Neanthe elegans (Martius), the larger palm that Martius described, with a three-angled pistillode, and *Neanthe neesiana,* to serve as a specific name for the golden-flowered palm figured by Nees and cited by Oersted, with the pistillode nearly cylindric and the stigmatic rim very narrow.

O. F. COOK

BUREAU OF PLANT INDUSTRY
U. S. DEPARTMENT OF AGRICULTURE

"RACES" AND "HOMING" OF PACIFIC SALMON

IN a recent communication Professor A. G. Huntsman[1] objects to my[2] use of the word "races" in referring to the local populations of Pacific salmon, on the ground that the genetic character of the observed differences in local populations is not proved, and he infers that without this proof my argument that the Pacific salmon show a homing reaction is invalidated.

As to the first point: The word "race" is used, and properly, in referring to local populations that are distinguishable, regardless of whether the differences are genetic or environmental. O. E. D. gives as one definition, "A group or class of persons, animals, or things, having some common feature or features." In dealing with the salmon of the Pacific Coast many of us have been accustomed to use the word in this sense and without implications as to the nature of the differences. While I believe that many of these differences are genetic I concede that the rigid experimental proof is lacking; but I think that the point is not relevant to the discussion of "homing."

As to the second point: My argument does not at all require that the observed differences in the local populations be genetic. If these local populations (or races) are distinguishable it does not matter whether the differences are genetic, the result of environmental influences during the early life in fresh water or the later life at sea or are artificial. If large numbers of the Pacific salmon travel beyond the "zone of river influence" and if the fish after distribution into their spawning streams show significant differences, whether the differences be genetic or not, "the simplest theory that will adequately explain . . . these facts is that the salmon do return predominantly to their home streams."

WILLIS H. RICH

STANFORD UNIVERSITY

THE FISH BOWL AS A FIRE HAZARD

THE recent note by Julian H. Lewis,[1] "A Possible Source of Laboratory Fires," recalls an experience in our laboratory early this spring.

[1] SCIENCE, 85: 582–583.
[2] SCIENCE, 85: 477–478.
[1] SCIENCE, 85: 605, June 25, 1937.

Smoke was discovered coming from the unpainted woodwork back of the large bottle in which our distilled water is collected. The sun was shining directly on the bottle and the woodwork in question is but an inch or so removed from the back of the bottle, which has a diameter of about 18 inches and is roughly spherical in shape. Examination of the woodwork showed a number of rather deeply charred lines where the late afternoon sun's image formed by the bottle had burned its way along the wood. The lines were short, for it happens that the sun can shine directly on this bottle for but about an hour on any one day. We soon discovered further that the period of daily exposure of the bottle to the sun's rays was but a few weeks in length, in spring and again in fall. This burning has presumably been going on for about ten years.

It seemed at first odd to us that enough heat from the sun should be transmitted through the water to start combustion. Our intuition is probably due to the common use of a water cell to filter out the longer waves in a projection lantern in order to avoid overheating the slide. Inquiry to insurance companies brought out the fact that fires are occasionally caused by the "burning glass" action of the familiar fish bowl. Also the following brief consideration of the fundamental principles involved shows that the goldfish bowl in the direct sunshine should be regarded as a real fire hazard.

As may be found in standard text-books, the transmission data for water as a function of the wave-length of the radiation incident upon it shows great absorption for the longer wave-lengths. This absorption is just noticeable at the red end of the visible spectrum, the transmission falling to about 50 per cent. at 1,000 mμ and about 20 per cent. at 1,200 mμ.

Solar radiation arriving at the earth's surface has its peak power at about 500 mμ and falls to about 10 per cent. of this value at 1,200 mμ and 1 per cent. at 2,000 mμ. Thus, due to the sun's high temperature, its radiated power has its maximum in the visible region of the spectrum. Practically all the sun's heating effect is in and near the visible spectrum, namely, in the wave-length range which is transmitted by water.

The incandescent lamp, on the other hand, which is used as a light source for the projection lantern has a filament temperature but little over 3,000° K, as a consequence of which the peak of its radiation characteristic comes around 1,000 mμ. It has scarcely started to fall from this peak at 1,200 mμ and has roughly 70 per cent. of its total radiated energy in those wavelengths which are longer than those transmitted by water.

Thus, for a tungsten filament lamp source, about two thirds of the radiated energy may be absorbed in a water cell which would absorb but a very small fraction of the power of the sun's rays. In fact, a comparison of the transmission curves of water and of glass and of the radiation curves of bodies of the sun's temperature and those of incandescent filament temperatures show that water is almost as good a transmitting medium for the sun's radiation as is glass for the radiation of an incandescent filament.

The effect here being commented upon is in no sense a new one though we have seen no direct statement of the marked difference in behavior of glass and water to solar and incandescent lamp radiation. This subject is one, however, which might well receive some attention, even in elementary physics courses.

KARL S. VAN DYKE
WESLEYAN UNIVERSITY

A POSSIBLE SOURCE OF LABORATORY FIRES

THE article by Julian H. Lewis under the above title in No. 2217 of SCIENCE reminds me of my own experience. Many years ago I was engaged in study of numerous petrographical slides and very often worked evenings by the artificial light of a kerosene lamp. With the purpose of whitening that light I used a glass ball about six inches in diameter filled with ammoniacal solution of copper sulfate. During the daytime this ball was always removed to the sill of the window in front of which stood my table. One bright day when I was busy with my microscoping I noticed a thin spray of smoke rising from the sill. Investigating the matter, I found that this was not the first occurrence because all the front side of the table above the sill was covered with charred lines burned out by the sun rays passing through the ball referred to. The danger of fire was not great in this case, because the ball was close to the window and the sun burned out thin lines, not concentrating the heating on a limited surface. But, anyhow, after that discovery, in the daytime the ball was kept under the table, and thereafter I was very careful not to leave any kind of bottle near the windows where those bottles could be hit by the direct sunlight.

I. P. TOLMACHOFF
CARNEGIE MUSEUM
PITTSBURGH, PA.

SCIENTIFIC BOOKS

SOME RECENT BOOKS IN THE PLANT SCIENCES

Pollen Grains. By R. P. WODEHOUSE. xv + 574 pp. 123 figs. 14 plates. McGraw-Hill Book Company, New York. 1935. $6.00.

A CENTURY has passed since two great men of science, von Mohl and Fritsche, were each apparently so impressed by the other's study of pollen structure that both sought fresh fields of endeavor. It remained for Hugo Fischer, in 1890, to lay the foundation of modern comparative pollen morphology. And since his time the topic has lain largely dormant until stimulated by the current interest in allergy and pollen analysis.

The work under review is that of a master. It is the result of industry, skill and cerebration of an unusual order, and was carried to completion in the scant leisure of a busy industrial life. In the measured opinion of the reviewer, it represents one of the notable achievements of American botany. To the clinician and the micropaleobotanist it is an indispensable handbook; to the student of phylogeny and morphogenesis it opens up new opportunities.

The book is divided into two main sections: (1) a general portion dealing with history and practical procedures and ending with a discussion of structural characteristics; (2) a taxonomic portion in which is figured, described and compared representative pollen of all the orders of gymnosperms and some thirty families of angiosperms.

The historical section supplies information not familiar to many modern botanists and is all the more valuable because so many of the original sources are now difficult to obtain.

The practical discussion is first-hand stuff. The author's own professional work, of course, deals with hay-fever and other allergic problems whose relation to pollen he presents. He has also had direct experience with the subject of pollen microfossils in his study of the Green River shales and his pollen analyses of peat from the Himalayas; but the valuable chapter dealing with pollen analysis has been contributed by Gunnar Erdtman, of Stockholm. This chapter discusses the limitations of technique as well as its procedures and should be read by every worker in the difficult, involved field of North American pollen analysis.

Probably Wodehouse's greatest contribution is in the field of pollen geometry and is based upon the spatial relations inherent in the tetrad pattern—the trischizoclastic system, as he calls it. This is set forth in his discussion of structural characters at the end of Section I and is, of course, documented in detail in Section II, dealing with taxonomy.

In the latter section his underlying evolutionary idea is the primitive character of wind pollination, its subsequent modification into insect carriage and the reappearance of wind pollination in many entomophilous groups of flowering plants. This is quite in keeping with current phylogenetic thought. Noteworthy fea-