

SEEDS



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SEEDS

Suppose you had a dinner of these things:

Bean Soup
Meat Loaf Boiled Rice
Corn-on-the-Cob
Green Peas
Sliced Tomatoes

Wheat Bread or Cornmeal Muffins

Ice Cream with Grated Nuts

Make a list of the different kinds of seeds in such a meal. If you need help in making the list, you may ask for it. Did you eat any seed-food this morning for breakfast? If you do not know, tell some older person what you ate and find out whether it had seeds in it.

Do you know what seeds a mouse or rat or squirrel will eat?

Does the farmer feed seeds to his cow and horse and pig?

What are some of the seeds that a canary or a hen will eat?

What are seeds and what are they for—merely to give food to animals?

Perhaps you will not be able to answer all those questions. I think some of them may puzzle you a bit at first. If they seem hard, wait until you have read this chapter all through and then see if you can answer the questions easily.

A seed is a baby plant. In some ways it is like an egg. It is formed in the body of a plant in the seed-cell, somewhat as an egg is formed in the body of a bird or a turtle or a frog. A bird puts her eggs into a nest and keeps them warm until they hatch and then cares for her young while they need help. A turtle puts her eggs into a hole in the sand and leaves them for the sun to keep warm. A frog puts her eggs into the water, where the polliwogs can swim when they hatch out. What do plants do for their babies?

You know how some animals can travel in the air, and some in the water, and some by land. Did you know that most plants need to travel through the air or by water or over the land? Of course plants cannot move farther than they can reach while their roots hold them fast to one place. But the baby seeds are not held fast by roots, and their little bodies are formed in such ways as to give them chances for the most wonderful journeys.

SEEDS THAT FLOAT WITH FILMY SAILS

The Dandelion

Did you ever blow the white head of a *dandelion* and watch the dainty sails go floating off, each with a seed for an anchor? Your puffs of breath started the baby dandelions off on their air trip. Who knows how



far and where they went? It was a trip they needed to take if they were to have a fair chance in the world. Suppose they had dropped down between the leaves of the mother dandelion! If they had sprouted there, the sun could not reach them very well, because the old dandelion plant spreads out her lower leaves like a skirt to cover as much of the ground as she needs for herself. If she cannot share this bit of ground even with her own children, she can do something better for them. She can send up her blossom stalk straight and tall into the air and she can grow seeds with sails—lovely filmy sails. So when the yellow head of the dandelion has turned white and it is touched by

your breath or a gust of wind or the breeze caused by the wing of a passing bird, then the lucky little seeds are at once up and away on their journey through the air. Every year there are many dandelion seeds sailing on the breezes; and plenty of them settle to earth and case their anchor-seeds in spots that they can claim as their own to grow in, spreading their lower leaves like skirts to keep other plants from coming too near, just as their mothers did before them.

The Milkweed

There is a plant that children like because it has so much to show them. To begin with, there are its flat, tender leaves in spring that are good to eat if they are boiled. It is fun to gather these young plants and see

the juice that comes out where the stems are broken. This juice is thick and sticky and as white as milk. It is because of the color of its juice that the plant is called *milkweed*.



The leaves of the milkweed are good food, too, for certain insects that eat them raw. A caterpillar, as striped as a zebra, feeds on milkweed leaves and then after a while changes into a big reddish and black butterfly. A red beetle with black spots on its narrow body often visits the milkweed—a queer beetle that squeaks when it is touched.

The blossoms of the milkweed are pretty to look at, and they grow in clusters near the top of the plant. After the blossoms drop, a seed pod grows where they have been. Of all the interesting things about a milkweed, perhaps there is nothing better than its big seed pod packed full of flat brown seeds with their sails folder smooth. The mother plant keeps these seeds safe from wind and rain until it is time for them to go away. Then the pod opens, and

Sailing, sailing, on a sea of summer breeze,
Little brown boat with fluff unfurled,
You go where'er you please.
Sifting, drifting, out of the harbor-pod,
For one gay day you float away,
Then anchor in the sod.

Spread out your sails, O little craft,
And off on pleasant journeys waft!
Your cargo is a precious seed—
We bid you, for its sake, “Good speed!”
For from the treasure that you bring
A stately plant will grow next spring.

Lettuce

There are many plants the seeds of which float with filmy sails. If you do not live where you can visit a dandelion or a milkweed or find another wild plant with such seeds, perhaps you can invite a tame one to come to visit you at home or in the schoolroom.

A few pennies will buy a whole package of lettuce seeds. The sails of the seeds in the package may be rubbed off, but the seeds will not be harmed. If you grow lettuce plants, first you will see the leaves which are eaten for salad. When the plants are old enough they will send up blossom stalks. Then, last of all, there will be some sailing seeds that will be ready for a journey when they are ripe.



SEEDS WITH STIFF GLIDING SAILS



Maple Seeds

Is there a *maple tree* near your home or along the street or in a park, where you can find it? If there is, watch the seeds scatter when they are ripe. These seeds are shaped just right for knives to put on a doll's tea table. The seeds are the handles and the stiff sails make the blades of the knives. Maple seeds are heavy. If their mother plant could hold them no higher than a dandelion, they could not travel farther than a short tumble to the ground. But a maple tree is tall and its branches are high; and the strong wind takes the seeds on gliding flights, so that many of them escape altogether from the shade of the parent tree.

Pine Seeds

There are different kinds of pine trees that live in different parts of the United States. They grow wild in country places; but, because people often plant them in parks, you may find them in cities, too.

The leaves of pine trees are called *needles* because of their straight, slender, pointed shape. These leaves keep their green color and they stay on the branches all winter. Since these leaves are green in winter as well as in summer, it is easy to see why pines are called *evergreen trees*.

A pine has other interesting things growing on it besides its evergreen leaves. It has *cones*, and in the cones are seeds. These seeds are not knife-shaped like those of a maple, though their sails are flat. Perhaps you can find a pine cone some day and see for yourself what sort of seeds there are inside.

SEEDS THAT ARE SHOT INTO THE AIR

Not all seeds have fluffy sails like those of the milkweed or gliding sails like those of a maple. Some seeds have no sails at all. But, for all that, they are not cheated out of a going-away party.

There are common little plants called *wood sorrel* which grow wild in many shady places out of doors. They have their leaves in three parts somewhat like those of the clovers. Some wood sorrels have white and some pink and some yellow blossoms. One kind often grows as a weed in greenhouses.

One day as I was bending over the bench in a greenhouse, I brushed my hand over some wood sorrel. I felt something hit against my face and I jumped in surprise. Then I heard little pattering sounds all about me. The wood sorrel plants were shooting off their seeds! These seeds grow in rows in slender pointed pods. When the pods dry and shrink they throw out the seeds suddenly and to a much greater distance than would seem possible.

Of course wood sorrels do not need to wait for people to come and disturb them before they can shoot their seeds. A poke from a passing bird or a push from a hopping rabbit will do just as well to set them off. Indeed, when the pods are dry and ready to pop open, a little gusty breeze is all the touch they need.

THE PEPPER-BOX WAY OF SCATTERING SEEDS



Some kinds of plants grow seeds as fine as dust in roundish box-shaped pods that open at one end. If the openings were in the bottom end, the seeds would sift down in nearly one spot and be sown much too thickly for their own good. But, because the openings are in the top end, the seeds can get out only when the stems are bent over. A strong wind can tip the pods and sprinkle the seeds at a distance.

A poppy has seed pods of a pepper-box sort. Did you ever hunt for a dry poppy pod and tip it over your hand to watch the fine seeds come out?

THE TUMBLING WAY OF SOWING SEEDS

Once there was a little girl who liked nothing better than running in the wind. The harder it blew the better she liked it. As she lived near a wide prairie, she had plenty of room for running. There were no other children living near, so she used to have races with the *tumble weeds*.

In the fall, the stem of a tumble weed breaks off near the ground, and the whole plant except its roots goes rolling about in the wind. The tumble weed has many slender branches that grow in such a way as to make the plant round enough in shape to roll; and it is light enough to be blown about easily.

It is a queer sight to see these great weeds scurrying across a prairie—whole flocks of them sometimes. It was a sight that always tempted the little girl to come out and have a race. Sometimes she caught up with one of them and sometimes (oh, very often) they all rolled and blew faster, far faster, than she could run. Sometimes one would lodge against a bush and she would sit down panting beside it to catch her breath while she watched the rest of the flock roll on and on until they were out of sight. As these plants tumbled about, their seeds were scattered over the ground. That was a gay, frolicking way of sowing seeds.



SEEDS THAT STEAL RIDES



So far we have been talking about seeds that get about in an independent sort of way. But there are seeds that make nuisances of themselves. They steal rides, and often do so in unpleasant ways. If you have ever played where the *burdock* grows or the *beggar-tick* thrives, you have already made the acquaintance of two kinds of seed cases that catch on to things for free rides. Perhaps they made you feel cross because of the prickly way they clung to your coat or your stockings. Perhaps you were interested to see how they did it. They do not steal rides on the clothes of people, only. They use the coat of any animal that is shaggy enough to cling to. A dog will do, or a cow, or any moving thing they can catch hold of with their sharp points, while they ride off into new places. When the animals they are on begin to feel uncomfortable, they do just what you would do—try to rub or pull off the horrid seed cases. What could be better for the seeds inside the cases than that—to be carried on a journey and then thrown on the ground?



SEEDS THAT PAY FOR THEIR RIDES

Many seeds that take rides with animals do not need to steal their way but pay well for their journeys.

When you eat an *apple* and throw down the core out of doors, you scatter seeds which are likely to be at a distance from the tree that bore the apple. Perhaps you have carried apple seeds as far as you have burdock seeds, but you did not feel the same way about the ride the apple seeds took. The apple paid you for your trouble.



That is what the flesh of fruits seems to be for, to pay hungry creatures for carrying seeds. The white or red or blue or yellow colors of fruits make them show plainly. Their beauty is like an invitation that seems to say, "Here are fresh ripe fruits that may be had for the picking!" Fruit-eating birds accept this invitation, and then what happens?

Suppose a thrush comes to a *choke-cherry* tree and swallows some of the cherries and then flies away! After a while the cherry stones come back up into the mouth of the bird and he spits them out. He keeps the soft good-tasting pulp and throws away the seeds in their hard cases. That is the way many choke-cherry trees are planted.

All bright fruits are good for birds or some other animal to eat. But you must not think that the bright colors are always invitations to people. Some of the very prettiest fruits would not taste good to you, and some would poison you. It is not safe for people to eat wild fruits just because they have lovely colors. So take the kinds that you can learn are good for you and leave the others for birds and other animals that do not make mistakes.

Squirrels carry nuts and hid them. They drop some along the way, and some that they hide they do not find again. This is the way that some of the seeds from nut trees are sown.



You will understand, I think, that anything that is so well taken care of by plants as their seeds must be very important. The seeds, being baby plants, are important if the plants are to grow year after year. But it is not necessary that every single seed should grow. That would fill the earth too full of plants. So if many seeds are used as food for birds and insects and other animals, there are still enough left to grow up into plants. That is one way animals and plants have of getting along so well together—by helping each other in such important matters as food and seed-sowing.

SOME SEEDS THAT PEOPLE EAT

Most animals that sow seeds seem to do it in a chance sort of way. But people do it on purpose. They carry seeds from place to place and even from country to country. They plant *peas* and *beans* chiefly for the sake of using the seeds. They plant *nut* trees, too, for their edible seeds. Many of the seeds people eat in



cooked food are called *grains*. The grains all belong to the same family of plants as the *grasses* do, and they have somewhat the same way of growing.

After the white men came to America, they brought certain grains to grow in fields for the sake of the seeds. Four of those grains they brought are *wheat* and *oats* and *barley* and *rice*. Some seeds they did not need to bring, because the Indians already had some kinds growing here before the white men came.

We eat the seeds of the pomegranate.

One very important grain that the Indians grew before white men did is *maize* or *Indian corn*. (We usually call this plant *corn* in this country, though this word is used in other countries to mean other kinds of grain.) Maize was much prized by the Indians, who had many stories and songs about it.

An Indian Hymn or Thanks to Mother Corn¹

I

See! The Mother Corn comes hither, making all hearts glad!

Making all hearts glad!

Give her thanks, she brings a blessing; now, behold! She is here!

II

Yonder Mother Corn is coming, coming unto us!

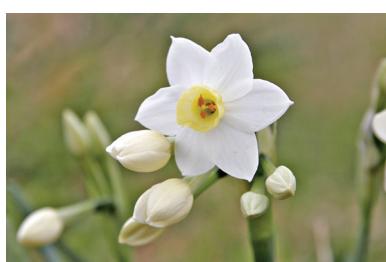
Coming unto us!

Peace and plenty she is bringing; now behold! She is here!

SOME PLANTS WITH TWO WAYS OF GROWING

Many plants can grow only from seeds. Many plants, however, can grow from seeds and also in other ways.

Bulbs



Narcissus grows from a bulb (shown in the drawing). When it blooms, usually in the spring, it has dainty clusters of flowers.

Plants that belong to the Lily Family can grow from seeds as other plants can. Another way lilies can grow is from *bulbs*. A bulb is a thick, somewhat ball-shaped underground part to which the roots are attached. It has layers that fit snugly together one outside another.

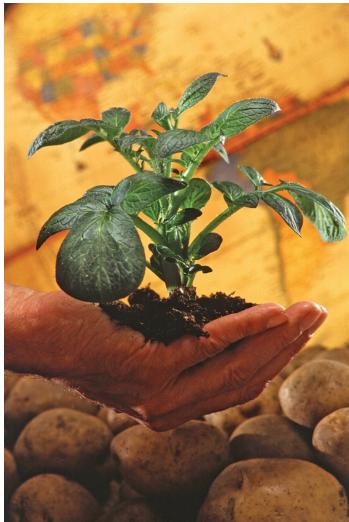
At first a lily plant has only one bulb, but after a while smaller bulbs form near the first one. These bulbs can be taken off and set in the ground, and will grow into lily plants that will blossom and have seeds and bulbs of their own.

Many kinds of lilies are grown only for the beauty of their blossoms. The lovely white kind called *Easter lily* is often seen in the windows of flower shops.

One very common relative of the lilies is grown for food. Did you know that when you eat an *onion* you eat the bulb of a plant that belongs to the Lily Family?

Tubers

The underground stems of some plants are thickened into parts we call *tubers*. A tuber is in one solid piece and not in layers. On the surface are *buds*, which we sometimes call *eyes*.



*This is what the potato plant looks like.
It produces the tubers we eat.*

The tuber you know best of all is a *potato*. A potato plant can be grown from a seed, but that is not the common way of doing it. Before a farmer plants potatoes he cuts the tubers into pieces, leaving at least one bud to each piece. In this way he gets several plants from one tuber because each bud can grow into a whole plant with leaves and blossoms and tubers and roots of its own.

Another common plant with tubers is the *wild sunflower*, also called *Jerusalem artichoke*. (This last name is a very queer one for it to have, since this plant did not come from Jerusalem but lived all the time in America.) American Indians used to eat these tubers, which are good raw or boiled or roasted.

It is not unlikely that sometimes Jerusalem artichokes will be used for food more than they are at present. These plants can live in all parts of the United States, and a great many more bushels of their tubers can be grown on one acre

of ground than of potatoes. They grow tall and have yellow blossoms. One very interesting thing about these tubers is that an excellent kind of sugar can be made from them—a kind that is much sweeter than cane sugar or beet sugar. Have you ever tasted sugar made from wild sunflowers?

Slips

Did you ever see anyone start a *geranium* plant by sowing seeds? It can be done that way. Geraniums belong to the same family of plants as wood sorrels, and they have similar seed pods. But the usual way to start a new geranium is to cut off a piece of stem from an old one and put it into water. Such a piece is spoken of as a slip. After a slip has been in water for some time, roots begin to grow on it. Then it can be set out in earth.



A new geranium plant can be started by cutting off a piece of the stem and rooting it in water

Many different kinds of plants can be started with slips. Certain trees can be grown that way. In fact, although *willow trees* have seeds, the usual way to plant them is to cut pieces from the branches of an old tree and pound them into the ground while it is soft and moist in the spring.

1 From the *Twenty-Second Annual Report of the Bureau of American Technology, Part 2*, by permission.

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