seed-coat and the embryo, and on one occasion out of many trials *B. malvacearum* was recovered from this position.

A point of interest, and one which may prove to be of great importance in the life-history of the disease, is that this bacterium has been found to show the phenomenon of 'dissociation'. At least three 'dissociates' have been isolated, all of which are culturally, and to some extent morphologically, quite distinct, one being possibly identical with the so-called 'common yellow saprophyte of cotton'. These 'dissociates' arise in single-cell cultures and appear to be produced in an obligate order, that is, 'A' produces 'B', 'B' produces 'C,' and so on, there being some suggestion that the cycle may be a closed one. This phenomenon of dissociation appears to be correlated to some extent with the production of some of the newly-observed growth-forms recently described by me (*Proc. Roy. Soc.*, B, **105**; 1929).

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Glasses Transparent to Ultra-Violet Radiation.

IN his letter to NATURE of Jan. 18, Dr. English suggests that our conclusion (NATURE, Sept. 21, 1929) that "complete degeneration by a mercury arc lamp results in a greater loss of ultra-violet transparency than does natural solarisation", is merely a confirmation of his statement (*Glass*, Sept. 1928) that eight hours' exposure to a mercury vapour lamp is equivalent to six months' exposure to sunshine.

So far from confirming his statement, we cannot even agree with it. We have proved quite definitely that an exposure of two hours at a few inches from the mercury vapour lamp produces far more degeneration than would an eternity of sunshine.

Dr. English appears to ignore completely the most interesting phenomenon of the rejuvenation of ultra-violet glasses in sunshine after being degenerated by mercury vapour lamps. Our letter was concerned almost entirely with this discovery, which to our minds proves conclusively that exposure to lamps emitting radiation of wave-lengths shorter than that received from the sun can be no safe guide to the behaviour of glasses when exposed to sunshine. We understand that this discovery of the phenomenon of rejuvenation of artificially irradiated glasses has already been confirmed by the Bureau of Standards.

We are surprised that Dr. English prefers to substantiate his arguments with photographs of spectra, surely a dangerous procedure—he himself condemns it (*Glass*, September 1928, pp. 388, 389)—rather than to consider figures, accurately determined, showing the actual percentage transmission of specimens of identical thickness under different conditions. We believe that all accepted authorities agree that the only trustworthy methods for the comparison of specimens of glass are those employing a photoelectric cell, vacuum thermopile, or similar quantitative instrument. One such method was described briefly in our letter (NATURE, Sept. 21, 1929).

We did not say in our letter that natural solarisation was complete in a few days. Our figures show, however, that it can be practically so in four very bright days.

New glass exposed in winter will, of course, age slowly compared with that exposed in summer.

A. R. WOOD.
M. N. LEATHWOOD.

Research Laboratory,
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St. Helens, Lancs, Jan. 23.

Monomolecular Films of Batyl Alcohol.

SOME measurements which I have made on monomolecular films of batyl and chimyl alcohols (isolated from shark-liver oils by Prof. J. C. Drummond) throw some light on the molecular structure of these compounds. They have been shown to be, respectively, an octadecyl glyceryl ether (Heilbron and Owens, *Jour. Chem. Soc.*, 942; 1928) and a cetyl glyceryl ether (Drummond and Baker, *Biochem. Jour.*, **23**, 274; 1929); whether the hydrocarbon chain is attached to the glyceryl group at the α- or β-carbon atom has not hitherto been decided.

My measurements give 26 sq. A. for the cross-section of the head group of batyl alcohol. This agrees with the value for the α-monoglycerides (Adam, Berry, and Turner, *Proc. Roy. Soc.*, A, **117**, 532; 1928). If batyl alcohol had the symmetrical β-structure, its mode of orientation would require a larger area than this, comparable with the 36 sq. A. found for mono-octadecyl malonic acid (N. K. Adam, private communication).

In view of these facts, therefore, it seems highly probable that batyl and chimyl alcohols have the unsymmetrical α-structure.

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Jan. 23.

Viruses and Life.

MR. GEOFFREY SAMUEL states in NATURE of Jan. 11, p. 51, that he has difficulty in distinguishing the suppositions vitamol and virus. Virus connotes a something of unknown constitution that can pass through filters and that causes specific disease. Vitamol is supposed to be of molecular structure with attributes of life, and might be parasitic or symbiotic or lead an independent existence. In the study of the viruses the methods of the biologist seem to have reached their limit, and the concept and the word were offered in the hope of attracting the attention of physicists who might be able to cast a ray of light on the matter.

If structure is for function and not function for structure, then function should precede. For the development of structure that facilitates metabolism (say an envelope having certain qualities) there should be metabolism to facilitate.

In the broad theory of evolution there is at present a hiatus between the non-living and the living; a gap which the theory requires should be bridged.

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A Deep Sea Echinoid in British Waters.

ON Feb. 13 we took a single specimen of the Spatangoid *Urechinus naresianus* in a bucket-sample at 110 metres, seven miles south of Sanda, off the Mull of Kintyre. It was a young individual only, 5 mm. long. The general colour was whitish, and the tube feet yellow; two or three large pedicellariæ on the aboral side were tipped with deep red. The sample was a coarse shell gravel with a fairly large mixture of sand.

This is the first record of the species in British waters; and with the exception of a single record at 760 metres, referred to by Mortensen as untrustworthy, its previously known bathymetric range was *c.* 1450 to 4480 metres.

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