sitism' by *Alysia manducator* caused the host larvæ to burrow, although he does not record any experiments on the point. As most of his observational and experimental work was done on *Calliphora erythrocephala*, it was no doubt this species to which he referred. One hesitates to accept the idea that 'successful parasitism' by *Alysia manducator*, if this means the actual presence of an egg capable of development within the host, is the cause of stimulated pupation in *Lucilia sericata*. It may be that the real cause is the secretion injected at the time of oviposition and which causes temporary paralysis of the host larva. If this were the case it would probably account for some host pupation as a result of the injection without the deposition of the egg, and explain why in the foregoing tables all puparia did not yield parasites. Interruptions in the oviposition act are common enough and due to a variety of causes. Experimental work on this point is in progress.

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Penetration of Methylene Blue into Living Cells.

IN NATURE of June 16, 1928 (vol. 121, p. 939), Irwin has commented adversely on certain quotations of my results on the penetration of methylene blue into living cells. It seems important, therefore, to direct the attention of readers of NATURE to subsequent findings made by me.

In these new experiments (M. M. Brooks, *Protoplasma*, **7**, No. 1, 46; 1929) it was found that differences between Irwin's methods and those used by me were responsible for differences in the results. Irwin's experiments were done with a very much higher pH value of the external solution; a much more concentrated solution of dye in the external medium (from 3 to 25 times as concentrated); and a more impure dye; and in darkness rather than in diffuse daylight.

Experiments done according to methods used by me again showed that methylene blue penetrates living cells as such and not as one of its lower homologs. When Irwin's methods of experimentation were used, trimethylthionine was found in the sap, showing without doubt that her results were due either to high pH value which alters the dye, to the impurity or high concentration of dye which she used in the external solution, to the difference in illumination, or to some combination of these factors. It is also important to consider what part is played by injury; plants placed under the adverse conditions of Irwin's experiments are undoubtedly more abnormal than those subjected to such mild treatment as that used by me.

There is no reason to doubt the validity of the spectrophotometric analyses made for Irwin by W. C. Holmes and K. S. Gibson of the Bureau of Standards, Washington, D.C. The error lies in the solution which was submitted to them for measurement.

It is apparent that the purer the methylene blue, and the less abnormal the experimental conditions, the more nearly will methylene blue be found uncontaminated in living cells.

Discussion of contradictory results obtained by different workers will scarcely advance our knowledge of cellular biology unless due consideration is given to possible differences in experimental methods. It is a simple matter to confirm the observation that methylene blue as such penetrates normal living cells, provided proper methods are used.

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Photo-Decomposition of Molecules having Diffuse Band Spectra.

THE products of photo-decomposition of molecules showing diffuse discontinuous band absorption spectra (predissociation spectra) where, according to Bonhoeffer and Farkas (*Z. physik. Chem.*, **134**, 337; 1928), the light produces dissociation by internal energy exchange, without collision, can be studied readily in the case of ammonia.

If ammonia at a few millimetres pressure be introduced into a quartz tube containing the yellow tungstic oxide and the gas be illuminated with a hot mercury vapour arc, reduction to the blue oxide of tungsten occurs with a few minutes exposure. This ready reduction points to the presence of atomic hydrogen in the decomposition products. The result is not unequivocal, since there might be (Bates and Taylor, *J. Am. Chem. Soc.*, **49**, 2438; 1927) hydrazine formed in a stepwise decomposition of the ammonia, and it is known that hydrazine reduces tungstic oxide at room temperature.

The formation of atomic hydrogen is, however, indicated by the following experiment. Mixtures of ammonia gas, hydrogen, and carbon monoxide when streamed through a quartz tube illuminated by the mercury arc produce marked quantities of formaldehyde and also a considerable deposit upon the sides of the tube of a white solid, soluble in water, which appears to be hexamethylene tetramine. This reaction definitely points to a dissociation of ammonia yielding atomic hydrogen, since the activity of this latter in producing formaldehyde from hydrogen and carbon monoxide is well known (Taylor and Marshall, *J. Phys. Chem.*, **29**, 1140; 1925). This method of producing atomic hydrogen in controlled amounts by regulating the intensity of illumination of ammonia and other molecules showing diffuse spectra is well adapted to the study of reactions induced by introducing atomic hydrogen in various gas mixtures. Such studies are in progress here.

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Intensities in the Atmospheric Oxygen (Intercombination) Bands.

WE have made exact intensity measurements of the A group of the absorption bands of oxygen at $\lambda 7600$ A. with the aid of the 'raster' method of Frerichs,[1] using a 6·4 metre concave grating, infra-red sensitive plates, and three different lengths of light path, respectively 14, 33, and 60 metres. It was found that the exponential absorption law $J = J_0 e^{-kd}$ holds for these absorption lines; for the 33 metre light path, assuming that the peaks of our photograms can be identified with the true absorption co-efficient, we find for the strongest line an absorption $\dfrac{J_0 - J}{J_0}$ of 27 per cent.

Knowing the temperature of the absorbing gas (air, room temperature) and the true energies of the