

THISTLES.

(From Colin Clout's Diary).

Nature, indeed, has been very prodigal to thistles; she has given them every advantage and no enemies on earth, except farmers and donkeys. Just look at such a head as this that I have cut off clean with a switch of my stick, and then consider what fraction of a chance the wheat or the wheat-growers have got against it. Each stalk supports some dozen heads of blossom at least, and each head contains a hundred separate flowers, every one of them destined to produce in due time a winged and tufted seed. The thistles are members of the great composite family, like daisies and the dandelions, and they have their little bells clustered together after the common composite fashion into close and compact flower-heads. If you cut the head through with your knife, longitudinally—it is difficult to tear it open because of the prickly tips of the bracts—you will see that it is made up of innumerable distinct purple florets, each with five petals united into a long deep tube, and each with a little seed-like fruit at the bottom, crowned by a ring of hairs (the future thistle down), which are in fact the altered and modified relics of original calyx. Even in its simplest form, the composite flower bears the marks of being an extremely developed floral type; and the thistle, though relatively simple, is very far from being the simplest among the composite plants. A glance at the past history of the race will show why it now proves so persistent and noxious an enemy to us agriculturists. It is one of the most highly evolved and successful of living plants; and it pits itself against the relatively simple and sickly wheat, an artificial plant with a feeble constitution, which we ourselves have sedulously created for our own special use. The natural consequence is that if we

did not give every advantage to the wheat and put every obstacle we can in the way of the thistles, they would live it down in a single decade; as European weeds are living down the native weeds of New Zealand, or as English vermin are living down the aboriginal marsupials of isolated Australia. The primitive ancestral composite, to go no further back in its history than that, was already a very advanced sort of plant, with a number of little tubular blossoms, like miniature Canterbury bells, crowded together compactly into clustered many-flowered heads. The petals were probably purple, and its calyx had even then assumed the form of long floating hairs to the ripe seed. But at an early stage of their life as composites, the group broke up into three minor tribes, from which are severally descended the daisies, the dandelions and the thistles; for under one or other of those general heads the many thousand known species may be roughly classified. The daisy tribe, as we all know, took to producing mostly yellow florets, with white or pink outer rays, to allure their special insect allies. The dandelion tribe turned all its florets throughout the entire head into long rays, like the external row of the daisies, and colored them uniformly yellow throughout, on behalf of the little yellow-loving flies by whom its seeds are usually fertilized. But the thistles, the central tribe of all, retained more simply the original habits of the race, in that all their florets are still tubular, instead of being split out into strap-shaped rays; while the vast majority of them keep as yet to the primitive purple tinctures of their race, which endear them to the higher insects. Bees are the chief fertilizers of thistle-heads; but butterflies also frequently pay them a visit, and in the home-close at the present moment they are being attended by thousands of