

the more specialized organ, adapted only for climbing, and endowed in different plants with very various and some highly remarkable powers. To this subject Mr. Darwin has devoted more than half of his essay. An analysis of it must be deferred, for want of space.

Near the close of the essay, under Hook-climbers, Mr. Darwin remarks that:—

“Even some of the climbing Roses will ascend the walls of a tall house, if covered with a trellis; how this is effected I know not; for the young shoots of one such Rose, when placed in a pot in a window, bent irregularly toward the light during the day and from it during the night, like any other plant; so that it is not easy to understand how the shoots can get under a trellis close to a wall.”

Now we have had occasion to observe that the strong summer-shoots of Michigan Rose (*Rosa setigera* Mx., *R. rubifolia* R. Br.), trained on a latticed wall, are strongly disposed to push into dark crevices and away from the light; they would, many of them, pretty surely place themselves under the trellis, and the lateral shoots of the next spring would emerge as they seek the light. We suspect this is also true of the Sweet Brier.

A. G.

4. Gradation from “Individual Peculiarities” to Species in Insects.—

The following are the concluding paragraphs of a paper by Dr. B. D. Walsh “On Phytophagic Varieties and Phytophagic Species.” The name *phytophagic* is given to those otherwise identical insects which differ, as varieties or species, according to the species of plant they feed upon. “When certain unimportant characters in the insect are correlated with the food-plant, while at the same time there is no sufficient reason to doubt that the two varieties freely intercross,” the forms are called *phytophagic varieties*. When, from the lack of intermediate forms, intercrossing may be inferred not to take place, they are called *phytophagic species*. Dr. Walsh sums up his conclusions thus:

“From the facts referred to above and those recorded by me elsewhere, we may construct the following almost unbroken series, from the first dawnings of the Phytophagic Variety to the full development of the Phytophagic Species.

1st. Difference of food, even when the food-plant belongs to widely distinct botanical families, is accompanied by no difference whatever, either in the larva, pupa or imago state.—*Attacus Cecropia* Lin., *Dryocampa imperialis* Drury, *Lachnus Caryæ* Harris, (*Proc. Ent. Soc. Phil.* I, p. 303), and hundreds of other species.

2nd. Difference of food is accompanied by a marked difference in the color of the silk-producing secretions.—*Bombyx Mori* Lin., the common silkworm.

3rd. Difference of food is accompanied by a tendency toward the obliteration of the normal dark markings in the imago.—*Haltica alternata* Illig.

4th. Difference of food is accompanied by marked, but not perfectly constant, colorational differences in the larva, but none whatever in the ♂ ♀ imago.—*Datana Ministra* Drury.

5th. Difference of food is accompanied by a marked and perfectly constant difference in the size of the imago.—*Chrysomela scalaris* Lec.

6th. Difference of food is accompanied by a marked difference in the chemical properties of gall-producing secretions, the external characters of the ♂ ♀ imago remaining identical.—*Cynips q. spongifica* O. S. and *C. q. inanis* O. S.

7th. Difference of food is accompanied by a slight, but constant change in the coloration of the abdomen of the ♂ ♀ imago, and by a very slight change in the chemical properties of the gall-producing secretions, the galls of the two insects, though typically somewhat distinct, being connected by intermediate grades in the case of the latter.—*Cynips q. punctata* Bassett and *C. q. Podagræ* Walsh.

8th. Difference of food is accompanied by one marked and perfectly constant colorational difference, and others which are not perfectly constant, in the larva, but none whatever in the ♂ ♀ imago.—*Halesidota tessellaris* Sm. Abb. and *H. Antiphola* Walsh.

9th. Difference of food is accompanied by several slight but constant structural differences in the ♂ imago, but none whatever in the ♀ imago.—*Clytus Robiniæ* Forst. and *Cl. pictus* Drury.

10th. Difference of food is accompanied by a slight but constant structural difference in both ♂ and ♀ imago.—1. *Tingis Tiliæ* n. sp. and *T. amorphæ* n. sp. 2. (Doubtful.) *Diapheromera femorata* Say and *D. Velii* n. sp.

11th. (Doubtful.) Difference of food is accompanied by very strong structural and colorational differences in the larva and in all probability by a constant structural difference of generic value in the ♀ imago, the ♂ imagos being to all external appearances identical, and the two insects belonging to different genera.—*Sphingicampa distigma* ♂ ♀ Walsh and *Dryocampa bicolor* ♂ Harris.

12th. Difference of food is accompanied by marked and constant differences, either colorational, or structural, or both, in the larva, pupa and imago states.—*Halesidota tessellaris* Sm. Abb. and *H. Caryæ* Harris, and hundreds of species belonging to the same genus and commonly considered as distinct species.

The constitution of the human mind is such, that the same evidence carries with it very different degrees of weight, when presented to different intellects. Others will no doubt draw different conclusions from the facts catalogued above; but for my own part, as on the most careful consideration I am unable to draw any definite line in the above series, and to say with certainty that here end the Varieties and here begin the Species, I am therefore irresistibly led to believe, that the former gradually strengthen and become developed into the latter, and that the difference between them is merely one of mode and degree."

5. *Illustrated Catalogue of the Museum of Comparative Zoology at Harvard College*. No. 1, *Ophiuridæ and Astrophytidæ*; by THEODORE LYMAN. 200 pp., large 8vo, with two colored plates. Cambridge, 1865.—The Museum of Comparative Zoology, under the directorship of Professor Agassiz, at Cambridge, has already become a vast collection in some departments of zoology, and is on the rapid increase. The idea of connecting with a catalogue of the Museum the publication of occasional memoirs upon the species here gathered, has for some time been in contemplation, and the first number has just been issued with the above