the possibility that there are differences in the time intervals of emission of light of various wave lengths from the lamp.

This suggestion is close to an explanation based on observations of the emissive characteristics of phosphors. The fluorescent lamp utilizes a low pressure mercury discharge to excite fluorescence from phosphors coated upon the walls of the bulb.[1] For "daylight" radiation, a mixture of various phosphors is used, each contributing fluorescence of a different color and covering such a spectral range that their combined emission overlaps to give a fairly smooth curve throughout the range of visible light. This curve, however, represents purely their predominant fluorescent emission. At specific points in the cycle of a-c operation, distinctive colors are observable, due to peculiarities in the emissive characteristics of the individual phosphors present in the lamp. Phosphors in general exhibit two types of emission. The first occurs during the period of excitation and the light emitted can be termed fluorescence. When the source of excitation is removed, there is a continued emission of light, but this is of the second type termed phosphorescence. It is characterized by widely different rates of decay depending upon the phosphor involved. Fonda[2] and Johnson and Davis[3] have measured these rates for some typical phosphors and have found that there is a corresponding variation in the rate of pick-up of fluorescence during the period of excitation. A phosphor for instance which shows a slow decay in its phosphorescence shows a correspondingly retarded development of its fluorescence. Another phosphor, characterized by such a rapid decay that its phosphorescence is negligible, is capable of immediate, full response to the exciting light.

In the case cited of the vibrating wire illuminated by the radiation from a mixture of phosphors present in the "daylight" lamp, the blue image would have the color of fluorescence emitted by the phosphor whose response to excitation was most rapid. It would correspond to a point of rising potential in the a-c cycle. The red image on the other hand would be that observable at zero potential and would be produced by the phosphorescence from the phosphor having the slowest rate of decay. These two phosphors when examined separately would be found to fluoresce respectively near the blue end of the spectrum and near the red end.

The other effects noted by the authors can be explained similarly.

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1 Inman and Thayer, *Elec. Eng.*, 57: 245, 1938.

2 Fonda, *Jour. Applied Phys.*, 10: 408, 1939.

3 Johnson and Davis, *Jour. Optical Soc. Amer.*, 29: 283, 1939.

MERCURY POISONING

MOST experimental scientists have become so accustomed to handling mercury in calibrations, manometers, pumps, etc., that they no longer think of it as a poison, yet under certain circumstances mercury may become a source of serious chronic illness. Vaporization of mercury occurs rapidly at room temperatures and one cubic meter of air saturated with mercury vapor at 25° C. contains 19.5 mg of mercury. When a stream of air passes at the rate of one liter per minute over a 10 cm^2 surface of mercury at 25° C. it becomes about 15 per cent. saturated,[1] containing ap-

1 P. A. Leighton, private communication, "Concerning Mercury Vapor."