Pollen

by Jean Henri Fabre

"In a few days, even in a few hours, a flower withers. Petals, calyx, stamens fade and die. Only one part survives: the ovary, which is to become fruit. Now, in order to outlive the rest of the flower and remain on its stem when all else dries up and falls, the ovary at the moment of blossoming, receives an access of vigor, I might almost say a new life. The magnificence of the corolla, its sumptuous coloring, its perfume, all serve to celebrate the solemn moment when this new vitality is awakened in the ovary. This great act accomplished, the flower has had its day.

"Well, it is the dust of the stamens, the pollen, that gives this increase of energy without which the nascent seeds would perish in the ovary, itself withered. It falls from the stamens on to the stigma, which constantly wears a sticky coating designed to hold it; and from the stigma it makes its mysterious influence felt in the very depths of the ovary. Animated then with new life, the nascent seeds develop rapidly, while the ovary swells so as to give them the nourishment and the space they require. The final result of this incomprehensible travail is the fruit, with its contained seeds all ready to germinate.

"Let us cite a few of the numerous experiments that prove the absolute indispensability of pollen.

"Most flowers have both stamens and pistils; but there are plants that have their stamens and pistils in separate flowers. Sometimes the flowers with stamens only and those with pistils only are found on the same plant; sometimes they are found on separate plants. Plants having flowers with stamens only and flowers with pistils only on the same stock are called monœcious plants. This expression means 'living in one house.' The flowers with stamens and those with pistils do indeed live together in the same house, since they are found on the same plant. The pumpkin, cucumber, melon, hazel-nut-tree are monœcious plants.

"Where flowers with stamens and those with pistils are found on different stocks, the plants are termed diœcious; that is to say, they are double-house plants. Hemp, the locust-tree, and the date-tree are diœcious.

"It is especially in monœcious and diœcious plants that the pollen's indispensability is plainly manifest on account of the natural separation of the stamens and pistils. Let us take for example the locust, a tree of extreme southern France, bearing seeds in pods similar to those of the pea, but brown, very long, and very wide, and containing in addition to the seeds a sugary pulp. Supposing we took a notion, if the climate permitted, to grow locust seeds in our garden, what locust tree must we plant? Evidently the one with pistils, because it alone produces the ovaries that become fruit. But that is not enough. Planted by itself, the locust tree with pistils will indeed blossom profusely every year, but will never in all eternity bear any seeds, for its flowers will fall without leaving a single ovary on the branches. What is wanting? The action of the pollen. Near the locust with pistils let us plant one with stamens. Now fructification proceeds as we wish. Puffs of wind, insects that pilfer from one flower and carry to another—these convey the pollen from the stamens to the stigmas, the torpid ovaries spring to life, and the locust pods grow and ripen perfectly. With pollen, seeds; without pollen, no seeds.

"Another example. In spots of fertile land in Northern Africa, spots of land called oases, the

Arabs cultivate numerous date-trees which provide them with dates, their principal food. Date-trees, too, like the locust, are diœcious. Now, in the country of the date-tree, a sandy plain parched by the sun, spots of watered and fertile land are rare and have to be turned to the utmost possible account. Accordingly the Arabs plant only date-trees with pistils, the only ones that will produce dates. But when they are in flower, the Arabs go long distances to fetch bunches of blossoms with stamens from wild date trees in order to shake the pollen on the trees they have planted. Without this precaution there is no harvest.

"But I am coming to an example that will be more familiar to us. The pumpkin is monœcious: flowers with stamens and flowers with pistils inhabit the same house, the same vine. Before they are full-blown they can easily be distinguished from each other. The flowers with pistils have under the corolla a large swelling which is the ovary, the future pumpkin. The blossoms with stamens have not this swelling. Well, from one pumpkin vine standing apart in the garden let us cut off all the buds with stamens before they open, and leave those with pistils. For greater surety we will wrap each one of these latter in a piece of gauze large enough to let the flower develop without hindrance. This operation must be carried out before the buds open, in order to make sure that the stigmas have not already received any pollen. Under these conditions, not being able to receive the vivifying dust, since the flowers with stamens are cut off, and since also the gauze wrappings keep out the insects that might bring the pollen they had pilfered from some neighboring pumpkin vine, the pistillate flowers will wither after languishing awhile, and their ovaries will dry up without growing into pumpkins. If, however, we wish any selected blossoms to fructify in spite of their gauze prison and the suppression of the staminate blossoms, we take a small camel's hair brush and gather a little pollen which we put on the stigma. That is enough, the pumpkin will come.

"The absolute necessity of pollen for the formation of fruit explains to us the harmful effect of violent winds and prolonged rains in blossoming time. Swept away by blasts of wind, or washed away by rains, or simply spoiled by long-continued moisture, the dust of the stamens no longer acts on the ovaries, and the flowers fall without fructifying. This ruin of the harvest from lack of pollen is known as blight."

Source:

Fabre, Jean Henri. "Pollen." *Field, Forest and Farm*. New York: The Centrury Co., 1919. 150 – 154. Electronic.