serve the striking difference between the form of the plant in poor soil, and under conditions of rich fertility. In the former case, the plant forms a rosette of short, spreading leaves, apparently striving to cover as much ground as it reasonably can, and thus securing a considerable region from which its roots can absorb nourishment. In rich ground however, a smaller quantity of soil contains all the needed nutriment, and the leaves in such cases are long, and less divergent in their course. The flower stalk, too, is short in the poor soil—just long enough to support the flower in such a position that it can receive abundant sunlight; but in a more luxuriant growth, the stalk may be two or more feet in length instead of but as many inches.

The stalk upon which the flower is supported is hollow; and this feature adds to its strength and general stability. It is a well-known fact among mechanics, that for a given weight of material, a tube is much stronger than a solid bar. To demonstrate this fact, the following simple course may be pursued: Take a sheet of foolscap paper, divide it into equal halves; roll one as a solid bar, and the other as a tube. Tie a thread around each end to prevent unrolling, and support the ends of these paper rods on a couple of books. Now place weights on each—the hollow rod will support nearly double as much as the solid body, without breaking. So even the flower stems and the stalks of grass are formed upon a plan of consistent mechanism.

Now let us examine the flower with some detail and attention. To clearly see its parts we may cut a blossom completely in half, using a sharp knife, and cutting from the stalk upward. This done, we will look attentively at the cut surface, by the aid of an ordinary pocket magnifying glass. And this is what we see (Fig. 2).

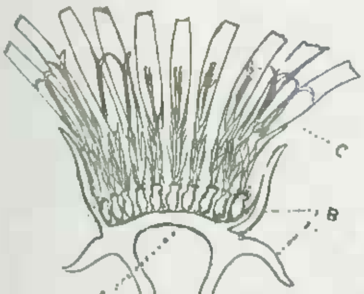

Fig. 2. Dandelion Blossom. Vertical Section.

A plump, cushion-shaped organ seems to form the termination of the stalk (A). This the botanist calls the *receptacle*. From the surface arise a number of small flowers (C), set closely together; though in positions of perfect order, and appearing to the hasty observer as but one large flower. Around the outside of this floral bunch, are seen a number of green scales, like very small leaves, forming a cup-like cluster, (B), technically known as the *involucre*.

To look more closely into the structure of the blossom, we must remove one of these pretty florets (C) from the receptacle, and examine it through means of a higher power magnifying glass. A complicated structure is readily perceived (Fig. 3), all the essential parts of a larger flower being present, though in a somewhat modified form.

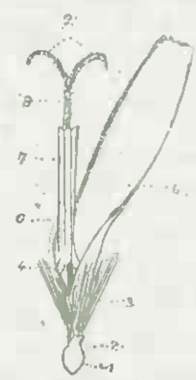

Fig. 3. Dandelion Floret.

First we notice the little *ovary* (1) by which the flower was set on the receptacle, and which, if dissected farther, will be found to contain a single ovule or seed. A very slender neck (2) connects the ovary with a bunch of fine bristles (3) which correspond in position and function with the *calyx* of larger and single flowers. Slender *filaments* (4) are seen to join the *stamens* (5) to their *anthers* or pollen cups (7). These stamens are five in number, the edges of neighboring ones being joined so as to form a tube through which the *pistil*, with its long *style* (8) passes, dividing above into a pair of re-curved divergent stigmas. The colored part of the little flower (6) is known as the corolla; it is tubular part of its length, but is flattened above into a flower-like leaf, terminating in five tooth-like projections.

One great object of flower life appears to be the production of seed, by which the species may be perpetuated. That this may be effected, the process of fertilization must be brought to pass. Fertilization of flowers is the mingling of the fluid contents of the pollen with the material within the ovules; and unless this is accomplished, fertile seed cannot be formed. If the pollen of one flower act upon the ovule of the same blossom, the process is called *self-fertilization*; and when the pollen is conveyed from the flower upon which it was produced, to another, acting upon the ovules of the second, *cross-fertilization* is said to occur. Now, it appears that cross-fertilization is the more efficient method; the seeds resulting from self-fertilization being, as a rule, far less vigorous. Our thrifty dandelion seems admirably adapted to the more desirable way of cross-fertilization; and this is brought about in a very beautiful manner.

Let us return to the floret of our specimen, once again; each little cup is filled to the brim with a sweet juice—a golden chalice of the purest nectar. Wandering insects readily succumb to temptations of this sort, and they eagerly accept the dandelion's invitation to tarry and indulge in a draught of honeyed liquor. To comprehend how an insect, in sipping nectar from the flower cup, can aid in the fertilization of the blossom, some farther attention to detail is requisite. Notice carefully the upper part of a stamen-tube in a freshly opened flower (Fig. 4).

The pistil is entirely within the tube; the style is thickly set with short hairs, all directed upward; and upon these hairs is a large quantity of pollen, shed from the anthers. As growth progresses, the style protrudes carrying the pollen with it, still borne upon the bristle-like supports (Fig. 5).

Fig. 4.
Anther-tube.

Fig. 5.
Protruded Pistil.

An insect alighting upon the blossom and seeking for nectar, would certainly rub off a quantity of pollen from the outside of the style; the stigmas, however, are still hidden within the tube, and consequently safe from self-fertilization. The next step in the development of the floral organs is the splitting of the style, and the rolling back of the parts, so that the inner surfaces or styles are exposed (Fig. 6).