Comments and Communications

International Depot of Microscopic Preparations of Cytology

In 1939 the International Union of Biological Sciences requested Prof. P. Martens, director of the J. B. Carnoy Institute, Louvain, Belgium, to take up again the project of an International Depot of Microscopic Preparations of Cytology, animal and vegetable. This plan had previously been submitted by the Union to the late Prof. V. Gregoire, but owing to poor health he was unable to realize the practical side of this plan. Various circumstances have delayed until now the announcement of the creation of this organization.

Preparations obtained from numerous research centers which have already been used as a basis for previously published work will therefore be grouped together in an easily accessible center—the Laboratory of Cytology of the Carnoy Institute at Louvain, Belgium. Each worker interested in a definite problem may thus compare with his own documentation the original microscopic documentation of other authors relative to the same matter. It is hardly necessary to underline the considerable interest that a depot of this kind will acquire and, also, how much it will favor good understanding among workers and smooth out many difficulties and vain contestations which are inclined to permeate scientific literature.

This result can be obtained only with the greatest comprehension and collaboration of the greatest possible number of cytologists. The IUBS therefore invites them, from now on, to send their reprints to the Laboratory, enclosing with them preparations already used as a basis for published work, and to bring such deposits up to date in the future. It is desirable that the fields considered by authors as particularly demonstrative or used as published illustrations should be specially noted as clearly as possible on the preparations. It is also requested that a sample of the published work should be attached when these are sent.

Every biologist known for his publications, and any other person possessing authorized recommendation, will be able to consult and study as much as he likes all preparations which have been entrusted to the Depot; consultants will have the Laboratory and necessary optical instruments at their disposition. All work must be done within the Depot unless written permission to withdraw material is granted by the depositor.

The preparations will always remain the *property solely of the depositors,* who can at any time have them sent back to them. The cost of postage would then be paid by the administration of the Depot.

P. VAYSSIÈRE (Paris)
Secretary General, IUBS
P. MARTENS (Louvain)
Administrator of the Depot

On the Properties of Gelatin-Dye Phosphors and the Continuum Theory of Szent-Gyorgyi

In his recent book entitled *Chemistry of muscular contraction* (New York: Academic Press, 1947), Szent-Györgyi presents a theory and some preliminary experiments which attempt to relate luminescence phenomena of gelatin-dye phosphors with the fundamental mechanisms of energy exchange in biological systems. Although the present writer has no intention of quenching Szent-Györgyi's enthusiasm for this new approach, he is inclined to make a few criticisms of the theory. This seems necessary, since the "Continuum Theory" has already been heralded as an important new principle in theoretical biology by one reviewer, whereas the phenomena on which it is based seem to have a simpler and more tangible interpretation in terms of spectroscopic research on the luminescence of complex molecules.

Szent-Györgyi's basic premise is that the electronic transitions involved in the luminescence of gelatin-dye phosphors are closely related in character to the electronic processes in mineral "impurity" phosphors. He regards the dye as taking the role of the impurity, and the luminescence as a property of the system rather than of the dye or the gelatin. He then attempts to deduce the electronic energy levels of a protein as a "fusion" of the spectroscopic terms of the component atoms.

A careful study of the experiments described and the interpretations presented indicates that the latter are in direct conflict with theoretically secure ideas previously established to account for such phenomena. The interpretations of complex molecule luminescences made here by the late G. N. Lewis and his co-workers have been along the lines of straightforward π-electron spectroscopy. The phenomena observed by Szent-Györgyi and his associates appear to be due simply to the optical properties of the dye molecules. Most of the experiments reported may be interpreted in terms of the general theory of luminescence of complex molecules; this theory has been reviewed and expanded in a recent paper by the present writer (*Chem. Rev.*, 1947, **41**, 401).

In his discussion, Szent-Györgyi does not distinguish between fluorescence and phosphorescence, using the terms interchangeably. It is noteworthy that in several cases reported by him the appearance or disappearance of luminescence coincides with an increase or decrease in the viscosity of the system, respectively. It is suggested that a careful spectroscopic study of the phosphorescence spectra of adsorbed dyes and of the same dyes in rigid glassy media (*Chem. Rev.*, 1947, **41**, 401) would clear up many of the ambiguities. This would require careful attention to purity of the sample, to possible photochemical changes induced by the exciting light, and resolution of the fluorescence and phosphorescence spectra by means of a phosphoroscope.

In discussing the photoconductivity experiments of Boros, Szent-Györgyi does not include a description of the light source used, and while it may be assumed to have been considered, it cannot be ascertained from the presentation whether the differential absorption of the