

to aid the self-fertilisation of the flowers the collecting-hairs on the style of Campanulaceæ and Compositæ (see Sprengel, pp. 109 and 370), the pollen-masses of Orchideæ and Asclepiadeæ being fixed near the stigma (Sprengel, pp. 401 and 139), the movements of the stamens of Parnassia, Ruta, and Saxifraga (Sprengel, pp. 166, 236, and 242), as well as the movements of the stigmas of Nigella, Passiflora, and Epilobium (Sprengel, p. 280, 160, and 224). I do not know how to reconcile these errors with Prof. Hagen's statement that Kunth was "beyond doubt acquainted with the facts" discovered by Sprengel. He "beyond doubt" never read Sprengel's book, and I can explain those numerous and crass errors of one of the most celebrated botanists only by the assumption that at that time Sprengel had fallen into almost complete oblivion among German botanists, and remained so till, as Prof. Möbius justly remarks (NATURE, vol. xxix. p. 406), "the value of his treatise in its bearing on the theory of selection was first recognised by Charles Darwin."

FRITZ MÜLLER

Blumenau, Santa Catharina, Brazil, May 25

Voracity of the Drosera

I AM not aware that the *Drosera* has been noticed to capture so large an insect as the dragon-fly, *Pyrrosoma minimum*. Passing a pond-side on a bright June morning, where this insect was flying plentifully, and near which *Drosera rotundifolia* was growing in abundance, I saw that many of these insects had fallen victims to the carnivorous propensities of the plant. On one spot about a foot square I counted six plants which had captured specimens of the dragon-fly, besides smaller insects. One plant had possessed itself of two of the dragon-flies, one being partially digested and the other freshly caught. The *Drosera* plants, being young, were in many instances less in expanse than the dragon-flies caught upon them, which measure about two inches across the wings, with a body about one inch and a half long. The dragon-flies appeared to be attracted to the plants by the reflected sunlight glistening upon the beads of fluid secreted from the leaves, and from which the plant receives its common name of "sun-dew." Those dragon-flies which I saw caught hovered over the plants about a second, at a distance of three or four feet, and then darted upon the plant, when they were instantly caught.

A. BALDING

Wisbech, July 3

Lightning

AT this time of the year one commonly reads of persons being struck dead, blind, or senseless by lightning; some of the phenomena are very puzzling, especially in cases where persons are but slightly injured.

On June 6, 1881, I was in the open country near the sea between Gosport and Southampton, in a place where there was no shelter. Here I was suddenly overtaken by a violent storm of thunder, lightning, and rain. Before I had time to think of escape, the air became darkened by the pouring rain, and, to save myself from a drenching, I perhaps foolishly put up my umbrella; at the same instant I saw a blaze of fire on the right-hand side of my face; the thunder burst at the same moment, and a violent wrenching pain seized the fingers of my right hand (which held the umbrella), the pain instantly travelling to my elbow and shoulder, where it ceased. With the exception of a strong pain in the arm like rheumatism for the rest of the day, I felt no further ill effects.

There is a blind beggar sometimes seen about here who carries a label stating that his eyes were destroyed by lightning; there is no iris to either eye; both are quite white. One day lately I asked him how he lost his sight. He said that he was leaving a country public-house during a thunder-storm, and he received the blow from the lightning at the street-door, as he stood on the top of a short flight of stone steps. He could only remember seeing the blaze of the lightning, and being hurled to the ground down the steps into the street. On his senses returning, he was blind. He states that he had a little glimmering sight at the time of recovery, but first one eye and then the other soon became totally blind.

A few years ago several letters appeared in NATURE regarding the descent of balls of fire in thunder-storms. On July 5, 1881, whilst watching a storm from my windows at 11.30 p.m. I distinctly saw in the south a ball of fire drop from the clouds to the earth. The descent was rapid, but not comparable with

lightning, and with an inclination to the east. The ball appeared large, and about one-half or one-third the apparent size of the moon. A carpenter who was working for me at the time, Mr. George Hebb, on calling upon me a few days after the storm, told me (I had not previously mentioned the matter to him) that he had seen the descent of the same ball of fire from Mildmay Park whilst he was walking towards the south. It is the only example I have seen.

WORTHINGTON G. SMITH

Solar Halo

ON Friday, June 27, about 5 p.m. my attention was drawn to a solar halo which lasted for about two hours from that time; the circular part of the halo was white, and about the size of an ice halo, the sun apparently about four times its proper size and of badly-defined outline; all within the halo was darker than the rest of the sky, and vertically over the sun there was about an octant of another circle (?) touching the first one, but prismatically though not brilliantly coloured. On Saturday night there was a strong pink glow from 9 to 9.30 in the north-north-west, with a greener sky near the moon, which was itself also somewhat green.

W. W. TAYLOR

INSECT PESTS IN THE UNITED STATES¹

THIS volume is issued under the auspices of the Department of Agriculture, and relates entirely to five insect pests. The book is full of matter of general as well as of purely scientific interest, and abounds in suggestions for checking and exterminating the pests of which it treats.

One rises from its perusal with a sense of thankfulness for our temperate climate, insularity, and moderate dimensions. These conditions are unfavourable to excessive multiplication of insect life; and hence we escape the locust, the canker-worm, and the palmer-worm, in their full devastating energy. The connection between solar activity and swarms of insects forms a special section; and the relation between sunspots and locust flights is drawn out in tabular form, showing a striking coincidence between special locust visitations and the minimum of sunspots. This is of course merely a scientific way of showing that hot summers breed insects. The Report deals with the Rocky Mountain Locust, the Western Cricket, the Army-Worm, Canker-Worm, and Hessian Fly, and the treatment of the subject is a full justification of the existence of such a Commission.

An Entomological Section of an Agricultural Department appears to be an absolute necessity in those vast regions, and the facts and phenomena are so startling as to be worthy of constant watchfulness, and this can only be secured by a special and permanent Commission. On the other hand, the powerlessness of man in dealing with the actual invading forces of the winged or creeping armies of Hexapoda is constantly exemplified. It is truly observed that the only effective method of dealing with insects is to study their habits, their structure, their weaknesses, their devolution. It is here that the entomologist shakes hands with the agriculturist. The cultivator is paralysed by the magnitude of the devastation, and the best he can do is to take such self-evident means as are at once available, such as burning, rolling, roping, or the like. The entomologist works less precipitately, but more surely, in studying the sexual and maternal habits of the *imago*, the conditions favourable to incubation, the hatching and development of the *larva*, the transformations to the *pupal* and perfect forms, and lastly, the food and habits of the mature insect.

All these and other matters are searched into by the State entomologist much upon the same principle as a Government section collects information as to the habits and resources of some nation with which it may at some time find itself at war. Thus the Entomological Commission

¹ "Third Report of the United States Entomological Commission. (Washington Government Printing Office, 1883.)