

leaf to produce many of the photoperiodical efforts observed.

Differences in day or night length as small as 15 minutes can be the signal for birds to fly thousands of miles, or for plants to cease growing and begin to flower.

The relative length of night to day has effects on plants and animals, the outcome of which we call photoperiodism. But this relation of night to day and its effects on living beings is complicated by the fact that the same stimulus of light or darkness can lead to opposite or totally different phenomena in different species.

Some Plants "Day-Neutral"

Thus, "short-day" plants, like sugar cane, will not flower until the daily dose of sunlight has decreased. Wheat, on the other hand, is a "long-day" plant. It will not flower except with the long days and short nights of summer—unless, of course, you artificially illuminate it during winter.

Then, there are "day-neutral" plants, like Connecticut Broadleaf tobacco, that seem independent of day-length for flowering.

It may help to think of the light-darkness relationship as a trigger, or initiator, that sets in motion various chemical reactions inherent in a given species of plant or

animal. The reactions to the light-darkness stimulus differs according to the special nature of each species.

Some of the most advanced and exacting work on photoperiodism is now going on at the Agricultural Research Center of the U. S. Department of Agriculture, Beltsville, Md. Scientists there are examining the responses of plants to the different colors of the light spectrum. The most effective part of the spectrum in producing the effects of long days on plants is red light.

Then as you go down the color spectrum from red to violet, it takes increasing amounts of each pure color to duplicate the effects of the preceding color. A narrow band of invisible infrared light has been found to have the effect of a long dark period.

Knowledge of the workings of photoperiodism holds many practical rewards for plant breeders, farmers and animal husbandmen. By correct use of artificial light it may be possible to introduce plants to new areas, have flowers all during the year, breed animals throughout the year.

But the real reward of research in photoperiodism will be in the opening of many previously closed doors to the secrets of life and nature.

Science News Letter, August 15, 1953

GENERAL SCIENCE

Standards' Cuts Disturb

► MANUFACTURERS ARE disturbed by cuts in funds for testing services by the National Bureau of Standards. They are used to relying on the Bureau as the final judge when there is a dispute over testing methods, or when precision instruments must be matched against precise standards.

But with the Bureau's budget for research and testing cut to \$3,000,000, this is no longer possible. Some of its usual services must be cut down or eliminated. About 50 representatives of manufacturing concerns using the Bureau's testing facilities met in Washington on Aug. 3 to discuss the problems raised by such cuts.

The feeling at the meeting was that the conferees were gathered at the wrong time and the wrong place. As one manufacturer pointed out, they should have been meeting "a few months earlier in a different part of the city—about five or six miles southeast of here," that is, on Capitol Hill, where they might have been able to persuade Congress not to make such drastic cuts in the Bureau's budget.

To help solve the problem of getting adequate and unbiased testing services, the conferees set up a special committee, headed by G. M. Hickey of the J. Bishop and Co. Platinum Works, Malvern, Pa.

Manufacturers represented at the invitational meeting included General Electric, Radio Corporation of America, Bendix Aviation, Allis-Chalmers, Kimball Glass,

Pratt and Whitney, and the American Instrument Company.

There was some discussion among the conferees on the possibility of Massachusetts Institute of Technology taking over some of the Bureau's previous testing services.

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TECHNOLOGY

Atomic Radiation Makes Plastic Heat-Insulating

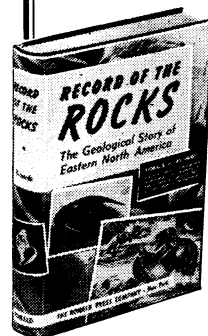
► MANUFACTURE OF heat-insulating material by subjecting methacrylate plastic to atomic radiation is suggested by experiments at Britain's Atomic Energy Research Establishment at Harwell.

When polymethyl methacrylate plastic was tested in the atomic reactor or exposed to a pure gamma radiation from a cobalt-60 source, it bubbled and took on an expanded form. In some cases after radiation, the material expands on heating.

Dr. A. Charlesby and M. Ross, reporting their experiments in *Nature* (June 27), suggest that this plastic, called Plexiglas and Lucite in the United States and Perspex in Britain, could be placed inside containers after being irradiated, and then expanded by heating to give a complete filling with the bubble material of the required space.

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Modern Science Books



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Academy of Natural Sciences, Phila.

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