females, which are more numerous than the males, deposit their eggs in the month of June or July, on grass, moss, &c. They are of a yellow colour, and are stated to be luminous, but it is doubtful whether the luminous matter so observed is anything but an excretion of the insect, appearing under the form of a congeries of minute brilliant points. The larvæ, after remaining quiescent for about five or six weeks, break their shells and make their appearance; when first emerged from the eggs they are small and of a white colour, but they rapidly increase in size, and become much darker, passing from a dark brown to almost black. The three stages of these insects, viz., larva, pupa, and imago, or perfect insects, are very similar to another. The larva is composed of eleven segments; it has six feet; two rows of reddish spots down the back; and is capable of emitting a phosphoric light from the last rings of the abdomen. The light appears like two brilliant spots, when attentively examined, during the fine nights in autumn, when they are creeping about in search of the food, which consists of small snails, &c.

About the space of one year and nine months the larvæ are changed, having however frequently cast off their skins, into the second or pupa state, in which they remain nearly quiescent for two or three weeks, when they change their last skins and become perfect insects. In this state the two sexes are easily distinguished, as the male appears like a perfect beetle, having wings and wing-cases; while the female, on the contrary, seems to have undergone hardly any change in appearance from that of the larva, except that she is much larger, and of a lighter colour. It is the female which is principally luminous in the perfect state. The male was generally considered incapable of exhibiting any light, until John Ray, the father of English naturalists, first pointed out that the latter sex was also in possession of this luminous property, but in a less degree; the light in it is only distinguishable when the wings are expanded, or when the insects are flying, as the luminous matter is hidden and much smaller.

The females of the glow-worm can occasionally conceal or eclipse their light. The author of the excellent "Natural History of Selborne" supposed that they regularly extinguished the torch between the hours of eleven and twelve; which has called forth the idea that it may be to secure themselves from becoming the prey of the nightingale or some other nocturnal bird; while the author of the "Journal of a Naturalist" considers that the summer light of the glow-worm is displayed as a signal taper.

A clear steady light has been observed as late on one occasion as the 28th of September, 1826, though very different in its sparkling from that of the summer months. The light of one, if placed on the watch-glass, is sufficient to ascertain the hour; nor is it an uncommon occurrence for anglers, &c., to place several of these insects on their hats, when they have been out in the evening, to cheer them after their day's sport.

We are informed by Mr. Macartney that the light-yielding matter reposes under the transparent portion of the skin, through which it is seen.

It was supposed by Dr. Darwin that the luminous appearance was owing to a secretion of some phosphoric matter, and a slow combustion arising from this phosphorous entering into combination with the oxygen inspired; Mr. Murray, however, has experimentally ascertained, "that the luminous matter does not contain phosphorus."

Mr. Murray has ascertained, by experiments, "that the light is not sensibly increased by the purest oxygen, and is not extinguished in hydrogen and carbonic acid gas;" and he found that the luminous matter continued to shine, without alteration, in oxygen, nitrous oxyde, hydrogen, carbonic acid gas, cyanogen, olefiant gas, and nitrous gas; and the light is not extinguishable by being placed in water, oil, or even in different kinds of acids, such as muriatic, nitric, and sulphuric, but continued for some seconds. In a solution of pure caustic potassa it became of a bluish tint, and appeared to undulate; and in tincture of iodine the light continued for a minute. In alcohol it lasted nearly two, and in ammonia it continued for a minute.

Some authors are of opinion that there exists a sensible degree of heat in the luminous matter, for it has been stated that the thermometer was affected by nearly a degree when the insect was allowed to pass over its bulb; while others have asserted that no heat is perceptible.

The glow worm is not the only insect which is capable of emitting a light, but there are several species in different orders which possess this property in common. The light is, however, displayed from various parts of their bodies. Thus, in a rare insect, (Paussus sphærocerus) from Africa, the globes of the antennæ, as we are informed, by Mr. Afzelius, were, to his astonishment, on opening a box, wherein he had placed one for security, able to spread a phosphoric light, like, to use his expression, two lanterns. This so excited his curiosity that he was induced to examine this singular phenomenon several times during the evening. But on looking at it the following morning, he found the insect dead, and that the light had disappeared.

The next insect, an inhabitant of South America, is termed the fire fly (Elater noctiluca.) It is about an inch long, and one-third of an inch broad, of a dark brownish black colour, except a yellow eyelike tubercle, placed at each posterior angle of the thorax.

The light which proceeds from the two spots on the thorax is said to be sufficient for a person to read the smallest print, by moving one of them, when placed between the fingers with the light downwards, along the line; and, when several are put together in a glass or transparent tube, the light will be found sufficiently great to admit of writing by it. These singular creatures have doubtless lent a friendly light to many a tropical wanderer. No doubt the brilliancy of the spectacle alone is sufficient to raise the despondent spirit of a person who has lost his track in one of the deep American forests. Their splendour has been mentioned in the following words:

"I could not but admire the thousands and tens of thousands of fire-flies that spangled the gulf below, a tiny galaxy; they did not twinkle promiscuously, but seemed to emit their small green light by signals beginning at the head of the ravine, and glaring all the way down in a wavy, continuous, lambent flash; every fly, as it were, taking the time from its neighbour ahead: then, for a moment, all would be dark, until the stream of sparkles flowed down once more from the head of the valley, and again disappeared astern of us."

We are informed that these insects were formerly used by the Indians as lamps, so that they were enabled to perform their evening household works, to spin, weave, paint, dance, &c., by their light, as well as for the purpose of lighting them on their nocturnal hunting and fishing expeditions; when employed for the latter, one of them was tied to each of their feet.

They are also used by the Indians, by whom these insects are denominated cucuji, for the purpose of destroying the gnats or moschetoes in their abodes, which would become otherwise excessively troublesome. When required for this occupation, it becomes necessary for the Indians to place themselves on some eminence, with a lighted firebrand in their hands, which they wave about in the air; these insects, as well as others, are attracted by the light, and at the same time, we are told, the Indians often call out cucuie, cucuie; and after having secured a sufficient number, they return and let them loose in their residences, where the insect seeks the moschetoes about the beds, and the faces of those asleep. The same person also relates, that many wanton wild fellows rub their faces with the luminous matter of these insects, for the purpose of meeting their neighbours with a flaming countenance.

On certain festival days they are collected in great numbers, and distributed over the garments of the young people, who gallop through the street on their chargers, which are also similarly ornamented; thus producing, on a dark evening, the idea of moving figures of fiery horsemen. And also on similar occasions, the young men display their gallantry by decking their mistresses with these sparkling living "diamonds."

It is related by Mouffett, that, on one occasion, the insect caused in the West Indies the failure of some troops; for in the evening of the day on which they had landed, they saw an infinite number of moving lights in the woods, which they supposed were the torches of the Spaniards advancing upon them, and immediately betook themselves to their ships.

Madame Merian, in her work on the Insects of Surinam, gives the following curious account of the manner in which she was frightened by this insect:

"The Indians once brought me," says the lady, "before I knew that they shone by night, a number of these lanternflies (Fulgora lanternaria,) which I shut up in a large wooden box. In the night they made such a noise that I awoke in a fright, and ordered a light to be brought, not knowing from where the noise proceeded. As soon as we found that it came from the box, we