



APPLICATION

Ready to doctor sick land with essential plant foods and in so doing test the value of TVA's new phosphate in practical farm use. State College supervision requires that the phosphate be used with supplementary materials that increase its value, such as lime, and provision is made for comparison with untreated plots and with plots treated with other phosphate materials.

superphosphates of the best present grades.

The two electric furnaces now in use at Nitrate Plant No. 2 can produce 20 tons of pure phosphorus a day, or about 6,000 tons a year. Any or all of the ten other furnaces in this plant could at need be put to the same purpose, or could manufacture calcium carbide, high-grade steels, and abrasives and refractories.

Thus, TVA's field of activity is to improve the methods of making fertilizer and to encourage farmers to use phosphates, plus lime from the lime-

stone ledges that abound everywhere, as a means for building up their depleted land.

Since "seeing is believing" with farmers as with the rest of us, the demonstration method is used. State college farm agents, who have gained the confidence of farmers through years of work with them, supervise the demonstrations. In fact, these TVA-encouraged activities are but reinforcements for the drive toward good farming that the county agents have been carrying on for years.

Local Demonstrators

There is a farmer demonstrating soil-building in practically every community of the Tennessee Valley. They were chosen by neighbors organized into county soil conservation associations. Other farmers, seeing this phosphate-lime program work for the demonstrators, are beginning to apply it to their own farms.

Even within this restricted agricultural activity, TVA further restricts itself. Its phosphates are not for use on "row-crop" fields—corn, cotton, tobacco, or any of the so-called soil-depleting crops. These to be sure do need fertilizer, but for them the demonstration farmer as well as all others must obtain phosphates from private sources.

In fact, the demonstration program is increasing rather than decreasing the use of commercial fertilizers, including phosphates.

But for the plantings that build the land instead of exposing it to water erosion and sucking the mineral "juice" out of it at the same time—for pasture grass, for clover, lespedeza, cowpeas, soybeans and other legumes, the demonstration farmer gets TVA phosphates free.

That "free" has a string or two tied to it, for TVA isn't in the Santa Claus business. The phosphates are free—at the hopper-mouth in the No. 2 Plant warehouse. The farmer, who has been chosen by his neighbors, must provide handling, and pay freight by truck or railway. He must furnish ground limestone to put on the field with the phosphate, and purchase seed for the land-building crops. He must also keep books on his farm operations—all these things under the supervision of his state college agricultural authorities and the soil conservation association through which he was appointed.

This cooperative program has succeeded so well thus far, that farm communities outside the Valley have begun asking for the privilege of sharing in it.

The cover photograph is of a phosphoric acid plant, showing storage bin and the tall stack from which waste gases are released.

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Science News Letter, August 8, 1936

ZOOLOGY

Hardship in Youth Prolongs Life of Lowly Animals

HARDSHIP in youth is a good thing—for some of the lower animals at least. Half-fed through their infancy, cladocera or water-fleas live longer and more vigorously after they have passed middle life, experiments by Dr. Lester Ingle and Prof. A. M. Banta of Brown University have shown.

Cladocera are not fleas, though they do live in the water. They are really crustacea—minute relatives of lobsters, crabs, and crayfishes. They are particularly well adapted to biological experimentation, because they are perfectly content to live in bottles on laboratory shelves. Requiring very little room per individual, they can be studied in statistically significant numbers.

"The essence of Dr. Ingle's results is that limitation in quantity of food keeps the cladocera in a youthful condition," Prof. Banta said, "so that when they are well fed in later life, beginning at a time when most of the animals have 'lived rapidly' on abundance of food and have already died, these previously semi-fed animals assume rapid rates of growth and reproduction. In a way, their active life is just beginning. They are still young animals.

"As judged by the effects upon longevity, the most favorable period for the 'abundant life' is not during the earlier part of life, but at a later period

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when possibly the body of the organism is better able to withstand the effects of a fairly rapid dissipation of vital energy," Dr. Ingle said. "Suffice it to say that any and all of the functions of the body, because of their utilization of vital energy, are factors in determining the life-span.

"The prolongation of the period of youth is perhaps after all not merely a vague dream, but quite possibly may have a basis for realization in temperate living, resulting in the moderate dissipation of vital energy."

Science News Letter, August 8, 1936

INVENTION

New Rubber Soap Wrapper Better Protection, is Claim

CAKES of soap may step out in new wraps—a thin, two to five one-thousandths of an inch thick, waterproof coating of rubber, if a method of coating cakes with rubber for which a patent (No. 2,042,104) has been granted to J. P. Kane, of New York City, should go into commercial use.

Taking the place of the conventional paper wrappers, the sheer rubber coating is claimed to keep the soap water- and weather-proof. To "unwrap" such a cake of soap, the rubber coating is simply stripped off by tugging at a little tab on the side. The rubber wrappers could be colored any desired hue.

According to the inventor, many attempts have been made to turn out rubber-wrapped cakes of soap commercially, but with no success. The rubber coating would not stick to the cake properly. Cakes of soap so coated would stick together and the rubber would "bleed" or run into the soap and discolor it. By his novel method, however, he claims these defects are overcome.

The cakes of soap are sprayed with or dipped into an aqueous solution containing rubber, sulfur, zinc oxide and an "ultra-rapid accelerator." Coated with this solution, cakes then go into a drying chamber, and finally into a vulcanizing chamber. Because of the ultra-rapid accelerator, vulcanization takes place quickly and at low temperatures so that the cake of soap is unaffected.

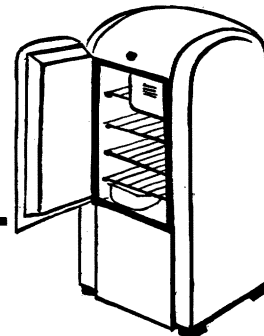
"In this manner," claims the inventor, "an adherent rubber coating is formed over the cake of soap which snugly fits every indentation and contour so that trade-marks and designs impressed in the soap appear very clearly and present an attractive package."

The coating is permeable to the perfume of the soap.

Science News Letter, August 8, 1936

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