



Drought Defenses

DROUGHT does not slay plants by drying out their leaves as though they were just so many damp green garments hung on a line. The story is not at all so simple as that.

Plants have their defenses against drying out, and the nearer they come to the danger-point the more they resist further drying, as a rule.

Some plants, like the cacti and century-plants of the desert, have developed under such hostile conditions that they are constantly on the defensive, resisting the loss of water even when water is relatively abundant. Most common plants, however, of the kind found in cultivated fields and wild in the woods and on the roadsides, yield water freely to the air as long as they can get it freely from the soil. Only when the demands of the thirsty air become too insistent do they start to shut off their water-outlet valves.

Mechanisms for cutting down water loss are various. Almost universal are the closeable stomata, or microscopic respiration pores. These are on the undersides of most leaves, but on both sides of some. Normally these "little mouths"—for that is what they are shaped like and what their Greek name means—close during the hottest part of the day in all sunny weathers. During severe drought they close and stay shut practically all the time, thereby cutting down the outgo of water vapor.

When worried farmers report that the leaves of their corn have begun to curl, it means that the plants have brought another defense into play, against a more severe drought condition, bearing a more serious menace. For the incurving of the edges of a leaf reduces considerably the area (*Turn to Page 411*)

MEDICINE

Lead Poisoning Helped By Special Phosphorus Diet

A SPECIAL diet which was helpful in treating cases of lead poisoning was reported by Dr. Irving Gray of Brooklyn at the meeting of the American Medical Association. Lead poisoning is one of the greatest of all industrial hazards.

The diet is one which contains much phosphorus and little calcium. It helps in getting the lead out of the body, actually dislodging it from the tissues where it has been deposited. The diet treatment is based on the discovery of American investigators that the storage of lead in the body tissues is favored by a high intake of calcium, while elimination of lead is increased by lowering the calcium intake.

Dr. Gray reported four cases of persons who had worked with lead for only

a few months. "Deleading" by diet and medicine removed the lead from their systems in two weeks. In three other cases so much lead had been deposited that it required three or four courses of treatment to "delead" the patients.

Too rapid "deleading" may prove dangerous. Consequently Dr. Gray advises that the treatment be carried out in a hospital.

The diet includes such foods as eggs, whole wheat bread, lamb chops, liver, green peas, pineapple juice, baked potatoes and halibut, which all contain large amounts of phosphorus. Phosphorus literally pulls the lead out of the tissues.

All milk is omitted from the diet because milk is the most important dietary source of calcium.

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THE JOURNAL OF NUTRITION

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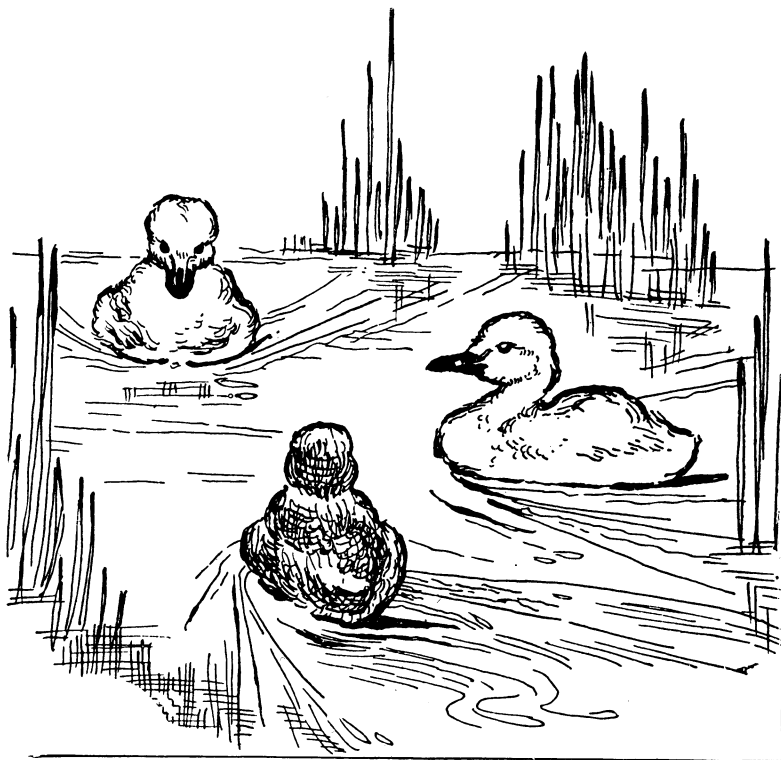
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NOT "UGLY DUCKLINGS"

The offspring of the Trumpeter Swan, in their appealing and attractive infancy, sketched by Margaret L. Arnold in Yellowstone National Park while her husband, a ranger, missed meals and sleep in order to guard the little birds against prowling enemies. (See SNL, Jan. 27, 1934, p. 57).

ORNITHOLOGY

Trumpeter Swans to Be Given Artificial Islands

YELLOWSTONE National Park is the last stand of a species of magnificent birds, the trumpeter swans, whose chances of survival are more problematical now than were the chances of the bison a generation or so ago, when the come-back of the western herds began. In an endeavor to give the few remaining swans the best possible opportunity to rear their young in safety, CCC workers are building small artificial islands in the little lakes where they breed. On these, it is expected, the birds will build their nests.

Careful check-ups of the trumpeter swan population by naturalists of the National Park Service have shown a hopeful increase during the past three seasons. In 1931 there were 20 adult swans and 15 cygnets (young). In 1932 the count was 58 swans, 12 cygnets; in 1933 there were 49 swans, 17 cygnets.

This looks like an exceedingly small population, but Yellowstone oldtimers remember that the little group of less than thirty bison introduced into the

Park a little over a generation ago has grown up into the present huge herd and so decline to be discouraged over the swan situation—just yet, at any rate.

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directly exposed to hot sun and wind.

Finally, when even this and other mechanical devices of the leaves have failed, and the plant is near complete collapse, the living content, the protoplasm, of each individual cell has its last stubborn bit of resistance to offer.

Protoplasm is a thickish stuff, under normal conditions resembling mucilage or thinned-out white of egg. It has the same resistance such substances have, to giving up the last bit of its water. A drop of egg-white or mucilage stays moist long after a similar drop of pure water has evaporated completely.

So it is also with protoplasm. It will resist complete drying out for a long time, and if rescuing rain comes, it will soak up enough to restore it to normalcy in an amazingly short time. It is this, mainly, that accounts for the quick greening of apparently burned-out pastures after a drought-breaking rain.

Science News Letter, June 30, 1934

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