

THE INTELLIGENCE OF THE FLOWERS



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I

I WISH merely to recall here a few facts known to every botanist. I have made not a single discovery and my modest contribution is confined to a few elementary observations. I need hardly say that I have no intention of reviewing all the proofs of intelligence which the plants give us. These proofs are innumerable and continual, especially among the flowers, in which the effort of vegetable life towards light and understanding is concentrated.

Though there be plants and flowers that are awkward or unlucky, there is none that is wholly devoid of wisdom and ingenuity. All exert themselves to accomplish their work, all have the magnificent ambition to overrun and conquer the surface of the globe by endlessly multiplying that form of existence which they represent. To attain this object, they have, because of the law that chains them to the soil, to overcome difficulties much greater than those opposed to the increase of the animals. And therefore the majority of them have recourse to combinations, to

a machinery, to traps which, in regard to such matters as mechanism, ballistics, aerial navigation and the observation of insects, have often anticipated the inventions and acquirements of man.

II

It would be superfluous once more to trace the picture of the great systems of floral fertilization : the play of stamens and pistil, the seduction of perfumes, the appeal of harmonious and dazzling colours, the concoction of nectar, which is absolutely useless to the flower and is manufactured only to attract and retain

the liberator from without, the messenger of love—bee, humble-bee, fly, butterfly or moth—that is to bring to the flower the kiss of the distant, invisible, motionless lover. . . .

This vegetable world, which to us appears so placid, so resigned, in which all seems acquiescence, silence, obedience, meditation, is, on the contrary, that in which the revolt against destiny is the most vehement and the most stubborn. The essential organ, the nutrient organ of the plant, its root, attaches it indissolubly to the soil. If it be difficult to discover among the great

laws that oppress us that which weighs heaviest upon our shoulders, in the case of the plant there is no doubt: it is the law that condemns it to immobility from its birth to its death. Therefore it knows better than we, who disseminate our efforts, against what first to rise in rebellion. And the energy of its fixed idea, mounting from the darkness of the roots to become organized and full-blown in the light of the flower, is an incomparable spectacle. It exerts itself wholly with one object: to escape above from the fatality below, to evade, to transgress the heavy and sombre

law, to set itself free, to shatter the narrow sphere, to invent or invoke wings, to escape as far as it can, to conquer the space in which destiny encloses it, to approach another kingdom, to penetrate into a moving and active world. . . . Is the fact that it attains its object not as surprising as though we were to succeed in living outside the time which a different destiny assigns to us or in making our way into a universe freed from the weightiest laws of matter? We shall see that the flower sets man a prodigious example of insubmission, courage, perseverance and ingenuity. If we had

applied to the removal of various necessities that crush us, such as pain, old age and death, one half of the energy displayed by any little flower in our gardens, we may well believe that our lot would be very different from what it is.

III

This need of movement, this craving for space, among the greater number of plants, is manifested in both the flower and the fruit. It is easily explained in the fruit, or, in any case, discloses only a less complex experience and foresight. Contrary to that which takes place in the animal

kingdom and because of the terrible law of absolute immobility, the chief and worst enemy of the seed is the paternal stock. We are in a strange world, where the parents, unable to move from place to place, know that they are condemned to starve or stifle their offspring. Every seed that falls at the foot of the tree or plant is either lost or doomed to sprout in wretchedness. Hence the immense effort to throw off the yoke and conquer space. Hence the marvellous systems of dissemination, of propulsion, of navigation of the air which we find on every side in the forest and the

plain: among others, to mention, in passing, but a few of the most curious, the aerial screw or samara of the Maple; the bract of the Lime-tree; the flying-machine of the Thistle, the Dandelion and the Salsafy; the detonating springs of the Spurge; the extraordinary squirt of the Momordica; the hooks of the eriophilous plants; and a thousand other unexpected and astounding pieces of mechanism; for there is not, so to speak, a single seed but has invented for its sole use a complete method of escaping from the maternal shade.

It would, in fact, be

impossible, if one had not practised a little botany, to believe the expenditure of imagination and genius in all the verdure that gladdens our eyes. Consider, for instance, the charming seedpots of the Scarlet Pimpernel, the five valves of the Balsam, the five bursting capsules of the Geranium. Do not forget, upon occasion, to examine the common Poppy-head, which we find at any herbalist's. This good, big head shelters a prudence and a foresight that deserve the highest praise. We know that it holds thousands of the tiniest black seeds. Its object is to scatter

this seed as dexterously and to as great a distance as possible. If the capsule containing it were to split, to fall or to open underneath, the precious black dust would form but a useless heap at the foot of the stalk. But its only outlet is through apertures contrived right at the top of the capsule, which, when ripe, bends over on its peduncle, sways like a censer at the least breath of wind and literally sows the seeds in space, with the very action employed by the sower.

Shall I speak of the seeds which provide for their

dissemination by birds and which, to entice them, as in the case of the Mistletoe, the Juniper, the Mountain-ash, lurk inside a sweet husk? We see here displayed such a powerful reasoning faculty, such a remarkable understanding of final causes that we hardly dare dwell upon the subject, for fear of repeating the ingenuous mistakes of Bernardin de Saint-Pierre. And yet the facts can be no otherwise explained. The sweet husk is of no more use to the seed than the nectar, which attracts the bees, is to the flower. The bird eats the fruit because it is sweet

and, at the same time, swallows the seed, which is indigestible. He flies away and, soon after, ejects the seed in the same condition in which he has received it, but stripped of its case and ready to sprout far from the attendant dangers of its birth-place.

IV

But let us return to simpler contrivances. Pick a blade of grass by the roadside, from the first tuft that offers, and you will perceive an independent, indefatigable, unexpected little intelligence at work. Here, for instance, are two poor