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## On the situation of the olfactory sense in the terrestrial tribe of the Gasteropodous Mollusca

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I regret that I have not yet been able to verify the parasitic nature upon other species than those which occur in our fields. I propose however to examine whether what I have observed in the plants of this neighbourhood will occur or not in analogous plants, or whether this phenomenon is so modified in them as to afford an explanation of the anomalies of structure I am about to point out.

In a memoir\* presented to the Academy, M. Duchartre described in a parasitic plant, *Lathræa clandestina*, a peculiar ligneous structure, the most prominent character of which is the absence of medullary rays: on the other hand, M. Elie Brogniart in noticing this fact in his report on this paper wished to ascertain whether it did not occur in other plants belonging to the same class as the Clandestine, and he found it in *Melampyrum*: nevertheless in pointing out the anomalous structure in these vegetables, MM. Brogniart and Duchartre did not connect it with the fact of parasitism, but merely saw in it a relation of family. However, this peculiar organization appears to me intimately connected with the parasitic nature of the plants, judging from the uniformity of structure and the black colour of the stems of *Pedicularis*, *Castillegia*, *Cymbaria*, *Bartsia*, *Buchnera*, which are all destitute, according to my observations, of medullary rays.

If parasitic plants assume a black tint mixed with blue on drying—if the absence of medullary rays is one of their attributes—and if these characters are connected with a special absorption of the nutritive juices, I may observe that these occur without exception in a group of plants which no one has hitherto suspected of being parasites, I mean the Sundews, which are likewise uncultivable. But with regard to the species of *Drosera* there is another anomaly far more singular to be investigated, that of a dicotyledonous plant being parasitical upon a moss, if, as I suspect, the *Sphagnum* is necessary to the nutrition of the *Drosera*. There still remains to ascertain the relation of causality between these characters of structure and parasitism.

With respect to the peculiar coloration of the blackening juices which these parasitical vegetables contain, that is a question which belongs to chemistry. In conclusion, the foregoing observations upon *Melampyrum*, *Odontites* and *Alectorolophus* explain clearly why it is impossible to cultivate these plants, which do not meet in the artificial soil of our gardens with the roots of those vegetables at whose expense they live; it also throws some light in my opinion upon the fact observed by agriculturists, that the *Rhinanthaceæ* exert an injurious effect upon the grasses and *Cerealia*.—*Comptes Rendus*, July 12, 1847.

*On the situation of the Olfactory Sense in the terrestrial tribe of the Gasteropodous Mollusca.* By JOSEPH LEIDY, M.D.

While no observer of the habits of the terrestrial Gasteropoda doubts the existence of the sense of smell in them, but, on the con-

\* A translation of this memoir appeared in the 'Annals' for June 1845.

trary, asserts positively that it does exist, the anatomist has not hitherto been able to point out its precise seat.

Swammerdam, in his '*Biblia Naturæ*,' speaks decidedly of the existence of this sense in *Helix pomatia*, but offers no conjecture as to its situation. Blumenbach remarks, under the head of *Vermes*, "Several animals of this class appear to have the sense of smelling, as many land-snails (*Helix pomatia*, &c.)," and afterwards adds, "But the organ of this sense is hitherto unknown; perhaps it may be the stigma thoracicum." Cuvier, in his '*Mémoire sur la Limace et le Colimaçon*,' after remarking on the delicacy of this sense, thinks it probable it may reside "dans la peau toute entière, qui a beaucoup de texture d'une membrane pituitaire."

In investigating the anatomy of this tribe of Gasteropodous Mollusca, I detected an organ which appeared to have been entirely neglected, or has escaped the notice of those who have dissected these animals. It is a depression or cul-de-sac, having its orifice beneath the mouth, between the inferior lip and the anterior extremity of the podal disc, and which in many species of different genera is elongated backwards into a blind duct, more or less deep, occupying a situation just above the podal disc within the visceral cavity. In *Bulinus fasciatus* it extends backwards as far as the tail, and is several times folded upon itself; in *Glandina truncata* it extends the length of the podal disc; in the various species of *Helix* it is found from a superficial depression to a sac the length of the podal disc; in *Succinea obliqua* it is of considerable length; in *Limax* and *Arion* it is a superficial depression; in an undetermined species of *Vaginula*, hereafter to be described, I found it half an inch in length, &c.

It is composed of two laminæ; a delicate lining mucous membrane and an external layer, having a whitish or reddish glandular appearance. A large nerve on each side, from the subœsophageal ganglia, is distributed to its commencement, besides which it receives numerous smaller branches along its course from the same ganglia. Its arterial supply is derived from the cephalic branch of the aorta.

This organ, from its situation, relative size to the degree of perfection of the olfactory sense, as in the carnivorous *Glandina truncata*, &c., its structure and nervous supply, I think, is the olfactory organ\*.—*Silliman's Journal for May 1847*.

*A new species of Procellaria from Florida.* By G. N. LAWRENCE.

*Procellaria brevirostris*.—Above brownish black, beneath white. Bill short; upper tail-coverts white; lower white, tipped with ash, and very long; tarsi pale yellow, marked with black at their ends for two-thirds their length. Length 16 inches, extent 39 inches.—*Ibid*.

\* Since writing the above, I have had an opportunity, through the kindness of Mr. Cassin, of examining a specimen of *Helix pomatia* from Europe, in which I find the organ in question existing as a funnel-shape depression beneath the mouth, and extending backwards along the podal disc for the distance of three-fourths of an inch. This I consider particularly interesting, as the same species has been minutely dissected and described by Swammerdam, Cuvier and others, without any reference whatever to this cul-de-sac.