fungi—as in "Pyrex glass is funginert but not fungistatic."

Funginertness. The characteristic of being funginert —as in "The funginertness of nylon-jacketed wire is permanent and not limited by the period of effectiveness of a somewhat instable fungistatic chemical."

The new terms, being coined words, can cover precisely the desired total concept of fungus resistance because of absence of nourishment for the organism and not because of presence of fungistatic or fungicidal influences. A number of parallel words can obviously be formed—for example, "bacterinert" and "bacterinertness" or "microbinert" and "microbinertness" for cases in which it is desired to describe materials with reference to bacteria or to microorganisms in general.

WALTER N. EZEKIEL

Bureau of Ordnance, Department of the Navy
Washington, D. C.

Quantum Theory and Phytoplankton Photosynthesis

In the first issue of *Hydrobiologia,* R. Maucha (*Hydrobiologia,* 1948, **1**, 45) has a paper that would seem to represent an important application of quantum theory to ecology. However, a study of the mathematics contained in the paper reveals two erroneous assumptions that invalidate his work: (1) he assumes that a graph of photosynthesis against light intensity represents a sine function, and (*2*) he assumes that the phytoplankton photosynthesis system is a closed system.

It is well known that high light intensities inhibit photosynthesis in phytoplankton that are adapted to dim light. E. I. Rabinowitch (*Photosynthesis and Related Processes, I.* New York: Interscience, 1945) has a chapter on "Photautoxidation" in which light inhibition of photosynthesis is discussed in detail. The phenomenon is, however, so variable in different plants and in the same plant under varied conditions, that resemblance of such a graph to a sine curve is superficial and is not a reliable foundation for mathematical deduction. Maucha does not discuss photautoxidation, and it is not a variable in his equations.

Even if the graph were a sine function, Maucha's other error would still invalidate his deductions. That he assumes phytoplankton photosynthesis to be a closed system is emphasized by repeated attempts to demonstrate that the law of energy conservation is obeyed in the system. L. v. Bertalanffy (*Science,* 1950, **111**, 23) has pointed out that living systems are not subject to the laws of closed system thermodynamics, and that the extension of these laws to open systems leads to very unexpected results. Maucha's analogy of a quasi-elastic resonating system that suffers an equilibrium shift proportional to the intensity of the applied impulse (light, in the photosynthetic system) leads him to the dubious conclusion that intense light uses up the CO_2 inside the cell so rapidly as to reduce photosynthesis to zero. "*Ist nämlich die Lichtenergie viel zu gross, dann verringert sich* c_g [the intracellular CO_2 concentration] *schliesslich zu* 0. . . . *die Photosynthese kommt zu einem Stillstand, wir haben mit inaktiver Lichtstärke zu tun.*" From equations based on these assumptions Maucha extracts a constant which, when multiplied by 10^{-27}, agrees closely with Planck's constant.

JACOB VERDUIN

The Franz Theodore Stone
Institute of Hydrobiology
Put-In-Bay, Ohio

Our Decelerating Planet

I was amused by C. A. Cotton's letter (*Science,* 1950, 111, 14) regarding the deceleration of the earth in a mere 56 million years. I do not doubt the accuracy of Dr. Cotton's position and arguments, but we have much more startling arguments regarding the earth's rotation seriously proposed in this country. For example, *Harper's* January issue indicates that there is sound and even scientific reason for believing that the earth stood still in Joshua's time, a mere 3,500 years ago, and that, *mirabile dictu,* it has regained its present momentum since that relatively recent date.

In case some scientists are inclined to dismiss *Harper's* lightly, allow me to explain that this magazine is very proud of its long literary record, that it does not hesitate to lecture scientists severely for their inability to write in good literary style—i.e., by *Harper's* fantastic standards. The present writer is willing to admit that no honest scientist can possibly compete on a literary basis with such startling proposals as may be found in the January number of that learned magazine. It appears that all objections based upon physical laws, biological principles, and historical facts are clearly and unequivocally overruled.

This article, "The Sun Stood Still," is only one of the recent and startling revelations contained in this sedate magazine. Only last November, *Harper's* considerably improved on a recent U. S. Supreme Court decision. Apparently both the legal and scientific professions must look to their laurels, or their literary rivals, who benefit by a broad liberal education, will completely overshadow their achievements. Indeed, the advantages of a broad liberal education are such that in the near future we may expect all scientific advances of any significance to come from our poets and literary critics.

If Mr. Cotton and the editors of SCIENCE will merely read the January number of *Harper's,* they will discover how very old-fashioned is their concern over the deceleration of the earth from a 6¾-hour day to a 24-hour day in so long a time as 56 million years.

PAUL D. HARWOOD

Dr. Hess & Clark, Inc.
Ashland, Ohio