

DAISIES AND THISTLES PROSCRIBED BY LAW.

To an admirer of the fine descriptions of daisies which have been the result of their cultivation, it seems difficult to appreciate that they are only varieties of the too common whiteweed filling so many meadows and pastures throughout most of the Northern States, very difficult to eradicate, extremely wasteful of the land, and a great pest of the farmer. Yet such is so certainly the fact that both white and yellow daisies have been prohibited by law in at least two of the States—New York and Wisconsin—and in Canada, being placed on a par with the thistle as noxious and mischievous weeds. The New York statute says that both daisies and thistles shall be cut down twice a year along the lines of all canals and railroads, and on lands bordering the public highways, in June and July and in August and September, and in certain cases they may be cut down by any one at the expense of any corporation on whose lands they are found.

Our illustration represents varieties of the white and yellow daisy and of the common and Canada thistle. The daisies shown are larger and somewhat different from those bearing the cut-toothed and slightly pinnatifid leaves below and the naked summit with the showy head, which are the most commonly found throughout the country; but they are all of the same family, the size and luxuriance of the plant being much affected by the nature of the soil in which it grows. In many of the fields in the vicinity of New York and throughout the States of New York and New Jersey the grass will often be white or yellow, as the case may be, with these daisies, which means the great injury of any crop sought to be raised on such ground. They are not eaten by any kind of stock, and cattle avoid hay in which they are found, while they propagate themselves so rapidly that it is very difficult to eradicate them. One of the most highly recommended among insect powders recently introduced, commonly known as bu-hach, is made from pyrethrum, which is only a name of one of the varieties of the daisy.

Of the thistle there are about thirty species found in the United States, the two kinds shown being found almost everywhere, and being the most annoying of weeds. The common species, often called the bull thistle, has large leaves with their bases prolonged downward upon the stem as a spiny, lobed wing, prickly on the upper surface and having cobwebby hairs below. In rich soil its stems grow to three or four feet high, and present a very formidable appearance, though in reality it is easily destroyed. The Canada or perennial thistle is the Scotch national emblem, and is known in Europe as the creeping thistle. It spreads rapidly and extensively by its long creeping rootstocks, sending to the surface numerous stems, two to three feet high. The handsomely cut leaves are smooth or slightly woolly below, and very prickly on the margin, with slender spines. The male heads have more conspicuous flowers than the female heads. This plant has long been regarded as one of the worst pests of farmers, its deep roots, below the reach of the plow, and its abundant seeds, furnishing it with ample means for spreading, although, like other perennial weeds, it yields to frequent and persistent mowing.

A Dynamite Shell Bursts a Twelve Ton Gun.

Dr. Justin, of Syracuse, N. Y., made a third unsuccessful attempt to fire a dynamite shell of his construction, by the use of a powder firing charge, on August 26. The gun was a twelve foot rifled barrel, with a nine inch bore, and weighed twelve tons. It had been previously tested with forty-five pounds of cannon powder behind a shell weighing 375 pounds. One shell weighing 295 pounds, and said to contain fourteen and a quarter pounds of dynamite, was fired with entire success, thirty pounds of powder being used to project it, but on a second attempt being made, with a similar shell and charge, the gun was blown to pieces, which were scattered over a wide area, a number of the spectators narrowly escaping. Dr. Justin's shell has an inner brass magazine holding the dynamite, inclosed within a shell of steel, there being an air space between them.

Natural History Notes.

Ornithophilous Flowers.—Mr. G. F. Scott-Elliot, in papers recently contributed to the *Annals of Botany*, gives some interesting particulars regarding the pollination of flowers by the agency of birds, chiefly in South Africa. The birds that are most effective for this purpose are the sun birds (*Cinnyridæ*), the species which were observed most frequently to visit flowers being *Nectarinia chalybea* and *bicollaris* and *Promerops caper*. Those birds have the same habit as the honey bees and Bombydæ of not mixing their honey, that is to say, on the same flight they confine their visits entirely, or nearly so, to the same species of flowers—a habit obviously of the greatest importance in securing the pollination of the stigma by pollen from another flower of the same kind. The majority of the ornithophilous flowers of South Africa are colored exactly the same (of an unusual shade of red) as the breasts of the species of *Cinnyris*, a fact previously noticed by both Darwin and Wallace.

Dimorphic Females of Butterflies.—*Insect Life* says: It is a well known fact that in certain Diurnal Lepi-

Mr. Oberthur's hypothesis hold true in all cases, and should we really expect to find in our *A. diana* females which correspond in coloration with the male?

The Moulting of Spiders.—When a spider is preparing to moult, it stops eating for several days, and fastens itself by a short line of web to one of the main lines of its snare, which holds it firmly while it proceeds to undress. The skin cracks all around the thorax, and is held only by the front edges. Next the abdomen is uncovered. Now comes the struggle to free the legs. It works and kicks vigorously, and seems to have very hard work. But continued perseverance for about fifteen minutes brings it out of the old dress, and it seems almost lifeless, and is limp and helpless for several minutes, but gradually comes back to life, and looks brighter and prettier than before.

Parthenogenesis in the Fig.—Dr. D. D. Cunningham, of the Indian medical service, has published a remarkable treatise on the production of the fruit of *Ficus Roxburghii*, Wall. The species is dioecious. The male receptacles or figs contain perfect male flowers with pollen, together with atrophied or imperfect female or "gall flowers," which never produce seed. Within the ovary of these gall flowers an insect, usually a species of *Eupristis*, lays its eggs, and there they develop into perfect insects. The female figs contain perfect female flowers, producing fertile seeds, the insect never laying its eggs in their ovary. The ostiole, or opening, of both the male and female figs is so obstructed by a covering of bracts that the receptacle is an almost completely closed chamber. The perfect development of both the male and female flowers is, however, dependent on the access of the "fig insect" to the interior of the cavity, without which neither of them would attain a functional condition. But, although the development of the embryo in the female figs is essentially connected with this access of insects, Dr. Cunningham believes that it is not brought about by the introduction of pollen through their agency.

The almost entire closure of the ostiole by bracts presents a nearly insuperable obstacle to the introduction into the female figs of a quantity of pollen sufficiently large to impregnate every one of the exceedingly numerous ovules by a separate pollen grain; and he was able to detect but very few pollen grains within the female figs. Although it is possible that in some instances normal pollination may occur, Dr. Cunningham asserts that the embryo is ordinarily formed without any act of fertilization, and that it arises as an outgrowth of the parenchyme of the mucellus outside the embryo sac. Up to the period of the access of the insects, and of the initial development of the embryo, the embryo sac retains the character of a simple uninucleate cell, with no oosphere, synergidæ, or antipodal vesicles. The full development of both male and female flowers appears to be dependent simply on hypertrophy of the tissues of the receptacle, resulting

from stimulation caused by the visits of the fig insects. This stimulation is brought about in the male figs by the insect laying its eggs within the ovary of the gall flowers. In the female flowers they attempt persistently to do the same, but these attempts are frustrated by the much greater strength and thickness of the ovary wall, and a similar stimulation is the result. The treatise is illustrated by five fine folio plates.

Destruction of the Kangaroo.—This interesting race is on the point of disappearing, and, according to the opinion of men capable of judging, there will soon be no longer a single kangaroo in existence if a stop is not put to the indiscriminate slaughter of the animals. Mr. R. G. Salomon, one of the most extensive of American tanners, and one of the principal importers of kangaroo skins, proposes that any one who kills a kangaroo whose skin weighs less than ten or twelve pounds shall be punished severely. Severe measures have already been taken in Australia and Tasmania, and it is forbidden in these countries to kill the animal between the 1st of January and the 1st of May.

To infringe a patent it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants, they are guilty of infringement.



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doptera the male sex is constant in coloration while the female appears in two forms, one being similar in coloration to the male, the other considerably different therefrom. An instance of this class is our *Papilio turnus*. In other cases of female dimorphism the form resembling the male is wanting, as is the case in our *Argynnis Diana*. Mr. Charles Oberthur now advances the question (*Ann. Soc. Ent. France*, 1889, *Bull.*, p. cccxxv) whether in this latter case the form corresponding in coloration with the male should not always exist. He believes that in these polymorphic species the original form of female was of the same coloration as the male, and the aberrant form developed subsequently and gradually. As a proof of this hypothesis he communicates an interesting recent discovery. *Argynnis niphe* is an old and common species enjoying a remarkably extended range, since it occurs in Abyssinia, India, China, on the Philippine Islands, and Java. From all these widely distant localities the female of this species was hitherto known only in a form strikingly different from the male. Quite recently, however, Mr. Oberthur received from a place in southern Hindostan bearing the attractive name of Trichinopolis specimens which prove that in this particular locality the female of *A. niphe* differs no more from the male than in most other species of *Argynnis*. Does