suggests their need of a very long daily light period as occurs in England and Alaska during the growing season.

Among the new varieties originated by the U. S. Department of Agriculture, U.S.D.A. No. 659 has been found especially well adapted to North Carolina where it is as early as Missionary, one of the leading commercial varieties of that state. When grown in the greenhouse in midwinter, with the daily light period increased by electric lights it responds even more quickly than Missionary. This suggests a better adaptation than Missionary to southern conditions where the spring growth occurs under short days. Other selections resulting from breeding work tested under increased daily illumination in midwinter have shown widely different responses, some corresponding to that of Missionary and others to that of such varieties as Howard 17.

Because the daily light period and the amount of light received in a day varies so widely for the different parts of the winter and because strawberry varieties respond so characteristically to additional light, results obtained at different times during the winter may be quite different, yet afford valuable data in helping to understand the normal varietal behavior in the field where most successfully grown. The response of about 140 sorts suggests the possibility of a classification of new originations and introductions on the basis of their rest periods, their response to temperature and to additional light as a first step in determining their regional adaptation.

GEORGE M. DARROW
GEORGE F. WALDO

BUREAU OF PLANT INDUSTRY,
WASHINGTON, D. C.

THE PRECISE EXPRESSION OF "DRYNESS"

IN referring to the viability of algal resting cells over long periods under comparatively dry conditions, Otis[1] has given an example of the need, in a great variety of comparative studies, of an exact method of expressing moisture conditions or degrees of dryness so that different observations may be correlated. Otis mentions a reported case of algae living for seventy years in stored soils containing from 3 to 10 per cent. of moisture. These quantities mean nothing without a knowledge of the type of soil involved, but probably imply enough "free" water in the soils so that the resistance to drying of the algal cells was not taxed in the slightest; in fact it is conceivable that the cytoplasm might never have been strictly dormant during all this period as conditioned by dryness. On the other hand the same author refers to a medium of small twigs, needles and rock fragments, on which algae are at present being stored, which is "very dry." It undoubtedly makes a good deal of difference to these algae whether the medium was "dried," and is now being held, in an atmosphere of 30 per cent. or one of 90 per cent. relative humidity. It is an accepted principle that the algae, the rough material, and the atmosphere of the storage jar must be, after a short time, in vapor-pressure equilibrium; it is, therefore, a perfectly simple matter to express the moisture condition of the entire system, in such a case, in concrete terms, of which the relative humidity at any moderate temperature is the simplest. It is also a simple matter to measure the state of the system for such an expression by placing weighed samples of the material in desiccators whose relative humidities have been predetermined by placing in their lower chambers various mixtures of water and sulphuric acid, or other chemicals. The gain or loss of weight by the sample indicates its position in the scale with all the precision necessary, provided the different desiccators vary in their humidities by steps of not more than 10 per cent. The method gives a reference point for moisture conditions on a great variety of materials whose physical properties vary so widely that direct comparisons of "moisture contents" are meaningless or impossible. It is, of course, not directly useful for materials whose moisture condition is above the lower limit of "free" water, for example, wood above the fiber-sat. point, or soils above the "wilting coefficient."

The writer has found in studying the viability of coniferous tree seeds that "air-dry" is entirely too indefinite an expression for indicating the status of seeds placed in storage. Depending upon the weather conditions, the presence of artificial heat indoors, etc., this term might mean drying to equilibrium with atmospheres of 60 per cent. or of 20 per cent. relative humidity, which in turn might mean the difference between 5 per cent. and 3 per cent. moisture content of the seed itself. With at least one species, a critical condition of dryness, affecting viability within a short time, appears to be reached at equilibrium with about 25 per cent. relative humidity. At least, small differences in this region may be of considerable importance. Hence the need for a precise method both of controlling and of expressing the condition in living materials.

C. G. BATES

LAKE STATES FOREST EXPERIMENT STATION,
ST. PAUL

THE STONING OF A MINOR PROPHET

THE intuition of poet or artist has on occasion been responsible for significant predictions in the

[1] Chas. H. Otis, "The Viability of Algae," SCIENCE, N. S., 68: 1754, August 10, 1928.