in *D. dregeana* (Transvaal), *D dumetorum* (Kenya), *D. hispida* (Sumatra), and in three unidentified species (Northern Rhodesia and Transvaal). Some alkaloid was found in *D. elephantipes* (South Africa). Wehmer (Pfanzenstoffe, 1939) mentions three Old World Dioscoreas (*alata, hirsuta,* and *aculeata*) that contain alkaloids. *D. alata* is a well-known valid species, but the names *D. hirsuta* and *D. aculeata* have been applied to several species so that it is impossible to identify the plants to which he refers. In addition, Henry (Alkaloids, 1949) mentions dioscorine in *D. hispida* (*D. triphylla* var. *reticulata*) from the Philippines and Malay Peninsula.

The qualitative testing procedure consisted in extracting the sample with boiling ethanol (70–80%), evaporating, dissolving in water, and filtering. One portion was acidified and tested with Mayer's reagent. Another portion was tested with silicotungstic acid. A confirmatory test was made by making the extract alkaline, extracting with chloroform, extracting the latter with 1% hydrochloric acid, and again using Mayer's reagent and silicotungstic acid.

The above data are offered as evidence that alkaloids probably do not occur in Dioscoreas native to the Western Hemisphere, but that they do occur in some species native to other parts of the world.

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The Conversion of Glycine to Serine by Human Liver Tissue[1]

The recent report by Nardi (*1*) on the *in vivo* conversion of glycine to serine has prompted us to report some data which have been obtained in the course of investigations in our laboratories. Since this reaction is now well established in animals it is of some interest to report that human liver tissue is also capable of converting glycine to serine.

Human liver slices were incubated with carboxyl-labeled glycine as already described (*2*). The protein obtained was hydrolyzed with 6 *N* HCl and fractionated on Dowex columns (*3*).

The results are summarized as follows:

	μM/100 mg of protein	Specific Activity (counts/min/μM)
Serine	17.6	540
Glycine	39.8	280
Alanine	31.8	25–50

[1] This work was supported by a research grant from the National Cancer Institute of the National Institutes of Health, USPHS and aided in part by a grant from the Oregon division of the American Cancer Society.

Aspartic acid, threonine, glutamic acid, proline, cystine, valine, methionine, isoleucine, and leucine were all recovered with no detectable radioactivity. The counts in alanine were too low to permit accurate determination of its specific activity. There is no doubt, however, that significant radioactivity was present in protein-bound serine, and that its specific activity was appreciably higher than that of protein-bound glycine.

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A Hypothetical Role for 6-8 Thioctic Acid (Lipoic Acid) in Vision

Wald and Brown (*1*) have shown that the bleaching of rhodopsin is accompanied by the liberation of 2 SH groups/molecule of retinene liberated. Similarly, the formation of rhodopsin from retinene and opsin requires the participation of SH groups. It is possible that a disulfide link is formed in the course of rhodopsin synthesis. Wald (*1*) considers it likely that the liberation of these sulfhydryl groups plays an essential role in the initiation of the electrical processes of vision.

These observations seem directly related to Calvin's considerations of the role of 6-8 thioctic acid (lipoic acid protogen) in photosynthesis (*2*). According to Calvin, grana contain 1 molecule of 6-8 thioctic acid/1000 chlorophyll molecules and Calvin feels it likely that the activated chlorophyll molecules transfer their energy to thioctic acid, breaking the —S—S— bond with the initial formation of an $\dot{S}$ $\dot{S}$ free radical.

The recent observations of Reed and DeBusk (*3*) on the role of thioctic acid (actually the thiamin complex) in pyruvic acid oxidation are also pertinent. These workers have evidence that the —S—S— group is converted, after an acetyl transfer reaction, to 2 SH groups which are subsequently oxidized by DPN, regenerating the original disulfide linkage.

If Calvin's viewpoint has any validity, then it would appear from a comparative biochemical viewpoint that 6–8 thioctic acid should play a similar role in vision. Rhodopsin should contain one molecule of 6-8

thioctic acid per molecule of retinene. The immediate effect of light on rhodopsin then might well be the splitting of the —S—S— bond of 6-8 thiocitic acid with the formation eventually of 2 SH groups/molecule of retinene liberated. If this scheme is correct one would expect rhodopsin preparations to contain quantities of lipoic acid. We hope to be able to test this idea and its consequences in the near future.

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Frozen Mushrooms for Class Study

THE problem of presenting acceptable class material of the fleshy fungi is one that is well known to teachers of elementary botany and mycology. Specimens of these plants, when dried or bottled in the usual fluid preservatives, present a display that can hardly be expected to inspire the beginning student. They are not suited for identification or for study in more advanced classes.

It occurred to me last summer that freezing might result in much more satisfactory class material. Following up this thought, I froze about 15 genera of agarics as well as several species of *Boletus* and *Clavaria*. The agarics included the following genera: *Amanita, Lepiota, Tricholoma, Cantharellus, Lactarius, Russula, Mycena,* and *Cortinarius.*

The specimens were packaged in ordinary quart containers, cellophane bags tightly secured with an elastic, and enclosed in a light-weight cardboard carton. These were placed in an ordinary home freezer; the fungi froze in about an hour. In my own case the specimens were packaged in central New Hampshire and shipped in Dry Ice to St. Louis. If such shipping is necessary, the fungi should be well packed in the containers to prevent breakage of the smaller and more delicate specimens.

The material thus packaged in August was opened for class work the following February, and the specimens were then as colorful and generally fresh looking as when collected. When defrosted, the specimens vary considerably, those with a high water content tending to become quite mushy after half an hour on the laboratory benches. Consequently, for purposes of student identification, the frozen mushrooms were distributed in large laboratory finger bowls with a small piece of Dry Ice in each.

Since one of our primary objectives was to demonstrate to elementary students the diversity of form and color in the fleshy fungi, many were exhibited in wooden boxes lined with Celotex insulation. The boxes used were approximately 30 in. long, 14 in. wide, and 10 in. deep. The fungi were arranged in these boxes with about 4 cakes of Dry Ice and kept for several hours—a considerable part of the time with the lid removed.

The fungi were so lifelike and the results so encouraging that we intend to make this a regular phase of our teaching procedure in the elementary botany class.

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Fashions in Science

WHILE the development of fashions in nonscientific pursuits is well known, difficulties in determining what constitutes a fad have obscured such tendencies in the sciences. Recently a rather complete bibliography on a closely delimited subject (*1*) has provided data on the development and decay of a scientific fashion. The object of this fashion was the biological effects of deuterium compounds. Figure 1 shows the number of

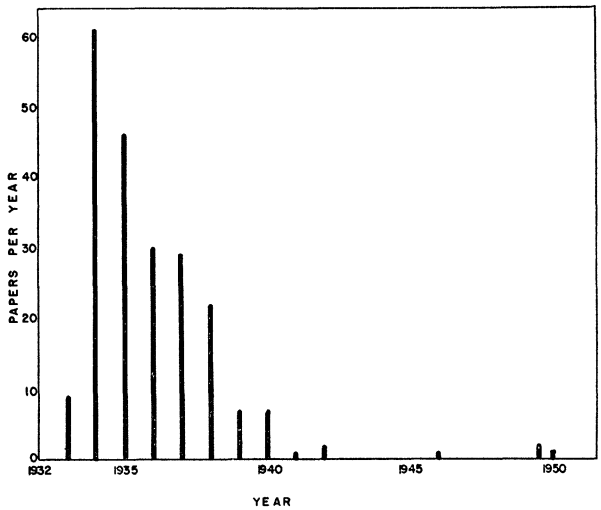

FIG. 1.

papers published per year, on the above mentioned subject, as a function of time. Beginning with the discovery of deuterium in 1932 there was a rapid rise followed by an almost exponential decay, which already had fallen to a low level before war interrupted work of this character.

It is interesting to note the almost complete decay of interest in the subject in spite of the fact that our understanding of the biological effects of deuterium is still very incomplete. The very sudden rise and fall of interest may then be viewed as a fad, a desire for quick and easy results, followed by rapid abandonment of the subject when it was realized that a large amount of work would be necessary to understand the observed effects.

While the data are insufficient to generalize on the occurrence of fads in scientific research, in some cases fashion apparently has a function in directing the