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II. On M. S. De Luca's Claim to be the Discoverer of the Non-presence of Iodine in the Atmosphere, in Rain-Water, and in Snow

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of the ferns around. Thus, he collected spores for two years from the ripe sporangiferous fronds of *Osmunda cinnamomea*, and on sowing them, under bell-glasses, there came up crops of *Polypodium Dryopteris*, and nothing else. So also, spores from the sporangiferous fronds of *Anemia fraxinifolia* for two years gave rise to crops of *Polypodium caespitosum*; and the spores collected from the ripe sporangiferous fronds of *Darea diversifolia* produced a crop of *Blechnum braziliense*. Mr M'Nab remarked that the spores of the above were matured on the plants, and were growing along with many other species in the neighbourhood of the kinds produced. Spores of the above species taken from plants in a young state, and ripened in a book carried in the pocket, have now come true. In order, therefore, that the spores may produce the species or variety wanted, it seems necessary to collect them in a young state, and to take care that the spores of other ferns do not come into contact with the fronds.

II. *On M. S. De Luca's Claim to be the Discoverer of the Non-presence of Iodine in the Atmosphere, in Rain-Water, and in Snow.* By STEVENSON MACADAM, Ph.D., F.R.S.E., Lecturer on Chemistry, Edinburgh.

A communication, entitled "*Recherches sur l'Iode Atmospherique*," has lately been published by M. S. De Luca, in the "*Journal de Pharmacie*," in which the author details the results of a number of experiments conducted by him in reference to the general distribution of iodine, and in which he lays claim to be the first discoverer of the non-presence of iodine in the atmosphere, in rain-water, and in snow. Had M. De Luca confined himself to the recital of the apparatus and re-agents employed by him in his researches, and to the simple expression of the negative results obtained by him, I would not have considered it necessary to ask the Botanical Society of Edinburgh to allow me to protest against his non-recognition of the earlier labours of others; but since he has appended to his memoir an extract from a communication by M. Cloez on the same subject, in which priority of discovery is yielded to M. De Luca, I think it due to myself that the

following statement of facts should be laid before the Society:—

At the meeting of the French Academy of Sciences on 5th May 1851, M. Chatin communicated a memoir, entitled "Presence de l'Iode dans l'Air," which was published in the "Comptes Rendus" of same date, and in which the author stated his opinion, that he had experimentally demonstrated the presence of iodine as a natural constituent of atmospheric air, rain-water, and snow. In the early part of 1852, I commenced a series of experiments upon this subject, with the view of being able, if possible, to verify the observations of Chatin; and on the 22d June of that year communicated to the late Professor Jameson the results obtained by me up to that time, and which were published in the "Edinburgh New Philosophical Journal" issued on the 1st July. In that paper it is distinctly stated that the air and rain-water experimented upon had yielded no iodine. The investigation was, however, proceeded with; and on the 8th July I communicated to the Botanical Society of Edinburgh a paper "On the Presence of Iodine in Various Plants, with some Remarks on its General Distribution," in which it is recorded that 4000 cubic feet of air, and successive quantities of rain-water collected at Edinburgh, and at Unst in the Shetlands, had failed to indicate the presence of the faintest trace of iodine. This paper was published in the "Chemical Gazette" (1852), in the Transactions of the Botanical Society, and elsewhere; and the substance of it, with the addition of the records of still further experiments, was published in the "Edinburgh New Philosophical Journal" for 1st October 1852. It is there stated that 100,000 cubic feet of atmospheric air had been passed through an apparatus fitted up to arrest iodine and iodides, and "that in the large volume of air subjected to examination there had not been an appreciable quantity of iodine." Twelve gallons of rain-water were likewise examined for iodine, "but without giving a positive result." The examination was continued; and on the 18th April 1853, I read a paper before the Chemical Society of London "On the General Distribution of Iodine," in which reference was made to my previous researches, and other experiments detailed, in which 12

gallons, and even 36 gallons of snow-water "did not exhibit the slightest indication of the presence of iodine," and that "the negative results of these experiments lead me to believe, that in the air, in the rain-water, and in the snow employed by me, there was not an appreciable quantity of iodine;" and that I differed "from the views expressed by Chatin in reference to the atmospheric distribution of iodine." It is likewise mentioned, that "so far as regards the process adopted by myself, it is worthy of remark that Thenard, in commenting upon the researches of Chatin, recommends that the metals most susceptible of being iodized should be exposed for some time to the action of the air. Some months previous to this suggestion being read to the Academy of Sciences, I had used iron and lead in the search for iodine; and ten days prior to the date of Thenard's paper, a report of some of my experiments was published in the 'Edinburgh New Philosophical Journal,' in which the use of the metals was clearly stated." ("Quarterly Journal Chem. Soc.," July 1854.) In September 1854, the foregoing researches formed part of a memoir "On the Distribution of Iodine in the Mineral, Vegetable, and Animal Kingdoms," read by me before the chemical section of the British Association, at the meeting in Liverpool, and which is published in the Transactions of that body, and in the "Pharmaceutical Society's Journal" for December 1854.

Besides the publication in this country, full abstracts of these papers appeared in the "Jahresbericht Chemie" (edited by Liebig and Kopp) for 1852 and 1853, in the "Journal de Pharmacie" for April 1853, and in other continental journals.

Now, the researches of M. S. De Luca were first noticed in the "Journal de Pharmacie" for October 1854; and the details of his experiments, accompanied by a positive statement as to the non-presence of iodine in the atmosphere, in rain-water, and in snow, did not appear till the numbers of the "Journal de Pharmacie" for December 1857, and January 1858. In these latter numbers we find the following:—

"Voici maintenant les experiences faites directement sur l'air, sur l'eau de pluie, et sur la neige.

"*a.* Le 30 Decembre 1852, j'ai monté dans une Chambre de

la rue de Lacedèdè un appareil disposé de la manière suivante :
 cet appareil a fonctionné depuis le 1^{er} Decembre 1852
 jus qu'an 4 du mois de Juin suivant, avec quelques jours
 d'interruption.

"b. Pendant que l'appareil précédent marchait j'ai fait
 d'autres expériences sur l'eau de pluie et sur la neige.

"c. Dans le mois de Fevrier 1854, depuis le 17 jusqu'au 23
 une certaine quantité de neige est tombée avec quelque inter-
 ruption dans Paris. J'ai profité de cette occasion pour re-
 chercher l'iode dans la neige."

And in detailing the remaining experiments on rain-water,
 M. De Luca refers to

"1^o Eau recueillie du 24 Juillet au 30 Septembre 1853.

"2^o Eau recueillie du 1^{er} au 31 Octobre 1853.

"3^o Eau recueillie du 1^{er} Novembre au 31 Decembre 1853.

"4^o Eau recueillie du 1^{er} Janvier au 1^{er} Mars 1854.

"5^o Eau recueillie du 2 Mars au 31 Mai.

"6^o Eau recueillie du 1^{er} au 30 Juin.

"7^o Eau recueillie du 1^{er} Juillet au 3 Août 1854."

It will thus be apparent that M. De Luca did not *commence*
 his experiments till the 30th December 1852,—viz., six months
 after my preliminary note to Professor Jameson had appeared
 in the "Edinburgh New Philosophical Journal," and three
 months after my principal researches had been published in
 detail in the same journal; and he *ceased* to collect material
 for his researches on 3d August 1854, immediately after
 which (October 1854) he announced, very shortly and vaguely,
 the negative results he had obtained. It was thus two years
 and three months after my preliminary statement, and exactly
 two years after my principal memoir had been laid before the
 scientific world, that the researches of M. De Luca were so
 far advanced as to enable him to record even a brief prelimin-
 ary statement on the subject. Before this time, my researches
 had been laid before the Botanical Society of Edinburgh, the
 Chemical Society of London, and the British Association for
 the Advancement of Science; and full abstracts of these
 papers had appeared in many journals published in and out of
 Britain, including Liebig's and Kopp's "Jahresbericht Chemie,"
 and the "Journal de Pharmacie." Moreover, the statement

originally experimentally demonstrated and published by me, as to the non-presence of iodine in the atmosphere, had, previous to the publication of M. De Luca's researches, been corroborated by the labours of M. Casaseca of Havanna ("Comptes Rendus," 9th August 1853), who failed to discover the least trace of iodine in the rain-water which fell in the island of Cuba; and Dr Lohmeyer ("Comptes Rendus," 24th August 1853), who could not find iodine in the atmosphere near Göttingen. Indeed, seven months before M. De Luca published any of his experiments or deductions therefrom, my researches had been referred to by M. Chatin in his review of the labours of MM. Casaseca, Lohmeyer, and myself, which was published in the "Journal de Pharmacie" for March 1854.

It will thus be seen, if priority of publication is to be held conclusive as to priority of research, that M. De Luca cannot even rank second in order in refuting the doctrine of the atmospheric distribution of iodine, but will take the fourth place,—that is, after MM. Casaseca and Lohmeyer.

I may be allowed to state, that whilst repelling the claim of priority on the part of M. De Luca, I have no wish to refer in any way but praise of the processes adopted and the apparatus employed by him in his researches, and the evident care and accuracy of his manipulation; and, at the same time, I have also to express great admiration at the novel and thoroughly satisfactory experiments of M. Cloez on the same subject, which were read before the Institut de France, on the 23d May 1857, and are published in "L'Institut" for 10th June 1857. The conclusions he arrived at are likewise corroborative of the original statement made by me in 1852, that an appreciable amount of iodine or iodides could not be detected in the atmospheric air, in rain-water, or in snow.

III. *Recent Additions to the Cryptogamic Flora of Edinburgh.* By W. NICHOL, M.D.

FILICES.

Scolopendrium vulgare. Of this fern I collected several examples of the multifid variety in Dunglass Dean in June 1856. With these I procured a frond, which exhibits a monstrosity hitherto I believe unnoticed. In this specimen the apex is rounded and emarginate, and about half an inch below it the