or hydrogen atoms, are better suited for the purpose because the excited halogen molecule liberated during the photo-dissociation process can be easily detected by its emission spectrum, which lies in the visible region. We tried several molecules of the composition $XHal_4$, and $XHal_3$, where X is C or Sn and Hal is a halogen. After some unsuccessful attempts, we obtained in SnI_4 vapour under the action of wave-lengths in the range 2500–2150 Å. a bright visible emission of the spectrum of I_2 with an abnormal distribution of intensity in the bands. A detailed investigation confirmed the conclusion which immediately followed from this fact, namely, that the iodine molecule was detached from the SnI_4 molecule in one primary process. As the iodine atoms were originally bound to the central Sn atom by valency forces and did not markedly interact one with another, the whole process is equivalent to a recombination of atoms in the very act of photo-dissociation, or to a redistribution of valency bonds. The energy balance, the influence of collisions with other molecules and other features of the emission so far studied lead to interesting conclusions about the mechanism of the disruption. The most important peculiarity is a marked temperature coefficient which indicates the necessity for an energy of activation for this type of photo-dissociation.

In this connexion we have re-investigated the yellow fluorescence in BiI_3 vapour, observed in this laboratory some years ago². Although the spectrum of this fluorescence on closer examination did not reveal any band structure, nevertheless the exact coincidence of its position with that of the iodine spectrum cannot be fortuitous. We assume therefore that the mechanism of this emission is the same as that given above; namely, that under the action of suitable quanta and with some thermal activation, an iodine molecule is detached from BiI_3 . The continuous or blurred aspect presented by the spectrum emitted in this case may be due to the disturbing influence of the polar BiI radical remaining in close proximity to the iodine molecule which is emitting radiation.

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¹Trans. Faraday Soc., 30, 108; 1934.

²Neujiin, Phys. Z. Sov. Un., 2, 422; 1932.

Spectroscopic Constants of the Di-Atom PN

In a recent paper¹, I ventured to predict that (a) "the internuclear distance of PN may be taken as closely approximating to the mean of the experimental values for NN and PP" (p. 28), and that (b) "it may be expected that experiment may show that PN has the highest bond constant and mean restoring force in the LK and KL periods" (p. 36).

At the time the paper was written, I was unaware of the experimental work on PN of Curry, Herzberg and Herzberg², but the results appear to justify both the above statements.

(a) r_e (calc.)³ = 1.48; r_e (obs.) = 1.4869 Å.

(b) ω_e (expt.) = 1337.24 cm.⁻¹, whence the bond constant $k_e = 101.0 \times 10^4$ dyne cm.⁻¹ and mean restoring force $K = 3.642 \times 10^{-4}$ dyne are derived. These are without doubt maximum values for the LK and KL periods.

The experimental data are consistent with the observed flattening of the periodicity curves with increasing period numbers. The presence of maxima and minima of spectroscopic constants in the symmetrical sub-group of the tenth molecular group is not without interest in connexion with problems of polarity and bonding strength of di-atoms.

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¹C. H. Douglas Clark, Proc. Leeds Phil. Soc., 3, 26; 1935.

²J. Curry, L. Herzberg and G. Herzberg, Z. Phys., 86, 348; 1933.

³W. Jevons, "Report on Band Spectra of Diatomic Molecules" (Camb. Univ. Press, 1932).

A Mycetozean Parasite of *Zostera marina**

In a previous note in NATURE¹ we pointed out the association of a *Labyrinthula*-like organism with the wasting disease of the eelgrass along the American Atlantic coast. Since the publication of this announcement, we have performed a number of experiments in the laboratory and in the natural beds themselves, which indicate that this organism is a true parasite of *Zostera marina*. Communications from other investigators and examinations of specimens submitted from various points show also that this parasite is uniformly present in the infected beds on the Atlantic coasts of both Europe and America.

The parasitic habit was first demonstrated in modifications of Cienkowski's moist chambers². In these the actual migration of the spindle-shaped cells from fragments of diseased leaf and the invasion of healthy leaf tissue could be clearly followed. Consistent infection occurred in thirty slides, usually within eight to forty-eight hours. In only one case did a filamentous fungus make its appearance—a contaminated check preparation.

Field experiments were conducted in several beds near Woods Hole, Massachusetts. Slips of diseased and normal leaf were fastened in alternate order to healthy green leaves. Local darkening and characteristic streaking of the 'inoculated' leaves to form the pattern anticipated by this arrangement followed within one or two days. The experiment was repeated four times during the later part of the summer and corresponding tests were made in aquaria with the same results. Sections prepared from the newly infected areas showed heavy infestations of viable *Labyrinthulæ*. Such sections attached to clean plants brought about infection of the new host.

We were unable to grow the organism on artificial media or to maintain it long without its host in filtered sea water; but from microscopic observations and from field experiments it is evident that the *Labyrinthula* is capable of attacking and destroying healthy leaf tissue independently of other organisms. The rapidity with which it produces infection indicates its extremely aggressive habit. Thus far it has not been identified with any of the described *Labyrinthulæ*.

It seems well established that the *Ophiobolus* isolated from diseased eel-grass by Dr. Petersen³, Miss Mounce⁴ and by Dr. Tutin⁵ varies in abundance and activity over the affected areas. The mycelium of the fungus occurs in the Woods Hole region, but in extremely minor quantities—it is far from universally associated with the disease. We have not

* Contribution No. 67, Woods Hole Oceanographic Institution and Journal Series Paper of the N.J. Agr. Exp. Station.