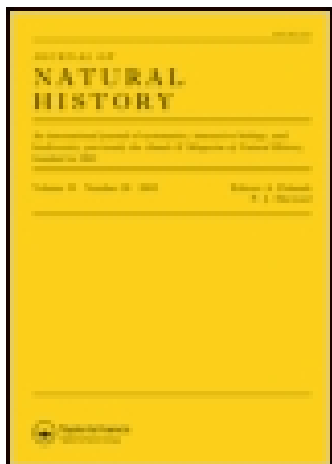


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Note on a new Night-Lizard (Phelsuma grandis) from Madagascar.

By Dr. J. E. GRAY, F.R.S.

Dark olive; chin and below white; a broad streak from the nostrils to the front of the orbit, one from orbit to orbit across the forehead, and a short longitudinal streak in front of it on the crown; four transverse rather irregular, short streaks, and six or seven unequal-sized round spots scattered in front or on the sides of them on the middle of the back. Tail reproduced, grey. Lower labial shields 5.1.5, with two small ones near the angle of the mouth, and some hexagonal plates below them. Length of body and head $4\frac{1}{2}$ inches.

Hab. Madagascar. British Museum.

Cross Fertilization and the Law of Sex in Euphorbia.

By THOMAS MEEHAN.

Mr. Charles Darwin's interesting observations on cross fertilization have opened a new world for original discovery. The list of plants which seem to avoid self-fertilization is already very large. I think *Euphorbia* may be added to the number. Certainly this is the case with *Euphorbia fulgens*, Karw. (*E. jacquiniiflora*, Hook.), which I have watched very closely in my greenhouse this winter. Several days before the stamens burst through the involucre, which closely invests them, the pistil with its ovary on the long pedicel has protruded itself beyond, exposed its stigmatic surfaces, and received the pollen from the neighbouring flowers. The way in which the pollen scatters itself is curious. In most flowers a slight jar or a breath of wind will waft the pollen to the stigmas; but I have not been able to notice any leaving these flowers in this way; for as soon as the anther-cells burst the whole stamen falls from its filament-like pedicel and either drops at once on the pistils of other flowers or scatters its pollen-grains by the force of the fall.

This *Euphorbia* also furnishes another contribution to the theory of sex which I have advanced. The plan on which the male and female organs are formed is evidently a common one; and the only reason why some flower-heads have a pistil in the centre, and others are wholly staminate, is, that there is *greater axial vigour when the female flower is formed*. Whenever the common peduncle (below the scarlet involucre) is weak, a pistil never appears in that head of flowers. A few which seem strong also do not have them; but the great majority of the strong peduncles are those which bear the female blossoms. Another interesting fact is that the number of male flowers is less in those heads which also bear a female than in those which are wholly staminate. This seems to add to the point I made in my paper on *Ambrosia*, that after the flowers had been partially formed in embryo, and before the sex had been finally determined, the female flower, being primordially the stronger, has the power of absorbing the males or their partially formed elements into its system. It is certainly remarkable that in both these instances the number of male flowers should decrease in proportion to the existence or vigour of the central female one.

The male and female flowers of *Euphorbia fulgens* are formed

much alike. The female occupies the centre, and seems really but a prolongation of the main stem, on the top of which is an articulation from which the ovarium springs. The capsula readily falls from this articulation when mature. From the base of the female central peduncle spring weaker peduncles, colourless, appearing indeed almost like filaments, articulated at about the same height as the female, only above the point bearing a short filament and anther—the caducous part before referred to. No one can fail to see the correspondence of plan in these different parts; and I think that nothing but the favourable position in the direct line of axial vigour made the central flower a female one.

Cases occasionally occur in which a tolerably strong head of wholly male flowers will develop the central axis into a pedicel *almost as long and vigorous as those which bear female flowers*. But the flow of vital force (if I am correct in using the term) not being quite sufficient, the final goal of natural perfection in the female form was not reached. These cases do not occur often, but are well worth looking for, as they show so clearly the dividing line between the forces which govern the male or female sex.—*Proc. Acad. Nat. Sci. Philad.* 1870, p. 14.

Fossil Sponge-spicules.

We hear that Mr. Wm. Vicary, of Exeter, well known for his successful researches into the Silurian and Devonian fossil fauna found in the pebbles of Budleigh-Salterton, has discovered in the Greensand of the hills of Haldon and Blackdown respectively, in Devonshire, a number of beautiful sponge-spicules belonging to Dr. J. E. Gray's *Corallispongia*, in part (Dr. W. Thomson's order "*Vitrea*" and Dr. O. Schmidt's *Hexactinellidæ*), also to the *Tethyadæ* and *Geodidæ*. Mr. Parfitt, of Exeter, has described and illustrated them in a paper on the subject which he is about to read before the Devon Association for the Advancement of Science, Literature, and Art, at their annual meeting, to be held at Devonport on the 26th of July and following days.

The spicules appear to be in the remains of an arenaceous sponge, heterogeneously mixed up with the grains of quartz of which it was otherwise composed, thus representing the other kinds of sponges which existed in the locality then, just as the spiculo-arenaceous sponges of the present day bear indications of what other sponges exist in the localities where they now grow respectively.

On the Zoological Affinities of the Sponges.

Mr. Wm. S. Kent forwards us a letter to the effect that he has glanced through Mr. Lankester's criticism on his paper respecting Prof. Hæckel's supposed relationship of the Sponges to the Corals. Mr. Kent having but recently returned from his dredging-expedition on the coasts of Spain and Portugal, and having had a pressure of work of higher importance to attend to, he has not had leisure to reply to Mr. Lankester's communication in the present number of this Journal. He looks forward, however, with much pleasure to answering it in our next.