

Interesting—Practical—
Teachable

EVERYDAY PHYSICS

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Physics Learned Through Everyday Life Applications

It is Related to the Daily Life of the Student

—the illustrative examples and applications are taken from the home or the agencies that serve the home. Familiar machines are used: the fire extinguisher, the automobile, generators, vacuum cleaners, radio hook-ups, household sewage and water supply, etc.

It is Organized for Effective Teaching

—the arrangement is psychologically sound, proceeding from the known to the unknown.
—both the metric and common systems of weights and measures are used.
—difficult parts of Mechanics are postponed to the end of the study, when the student has become familiar with facts that will lead to an easy understanding of Mechanics.

It Makes the Work Clear and Exact Through the Use of "Solved Problems"

It Furnishes an Adequate Amount of Drill

—exercises repeat the application of the principles taught in each chapter.

It is in Complete Agreement with the Physics Syllabi of the College Entrance Examination Board

—equally for those not intending to go to college or for the prospective college student.

(although this book is a revision of the popular PHYSICS OF THE HOUSEHOLD, it is practically a new book. The material has been almost completely rewritten, the contents have been brought up to date, and the illustrations are new.)

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NUTRITION

New Method for Producing Vitamin D in Food

NEW WAYS of preserving food, enhancing its bone-building vitamin content and retaining fresh flavor and odor through the use of invisible light have been discovered. The discovery and its development to the point of commercial application is due to Prof. George Sperti and his associates of the basic science research laboratory of the University of Cincinnati.

Narrow bands in the "rainbow" of invisible light or ultraviolet radiation were found to produce these beneficial effects upon food products. By exposing milk and other foods to these special wavelengths of ultraviolet radiation, it was found possible to produce the artificial antirachitic vitamin D without an offensive taste and smell in the food. In this respect the new discovery is claimed to be an improvement on the previous methods of activating foods that have been in use commercially for several years.

Foods treated with ultraviolet light act in all ways as if they contain Vitamin D, which prevents rickets. By using only a part of the total ultraviolet band of light waves, Professor Sperti, the director of the laboratory, has been able to produce much larger quantities of the vitamin. He avoided also the simultaneous destruction of the active substance by other constituents of the ultraviolet region, which occurs with the older method.

Filtered ultraviolet radiation promises to be effective in preserving food products as well as in increasing the vitamin D content. Professor Sperti and his associates found it possible to sterilize milk, orange juice and other food products by exposing them to narrow spectral limits of the invisible ultraviolet light.

The method depends on the existence of a critical wave-length at which biological reactions begin and applies to all kind of radiations. A given effect occurs with shorter wave-lengths, that contain larger quanta of energy, but longer wave-lengths than the critical one are inactive.

If yeast used in making bread is irradiated with a narrow frequency band of X-rays, unwanted mold cells that would spoil the bread after baking are killed, while the yeast cells are unharmed.

Science News Letter, February 7, 1931



Scrub Pine

WHEN this country was being settled, there was cast ahead of the first wave of really permanent settlers a restless, poverty-bitten, migrant class of people called "movers." They never held a farm for as much as a decade, but as soon as they heard another family had moved into the next township they decided the country was "gittin' too crowded," and so sold out to the first bidder.

Of such a generation of semi-Ishmaelites are the numerous species of scrub pine to be found in all parts of the world. They are always among the first trees to arrive on a newly exposed terrain, laid bare by a fire, or the moving of a sand dune, or the raising of land from below an old tide level, or left as a mountain-side scar by an avalanche. They are "pore an' no-account" but they are tough and very patient, and they can eke out a living from a spoonful of dust in the cracks of a rock, or from the miserly nutriment offered by a heap of raw, drifting sand.

But neighbors they cannot abide. And when the more prosperous tree species begin to arrive—their settlement more often than not made possible by the soil-forming processes carried on under the shelter of the despised scrubs—the bent and knotted first-comers yield their birthright, and leave their land to the children of strangers. Their own offspring may be found again at the raw frontier pushing out into the most hopeless places, and taming them a little, to make possible a still farther advance of the trees that will surely come again to drive them out.

Science News Letter, February 7, 1931

China has had at least one famine each year for the past two thousand years.