THE ANNALS

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MAGAZINE OF NATURAL HISTORY,

INCLUDING

ZOOLOGY, BOTANY, AND GEOLOGY.

(BEING A CONTINUATION OF THE 'MAGAZINE OF BOTANY AND ZOOLOGY,' AND OF LOUDON AND CHARLESWORTH'S 'MAGAZINE OF NATURAL HISTORY.')

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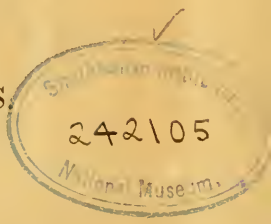

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1850.

Mrs. Robertson of Braendam, near Stirling, sent a notice (accompanied by fresh specimens) of the discovery of *Buxbaumia aphylla* in large quantity on Ben Ledi. Fresh specimens of the *Buxbaumia* were likewise exhibited from Mr. Ogilvie of Dundee, having been gathered by him on the Sidlaw Hills, along with *Bæomyces roseus*.

MISCELLANEOUS.

NOTES ON MEDUSÆ AND POLYPES.

H.M.S. Rattlesnake, Cape York, October 1849.

My dear Sir,—You will probably be interested in knowing what I have been about for the last year. I have examined (in most cases very carefully) species of the following genera of Acalephæ and Polypes: Physophoridæ, *Velella*, *Porpita*, *Physalia* (a good many new points), *Stephanomia*, *Athorybia*, *Agulina*, *Rhizophyra*; Diphydæ, *Rosacea*, *Cuboides* (two species), *Abyla* (three species), *Enneagonea*; Medusidæ, *Sinope* (?), *Xanthea*, *Geryonia*, *Cytæis*, *Cephea*, *Oceania*, **Bugainvillea*, *Tima*, *Aglaura* (?), *Pelagia*, **Willsia*; Polypes, *Tubularia*, besides some genera altogether new. The two I have marked thus * will interest you, as you describe them in your "*Naked-eyed Medusæ*." *Bugainvillea*, I may mention, has its generative organ in the thickness of its outer membrane of the stomach; *Willsia* developes bodies mostly resembling those in *Sarsia prolifera* and *gemmifera*, at the angle formed by the two first divisions of each of the four radial canals. The structure of the *Tubularia* is also very interesting. I was for a long time astonished at what appeared to be its very wide geographical distribution, until I discovered one day that it was attached in large masses to the ship's bottom!

I have found much that was new to me in all respects, but nothing that contradicted in any important matter the results at which I arrived in the paper on the *Medusæ*. On the other hand, I can speak much more confidently on some points advanced only with hesitation before. I believe that I shall be able to show you on our return evidence amply sufficient to prove,—1st, that the Hydroid and Sertularian Polypes, the Hydrostatic and ordinary Acalephæ, and the Helianthoid Polypes form one large family, which, from their invariable and peculiar "thread-cell," I propose to call the "Nematophora;" 2nd, that this great family consists further of two subdivisions, the number of which as affixed, if we consider one subdivision, and strictly analogous and parallel if we consider the two subdivisions as thus:—

Nematophora.

Hydroidæ.	Actinidæ.
Corynidæ.	Zoanthidæ.
Sertularidæ.	Sarcoidea.
Physophoridæ.	Pennatulidæ.
Diphydæ.	Madreporidæ.
Medusidæ.	Beroidæ.

I believe that I have already evidence enough on the "Hydroid"

side, but on the other I have done nothing, or next to nothing. It is a very difficult investigation, but if this intolerable heat leaves me energy enough I will do something towards it. I am unwilling to write hastily or without due evidence on this matter (especially since the establishment of my views must, as it seems to me, necessitate the total re-arrangement of the "Radiata"), and I mean therefore merely to go on making observations until we return to England. If then I find any means offer itself of publishing my results on an appropriate scale, well and good; if not, I suppose I must content myself with feeling like a "mute, inglorious Hampden," and like a good philanthropist, pity the public for its loss.

I have a great advantage in the society and kind advice (to say nothing of the library) of Mr. MacLeay in Sydney. Knowing little of his ideas, save by Swainson's perversions, I was astonished to find how closely some of my own conclusions had approached his, obtained many years ago in a perfectly different way. I believe that there is a great law hidden in the "Circular system" if one could but get at it, perhaps in Quinarianism too; but I, a mere chorister in the temple, had better cease discussing matters obscure to the high priests of science themselves.

Keeping well in mind the old adage about "too many irons in the fire," I have nevertheless been able to make a few scattered observations on other animals than the Acalephæ, and I mean to embody those on the Mollusca—comet-wise—making the "*anatomy of Firola and Atlanta*" the nucleus whereunto to append a tail of observations on the genera, which will I think possess some interest, referring to the nervous system, structure of buccal mass, and the existence of a peculiar urinary system. I will send this from Sydney to the Secretary of the Zoological Society, with a request that you may, if so inclined, have the first perusal of it.

Our return appears to be very uncertain, perhaps not for a couple of years. If in this remote corner of the earth I can be of any service to you either in a scientific or any other way, pray consider my best exertions as at your command. A letter addressed to me at Sydney will always reach me. Yours very faithfully,

To Prof. E. Forbes. THOMAS H. HUXLEY.

On the Circulatory Apparatus and the Organs of Respiration in the Arachnida. By M. EMILE BLANCHARD.

It is well known that M. Blanchard, in opposition to the generally received opinion, admits the existence of a peritracheal circulation in insects; the following are some new observations which have been made upon the Arachnida, and appear completely to confirm his opinion. The Arachnida present favourable conditions for studying the relations existing between the circulatory and respiratory systems, as there are tracheary Arachnida, pulmonary Arachnida, and lastly pulmo-tracheary Arachnida, in which we can see the insensible transition of one system into the other. In the pulmonary Arachnida, the blood which has served for the nutrition of the organs becomes lost in the lacunæ; it then introduces itself into the respiratory organs,