CHAPTER 31

Rousseau's Anticipation of Plant Geography

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Points of connection between Rousseau and Humboldt[1]

Jean-Jacques Rousseau and Alexander von Humboldt shared a deep appreciation of magnificent, abundant nature. Rousseau has often been identified as one of the founders of the so-called romantic feeling for nature: "I feel ecstasies and inexpressible raptures in merging myself so to speak with the system of beings, in identifying myself with all of nature" (Rousseau 1959, 1065-6). Humboldt writes to to Don Antonio Joseph Cavanilles (Spanish ecclesiastic and botanist [1745-1804]), from Mexico on 22 April 1803, "…in our own experience we have never enjoyed such energy as in contemplating the beauties and magnificence that nature offers here. Its grandeur, its infinite and new productions electrify us, they transport us with joy and make us so to speak invulnerable" (Humboldt 1869, 162).[2]

Rousseau believes that plants could not be fully appreciated if examined from motives of greed or physical self-interest. In *Rêveries du promeneur*

1. Some links have been made between Humboldt and Rousseau; as Hermand (1996) points out, Goethe and Humboldt are often invoked together with Rousseau as proponents of the natural or English gardens on the Continent. The naturalistic Elysium garden in *Julie* prepared the popular ground for a new style in gardening. Minguet's study (1969, 29, 65) points to direct and indirect Rousseauean influences on Humboldt. But I believe the connections are even more extensive, marking Rousseau's botany as transitional between the classificatory impulse of the seventeenth and eighteenth-century botanists and the ecological science of Humboldt and his successors. I have yet to locate any scholarship linking Rousseau's botanical work as such with that of Humboldt.
2. "…d'après notre propre expérience…jamais nous n'avons joui d'autant de forces qu'en contemplant les beautés et la magnificence qu'offre ici la nature. Sa grandeur, ses productions inifinies et nouvelles nous electrisaient, elles nous transportaient de joie et nous rendait pour ainsi dire invulnerables."All translations mine, unless otherwise indicated.

solitaire he writes, "as soon as we mingle a motive of interest or vanity with [botany]…as soon as we want to learn in order to instruct, as soon as we look for flowers only in order to become an author or professor, all this sweet charm vanishes. We no longer see in plants anything but the instruments of our passions. We no longer find any genuine pleasure in their study…" (Rousseau 1959, 1069).

In *Cosmos* Humboldt explores the effect of nature upon the human spirit, expressing himself in a way that Rousseau could have appreciated:

> In speaking of vegetal forms, I think of the *emotion* that their appearance can produce, not at all of the assistance that one can derive from them for the study of botany…. In this exuberant nature, what should fix our gaze…is the picturesque union of the great and noble plant forms that cover the western part of the course of the Orinoco and wooded shores of the Amazon and Huallaga rivers… (emphasis added; Humboldt 2000, 423-4).

Humboldt explicitly recognized Rousseau's appreciation of nature; Humboldt praises Rousseau for his descriptions of Swiss landscapes in *Julie, ou la nouvelle Heloïse*. "…I recall here the entrancing eloquence of Rousseau, the picturesque descriptions of Clarens and la Meillerie on the shores of lake Geneva." These compared favorably in Humboldt's view, with "the immortal poetry of Klopstock, Schiller, Goethe [and] Byron" (Humboldt 2000, 399).

Three particular features of Rousseau's botanical thought are, I argue, central to Humboldt's geographical perspective on plants: (1)the observation that climate and other features of habitat play a crucial role in whether plants flourish or languish; (2)that transplantation therefore leads to changes, even degeneration (a phenomenon already well-established in the botanical literature of Rousseau's day); and (3) the conclusion that the best way to study nature is to observe it *in situ*. Rousseau's criticism of Linnaeus in his *Confessions* sums up this position: "he [Linnaeus] studied botany too much in herbaria and gardens and not enough in nature itself" (Rousseau 1959, 643).[3] Humboldt, perhaps more than any naturalist of his era, demonstrated the validity of Rousseau's criticism of Linnaeus. Inspired from a young age by tropical vegetation – the dragon tree of the Berlin botanical garden and his father's collection of exotic trees at Schloss Tegel – as well as by the paintings of the Ganges by William Hodges (who accompanied Cook's second world voyage and traveled in India and Russia) and Bernardin de Saint Pierre's *Paul et Virginie*, he set out to explore nature as no European before him had ever done (Humboldt 2000, 346).

3. It should be noted that Rousseau is no mere rote classifier, pace Starobiniski (1971, 279); his perception of the importance of habitat, as well as his other botanical activities, described briefly below, demonstrate that he saw plants situated within the larger natural and global context. See also Cook 2003b, 108.

Humboldt and Rousseau both argued that organisms should be studied in their native habitats, and for the same reasons: plants in their native habitats are (1) free, and therefore (2) vigorous: "The ideas of vigor and liberty are also inseparable in the profusion of nature...(Humboldt 2000, 425). The plant in its native habitat has not been changed or diminished by transplantation to a foreign clime. We now understand, as beneficiaries of Darwin's investigations, that organisms adapt themselves to their habitats through generations of natural selection.[4] Before Darwin, Rousseau and Humboldt were already aware of the intimate connection between geography (understood as climate and habitat) and plant life.

It likewise follows from the principles laid down by Rousseau and Humboldt that naturalists must travel in order to compile a complete inventory of nature because organisms cannot be understood if torn from their habitats, transplanted or observed as dead specimens.

Finally, both men abhorred slavery, a topic that I do not have the scope to explore here.[5]

In what follows I discuss those aspects of Rousseau's botanical views and undertakings that illuminate the ways in which he may have influenced Humboldt. Given limitations of space, I do not attempt any extensive elaboration of Humboldt's theory of the geography of plants. I shall merely note that Humboldt held that similar (but not the same) plant species appear in climatically similar zones, such that species akin to European ones (e.g. from the same genera) can be found in elevated regions of the torrid zones, but not in the same ratios. The species in the torrid zones always differ from those in the temperate zones because the "distribution of heat" is different over the course of the seasons (Humboldt 1816, 8-9).[6]

Jean-Jacques Rousseau

Jean-Jacques (1712-1778) encountered the chemistry of plants as a young man; this encounter had two modes: (1) the herbalist-pharmaceutical variety of botany practiced in the household of Mme de Warens, and (2) the aca-

4. This view echoes that of Michel de Montaigne who analogizes wild peoples to wild plants, neither as yet 'bastardized' by civilization; they are products of nature acting "by herself and in her own way" (Montaigne 1958, 109).

5. See his condemnations of slavery in Book I, ch. 4 of *Du Contrat Social* (Rousseau 1964, 355-8) and in *Julie* (Rousseau 1997, 339-40).

6. Humboldt does not consider himself the originator of the idea; rather, he attributes the notion even to primitive peoples, such as the Orinoco, and finds the germ of the idea already in Tournefort's "Relation d'un voyage au Levant" (Paris, 1717) and in the dissertations (186 in all) of Carolus Linnaeus, "Amœnitates academicae," 10 vols. (Stockholm, Leiden, Erlangen and Amsterdam, 1749-1790). Terms such as "alpine plants" and "plants of hot countries" in ordinary language "prove that men's attention has been constantly fixed on the distribution of plants and their relations with air temperature, the elevation of the soil, and the nature of the terrain they inhabit" (Humboldt 1816, 1-2).

demic variety Rousseau later pursued with his patron, Dupin de Francueil (Rousseau 1959, 180-1, 293). He later wrote that "[i]t must certainly be that I was born for this art," that is, botany (Rousseau 1959, 181). In 1762 *Emile* and *Du Contrat Social* were condemned as subversive and Rousseau had to flee France, going first to Switzerland. While in Switzerland, he became acquainted with a physician who taught him the rudiments of Linnaean botany. He later studied with a close associate of the great Swiss botanist, Albrecht von Haller, Abraham Gagnebin of La Ferrière in the Swiss Jura. In 1765 Rousseau likewise had to leave Switzerland (ejected from the Île St. Pierre in the lake of Bienne by the Senate of Bern), and his next port of call was England, where he was a guest of David Hume. Rousseau soon fell out with Hume, and left London with all its social pressures; he spent much of his time botanizing in the English countryside with Margaret Cavendish Harley Bentinck, Duchess of Portland (1715-1785), through whom he became acquainted with English botanists such as John Ray.

Rousseau left a number of writings on botany, all published posthumously; he worked on a dictionary of terms of usage in botany, which he never finished[7] and corresponded with several botanists, among them leading Linnaean botanists in France: Antoine Gouan and Marc-Antoine-Louis Claret de Latourrette, as well as Carolus Linnaeus himself. At the same time, Rousseau was well-acquainted with the French botanists who followed Bernard de Jussieu's natural family system (as opposed to the artificial sexual system of Linneaus). He herborized with Jussieu's nephew, Antoine-Laurent, as well as with André Thouin, both of the Jardin du roi, Paris; he also visited the garden of the Trianon at Versailles, which housed more species (many exotic) than any other garden in France (Cook 2003b). He read the largely Latin botanical literature starting with Theophrastus and ending with Regnault; he owned many botany books, and took notes from texts on South American flora.[8]

Rousseau's most famous botanical work is his so-called *Lettres élémentaires sur la botanique*, eight letters framed as a botany course for a friend's young daughter. These were read with interest by, among others, Johann Wolfgang von Goethe. Rousseau also made herbaria in various formats, some

7. The *Dictionnaire des termes d'usage en botanique* may have been composed as late as 1777-78 when Rousseau had access during the winter to the Abbé de Pramont's copy of Nicolas Regnault, *La Botanique mise à la portée de tout le monde* (Paris, 1774); Rousseau returned the Abbé's copy by a letter of 31 April 1778 (Rousseau 2000, 249). This conclusion is based on an analysis of the entries, many of which he appear to follow Regnault, Michel Adanson or Joseph Pitton de Tournefort. See Kobayishi 2003, 19.

8. Cook 2002 and Cook 2003a. See also the notes to Rousseau's botanical writings, which document his extensive reading in upwards of seventy botanical sources (Rousseau 2000, 298- 333). Since compiling these notes, I have located references to additional works that Rousseau owned and/or consulted. This material is in preparation for publication.

intended to be portable, one even miniature, to serve as an introduction to botany; several of these survive, notably in collections at the Musée Jean-Jacques Rousseau, Montmorency, the Zentralbibliothek Zürich and the Musée des arts décoratifs, Paris; these make a striking impression, presenting specimens in dramatic ways, as in Fig. 31-2.[9] There is only one plant on the page, framed by thin lines in ink. It is carefully attached with bands rather than with glue or wax. The entire impression is one of elegance and concern for the preservation of the specimen.

FIGURE 31-1. *L'homme de la nature*.

Colored lithograph by C. de Last, after Mayer, *Vues de différentes habitations de Jean-Jacquen Rousseau*, 1819.

Rousseau studied methods of plant preservation and herbarium fabrication, and devoted one of his eight letters on botany to Mme Delessert to a thorough discussion of this exacting practice (Rousseau 2000, 159-63). Rousseau demonstrates his interest in plant habitat and habit in the notes he included with the specimens in his herbaria, a practice he may have adopted from his correspondent, the jurist and botanist, Marc-Antoine-Louis Claret de

9. I am currently preparing an article on Rousseau's herbaria, a topic that has received very little scholarly attention.

Latourrette. For example, the note accompanying the specimen in Fig. 31-2 reads: “This plant flowers only at the end of autumn. Its pretty flax-gray flower that emerges directly from the earth, with neither stem nor leaves, makes a charming effect in the meadows, which are sometimes completely covered with it. The top and the fruits do not appear until the following year, such that the flower and the leaf never appear at the same time” (Dufour 1906, 263).

FIGURE 31-2. *Colchicum autumnale*

From the herbarium of 100 plants and one alga prepared by Rousseau for Julie Willading-Boy de la Tour, 1772 (Rousseau 2000, 136). Permission to photograph courtesy of the Handschriften-abteilung, Zentralbibliothek Zürich.

Latourrette, founder of the botanical garden of the Veterinary School of Lyon, created a personal herbarium of considerable scientific significance, containing seven thousand plants, four thousand indigenous to the Lyon region (Magnin 1885, 49). Rousseau visited his correspondent in Lyon and no doubt saw his herbarium, as suggested by the description of “his rich collection [that] gathers in a small space almost all the productions of nature”

(Rousseau 2000, 225). Magnin points out that Latourrette's ecological notes were unusual for his day: "at this time, the majority of naturalists attached little significance to these detailed reports of localities, stations, etc." (Magnin 1885, 50).[10]

Rousseau's awareness of the intimate relation between plant and habitat is likewise evident in his critique of acclimatization of so-called exotic plants in Europe, describing them as "exiled and denatured in the gardens of the curious" (Rousseau 2000, 248). In his *Dictionnaire des termes d'usage en botanique*, he writes, "[p]lants transported out of their climate are subject to variation….Some plants that are perennials in hot counties become annuals among us, and this is not the sole alteration that they undergo in our gardens." He concludes: "Hence the exotic Botany studied in Europe provides often very false observations" (Rousseau 2000, 129). "Exotic botany," the practice of acclimatizing non-native plants to Europe had been taking place since at least Antiquity; it gained considerable momentum during the Renaissance in conjunction with European voyages of exploration; by the eighteenth century it had become a matter of state scientific and economic policy in Britain and France (Cook 2002).

Transplantation schemes were taken to extremes by Linnaeus, who developed his "faulty hypothesis" that held it would be possible to transplant tea, cotton and other non-European species to northern Europe.[11] Yet Linnaeus himself was aware of the phenomenon of degenerate transplants, and advocated special scientific "gardens of paradise" where they could receive the best possible cultivation (Mueller-Wille 1999, 189-90).

The degenerate transplant was already attested in the literature by 1727, if not earlier; the Dutch botanist Hermann Boerhaave put the matter thus: "…when they [exotics] are transplanted from other Climates, they change in this foreign soil, if therefore one wants to depict them one represents the same plant under the form of several different ones…" (Boerhaave 1727, n.p.).[12] The Dutch-Austrian botanist Nicolaus-Joseph Jacquin wrote, "I must warn botanists that plants in hothouses will often have a habit of growth which differs greatly from that in the wild. Some are beautiful in nature and unseemly in cultivation, with others it is the other way around" (Jacquin 1971, F20).

Rousseau gave these views wider currency by incorporating them in popular works such as *Emile* and *Julie*. Rousseau's general thesis is that what

10. "…à cette époque, la plupart des naturalistes attachaient peu d'importance a ces constations minutieuses de localités, de stations, etc."
11. Koerner 1994, 144-169, and Koerner 1999, ch. 6.
12. "…lorsqu'elles sont transplantées dans d'autres Climats, elles changent de naturel dans ce fond étranger, si alors on veut les dépeindre, on répresente la même plante sous la figure de plusieurs différentes…"

nature does is best, and what man does in imitation of nature (e.g. Emile's education and Julie's Elysium) is good. When man disturbs or alters the course of nature, he does ill: "Everything is good, coming from the hands of the author of all things: everything degenerates in the hands of man. He forces one soil to nourish the productions of another, one tree to carry the fruits of another. He mixes and confounds the climates, the elements, [and] the seasons" (Rousseau 1969, 245). In *Julie* Rousseau creates Elysium, his answer to the French geometric garden with its imported contents. Elysium appears completely natural, but is in fact entirely the product of art. In Elysium St Preux reports, "I thought I was looking at the wildest, most solitary place in nature" (Rousseau 1999, 387). Elysium avoids degenerate horticulture, using only local vegetation: "I did not find exotic plants and products of the Indies, I found the local ones arranged and combined in a manner that yielded a cheerier and pleasanter effect…A thousand wild flowers shone there, among which the eye was surprised to detect a few garden varieties, which seemed to grow naturally with the others" (Rousseau 1999, 388).

Rousseau's writings on botany reflect these general views. In a letter to Chrétien-Guillaume de Lamoignon de Malesherbes of 19 December 1771 Rousseau writes, "the long habit of rummaging through the countryside has made me familiar with the majority of indigenous plants. It is only in gardens and among exotic productions where I find myself in unknown territory." Further on in the same letter he comments, "in my view the greatest charm of botany is to be able to study and know the nature around one rather than nature as it is in the Indies" (Rousseau 2000, 231). This idea was congenial to Goethe, who commented, "he [Rousseau] takes examples from the immediate vicinity, speaking only of *indigenous* plants, and not presuming to consider exotic ones, even those known and cultivated domestically" (Goethe 1989, 158; Goethe 1955, 158-9).[13] Goethe suggests Rousseau does this in order to communicate effectively with women in the eight letters, but this hardly seems the case given his repeated references to studying and enjoying indigenous nature, most notably in *Julie*, and his characterizations of transplants as "exiled and denatured" (Rousseau 2000, 248).

This should not be taken to suggest, however, that Rousseau rejected the study of exotic nature, but he thought this study should be conducted to its own habitat, and that exotic plants should not be exported, trafficked or transplanted, for these exercises yield only profits, not knowledge or spiritual benefits. Like Humboldt, Rousseau took a particular interest in the flora of South

13. "Denn da er an Frauenzimmer zu reden hat, versteht er…auf Gebrauch, Nutzen and Schaden hinzuweisen, und dies um so schicklicher and leichter, da er, alle Beispiele zu seiner Lehre aus der Umgebung nehmend, nur von dem Einheimischen spricht und auf die exotsichen Pflanzen, wie sie auch gekannt sein und gepflegt werden mögen, keine Ansprüche macht."

America and the Caribbean, although he never traveled there; he took notes from Jacquin's *Selectarum stirpium Americanarum* (Vienna 1763), and he owned a copy of Fusée Aublet's *Histoire des plantes de la guiane françoise*, 4 vols. (Paris 1775). He may have even been personally acquainted with Aublet, the first European to explore French Guiana since he acquired one of Aublet's herbaria in May 1778; specimens from this herbarium can be seen in the Rousseau collection at the Musée Jacquemart-Andre, at the Abbaye de Chaalis, outside Paris.

Rousseau applauded voyages of exploration such as those of Cook, and read travel accounts, as is clear from the lengthy notes to the *Discours sur l'origine de l'inegalité*: "The accounts of voyagers are full of examples of the force and vigor of men of barbarous Nations and Savages" (Rousseau 1964, 198). In a letter to the Duchess of Portland of 23 January 1772 he wrote of Cook's second *Endeavour* voyage, "I learn that animated by his success [Daniel Solander] is going to brave new perils in order to extend the inventory of riches of the human species…O great and worthy enterprise! What would have I not given to be able to follow in his footsteps…" (Rousseau 2000, 189).

Like most Enlightenment philosophers, Rousseau was intrigued by the potential of voyages of exploration for advancing the understanding of nature and man. Particularly appealing was the possibility of finding the most primitive of men still living in the state of nature: Caribs, Tahitians, or even the "forest-man" of the East Indies, the orang-hutan. Rousseau cites a wealth of examples available to him at the time of writing the *Discours sur l'origine de l'inegalité*. He was no more sanguine, however, about the transplantation or acclimatization of people, than he was about exotic botany, writing in a note to the *Discours*: "It is an extremely remarkable thing that, for the many years that Europeans torment themselves in order to bring the Savages from various countries to their manner of living, they still have not been able to win over a single one of them….Nothing can overcome the invincible repugnance they [the Savages] have against…living in our way" (Rousseau 1964, 220).

Rousseau's mediators: Goethe and Bernardin de Saint Pierre

Humboldt no doubt knew Rousseau already from his youth; as Minguet argues, Goethe and the *Sturm und Drang* are unimaginable without Rousseau (Minguet 1969, 65). Humboldt likewise knew the works of Rousseau's disciple, Bernardin de Saint Pierre; Bernardin had served as an army engineer in Mauritius, the French colony then known as the Île de France. His account of that experience, *Voyage à l'Île de France*, made him known to Rousseau,

with whom he botanized in the 1770's. Indeed, it is to Bernardin that we owe the sole written description of Rousseau's attempt to render in symbols what others unsuccessfully tried to do in words (Bernardin 1799, 2: 78-9).

Bernardin's *Paul et Virginie* was one of Humboldt's favorite works and accompanied him to the tropics, while Bernardin's *Études de la nature* was "a work which, among a large number of inexact ideas concerning the nature of the earth, includes some profound and ingenious views about the forms, relations and habits of plants" (Humboldt 1816, 2).[14] Humboldt attributes the notion of the geography of plants to a number of precursors, including Bernardin: "The same name [that of the geography of plants] is found in the *Studies of Nature* of Bernardin de Saint Pierre, a work of the imagination, it is true, but one of a lively and brilliant imagination" (Humboldt 2000, 334; see also Bernardin 1799, I: 43).[15]

Bernardin's *Études* were influenced by his conversations with Rousseau; Bernardin shares with Rousseau a teleological, theistic perspective on nature that is not Humboldt's. Yet Bernardin could also be an acute and exact observer, using quantitative observations to make his case for God the beneficent Creator, and nature, which makes nothing in vain. For example, he measured the angle of inclination the branches form with the stem to illustrate the marvelous adaptation of mountain vegetation to damp environments. Bernardin found this angle consistently to be thirty degrees, "the same with that which is formed, in a flat country, by the course of many rivulets and smaller rivers, with the great rivers into which they discharge themselves…The same Wisdom has regulated the level of the branches in trees, and the course of the stream through the plains" (Bernardin 1799, II: 124).

While all German intellectuals of the late eighteenth century can be assumed to have read Rousseau, another important figure could have mediated the connection between Rousseau and Humboldt, namely, the poet and statesman, Johann Wolfgang von Goethe.

Goethe's view of Rousseau

Rousseau enjoyed great popularity among German *Aufklärer* in the late eighteenth century; Goethe read Rousseau's posthumous works soon after their appearance in 1782, when he was starting his career as Privy Councillor in the Duchy of Sachse-Weimar, with forestry as one of his portfolios. His official duties set him on the path of nature study, and he claims Rousseau played

14. "…ouvrage qui, parmi un grand nombre d'idées inexactes sur la physique du globe, renferme quelques vues profondes et ingénieuses sur les formes, les rapports et les habitudes des végétaux" (Humboldt 1816, 2).
15. "Le même nom [géographie des plantes] se retrouve dans les "Études de la nature" de Bernardin de Saint Pierre, œuvre d'imagination il est vrai, mais d'une imagination vive et brillante."

a pivotal role in making that path accessible and attractive. In the history of his botanical studies Goethe spends several pages discussing Rousseau's botany, citing him as a critical influence:

> His method of narrowing down the plant world lends itself to the classification of plants according to families...and since I too at that time had been led to conclusions of this kind, I was all the more forcibly impressed by his presentation.
>
> And just as young students prefer young teachers, so also does the dilettante like to learn from the dilettante. This would of course be questionable...if experience did not show that dilettantes contribute a geat deal to science....(Goethe 1989, 158-9).[16]

Goethe and von Humboldt became acquainted in late 1794 through Alexander's older brother Wilhelm; Goethe alludes to his cordial relations with the brothers in a letter of December 1794 (Goethe 1964, 191). Goethe was serving as a Privy Councillor to the Duke of Sachse-Weimar, while Humboldt was still an official on the fast track in the Prussian Ministry of Mines. They remained in contact from this time onwards and were particularly close in the mid-1790s when they studied anatomy together in Jena under J. Ch. Loder (Minguet 1969, 49). On 18 June 1795 Goethe writes of wishing to visit Ilmenau (where he had ministerial obligations in the mining sector) with Humboldt. Goethe expresses to Humboldt the hope of seeing him from time to time, and having the opportunity to "become ever more familiar with what you think and do" (Goethe 1964, 198).[17]

Despite their mutual interests, the profound differences in their way of working and thinking about the natural world soon became apparent; in a letter of 18 June 1795 Goethe wrote to Humboldt: "Since your observations proceed from the element, mine from the form, we cannot therefore move quickly enough to meet each other in the middle" (Goethe 1964, 197-8).[18] Humboldt studied nature into the minutest details, employing quantitative measures whenever possible, while Goethe sought to grasp the *Phänomen* in its essence. Humboldt nonetheless shared with Goethe the view that nature is ultimately one great whole.

16. "Seine methode das Pflanzenreich ins Engere zu bringen, neigt sich, wie wir oben gesehen haben, offenbar zur Einteilung nach Familien; und da ich in jener Zeit auch schon zu Betrachtungen dieser Art hingeleitet war, so machte sein Vortrag auf mich einen desto größeren Eindruck.
Und so wie die jungen Studierenden sich auch am liebsten an junge Lehrer halten, so mag der Dilettant gern vom Dilettanten lernen. Dieses wäre freilich…bedenklich, wenn nicht die Erfahrung gäbe, daß Dilettanten zum Vorteil der Wissenschaft vieles beigetragen [haben]" (Goethe 1955, 159).
17. "mit dem, was Sie denken und tun, immer bekannter zu werden."
18. "Da Ihre Beobachtungen vom Element, die meinigen von der Gestalt ausgehen, so können wir nicht genug eilen, uns in der Mitte zu begegnen."

Goethe continued to take an interest in Humboldt's work. Writing to Sulpiz Boisserée on 14 June 1816, Goethe comments, "Alex. Von Humboldt has sent me a short but extremely significant work: on the laws that are observed in the distribution of plant forms, which has, despite all distraction, once again set me on the long trod and familiar nature path…" (Goethe 1965, 358; see also Humboldt 1816). As a sign of his regard, Humboldt dedicated the first volume of the German translation of the *Relation historique du voyage aux régions équinoxiales du nouveau continent* to Goethe. Upon receiving the second volume of the *Relation historique*, Goethe wrote to Humboldt: "...I must add that among the most pleasant memories of an earlier time the cohabitation with you and your brother remains a bright spot..." (Goethe 1965, 505-6).[19] Finally, Goethe commented to Eckermann, 11 December 1826: "What a man he is! I have known him so long, and nevertheless I am astonished by him anew. One could say he does not have his equal in information and lively knowledge. And a many-sidedness, which I have also never seen before. Wherever one turns, he is everywhere at home and showers us with spiritual gifts" (Goethe 1984, 109; Moheit 1999, 246).[20]

Goethe could have conveyed his regard for Rousseau's botany to Humboldt during their scientific labors in Jena or at any other time. My point is that Goethe attributed his own inspiration to study botany to a very large extent to Rousseau, and it would be only natural for him to relay that enthusiasm to Humboldt.

Humboldt's View of Rousseau

Humboldt considered Rousseau to have evoked the beauty of nature for his readers in a peculiarly effective way. Had Humboldt seen Rousseau's herbaria, he might have expressed a similar opinion of them as well; these were, however, all in private hands at the time, and there is no evidence that Humboldt was even aware of their existence. Goethe refers to them in the account of his botanical studies, but concludes, quite erroneously, that Rousseau "probably had neither the skill nor the perseverance to give much attention to the preservation of plants on his many excursions…" (Goethe 1989, 159). In *Cosmos*, Humboldt writes:

19. "Wie ich denn hinzusetzen muss, dass unter den angenehmsten Erinnerungen früherer Zeit mir das Zusammenleben mit Ihnen und Ihren Herrn Brueder ein lichtester Punkt bleibt: denn wie viele hoffnungs- und tatenreiche Anfänge habe ich denn in meinmen Leben so folgereich fortsetzen und glanzreich wachsen sehen?"
20. "Was ist das für ein Mann! – Ich kenne ihn so lange, und doch bin ich von neuem über ihn im Erstaunen. Man kann sagen, er hat an Kenntnissen und lebendigem Wissen nicht seinesgleichen. Und eine Vielseitigkeit, wie sie mir gleichfalls noch nicht vorgekommen ist! Wohin man rührt, er ist überall zu Hause und überschuettet uns mit geistigen Schaetzen."

> If I recall here the entrancing eleoquence of Rousseau, the picturesque descriptions of Clarens and la Meillerie on the shores of lake Geneva [in *Julie*], it is in the main writings of this zealous, but unschooled, herborizer, writings that are twenty years in advance of the *Epochs of nature* of Buffon, in which enthusiasm [for nature] overwhelms [the reader] as much as in the immortal poetry of Klopstock, Schiller, Goethe [and] Byron[,] and manifests itself especially in the precision and originality of the language. A writer can, without having had the direct results of science in view, inspire a lively taste for the study of nature, by the appeal of his poetic descriptions, even when they concern very circumscribed and well-known places (Humboldt 2000, 399).[21]

While it would appear that for Humboldt, Rousseau is a mere herborizer, a plant collector – zealous, but possessing little or no scientific knowlege, this assessment in Humboldt's masterpiece tells only part of the story, for Rousseau's influence is apparent in many aspects of Humboldt's life and work: (1) his desire ca. 1795 to lead a peaceable life in a naturally idyllic setting such as that of lake Lucerne (Minguet 1969, 96); (2) his emotional response to the beauty and magnificence of nature (cited in the introduction to this paper), and (3) his advocacy, above all, of studying plants in their native habitat.

More telling are Humboldt's comments about the relative value of transplanted plants versus herbarium specimens. Hothouses, he writes, are "hospitals for languishing plants," offering "a weakened reflection" of "the spectacle, of which we cannot think without sighing after those countries where the life force flows with greater abundance" (Humboldt, 2000, 424). Herbaria are preferable to such weakened transplants: "The ideas of vigor and liberty are inseparable also in the profusion of nature, and to the eyes of the zealous botanist who has traveled the world, the plants cut on the Cordilleres or on the plains of India and dried in a herbarium often have more worth than the same living species that have grown up in one of our European hothouses" (Humboldt 2000, 424).

Humboldt agrees therefore with Rousseau that hothouses can only show us degenerate plants, exiled and denatured from their native climes. Somewhat surprisingly, he privileges herbaria specimens over these hothouse degenerates. On the other hand, transplants may preserve enough of their

21. "Si je rappelle ici l'éloquence entraînante de Rousseau, les descriptions pittoresques de Clarens et de la Meillerie sur les bords du lac de Geneve, c'est que dans les principaux écrits de cet herborisateur peu instruit mais zélé, écrits qui ont devancé de vingt années les "Époques de la nature" de Buffon, l'enthousiasme déborde aussi bien que dans les immortelles poésies de Klopstock, de Schiller, de Goethe, de Byron, et se manifeste surtout par la précision et l'originalité du langage. Un écrivain peut, sans avoir eu en vue les résultats directs de la science, inspirer un goût vif pour l'étude de la nature, par l'attrait de ses descriptions poétiques, alors même qu'elles portent sur des lieux très circonscrits et bien connus."

original grandeur that they can move the hearts of sad Europeans dwelling under gray skies surrounded by a relatively impoverished vegetation. “But even if the general impression is diminished, this inferiority [of hothouse plants] is compensated for by the domination that reality exercises everywhere on our senses” (Humboldt 2000, 424). “It is one of the most beautiful fruits of European civilization that today it is possible for man, in the less favored countries, to taste, thanks to collections of exotic plants, the magic of landscape painting…” (Humboldt 2000, 430).

We thus return at the end of volume II, chapter 3 of *Cosmos* to Rousseau’s gratitude for nature’s ability to move men: “…the earth offers man in the harmony of the three realms a spectacle filled with life, interest, and charm, the only spectacle in the world of which his eyes and his heart never weary” (Rousseau 1959, 1062).

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