

"Falling-stars," says Plutarch, in his life of Lysander, "are not emanations or detached parts of the elementary fire, that go out the moment they are kindled, nor yet a quantity of air bursting out from some compression, and taking fire in the upper regions; but they are really heavenly bodies, which, from some relaxation of the rapidity of their motion, or by some irregular concussion, are loosened, and fall." And Diogenes, of Apollonia, says: "Invisible (dark) masses of stone move with the visible stars, and remain, on that account, unknown. The former sometimes fall upon the earth, and are extinguished, as happened with the stony star which fell near Aegos Potamos."

The utilitarian spirit of the present age is apt to enquire after the practical uses to be attained by the observation of these celestial phenomena. On this point but little can be said. So far as I have been able to learn, the geographical determination of degrees of longitude is the only practical purpose which well-observed falls of shooting-stars have yet been made to subserve. Beuzenberg published a paper on this subject in 1802, but Dr. Maskelyne had pointed to this application of the phenomena some twenty years previously. In a letter dated Greenwich, Nov. 6, 1783, he writes: "If the exact time could be had at different places, the absolute velocity of the meteor, the velocity of the sound propagated to us from the higher regions of the atmosphere, and the longitude of places might be determined." (On this point, see *Silliman's Journal* for Oct., 1840.) But apart from this view of the matter, what deep interest attaches to meteoric phenomena, if we admit the connection that is now believed to exist between them and other planetary systems! "He who is penetrated with a sense of this mysterious connection (to adopt the fine sentiments of Humboldt), and whose mind is open to deep impressions of Nature, will feel himself moved by the deepest and most solemn unction at the sight of every star that shoots across the vault of heaven, no less than at the glorious spectacle of meteoric swarms in the November phenomenon, or on St. Lawrence's Day. Here motion is suddenly revealed in the midst of nocturnal rest. The still radiance of the vault of heaven is for a moment animated with life and movement. In the mild radiance left on the track of the shooting-star, imagination pictures the lengthened path of the meteor through the vault of heaven, while, everywhere around, the luminous asteroids proclaim the existence of one common material universe. Accustomed to gain our knowledge of what is not telic solely through measurement, calculations, and the deductions of reason, we experience a sentiment of astonishment at finding that we may examine, weigh, and analyze bodies that appertain to the outer world. This awakens, by the power of the imagination, a meditative, spiritual train of thought, where the untutored mind perceives only scintillations of light in the firmament, and sees in the blackened stone that falls from the exploded cloud nothing beyond the rough product of a powerful natural force."

---

A few Rough Notes on some of the Canadian Saturniæ, and Suggestions on the Possibility of using their Silk for Textile Purposes.

Read before the Canadian Institute, March 11th, by Thomas Cottle, M.D. of Woodstock.

To the student of Nature, the delight which his investigations of the different kingdoms create is very much enhanced if, during his researches, he can discover among the natural productions of the country he inhabits any which may be usefully employed in adding to the necessities or luxuries of life.

In the following trifling sketch, it is the wish to call attention to a genus of Lepidopterous insects whose products may possibly be as usefully employed as some of the coarser varieties of silk now used in India, and which, being indigenous, would not be liable to the failure that occurred some years ago in the attempt to introduce the true silk worm into the neighbouring States of the Union. Should this expectation not be realized when tested by experiment, yet, if the hint now given should induce others to turn their attention to the as yet comparatively unexplored productions of this Province, they will not have been written in vain.

To the family Bombycidae belong those moths the enveloping tissues of whose cocoons have been used for textile purposes. The member of this family the products of whose labour have been most used by man, and to whose silk it is generally thought we are entirely dependant for our silken fabrics, is the well-known silk-worm *par excellence* (*Bombyx mori*), with which all are too cognisant to require further mention; but in India the web of other insects of this family are so employed. On this subject, Cuvier, or rather Latreille, in the *Regne Animal*, writing of the genus *Saturnia*, says: "They have employed from time immemorial in Bengal two other species of the same division, the *Bombyx Mylitta*, of Fabricius, and the *Phakena Cynthia*, of Drury, and I am convinced, after the communication made me by M. Huzard of a Chinese manuscript on this subject, that the caterpillars of these Bombyces were the wild silk-worms of China, and I think that a part of the silks which the ancients procured by their maritime commerce with the Indies was produced from the silk of these worms." Both the insects above mentioned belong to the genus *Saturnia* as now constituted. Some of the Canadian species are very fine specimens of the genus, and spin large cocoons; and is it unreasonable to imagine that one or other of the species might be made as available for manufacturing purposes as their Indian congeners? An obstacle to be overcome is the difficulty of dissolving the animal cements with which the caterpillar glues together the threads; but as the perfect insect has the power of dissolving this glue when about to escape from its cocoon (for it has no jaws to tear open the walls of its prison), could not the chemist, by analyzing this fluid there secreted, provide us with an efficient solvent? The natives of India for one species use a lye made of the ashes of the plantain.

The first is *Saturnia Polyphemus*, one of the princes of the Canadian Lepidoptera: This fine insect expands five inches, is of a yellowish brown; both wings with a hyaline spot. The anterior wing is marked with two curved lines near the base, a waved line on the border, and a dark spot on the apex. The hyaline spot is encircled by a yellow margin. On the posterior wing the hyaline spot is larger, with a bluish grey iris, shading into black, and the marginal band is darker. The colours of the male are the same as those of the female, but more decided. The caterpillar is described by Gosse "as of a most brilliant light green, nearly transparent, each segment of the body rising into two roundish humps, each ending in a little bright yellow tubercle, bearing two or three short hairs; two rows of similar tubercles run down each side, which are joined by a diagonal yellow line on each segment, just behind which are the spiracles, which are scarlet. The head and legs are light brown, the last segment terminated by a line of purplish brown. It is rather inactive, and slow of motion. Its length, when crawling, is two inches and a half, and its diameter about half an inch." He gives it as feeding on the choke cherry (*Prunus Serotina*), and probably any species of *Prunus* will serve it for nourishment. The cocoon