Collective Research in Anthropology

CORA Journal
Fall 2024 (2) | Love – Subversion – Perception

Love and control in the glasshouse: the importance of affect to Victorian botanical understandings

Article

Beatriz Mutter Quinderé Fraga[a]

[a] *School of Anthropology and Museum Ethnography, University of Oxford, United Kingdom.*
. beatriz.fraga@anthro.ox.ac.uk

Abstract This essay explores how Victorian exotic plant enthusiasts related to their plants. Drawing on historical research, it portrays botanical interest in nineteenth-century Europe as contradictory. On the one hand, imperial and scientific aspirations sought to transfer plants from colonies to metropoles where technical innovations such as glasshouses enabled research and control of vegetal beings. On the other hand, the proximity to such plants and the care they demanded inspired a deep love for botanical subjects. This affective connection had a powerful influence on the perceptions of plants and their agency, the recognition of which deeply questioned the ideas of human superiority of the period. This work suggests the use of anthropological theory to conciliate this tension. By drawing on multispecies ethnography and affect, it is possible to understand how such contradictions not only could coexist among Victorian plant enthusiasts but were also a vital element of their research. Love was an essential element in shaping and subverting Victorian botany.

Résumé Cet essai explore les multiples façons dont les amateurs de plantes exotiques de l'époque victorienne entretenaient des relations avec leurs plantes. En s'appuyant sur des recherches historiques, il dépeint l'intérêt botanique dans l'Europe du XIXe siècle comme contradictoire. D'une part, les aspirations impériales et scientifiques cherchaient à transférer les plantes des colonies vers les métropoles, où les innovations techniques telles que les serres permettaient la recherche et le contrôle des êtres végétaux. D'autre part, la proximité de ces plantes, ainsi que les soins qu'elles requièrent, inspirent un amour profond pour les sujets botaniques. Ce lien affectif a fortement influencé les perceptions de la plante et de son pouvoir, dont la reconnaissance a profondément remis en question les idées de supériorité humaine de l'époque. Ce travail suggère l'utilisation de la théorie anthropologique pour concilier cette tension. En s'appuyant sur l'ethnographie multi-espèces et l'affect, il est possible de comprendre comment de telles contradictions ont pu non seulement coexister chez les passionnés de plantes de l'époque victorienne, mais ont également constitué un élément vital de leur recherche. L'amour était un élément essentiel dans la formation et la subversion de la botanique victorienne.

Keywords Victorian botany; multispecies ethnography; affect

Walking into a greenhouse can be impactful. Suddenly, the visitor finds themselves in a different world where even the air is strange – humid and warm. A quick visit to a botanical garden can transport them to a distant jungle inhabited by weirdly exciting

plants. The contrast between the outside and inside environments of a glasshouse is not arbitrary but rather an essential aspect of the historical and political context in which they emerged. Having their origins in nineteenth-century Europe, they were important spaces where citizens of the metropole could access the vast diversity of colonial biomes and flora conveniently subjugated and manicured for European sensibilities (Stynen 2009; Valen 2016). The latter, however, did not leave the greenhouse unscathed. When seen at such close distance, tropical plants had the power to affect visitors, enabling a new understanding of such beings and maybe even of humans themselves.

This essay will explore the complexity of nineteenth-century European conceptualization of exotic plants. At first glance, Victorian horticultural practices can be seen as the epitome of European attempts to control nature and Others.[1] However, there were also more complex and nuanced relations at play. The very technological and scientific innovations that enabled such a sense of power unsettled and even denied it. Affective relations created by care and attention seem to have led to a recognition of plant agency among Victorians.

To show how love for plants can subvert one's perception of such beings, this work will offer a literature review of two bodies of research: nineteenth-century indoor plant cultivation; and multispecies ethnography. The apparent incongruity of such topics will be overcome as it becomes clear that Victorian plant enthusiasts were using research methods more attuned to our current understandings of non-human agency than one would initially expect. First, an overview of the historical context of indoor gardening will be provided to illustrate the importance of such practice to middle- and upper-class Europeans of that time. The second section will build upon this context to question the idea that Victorian scientific efforts erased a more nuanced understanding of non-human life and agency. It will draw on historical research exploring how technical and scientific innovations that supposedly enabled the subjugation of plants contributed to a new perspective on vegetal beings more attuned to their agency and ability to influence humans. I will finally argue that the tension between such contradictory understandings of plants can be best comprehended through an affective lens. By examining human/plant relations through anthropological theory committed to multispecies love and understanding, it will be possible to better grasp the messiness and complexity of affective botanical knowledge and its perception of plants.

[1] My main focus will be Victorian England, which is considered to have been the most influential country for the botanical trends of the time (Ruppel, 2020). Nevertheless, the existence of a wide intellectual network that spreads knowledge and information about plants across the continent, through scientific publications and advice literature (Stynen 2009, 218), enables some generalizations about the European context.

Glass Jungles: Technical Innovations and Imperial Dreams among Victorian Plant Enthusiasts

Nineteenth-century Europe, particularly the United Kingdom, saw a houseplant craze. Most middle- and upper-class homes were equipped with conservatories and people became obsessed with exotic plants, such as delicate ferns and beautiful orchids.[2] The trend was an important part of the life of urban Victorian Britain, catching the interest of current historians who demonstrate the connections between foreign plants, colonial enterprises, moral aspirations, and technical innovations. In this section, I will analyze such literature to provide historical contextualization to Victorian human/plant relations.

Ruppel traces the origins of European interest in indoor plants to the rising botanophilia of the late eighteenth century, a time of budding interest in collecting, drying, and categorizing plants (Ruppel, 2020). This curiosity went beyond botanists, with lay people cultivating specimens for their herbariums. Further, horticulture gained great importance because it was seen as a modernizing force that would enable improvements in British agriculture. Scientific knowledge about plants became, thus, an essential part of middle-class education (Valen 2016, 404). Architectural historian Dustin Valen (2016, 404) identifies improvements in printing techniques in the first half of the nineteenth century as drivers of a proliferation of scientific books and journals in the United Kingdom, with gardening periodicals and books satisfying a growing interest among professional and amateur botanists.

In this context of heightened interest in botany and horticulture, technical innovations enabled people to start growing their own plants indoors (Ruppel, 2020). Improvements in glass manufacturing meant that houses could have larger windows that let in more light, and indoor heating increased home temperatures. Finally, inventions such as greenhouses and Wardian cases created sheltered environments that could be adjusted to suit plants' needs. Rare and foreign plants could, then, be grown indoors in most middle—and upper-class homes.

Concomitantly, at the beginning of the nineteenth century, medical attention to the benefits of plants to human health increased. Scientists and physicians knew that plants practiced photosynthesis, providing an essential factor to life: oxygen (Ruppel, 2020; Wells 2021). Doctors defended that plants should be kept indoors, where they could purify the air and enhance people's health. This was a particularly strong concern due to the almost unbearable pollution of Victorian urban centers (Darby 2007; Valen 2016;

[2] "Exotic" is a highly charged term and indicates a colonial perspective. I use it here because the plants in question are exactly that in that context: foreign, awe-inspiring, extraordinary plants imagined inhabiting fantastic jungles.

Wells 2021) where coal burning sustained industrialization but made breathing a dangerous and suffocating activity. In addition to increased air pollution, overcrowding in urban neighborhoods brought to sanitarians' minds the detrimental impacts of poor environmental conditions on public health, making fresh air and sunlight essential to preventive medicine (Valen 2016, 411). In this context, conservatories became increasingly popular as their plants provided much sought-after pure air. Whereas those of means would frequently leave for the countryside, public conservatories offered working-class people suffering from respiratory illness an affordable space to breathe back to health (Ruppel, 2020; Valen 2016, 412).

Indoor gardening was also seen as an important moralizing force in the nineteenth century. Cultivating plants was a possible antidote to what middle-class reformists saw as threats to the working class (Gaskell 1980, 480). Gardening was defended as an efficient and productive leisure activity which would keep workers from idling away or drinking too much (ibid.). Incentives to the activity would be, therefore, a means of educating lower classes in the moral ways of the middle class. The methodical habits involved in the cultivation of plants would teach workers that humans could also benefit from fresh air, light, and routine (Womack 2018, 270). In practice, however, these ideals were mainly applied to outdoor gardening, including gardens in urban development programs, to ensure such a moral and productive hobby among the working classes (Gaskell 1980, 488). Indoor gardening remained an interest of the upper classes who could afford the costly apparatus needed to provide the right conditions for tropical plants in European weather (Darby 2007; Ruppel, 2020; Womack 2018).

Indeed, the display of houseplants was an important aspect of the practice. Cases and furniture were designed to exhibit special plants, much like birdcages (Ruppel, 2020), showing the richness and luxury of a household able to acquire exotic and rare specimens. The selection and display of indoor plants was an important way for the lady of the house to show her good taste, and she would typically be in charge of creating displays that evoked a natural landscape (Stynen 2009, 225). Achieving the impression of living amidst unspoiled nature was seen as a sign of the family's sophistication (ibid., 229). Conservatories became a central aspect of social life as gatherings would be held among plants, which denoted the social and economic status of the household (Ruppel, 2020).

The growing desire for exotic plants was intrinsically related to nineteenth-century European colonial enterprises. On the one hand, the growing market for tropical plants in England fostered a global search for new species. The invention by Nathaniel Ward of the Wardian case, a closed glass container, created a stable environment where plants could endure the climatic changes of ship journeys, enabling the transportation of delicate species across the world. On the other hand, and perhaps more importantly, the

ability to grow foreign plants in Britain fit well with imperial aspirations and ideals. They seemed to confirm to the British their scientific and cultural fitness to rule the world (Voskuil 2016, 20). Glasshouses enabled the recreation of any foreign climate in England, which supposedly indicated their triumph over geography and the weather (Valen 2016, 411). Cultural historian Andreas Stynen summarizes well this zeitgeist:

> *By offering public instruction combined with visual pleasures, regular plant and flower shows were related to the large world exhibitions, notwithstanding their relatively modest scale. Functioning as a display window, visualizing the recent progress attained by horticulturists, they invited the audience to participate in the "panoramic dream". Watching plants from all over the world also presented a pleasant leisure by reminding people of the dangers and thrills involved in discovering them and bringing them to Europe. The effect of staged plants was thus similar to that of caged animals in menageries: their form of presentation was an illustration of man's domination and the era's progress.* (Stynen 2009, 219)

Stynen also points out another important convergence between indoor gardening and the colonial project: a desire to dominate nature. Indoor plants had to be subjected by their growers to the domestic climate (Stynen 2009, 221), much like the natural world had to be controlled to fit Victorian economic interests.

> *Glasshouse culture epitomized the desire to rule natural processes using artificial means. Not only were glasshouses among the most visible expressions of scientific gardening, but they also granted gardeners the ability to dominate nature for cultural and economic gain by constructing and regulating enclosed artificial atmospheres.* (Valen 2016, 406)

Plants were immersed in a worldview that separated Europe from its colonial Other(s), argues the Victorian literature specialist Lynn Voskuil (2016, 20), drawing on Edward Saïd's (1978) work on Orientalism. Exotic plants — in a similar way to Indigenous people, women, and nature — should, in the time's dominant perspective, be subjugated in favor of industrial and European progress. Additionally, they were to be exhibited in botanic gardens and conservatories as symbols of such imagined superiority, entering a space of knowledge production that reinforced European ideas of progress and racial hierarchy (Brockway 2002), together with natural history and ethnological museums.

Technical innovations were essential to enable the transfer and cultivation of exotic plants in the metropole, but they had yet another benefit to the imperial enterprise: being an enclosed, small-scale environment, glasshouses, and Wardian cases also served as laboratories that advanced scientific knowledge about plants and their environmental needs (Valen 2016; Wells 2021). The ideology of European superiority was, thus,

perpetuated through such technical innovations, which, in turn, obscured other forms of ecological knowledge. The transfer of botanical species to a different country, where they would be confined to greenhouses and terrariums, isolated them from the ecological relations in which they were originally enmeshed. Scientific botanical knowledge could now be created in a controlled environment, concealing the contributions of Indigenous knowledge that enabled the collection and eventual cultivation of such plants. A harrowing example is that of the cinchona tree.

Malaria has plagued much of the warm areas of the globe for centuries. As early as the seventeenth century, the bark of cinchona trees was used as a treatment against the disease due to it containing the febrifuge alkaloid quinine (Gramiccia 1988; Keogh 2020). Cinchona grows in the Andean regions of Peru and Bolivia, granting both countries a monopoly of the medicine, which was not in the interest of European metropoles. The latter desired to establish their own tree plantations in their South and Southeast Asian colonies to profit from the market for the drug and expand their access to medicine vital to their colonizing enterprises (Keogh 2020).

The plant had been well-known in Europe for centuries but only in its dried form. Knowledge of the living trees was scant in the nineteenth century, which hindered transplant efforts. Further, the Andean countries where it grew wanted to keep their market control and, thus, forbid the export of living plants and seeds. Dutch and British plant hunters were not to be stopped, however. Under a pseudonym, the German botanist Justus Karl Hasskarl was able to collect seeds and plants in Peru in 1853, which eventually enabled the establishment of a plantation of *Cinchona pahudiana* in Java, then a Dutch colony. The enterprise was, nevertheless, an embarrassing failure as it was eventually discovered that that species of cinchona had virtually no quinine content and was worthless as a treatment against malaria (Keogh 2020, 95). A few years later, another British expedition successfully smuggled cinchona trees out of South America. Under the leadership of Clements Markham, Wardian cases of *C. calisaya* and *C. succirubra* were sent to India to develop a plantation in Ootacamund, Madras. Only the latter species arrived in good conditions and, due to its hardiness, settled successfully in Indian soil, becoming the dominant variety of the cinchona plantations that spread over the subcontinent in the following decades. The British attempt to develop its own production of quinine was another fiasco, since *C. succirubra* also had a low content of the desired alkaloid.

In both cases, the lack of knowledge of the variety of Cinchona species was pivotal to the failures. The eventual European control of the plant was only possible when collaborating with Indigenous knowledge of cinchona and its diversity. The species that finally enabled a viable production of quinine in Java towards the end of the nineteenth century was *C. ledgeriana*, which had an unprecedented high alkaloid level. The variety

was baptized in honor of the English merchant Charles Ledger who was responsible for sending its seeds to a small Dutch nursery in Java, from where it was grown and distributed (Keogh 2020, 101). Such a breakthrough happened in the 1860s, after Ledger had spent decades trying to collect seeds from the most-prized cinchona variety known as calisaya and endemic to a small area of Bolivia. Ledger's expertise on the quality of the different types of bark was only possible due to his close relationship with a Bolivian Indigenous man, Manuel Incra Mamani[3], who he employed for decades as a guide and servant in his expeditions to buy alpacas and cinchona bark in the Peruvian Andes.

Mamani's knowledge of cinchona was unmatched. Ledger noted how he was the only one able to identify the desired calisaya from lesser varieties based on its leaves and trunk (Gramiccia 1988, 18). It was also based on Mamani's insights that Ledger learned that different types of cinchonas grew at specific altitudes and, therefore, attempts to find the desired species across the Andes would never be fruitful (ibid., 18). Most importantly, it was Mamani who collected the seeds that Ledger eventually exported.

In one of their excursions, the two men stumbled on a particularly large grove of tall calisaya in a remote area (Gramiccia 1988, 31-32). Since the plants were in flower, they could not collect any seeds then, and Ledger took notes of their location for future reference. It was eleven years later when he decided to revisit the area. While living in Australia, he sent word to Mamani requesting that he return to the grove and collect seeds. Despite having been adamantly opposed to attempts by foreigners to smuggle seeds out of South America, Mamani had promised to do so himself for Ledger's benefit (Gramiccia 1988, 88). Indeed, when the Englishman returned to Peru, Mamani gave him thirty-five pounds of the prized seeds (Keogh 2020, 101) which he had finally been able to collect with the help of his sons after four years of failed attempts (Gramiccia 1988, 123-126). Ledger compensated him with £500 and sent the seeds to his brother in London. The latter sold them with great difficulty to different British plant collectors and the Dutch Consul General in London, who eventually forwarded them to a botanist in Java where they were successfully grown (ibid.).

The calisaya seeds Mamani collected produced the best quality bark in cultivation, enabling the Netherlands to hold a monopoly on quinine. Ledger, albeit never succeeding in profiting monetarily from the endeavor, was immortalized in the scientific name of the plant. Mamani's end, however, was tragic. After being commissioned by Ledger to collect more seeds, he was arrested in possession of the highly protected plant material and spent twenty days incarcerated, when he was starved and beaten,

[3] The specific ethnic background of Mamani is not known, with Gabriele Gramiccia (1988, 10) mentioning him either as a Quechua or Aymara speaker in his biography of Ledger.

but refused to name Ledger as the intended receiver of the seeds (Gramiccia 1988, 136, 137). Shortly after his release, he passed away.

The quest to transplant quinine was a challenging one. Imperial powers tried for years to obtain the plants and surpass South American control by establishing plantations in parts of the world they controlled. Peruvians and Bolivians — both powerful authorities and common folk — were suspicious of foreigners, taking stark and often violent measures to prevent smuggling. The lack of European knowledge and access to living trees meant several attempts to transplant them were redundant failures, with worthless species being used. It was only with the expertise and dedication of one Indigenous Bolivian man that the endeavor was finally successful, enriching metropolitan pockets and enabling further domination of tropical areas thus far inaccessible. His contribution, nevertheless, remains eclipsed by the names of European men.

Despite the vital role played by countless local guides and workers in the areas where Europeans collected and transferred plants, attention is mostly given to the technical innovations that enabled transplantation — Wardian cages, glasshouses, and faster and safer means of transportation. However, another more sensitive and affective aspect of such technology is also overshadowed in analyses focusing narrowly on the imperialist and modernizing sides of the story. Greenhouses, particularly, offered a new space where botanical knowledge could be produced and enabled Europeans unprecedented proximity to vegetal life, rendering scientific distance and objectivity more and more utopic.

Affect and Science as Tools to Understand Plants

Glasshouses and Wardian cases were essential to enable increased control over nature in the nineteenth century. They allowed Europeans to replicate foreign climates and transplant exotic plants, making it possible for such foreign bodies to be domesticated and subjugated to scientific reason (Valen 2016, 403). Nonetheless, these same innovations facilitated a heightened ecological sensibility (Voskuil 2016; Wells 2021). By allowing growers to easily see the effects of changes in temperature, light, and humidity on the plants, the former could become aware of relations among species and with the environment (Voskuil 2016, 25).

It was clear to Victorians that humans were not immune to those ecological relations. Plants were essential to human survival, primarily because of the oxygen they produced; people and plants were perceived as intrinsically connected through the air (Wells 2021, 5). The power that botanical beings exerted over humans was unsettling for Victorian sensibilities more inclined to see themselves as the most important species. Fears over

sleeping in a bedroom with plants persisted for decades in the popular imagination despite being rejected by scientists (ibid.). Magazines and journals about indoor gardening praised the health benefits of the pure air produced by plants during the day but alerted to the dangers of nocturnal plant respiration, reproducing stories of people suffocating in their sleep when near plants (Wells 2021). Lindsay Wells (2021), a specialist in nineteenth-century British art and horticulture, argues that the long-term persistence of such narratives indicates a Victorian recognition of plants as living agents able to change the environment. Photosynthesis and respiration are to be interpreted as signs of their agency (ibid., 12), an idea as frightful as killer plants.

Additionally, indoor gardening demanded an intimacy with plants that led to an enhanced awareness of interspecies exchanges which, in turn, had a high impact on humans (Voskuil 2016, 25). Voskuil (id.) argues that orchids fascinated Victorians due to their power to touch collectors physiologically and affectively. On the one hand, their aroma and beauty could have dazzling and perturbing effects. The author mentions literature on orchid hunting that describes maddening and overwhelming feelings caused to European explorers by the beauty and diversity of the tropical jungle where exquisite flowers were supposedly found (Voskuil 2016).

On the other hand, plants demanded constant care to survive in an indoor environment. They were often likened to orphan children: when taken away from Mother Nature, they became helpless creatures whose lost parent must be replaced by a new human guardian (Stynen 2009, 223). “They longed for food and drink, light and air, tidiness and rest, but as living beings, individual plants could have an outspoken personality, so an individualistic approach was strongly advised” (Stynen 2009, 223). Close observation and constant care enabled growers to see the individuality and agency of their plants; rather than being mere lifeless objects to be scientifically subjugated, they were intentional individuals who could only be properly understood through empathic care.

Orchid growing was once again a privileged activity to foster such understanding. Horticultural advancements enabled Victorian collectors to hybridize orchids. To artificially pollinate the flowers, the cultivator had to replace the insect that would normally do it. By using their own body to achieve orchid reproduction, humans and plants became inextricably intertwined (Voskuil 2016, 28, 29). The coevolution between people and orchids was better seen in the desire to increase artificial cultivation. Initially, it was impossible to reproduce orchids artificially, and each specimen had to be collected from its original environment. The craze for the plants, however, quickly led to over-extraction and habitat loss. Inspired by their growing ecological sensibility, collectors became concerned about the survival of the plants. When horticulturists learned how to artificially reproduce orchids, artificial cultivation was seen as a way to counter-balance dangerous

extractivism. It was then paramount that humans take over orchid reproduction, creating a bounding coevolutionary relationship (Voskuil 2016, 34).

The historical literature points out, thus, that the constant care and meticulous observation demanded by houseplants led to a more nuanced understanding of plant agency and its entanglement with humans. Indoor gardening affected Victorians deeply, allowing them to see the individuality and personality of their botanic companions. Such intimacy deeply disturbed prevailing ideas of human exceptionality and superiority (Voskuil 2016). The same technological advancements that enabled greater human control over nature ultimately challenged ideals of complete domination. The inventor of the Wardian case, Nathaniel Ward, argues that "the gardener's power over nature is at the deepest level only submission, finally a surrender to nature's insistence on the basic requirements of the organism. When the gardener honours the plant's needs, and only then, will it grow" (apud Darby 2007, 636) Human control over nature was utopic, a grower could only strive to replicate the natural environment to obtain good results.

For the Love of Plants — Human/Plant Affective Relations

Victorian enthusiasts quickly saw the agency and personality of the plants they loved. This process was not, however, restricted to that period. Current anthropological research on human/plant relations seems to reach similar conclusions. This section will seek to analyze such literature as a way to add theoretical depth to understandings of plant agency, both Victorian and present. By joining two apparently incongruous contexts — namely, Victorian botanical knowledge producers and twenty-first-century anthropology — I hope to expand restrictive understandings that separate science from an affective knowledge sensitive to non-human agency. First, I will discuss the need to recognize non-human agencies, as pointed out by Eduardo Kohn (2013). Then, I will analyze literature on plant enthusiasts — Charles Darwin and gardeners — and how they affectively interact with their non-human companions. These works will question the supposed anthropomorphizing of plants as they aim to take plant carers seriously when discussing plants in human terms. Instead of simply seeing such statements as metaphors or projections onto the vegetal-other of human behaviors or emotions, we will see that those gardeners have a more complex understanding of plant ontologies than commonly attributed to Euro-Americans. It will then be possible to acknowledge the diversity and complexity of understandings of nature in our own groups. Such works shed light on the complexity of what is commonly seen as a straightforward and uniform view of plants, namely that because they do not have a central nervous system and no human-like intelligence, they lack agency.

Here, the discussion of affect is inspired by Brian Massumi's theorization of the concept in his seminal book *Parables for the Virtual: Movement, affect, sensation* (2021 [2002]). He draws on the seventeenth-century philosopher Baruch Spinoza, who conceptualized affect as "a power (or potential) to affect or be affected" (Massumi 2021, 16, italics in the original). Massumi explains that Spinoza focused on the body's potential to enter relations of movement and rest: every change can bring new potentialities for more alterations, a multiplicity that the body can grasp as it happens (id.). He describes how the varied and varying intensities of these bodily phenomena are felt in self-relation; that is, the body feels that it feels affects. This creates an echo, where what is felt reflects on itself, opening up the potential for new and virtually unlimited becomings (ibid., 15), a theorization that is also inspired by Giles Deleuze.

Massumi's work, nevertheless, is not only a reading of philosophers but also of neuroscience. It is in this borrowing from the hard sciences that most critics have found problems with his concepts. His original inspiration for understanding affect was neuroscientific research which supposedly demonstrated a gap between the body's autonomic reactions and consciousness. Based on his interpretation of the experiments, Massumi concludes that, since the body can feel and react before the mind is conscious of that feeling, affect is autonomous; it is unrestricted and in excess because the body can feel more than it can comprehend (Massumi 2021, 38). It follows that actions are determined by the affective body before the mind can decide. "Will and consciousness are subtractive. They are limitative, derived functions that reduce a complexity too rich to be functionally expressed" (ibid., 32). Not surprisingly, this anti-intentionalism was not always well-received (Martin 2013). Further, both the experiments used by Massumi (Gomes 1998) and his non-expert interpretation of the results have been questioned (Leys 2011; Papoulias and Callard 2010).

Despite any shortcomings, Massumi's work can be inspirational. Ultimately, he brings an openness to relations to the foreground, highlighting how we are constantly relating to the environment and other beings and being changed in the process. Similarly, the anthropologist Kathleen Stewart, in her experimental book *Ordinary Affects* (2007), focuses on the unexpected, often banal, events, sensations, encounters, etc. that happen daily and have the potential to do "something" to us. "Ordinary affects are the varied, surging capacities to affect and to be affected that give everyday life the quality of a continual motion of relations, scenes, contingencies, and emergences. They're things that happen. … that catch people up in something that feels like *some*thing" (Stewart 2007, 2, italics in the original).

These conceptualizations of affect are helpful when thinking about human/plant relations because people often do not realize that they are being radically altered by vegetal encounters. Victorians and, as we will see, plant scientists could only understand vegetal

life and agency when they were open to close bodily contact with plants. By letting themselves affect and be affected by plants, they faced new becomings where humans and plants were no longer hierarchically ordered but rather mutually dependent agents. Centering affect will, therefore, elicit the multiplicity and messiness of human/plant relations. What seemed contradictory in Victorian plant collecting can be made coherent when seen through an anthropological perspective that focuses on love for plants.

*

In *How Forests Think*, Eduardo Kohn (2013) proposes to broaden anthropological understandings of non-human agency with his anthropology beyond the human, which examines thoughts created by loci of meaning that are not exclusively human. To do so, he analyzes multiple relations he observed in his fieldwork with the Ávila Runa of Ecuador, mainly the non-human interactions of the tropical forest, through Peircean linguistic theory. His central argument is that we need to go beyond ways of understanding relations and communication through human language. By recognizing the agency of iconic and indexical forms of communication, it becomes possible to acknowledge intentionality in forms of relationality that are not symbolic, an exclusively human capacity. Failing to do so would lead to anthropomorphizing non-humans, which restricts their alterity and limits our understanding of them and the complex relational networks they create, which Kohn calls an ecology of selves.

> *My argument is that we are colonized by certain ways of thinking about relationality. We can only imagine the ways in which selves and thoughts might form associations through our assumptions about the forms of associations that structure human language. And then, in ways that often go unnoticed, we project these assumptions onto nonhumans. Without realizing it we attribute to nonhumans properties that are our own, and then, to compound this, we narcissistically ask them to provide us with corrective reflections of ourselves.* (Kohn 2013, 21)

Acknowledging the agency of non-humans in its full capacity and not only in ways that mimic our own is certainly an important task for anthropologists, who have long embraced the complexity of human/non-human relations in most groups. Further, it is essential to recognize that other beings do not exist merely as objects to think with. Donna Haraway (2016, 98) argues that dogs are primarily good to live with and not to think with. They cannot be reduced to a projection of human thought and a "surrogate for theory" (Haraway 2016, 98). Rather, dogs are a "species in obligatory, constitutive, historical, protean relationships with human beings" (ibid., 103). We must acknowledge that non-humans, especially those with whom we have intimate relations of

companionship, are more than our conceptualizations of them. At the same time, we cannot lose sight of such relationships as mutually constitutive; we create companion species as much as they form us.

Studying human/non-human relations is, thus, especially important when one works with companion species as they can only exist as such in relation to humans. The theoretical advancements toward full recognition of non-human agencies and their status beyond the human are important steps for anthropology. However, I would argue that radically breaking with human-inspired methods is not likely to achieve an understanding of plant ontologies because it is utopic to abandon our humanness completely. Instead, we need to embrace it and recognize that we are not entirely separate from other species, looking at them from afar with our biased view of the world. As Haraway (2016, 103) contends, we constantly relate to other species, relations that are not optional but an essential part of who humans and non-humans are. Deeming people's understandings of plants as anthropomorphizing because they are modeled in human behavior or concepts would disqualify the many ways people have found to relate to plants. We need to take ourselves seriously in our relations with our green companions. Recognizing our essential role in their creation and ontology does not deprive non-humans of a world of their own but acknowledges the mutuality and shared grounds of all our ontologies.

In their article "Involutionary Momentum: Affective Ecologies and the Sciences of Plant/Insect Encounters" (2012), Carla Hustak and Natasha Myers describe how Charles Darwin engaged affectively with his botanical study objects, enabling him to better understand how plants and insects interact. When interested in the mechanism that triggers certain orchid species to shoot pollen at insects that try to copulate with their flowers, Darwin tried to stimulate the flower by mimicking the insect. He first attempted to use tweezers or to drop the flowers to trigger the mysterious mechanism but could not discover what elicited the desired response. It was only when he used his fingers to copy a copulating wasp that the reaction occurred. The authors claim that the remodeling of himself as a pollinator enabled Darwin to reach a sensory attunement with the orchid, thus learning to recognize the differences across organisms and elicit responses from the plant (Hustak and Myers 2012).

Similarly, Robin Wall Kimmerer, a Potawatomi botanist, describes in *Gathering Moss* (Kimmerer 2021) many instances where she could only understand the bryophytes she studied by trying to comprehend how they view and experience the world. When researching the reproductive mechanisms of Tetraphis moss, the scientist realized that the human categories she had been employing and imposing on the plants limited her progress (Kimmerer 2021, 82). Only when she tried to understand the moss on its own scale as individual stems rather than clumps did the Tetraphis reproductive cycle and its mechanisms make sense. Kimmerer writes, "This question led me into a long and intimate

relationship with Tetraphis, one of fascination and respect where Tetraphis taught me a great deal about doing science" (ibid., 81). Close observation and intimate affect can be powerful tools to understand non-humans, advancing even the scientific knowledge that supposedly distances itself from them.

In the methods of both Darwin and Kimmerer, it is possible to see a similar phenomenon to what Kohn described as the Runa capacity to tap into an ecology of selves. He defines the latter as a "web of living thoughts" (Kohn 2013, 78), where multiple beings are simultaneously representing each other, which creates the patterns of life of their environment. When describing the ability of his Runa interlocutors to identify when flying ants would leave their nests and to collect the insects for a bountiful meal, Kohn claims that the Runa can tap into the ecology of selves of the ants because they can interpret the associations that comprise it. He argues that because they recognize the intentionality of non-human communication, the Runa can enter the logic of the web of selves and interfere with it (ibid.).

In all three accounts, similar procedures seem to be in place: close observation of non-humans and affective engagements with them enable humans to understand their behavior and the co-constitutive relations in which they participate. Contradictorily, Kohn's argument seems to point to humans as bystanders of a non-human network of sociality, where observation allows them to comprehend and interfere with it. In the argument of Hustak and Myers, as well as Kimmerer's practices, almost paradoxically, it is the scientist who sheds any divisions between humans and non-humans to learn with plants and insects by becoming them. By proposing a radical break with Euro-American scientific understandings of otherness and nature, Kohn loses sight of the affective engagements also possible in Western ontologies.

The anthropologist adopts a rigid theoretical approach to the phenomenon he wants to understand and, instead of preventing the anthropomorphization of non-human selves, separates humans from them just as the ones he criticizes. By recognizing that humans can engage with others affectively, it is possible to fully acknowledge the intentionality of all selves, human or not. We should center the human when trying to understand Others because that is the only way to engage and cooperate with them.[4] The mistake is to see this as a unilateral relation where the human is the measure of everything else. Quite the opposite, "by imitating flowers and insects, Beer [2000] suggests that Darwin decenters and displaces the human. In so doing, the human is no longer the measure for the non-human; rather, the forms and movements of animals and plants reinscribe human sensibilities" (Hustak and Myers 2012, 92). Affective engagements with other species

[4] Another approach that adopts scientific methods and favour a human perspective to comprehend how plants understand and see the world is research on plant intelligence (Cf. Calvo 2022; Mancuso 2022).

subvert human centrality and allow the Other to become the model for our own behavior (ibid.).

This affective lens can, therefore, enable a more nuanced analysis of human/plant entanglements and how they are conceptualized by the people involved. At first glance, affective and scientific perspectives of plants can be contradictory. How can plant lovers recognize the will and personality of vegetal beings and, at the same time, treat them as scientific objects to be subjected to rigorous experiments? This is a question that permeates Voskuil's article on Victorian botanical sensibilities. Despite convincingly describing the complexity of Victorian concepts of plant agency and their unsettling potential vis-à-vis human exceptionality, the author concludes that the sense of human superiority persisted (Voskuil 2016, 35). She seemed unable to conciliate such diverging tendencies, and her conclusion could not fully explain the tension.

Haraway's work, nevertheless, helps us understand that companion relationships are not straightforward. She argues that there is always more than one species in a companion relationship, which arises from stories that mutually and permanently constitute each part (Haraway 2016, 103). Such relations are never done but are continually in the making, rendering each part dependent on the other. Understanding how they develop is essential:

> *How can general knowledge be nurtured in postcolonial worlds committed to taking difference seriously? Answers to these questions can only be put together in emergent practices; i.e., in vulnerable, on-the-ground work that cobbles together nonharmonious agencies and ways of living that are accountable both to their disparate inherited histories and to their barely possible but absolutely necessary joint futures. For me, that is what significant otherness signifies.* (Haraway 2016, 100)

Understanding a companion relationship is only possible if we acknowledge and embrace its multiple incongruities. Analyzing the connections Victorians created with their plants is particularly productive because it elicits the contradictory tensions that created such multispecies relations. On the one hand, colonial ideals were at their strongest and fostered human attempts to subjugate others (human or not). On the other hand, the quest to fully understand and dominate plants demanded a closeness that could only become affective, enabling Victorians to see an unexpected facet of those beings, full of will and agency. Rather than trying to find a definitive answer to the apparent paradox of human superiority in contrast to non-human agency, as Voskuil (2016) struggled, taking an affective perspective allows an analysis with room for contradictory and messy concepts to coexist.

We should embrace human affect and its consequences for non-humans as the best way to understand the latter and ourselves fully. This is already at the core of Kohn's arguments. His Runa interlocutors relate affectively with their environment, which provides them with the knowledge necessary to understand and participate in the ecology of selves of their forest. However, the author does not fully recognize the centrality of affect to his argument. It is the very ability of humans to affect and be affected that enables us to understand, even if still through our own ontological lens, the perspective of other beings.

Centering affect also enables us to take plants and those in close relation to them seriously. Taking alterity seriously should not be restricted to groups or species radically different from a vague Western "us" (Chua and Mathur 2018); we must also recognize the diversity of ways of relating affectively within Euro-American communities. Otherwise, we risk exoticizing Indigenous peoples in the very effort of valuing their alterity by entailing that they are essentially and irreparably different from a homogeneous ego where diversity does not exist. Research on gardeners helps us see that the European ways of engaging with plants are not only based on Cartesian separations between nature and culture, and human and vegetal, but that those categories are irrevocably enmeshed and are essential to each other's production. In the garden, we have never been modern.

Catherine Degnen (2009), for instance, showed how there is a mutual identification between Northern English gardeners and their plants. When her interlocutors talked about plants as if they were people, the anthropologist did not assume that they were being metaphorical and, thus, were anthropomorphizing such non-humans. Rather, she took them seriously and sought to understand the relations at play.

Human and plant behaviors are often seen as mutual and equivalent. Gardeners establish affective relations with the plants they care for, and many of Degnen's interlocutors were concerned that she would not honor such ties when her fieldwork was over, insisting that she returned when the flowers were at full bloom in order to fully appreciate the potential of her work and labor of care. It is precisely this close affective connection that enables gardeners to recognize the intentionality of plants. More than inanimate beings, plants have personality and agency, just like humans. Some species are more gracious than others; some trailing plants and weeds are mischievous, insisting on growing and occupying spaces that the gardeners would rather they did not. Gardeners' relations with their plants are not a simple projection of human ideals into plants. They go beyond an equation between people and plants (Degnen 2009, 162). Instead, plants are reciprocal interpretants of humans, which helps the latter understand themselves as much as gardeners explain plants' actions through their own behavioral models (ibid., 163). Therefore, taking gardeners and their love for plants seriously is

essential to fully grasp the diversity of European concepts of Otherness and how they translate into affective relations with non-humans.

Conclusion

In the nineteenth century, botany was a dangerous activity. Plant hunting expeditions around the world could be deadly affairs but were also essential colonial practices that enabled plant and knowledge transfer from colonies to metropoles. However, one did not have to travel to distant jungles to face some of the risks posed by exotic plants. Enthusiasts who brought such beings to their homes and cared for them in great proximity in glasshouses or terrariums were susceptible to an unforeseen hazard: recognizing that plants are not inert beings to be subjugated by powerful humans but are themselves full of agency and able to exert influence over their carers.

This essay offered a portrayal of Victorian botanical practices that described two contradictory movements: the desire to control nature, and the vegetal other and the realization that non-humans are agents with great power over humans. At first irreconcilable, such tension could be solved with an anthropological lens. By drawing on multispecies ethnography and affect, it was possible to see that scientific practices that try to control and analyze inert objects can not only coexist with but also profit from an affective perspective. When studying plants, researchers benefitted greatly from letting themselves be affected by the vegetal other. It was only through care and love that they could understand plants and perceive them in a more nuanced way, finally grasping their untameable agency.

Acknowledgements I would like to express my sincere gratitude to my supervisor, Dr. Elizabeth Ewart, for her invaluable guidance and support throughout the process of writing this essay.

References

Calvo, Paco. 2022. *Planta Sapiens: Unmasking Plant Intelligence* [Electronic Resource]. London: The Bridge Street Press.

Chua, Liana, and Nayanika Mathur. 2018. “Who Are “We”?” In *Who Are ‘We’?: Reimagining Alterity and Affinity in Anthropology,* edited by Liana Chua and Nayanika Mathus. New York; Oxford: Berghahn Books.

Darby, Margaret Flanders. 2007. “Unnatural History: Ward’s Glass Cases”. *Victorian Literature and Culture* 35 (2): 635–47. https://doi.org/10.1017/S1060150307051686.

Degnen, Cathrine. 2009. "On Vegetable Love: Gardening, Plants, and People in the North of England". *The Journal of the Royal Anthropological Institute* 15 (1): 151–67. https://doi.org/10.1111/j.1467-9655.2008.01535.x.

Gaskell, S. Martin. 1980. "Gardens for the Working Class: Victorian Practical Pleasure." *Victorian Studies* 23 (4): 479–501.

Gomes, Gilberto. 1998. "The Timing of Conscious Experience: A Critical Review and Reinterpretation of Libet's Research". *Consciousness and Cognition* 7 (4): 559–95. https://doi.org/10.1006/ccog.1998.0332.

Gramiccia, G. 1988. *The Life of Charles Ledger, (1818-1905): Alpacas and Quinine.* Basingstoke: Macmillan.

Haraway, Donna Jeanne. 2016. *Manifestly Haraway* [Electronic Resource]. Posthumanities 37. Minneapolis: University of Minnesota Press. https://ezproxy-prd.bodleian.ox.ac.uk/login?url=https://ebookcentral.proquest.com/lib/oxford/detail.action?docID=4392065.

Hustak, Carla, and Natasha Myers. 2012. "Involutionary Momentum: Affective Ecologies and the Sciences of Plant/Insect Encounters." *Differences* (Bloomington, Ind.) 23 (3): 74–118. https://doi.org/10.1215/10407391-1892907.

Keogh, Luke. 2020. *The Wardian Case: How a Simple Box Moved Plants and Changed the World.* Richmond: Kew Publishing.

Kimmerer, Robin Wall. 2021. *Gathering Moss: A Natural and Cultural History of Mosses*. London: Penguin Books.

Kohn, Eduardo. 2013. *How Forests Think: Toward an Anthropology beyond the Human*. Berkeley, California: University of California Press.

Leys, Ruth. 2011. "The Turn to Affect: A Critique." *Critical Inquiry* 37 (3): 434–72. https://doi.org/10.1086/659353.

Mancuso, Stefano. 2022. *The Nation of Plants: The International Bestseller*. Translated by Gregory Conti. Main edition. London: Profile Books.

Martin, Emily. 2013. "The Potentiality of Ethnography and the Limits of Affect Theory." *Current Anthropology* 54 (S7): S149–58. https://doi.org/10.1086/670388.

Massumi, Brian. 2021. *Parables for the Virtual: Movement, Affect, Sensation*. Twentieth anniversary edition. E-Duke Books Scholarly Collection. Durham: Duke University Press.

Papoulias, Constantina, and Felicity Callard. 2010. "Biology's Gift: Interrogating the Turn to Affect." *Body & Society* 16 (1): 29–56. https://doi.org/10.1177/1357034X09355231.

Ruppel, S. 2020. "Houseplants and the Invention of Indoor Gardening'". In *The Routledge History of the Domestic Sphere in Europe.* Routledge.

Said, Edward W. 1978. *Orientalism.* 1st ed. New York: Pantheon Books.

Stewart, Kathleen. 2007. "Ordinary Affects". In *Ordinary Affects.* United States: Duke University Press.

Stynen, Andreas. 2009. "'Une Mode Charmante': 19th-Century Indoor Gardening between Nature and Artifice". *Studies in the History of Gardens & Designed Landscapes* 29 (3): 217–34.

Valen, Dustin. 2016. "On the Horticultural Origins of Victorian Glasshouse Culture". *Journal of the Society of Architectural Historians* 75 (4): 403–23. https://doi.org/10.1525/jsah.2016.75.4.403.

Voskuil, Lynn. 2016. "Victorian Orchids and the Forms of Ecological Society". In *Strange Science: Investigating the Limits of Knowledge in the Victorian Age*, 19–39.

Wells, Lindsay. 2021. "Vegetal Bedfellows: Houseplant Superstitions and Environmental Thought in Nineteenth-Century Periodicals". *Victorian Periodicals Review* 54 (1): 1–23. https://doi.org/10.1353/vpr.2021.0000.

Womack, Elizabeth Coggin. 2018. "Window Gardening and the Regulation of the Home in Victorian Periodicals". *Victorian Periodicals Review* 51 (2): 269–88. https://doi.org/10.1353/vpr.2018.0016.

