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Edited by Charles Sprague Sargent

Excerpt

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ESSAYS.

EUROPEAN HERBARIA.¹

THE vegetable productions of North America, in common with those of most other parts of the world, have generally been first described by European botanists, either from the collections of travelers, or from specimens communicated by residents of the country, who, induced by an enlightened curiosity, the love of flowers, or in some instances by no inconsiderable scientific acquirements, have thus sought to contribute, according to their opportunities, to the promotion of botanical knowledge. From the increase in the number of known plants, it very frequently happens that the brief descriptions, and even the figures, of older authors are found quite insufficient for the satisfactory determination of the particular species they had in view ; and hence it becomes necessary to refer to the herbaria where the original specimens were preserved. In this respect, the collections of the early authors possess an importance far exceeding their intrinsic value, since they are seldom large, and the specimens often imperfect.

With the introduction of the Linnæan nomenclature, a rule absolutely essential to the perpetuation of its advantages was also established, namely, that the name under which a genus or species is first published shall be retained, except in certain cases of obvious and paramount necessity. An accurate determination of the Linnæan species is therefore of the first importance ; and this, in numerous instances, is only attained with certainty by the inspection of the herbaria of Linnæus and those authors upon whose descriptive phrases or figures

¹ American Journal of Science and Arts, xl. 1. (1841.)

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he established many of his species. Our brief notices will therefore naturally commence with the herbarium of the immortal Linnæus, the father of that system of nomenclature to which botany, no less than natural history in general, is so greatly indebted.

This collection, it is well known, after the death of the younger Linnæus, found its way to England, from whence it is not probable that it will ever be removed. The late Sir James Edward Smith, then a young medical student, and a botanist of much promise, was one morning informed by Sir Joseph Banks that the heirs of the younger Linnæus had just offered him the herbarium with the other collections and the library of the father, for the sum of 1000 guineas. Sir Joseph Banks not being disposed to make the purchase, recommended it to Mr. Smith; the latter, it appears, immediately decided to risk the expectation of a moderate independence, and to secure, if possible, these treasures for himself and his country; and before the day closed had actually written to Upsal, desiring a full catalogue of the collection, and offering to become the purchaser at the price fixed, in case it should answer his expectations.¹

¹ The next day Mr. Smith wrote as follows to his father, informing him of the step he had taken and entreating his assistance:—

“HONORED SIR: You may have heard that the young Linnæus is lately dead: his father’s collections and library, and his own, are now to be sold; and the whole consists of an immense hortus siccus, with duplicates, insects, shells, corals, materia medica, fossils, a very fine library, all the unpublished manuscripts, in short, everything they were possessed of relating to natural history and physic; the whole has just been offered to Sir Joseph Banks for 1000 guineas, and he has declined buying it. The offer was made to him by my friend Dr. Engelhart, at the desire of a Dr. Acrel of Upsal, who has charge of the collection. Now, I am so ambitious as to wish to possess this treasure, with a view to settle as a physician in London, and read lectures on natural history. Sir Joseph Banks and all my friends to whom I have entrusted my intention, approve of it highly. I have written to Dr. Acrel, to whom Dr. Engelhart has recommended me, for particulars and the refusal, telling him if it was what I expected, I would give him a very good price for it. I hope, my dear sir, you and my good mother will look on this scheme in as favorable a light as my friends here do. There is no time to be lost, for the affair is now talked of in all companies, and a number of people wish to be purchasers. The Empress

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His success, as soon appeared, was entirely owing to his promptitude, for other and very pressing applications were almost immediately made for the collection, but the upright Dr. Acrel, having given Mr. Smith the refusal, declined to entertain any other proposals while this negotiation was pending. The purchase was finally made for 900 guineas, excluding the separate herbarium of the younger Linnæus, collected before his father's death, and said to contain nothing that did not exist in the original herbarium; this was assigned to Baron Alstrœmer, in satisfaction of a small debt. The ship which conveyed these treasures to London had scarcely sailed, when the king of Sweden, who had been absent in France, returned home and dispatched, it is said, an armed vessel in pursuit. This story, though mentioned in the "Memoir and Correspondence of Sir J. E. Smith," and generally received, has, we believe, been recently controverted. However, the king and the men of science in Sweden were greatly offended, as indeed they had reason to be, at the conduct of the executors, in allowing these collections to leave the country; but the disgrace should perhaps fall more justly upon the Swedish government itself and the University of Upsal, which derived its reputation almost entirely from the name of Linnæus. It was, however, fortunate for science that they were transferred from such a remote situation to the commercial metropolis of the world, where they are certainly more generally accessible. The late Professor Schultes, in a very amusing journal of a botanical visit to England in the year 1824, laments indeed of Russia is said to have thoughts of it. The manuscripts, letters, etc., must be invaluable, and there is, no doubt, a complete collection of all the inaugural dissertations which have been published at Upsal, a small part of which has been published under the title of "Amœnitates Academicæ," a very celebrated and scarce work. All these dissertations were written by Linnæus, and must be of prodigious value. In short, the more I think of this affair the more sanguine I am, and earnestly hope for your concurrence. I wish I could have one half hour's conversation with you; but that is impossible." (Correspondence of Sir James Edward Smith, edited by Lady Smith, vol. i. p. 93.)

The appeal to his father was not in vain; and, did our limits allow, we should be glad to copy, from the work cited above, the entire correspondence upon this subject.

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that they have fallen to the lot of the “*toto disjunctos orbe Britannos*”; yet a journey even from Landshut to London may perhaps be more readily performed than to Upsal.

After the death of Sir James Edward Smith the herbarium and the other collections, and library of Linnæus, as well as his own, were purchased by the Linnæan Society. The herbarium still occupies the cases which contained it at Upsal, and is scrupulously preserved in its original state, except that, for more effectual protection from the black penetrating dust of London, it is divided into parcels of convenient size, which are closely wrapped in covers of strong paper lined with muslin. The genera and covers are numbered to correspond with a complete manuscript catalogue, and the collection, which is by no means large in comparison with modern herbaria, may be consulted with great facility.

In the negotiation with Smith, Dr. Acrel stated the number of species as 8000, which probably is not too low an estimate. The specimens, which are mostly small, but in excellent preservation, are attached to half-sheets of very ordinary paper, of the foolscap size¹ (which is now considered too small), and those of each genus covered by a double sheet, in the ordinary manner. The names are usually written upon the sheet itself, with a mark or an abbreviation to indicate the source from which the specimen was derived. Thus those from the Upsal garden are marked *H. U.*, those given by Kalm, *K.*, those received from Gronovius, *Gron.*, etc. The labels are all in the handwriting of Linnæus himself, except a few later ones by the son, and occasional notes by Smith, which are readily distinguished, and indeed are usually designated by his initials. By far the greater part of the North American plants which are found in the Linnæan herbarium were received from Kalm, or raised from seeds collected by

¹ Upon this subject Dr. Acrel, giving an account of the Linnæan collections, thus writes to Smith: “*Ut vero vir illustrissimus, dum vixit, nihil ad ostentationem habuit, omnia vero sua in usum accommodata; ita etiam in hoc herbario, quod per XL. annos sedulo collegit, frustra quæsi-veris papyri insignia ornamenta, margines inauratas, et cet. quæ ostentationis gratia in omnibus fere herbariis nunc vulgaria sunt.*”

him. Under the patronage of the Swedish government, this enterprising pupil of Linnæus remained three years in this country, traveling throughout New York, New Jersey, Pennsylvania, and Lower Canada; hence his plants are almost exclusively those of the northern States.¹

Governor Colden, to whom Kalm brought letters of introduction from Linnæus, was then well known as a botanist by his correspondence with Peter Collinson and Gronovius, and also by his account of the plants growing around Coldenham, New York, which was sent to the latter, who transmitted it to Linnæus for publication in the "Acta Upsalensia." At an early period he attempted a direct correspondence with Linnæus, but the ship by which his specimens and notes were sent was plundered by pirates;² and in a letter sent by Kalm, on the return of the latter to Sweden, he informs Linnæus that this traveler had been such an industrious collector as to leave him little hopes of being himself farther useful. It is not probable therefore that Linnæus received any plants from Colden, nor does his herbarium afford any such indication.³

¹ "Ex his Kalmium, naturæ eximium scrutatorem, itinere suo per Pennsylvaniam, Novum Eboracum, et Canadum, regiones Americæ ad septentrionem vergentes, trium annorum decursu dextre confecto, in patriam inde nuper reducem læti recipimus: ingentem enim ab istis terras reportavit thesaurum non conchyliorum solum, insectorum, et amphibiorum sed herbarum etiam diversi generis ac usus, quas, tam siccas quam vivas, allatis etiam seminibus eorum recentibus et incorruptis, adduxit." (Linn. Amæn. Acad., vol. iii. p. 4.)

² See Letter of Linnæus to Haller, September 24, 1746.

³ The *Holosteum succulentum* of Linnæus (*Alsine foliis ellipticis carnosis* of Colden) is, however, marked in Linnæus's own copy of the "Species Plantarum" with the sign employed to designate the species he at that time possessed; but no corresponding specimen is to be found in his herbarium. This plant has long been a puzzle to American botanists; but it is clear from Colden's description that Dr. Torrey has correctly referred it, in his "Flora of the Northern and Middle States" (1824); to *Stellaria media*, the common Chickweed. Governor Colden's daughter seems fully to have deserved the praise which Collinson, Ellis, and others have bestowed upon her. The latter, in a letter to Linnæus (April, 1758), says: "Mr. Colden of New York has sent Dr. Fothergill a new plant, described by his daughter. It is called *Fibraurea*, gold-thread. It is a small creep-

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From Gronovius, Linnæus had received a very small number of Clayton's plants, previous to the publication of the "Species Plantarum"; but most of the species of the "Flora Virginica" were adopted or referred to other plants on the authority of the descriptions alone.

Linnæus had another American correspondent in Dr. John Mitchell,¹ who lived several years in Virginia, where he collected extensively; but the ship in which he returned to England having been taken by pirates, his own collections, as well as those of Governor Colden, were mostly destroyed. Linnæus, however, had previously received a few specimens, as, for instance, those on which *Proserpinaca*, *Polypremum*, *Galax*, and some other genera were founded.

There were two other American botanists of this period, from whom Linnæus derived either directly or indirectly much information respecting the plants of this country, namely, John Bartram and Dr. Alexander Garden of Charleston, South Carolina.

ing plant, growing on bogs; the roots are used in a decoction by the country people for sore mouths and sore throats. The root and leaves are very bitter, etc. I shall send you the characters as near as I can translate them." Then follows Miss Colden's detailed generic character, prepared in a manner which would not be discreditable to a botanist of the present day. It is a pity that Linnæus did not adopt the genus, with Miss Colden's name, which is better than Salisbury's *Coptis*. "This young lady merits your esteem and does honor to your method. She has drawn and described four hundred plants in your system: she uses only English terms. Her father has a plant called after him *Coldenia*; suppose you should call this (alluding to a new genus of which he added the characters) *Coldenella*, or any other name which might distinguish her among your genera." (Ellis, Letter to Linnæus.)

¹ To him the pretty *Mitchella repens* was dedicated. Dr. Mitchell had sent to Collinson, perhaps as early as the year 1740, a paper in which thirty new genera of Virginian plants were proposed. This Collinson sent to Trew at Nuremberg, who published it in the "Ephemerides Acad. Naturae Curiosorum" for 1748; but in the mean time most of the genera had been already published, with other names, by Linnæus or Gronovius. Among Mitchell's new genera was one which he called *Chamædaphne*: this Linnæus referred to *Lonicera*, but the elder (Bernard) Jussieu, in a letter dated February 19, 1751, having shown him that it was very distinct both from *Lonicera* and *Linnæa*, and in fact belonged to a different natural order, he afterwards named it *Mitchella*.

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The former collected seeds and living plants for Peter Collinson during more than twenty years, and even at that early day extended his laborious researches from the frontiers of Canada to southern Florida and the Mississippi. All his collections were sent to his patron Collinson,¹ until the death

¹ Mr. Collinson kept up a correspondence with all the lovers of plants in this country, among whom were Governor Colden, Bartram, Mitchell, Clayton, and Dr. Garden, by whose means he procured the introduction of great numbers of North American plants into the English gardens. "Your system," he writes Linnæus, "I can tell you, obtains much in America. Mr. Clayton and Dr. Colden at Albany, on Hudson's River, in New York, are complete professors, as is Dr. Mitchell at Urbana, on Rappahannock River in Virginia. It is he that has made many and great discoveries in the vegetable world." "I am glad you have the correspondence of Dr. Colden and Mr. Bartram. They are both very indefatigable, ingenious men. Your system is much admired in North America." Again, "I have but lately heard from Mr. Colden. He is well, but what is marvellous, his daughter is perhaps the first lady that has so perfectly studied your system. She deserves to be celebrated." "In the second volume of 'Edinburg Essays' is published a Latin botanic dissertation by Miss Colden; perhaps the only lady that makes a profession of the Linnæan system, of which you may be proud." From all this, botany appears to have flourished in the North American colonies. But Dr. Garden about this time writes thus to his friend Ellis: "Ever since I have been in Carolina, I have never been able to set my eye upon one who had barely a regard for botany. Indeed, I have often wondered how there should be one place abounding with so many marks of the divine wisdom and power, and not one rational eye to contemplate them; or that there should be a country abounding with almost every sort of plant, and almost every species of the animal kind, and yet that it should not have pleased God to raise up one botanist. Strange, indeed, that the creature should be so rare!" But to return to Collinson, the most amusing portion of whose correspondence consists of his letters to Linnæus shortly after the publication of the "Species Plantarum," in which (with all kindness and sincerity) he reproves the great Swedish naturalist for his innovations, employing the same arguments which a strenuous Linnæan might be supposed to advance against a botanist of these latter days. "I have had the pleasure," Collinson writes, "of reading your 'Species Plantarum,' a very useful and laborious work. But, my dear friend, we that admire you are much concerned that you should perplex the delightful science of botany with changing names that have been well received, and adding new names quite unknown to us. Thus, botany, which was a pleasant study and attainable by most men, is now become, by alterations and new names, the study of a man's life, and

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of that amiable and simple-hearted man, in 1768; and by him many seeds, living plants, and interesting observations were communicated to Linnæus, but few, if any, dried specimens. Dr. Garden, who was a native of Scotland, resided in Charleston, South Carolina, from about 1745 to the commencement of the American Revolution, devoting all the time he could redeem from an extensive medical practice to the zealous pursuit of botany and zoölogy. His chief correspondent was Ellis at London, but through Ellis he commenced a correspondence with Linnæus, and to both he sent manuscript descriptions of new plants and animals with many excellent critical observations. None of his specimens addressed to the latter reached their destination, the ships by which they were sent having been intercepted by French cruisers; and Linnæus complained that he was often unable to make out many of Dr. Garden's genera for want of the plants themselves. Ellis was sometimes more fortunate, but as he seems usually to have contented himself with the transmission of the descriptions alone, we find no authentic specimens from Garden in the Linnæan herbarium.

We have now probably mentioned all the North American correspondents of Linnæus; for Dr. Kuhn, who appears only to have brought him living specimens of the plant which bears his name, and Catesby, who shortly before his death sent a few living plants which his friend Lawson had collected in Carolina, can scarcely be reckoned among the number.¹

none now but real professors can pretend to attain it. As I love you I tell you our sentiments." (Letter of April 20, 1754.) "You have begun by your 'Species Plantarum'; but if you will be forever making new names, and altering good and old ones, for such hard names that convey no idea of the plant, it will be impossible to attain to a perfect knowledge in the science of botany." (Letter of April 10, 1755: from Smith's Selection of the Correspondence of Linnæus, etc.)

¹ In a letter to Haller, dated Leyden, January 23, 1738, Linnæus writes: "You would scarcely believe how many of the vegetable productions of Virginia are the same as our European ones. There are Alps in the country of New York, for the snow remains all summer long on the mountains there. I am now giving instructions to a medical student here, who is a native of that country, and will return thither in the course of a year, that he may visit those mountains, and let me know whether

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The Linnæan Society also possesses the proper herbarium of its founder and first president, Sir James E. Smith, which is a beautiful collection and in perfect preservation. The specimens are attached to fine and strong paper, after the method now common in England. In North American botany, the chief contributors are Menzies, for the plants of California and the Northwest coast; and Muhlenberg, Bigelow, Torrey, and Boott, for those of the United States. Here also we find the Cryptogamic collections of Acharius, containing the authentic specimens described in his works on the Lichens, and the magnificent East Indian herbarium of Wallich, presented some years since by the East India Company.

The collections preserved in the British Museum are scarcely inferior in importance to the Linnæan herbarium itself, in aiding the determination of the species of Linnæus and other early authors. Here we meet with the authentic herbarium of the "Hortus Cliffortianus," one of the earliest works of Linnæus, which comprises some plants which are not to be found in his own proper herbarium. Here also is the herbarium of Plunkenet, which consists of a great number of small specimens crowded, without apparent order, upon the pages of a dozen large folio volumes. With due attention, the originals of many figures in the "Almagestum" and "Amaltheum Botanicum," etc., may be recognized, and many Linnæan species thereby authenticated. The herbarium of Sloane, also, is not without interest to the North American botanist, since many plants described in the "Voyage to Jamaica," etc., and the "Catalogue of the Plants of Jamaica," were united by Linnæus, in almost every instance incorrectly, with species peculiar to the United States and Canada. But still more important is the herbarium of Clayton, from whose notes and specimens Gronovius edited the "Flora Virginica."¹ Many Linnæan species are founded on the plants

the same alpine plants are found there as in Europe." Who can this American student have been? Kuhn did not visit Linnæus until more than fifteen years after the date of this letter.

¹ "Flora Virginica, exhibens plantas quas J. Clayton in Virgiri col-

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here described for which this herbarium is alone authentic ; for Linnæus, as we have already remarked, possessed very few of Clayton's plants. The collection is nearly complete, but the specimens were not well prepared, and are not therefore always in perfect preservation. A collection of Catesby's plants exists also in the British Museum, but probably the larger portion remains at Oxford. There is besides, among the separate collections, a small but very interesting parcel selected by the elder Bartram, from his collection made in Georgia and Florida almost a century ago, and presented to Queen Charlotte, with a letter of touching simplicity. At the time this fasciculus was prepared, nearly all the plants it comprised were undescribed, and many were of entirely new genera ; several, indeed, have only been published very recently, and a few are not yet recorded as natives of North America. Among the latter we may mention *Petiveria alliacea* and *Ximinea Americana*, which last has again recently been collected in the same region. This small parcel contains the *Elliottia*, Muhl., *Polypteris*, Nutt., *Baldwinia*, Nutt., *Macranthera*, Torr., *Glottidium*, *Mayaca*, *Chaptalia*, *Befaria*, *Eriogonum tomentosum*, *Polygonum polygamum*, Vent., *Gardoquia Hookeri*, Benth., *Satureia (Pycnothymus) rigida*, *Cliftonia*, *Hypericum aureum*, *Galactia Elliottii*, *Krameria lanceolata*, Torr., *Waldsteinia (Comaropsis) lobata*, Torr. & Gr., the *Dolichos? multiflorus*, Torr. & Gr., the *Chapmannia*, Torr. & Gr., *Psoralea Lupinellus*, and others of almost equal interest or rarity, which it is much to be regretted were not long ago made known from Bartram's discoveries.

The herbarium of Sir Joseph Banks, now in the British Museum, is probably the oldest one prepared in the manner commonly adopted in England, of which, therefore, it may serve as a specimen. The plants are glued fast to half-sheets of very thick and firm white paper of excellent quality (similar to that employed for merchants' ledgers, etc.), all care-

legit." Ludg. Bat. 8vo, 1743. Ed. 2, 4to, 1762. The first edition is cited in the "Species Plantarum" of Linnæus ; the second, again, quotes the specific phrases of Linnæus.