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XIII. Note upon the occurrence of a new Puccinia upon Mesembryanthemum micranthum Haw

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Darter in diving so as to leave scarcely a ripple on the water to mark its entrance, has attracted the attention of all who have witnessed it; but no one has, as far as I am aware, attempted to offer an explanation as to how this is accomplished, and which has emboldened me to venture to do so. All who have had experience in diving will be aware, that to dive with ease and grace and to cause the least disturbance to the water requires the body to be as rigid as possible.

It occurs to me that in the Darter the extraordinary ossification of tendons would render this bird admirably fitted to place its body in the most rigid position, which added to the beautifully adapted shape of the beak, head and neck, together with the nature of the feathers, make it in my opinion singularly fitted to perform the feat of diving to the utmost perfection, to which we indeed know it has attained.

I might also add that the tail-feathers in Anserine birds as a rule are very short; and that they use their feet instead of their tails as rudders. Now in the Darter the tail-feathers are unusually prolonged and the tendons of the caudal vertebræ are ossified as before stated, which added to the peculiar spatulate form of the tail, justifies a suspicion that the tail is used more as a rudder than the feet. At any rate, both in flying and diving I have seen considerable motion given to this organ.

XIII. *Note upon the occurrence of a new Puccinia upon Mesembryanthemum micranthum Haw.* By P. MACOWAN, B.A. (Lond.)

[Read Sept. 29, 1880.]

In the early part of this year, 1880, there was forwarded to me a curious Coniomycete fungus, parasitic upon one of the Mesembryaceæ commonly burned in the Karoo for soap-ash. I regret that no memorandum of the sender's name accompanied it, and that the impressed postal stamp could not be deciphered to furnish a clue. The plant being new to science and requiring description, it is important to discover the locality and the collector. Hence to draw my unknown correspondent's attention, it may be as well to break through the rule discouraging publication of single species, and confine the present note to his *Puccinia* only.

Puccinia MESEMBRYANTHEMI, MacOw. nov. sp.—I. *Fungus hymeniferus*. (*Aecidium*.) Acervulis plerumque cauliculis, sparsis, caulem sæpe cingentibus, aurantiacis, subiculo vix incrassato; pseudoperidiis confertis, cylindricis, circa .2 unc. longis, ore tenui lacero: sporis globosis, interdum subangulatis, diametro circa .00114 unc., dilute flavis, episporio lævi.—II. *Fungus stylosporiferus* (*Uredo*) adhuc ignotus.—III. *Fungus teleutosporiferus*. (*Puccinia*.) Pulvinulis cauliculis foliiculisve, sparsis, paucis, primò sub epidermide arescente tectis, tum hiantibus, lanceolatis, .5—2 lin. longis, fusco-atris, nitidis, dein erumpentibus, amorphis; sporis ellipticis, medio vix constrictis, longè pedicellatis, circa .0021 unc. longis, .001 latis; pedicello hyalino, fragili, .002—.0024 unc. longo, sursum incrassato, episporio lævi, apicem versus crassiore.

Hab. In caulibus Foliisque vivis *Mesembryanthemi micranthi* Haw., loco adhuc ignoto. C. B. S.

Puccinia MESEMBRYANTHEMI MacOw. n. sp.—(*Aecidium form*.) Clusters scattered, chiefly arising from the stem and often encircling it, less frequent on the leaves, orange-yellow; subiculum scarcely thickened; pseudoperidia close set, cylindric, .2 in. long or under, mouth thin, lacerate; spores globose, sometimes sub-angular, about .00114 in. diameter, pale yellow, episporium smooth. (*Uredo form unknown*.)

(*Puccinia form*.) Pulvinuli rising from stem and leaves, scattered, few, at first concealed by the dry epidermis, then opening, lanceolate, from half a line to two lines in length, brownish black, shining, finally erumpent, amorphous; spores on long pedicels, elliptic, scarcely constricted in the middle, about .0021 in. long, .001 in. broad; pedicels fragile, hyaline, .002—.0024 in. long, thickened upwards; episporium smooth, thicker towards the apex.

Hab. On living stems and leaves of *Mesembryanthemum micranthum* Haw. Exact locality unknown. Cape Colony. This appears to be the first Coniomycete parasite detected upon a Mesembryacea. Its *Uredo* or stylosporiferous form should be searched for, remembering that it may possibly exist upon a different host-plant, not even belonging to the same Order.