

Preliminary Notes on new Fishes collected in Japan during the Expedition of H.M.S. "Challenger." By Dr. A. Günther, F.R.S. (From the Ann. and Mag. Nat. History, Nov., 1877.) 8vo, pp. 433-446. From the author.

Account of the Zoölogical Collection made during the visit of H.M.S. "Petrel" to the Galapagos islands. Communicated by Dr. Günther. (From Proc. Zoöl. Soc. London, Feb., 1877.) 8vo, pp. 64-93, 3 plates.

Notice of two large extinct Lizards, formerly inhabiting the Mascarene islands. By Dr. A. Günther, F.R.S., etc. (From the Linnæan Soc. Journ. Zoölogy, Volume xiii.) 8vo, pp. 322-327. From the author.

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The ancient Outlet of Great Salt Lake. By A. C. Peale. (Am. Journ. Science, Vol. xv, June, 1878.) 8vo, pp. 439-444. From the author.

Descriptions of Seven New Species of Birds from the Island of St. Vincent, West Indies. By George N. Lawrence. (Ann. N. Y. Acad. Sciences, Vol. i, No. 5, 1878.) Pages 147-153. From the author.

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Proceedings of the American Philosophical Society, No. 101, July 8, pp. 455, Philadelphia.

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## GENERAL NOTES.

### BOTANY.

INSECTS NEEDED TO FERTILIZE UTRICULARIA AND PYXIDANTHERA.—In a short paper read at the American Association, in Buffalo, in 1876, I showed some of the neat arrangements by which a cross-fertilization of flowers was secured in several species of several genera of plants. I now present an illustration of one of the best of these. It is the common bladderwort, *Utricularia vulgaris*, which is common in stagnant ponds. Aside from the peculiarity under consideration, there are several other things about the plant of especial interest.

Fig. 1 shows an enlarged front view of the flower with the lower tip pulled down. The lower tip of the stigma is much the larger, and when touched it bends up in a few seconds close against the upper lip of the corolla just under an arch-like projection. On visiting a flower for honey, an insect, as a honey-bee, can scarcely fail to hit the larger of the two stigmas. Farther on pollen is received on the tongue or jaws of an insect. None is likely to be left on the stigmas of the same flower, for by the



time the insect is ready to withdraw, the side of the stigma which

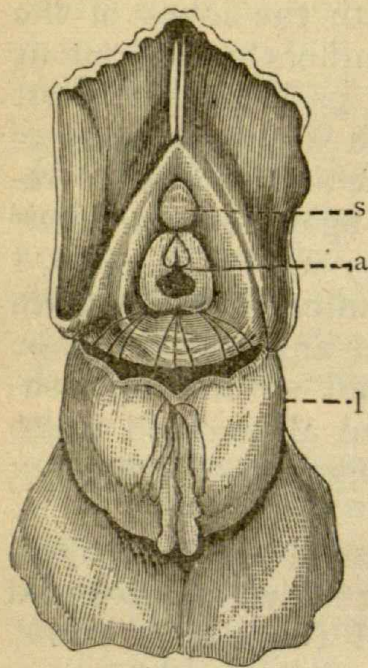


FIG. 1.—An enlarged front view of a flower of *Utricularia vulgaris*. *s*, outside of the larger sensitive stigma after it has closed under the ridge on the corolla. *a*, anthers. *l*, lower lip of corolla pulled down.



FIG. 3.—Side view of pistil still further enlarged, showing the larger stigma after it has been disturbed.

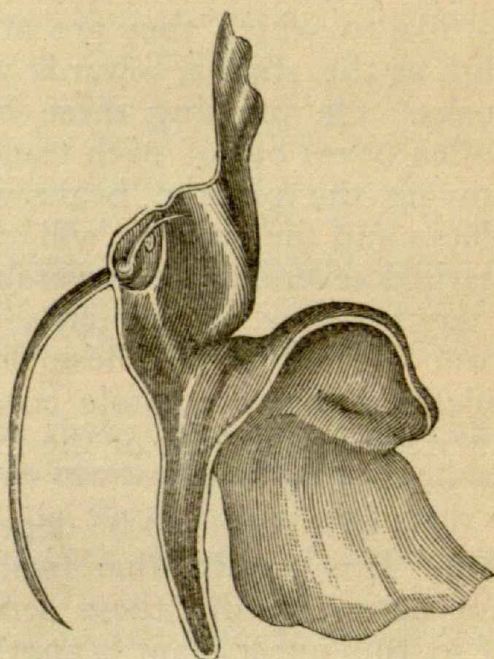


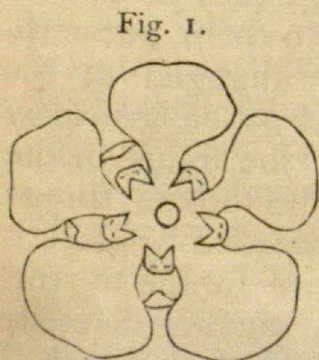
FIG. 2.—Side view of the same flower showing the position of the larger stigma before it has been touched by an object.

is ready to receive pollen is hidden or covered. Hardly any method can be more admirable for securing a cross-fertilization of flowers.

Some time in April I received from the pine barrens of New Jersey a large plant in flower of *Pyxidanthera barbulata*. This was placed near the window on a dinner plate containing some water. The plant continued to produce an abundance of fresh

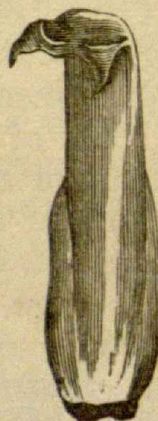
Fig. 2.

Fig. 3.



Flower of *Pyxidanthera barbulata*, enlarged.

Two of the sepals are removed. The two-beaked anthers shown between the petals.



Oblique view of stamen, showing beaks and transverse opening in anthers.



Side view of stamen.

flowers for ten days or more. The small white flowers when



open look much like a small phlox, to which the plant is nearly allied. There are five stamens alternating with the lobes of the corolla, to which they are attached. The anthers are about as high as the stigma, towards which each one projects two short beaks. On pressing these beaks down with a pin, a mass of pollen oozes out of each transverse slit of the anther. After removing the pin, the beaks will again and again resume their places and the opening will close. After they were well open, I marked several fresh flowers and watched them two or three times a day for four or five days. In no case did any pollen escape from the anthers. These finally withered and shrunk up considerably, and the whole corolla, stamens and all, seemed to be lifted above the rest of the flower by the elongation of the calyx or some other cause.

This case seems to be dependent on insects for aid in fertilization. It is possible that fresh plants in their native place would not behave as did these sent by mail, but I think they would. If so, this queer plant is another of the hosts of plants which have a special contrivance by which insects are needed to aid in transferring pollen.—*Prof. W. J. Beal.*

WOLF AND HALL'S LIST OF THE MOSSES, LIVERWORTS AND LICHENS OF ILLINOIS.—This list appears in Bulletin, No. 2, of the Illinois State Laboratory of Natural History. It is simply a dry list, without any remarks such as would seem to be in place regarding variation, &c.; but will prove undoubtedly of use to local botanists.

### ZOÖLOGY.<sup>1</sup>

INTELLIGENCE IN CHIMPANZEES.—Some observations recently made on the mental faculties of the pair of young chimpanzees (*Troglodytes niger*) in the Zoölogical Garden, indicate the possession by those animals of the power of ratiocination to a very considerable degree.

A looking-glass having been placed in the cage they proceeded to investigate the novel phenomenon presented to them, but without much success until one of them, being engaged at the moment in munching a crust of bread, appeared to be struck by a similarity in the occupation of himself and of the figure before him. Withdrawing the bread from his mouth, he looked first at it and then at its reflected image, and then proceeded to place it in various positions, watching carefully the figure in the mirror, until he seemingly became satisfied that what he saw was, in some manner to him incomprehensible, himself, after which he passed some time sitting in front of the glass watching his own motions with much satisfaction.

A snake being placed in the room the animals manifested great

<sup>1</sup>The departments of Ornithology and Mammalogy are conducted by Dr. ELLIOTT COUES, U. S. A.