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## Book Review

**Monica Gagliano, John C. Ryan, and Patrícia Vieira (Eds.), *The Language of Plants: Science, Philosophy, Literature*. University of Minnesota Press, 2017; ISBN: 978-1-5179-0185-1.**

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This volume is a courageous and innovative academic endeavour that breaks the polarization between humanistic and scientific research, soft and hard sciences, and promotes interdisciplinary and transdisciplinary research work. Thanks to the contributions of scholars from different disciplines, the volume offers insights in science, philosophy and literature studies on how plants communicate or, rather, as the volume states from the very title, “the language of plants”. Challenging questions are addressed through a variety of theoretical principles and methodological approaches. It is an ambitious task for the editors and the contributors of the volume.

Approaching this review as a non-expert in the fields represented in the contributions, the question that guided my reading and informed my comments is: what can the volume offer to readers who are interested in “language and ecology”? The first general answer is that this volume, in its diverse disciplinary approaches and topics, offers intriguing cross-disciplinary insights into the complexity of communication among beings from different species, flora and fauna, and how plants communicate with the ecosystems they belong to and contribute to creating.

The contributions confront the reader with analyses of complex systems in which plants enact communication and establish interaction through a variety of signals: chemical, sound, visual, etc. Interactions are presented, discussed and evaluated from the point of view of plant studies (Part 1: Chapters 1 to 4), philosophical studies (Part 2: Chapters 5 to 9) and literature studies (Part 3: Chapters 10 to 14); notwithstanding its breadth, the volume maintains a clear coherence of aims due to the recurrent research questions investigated by bridging disciplinary boundaries and offering thought-provoking perspectives to the readers.

As the editors clearly state in the “Introduction” to the volume (Gagliano, Ryan, & Vieira, 2017, pp. vii-xxxiii), the key innovative aspect of the book is the dialogue between

research areas which are rarely, if ever, present together in one single academic publication. This dialogue established between experts is instantiated through respect for diversity in research procedures and academic discourse conventions while addressing a variety of expectations from the reader's perspective.

What is rendered salient throughout the book is the use of the word "language" and terminology drawn from its semantic field to identify aspects of plant communication: dialogue, syntax, morphology, semantic meaning, words, etc. Several contributors state that they use "language" literally: plant language is under interdisciplinary and transdisciplinary scrutiny and so are the differences identified in terms of what humans can produce, understand and perceive. In this sense, plant language encompasses communicative areas we humans are only partially aware of, such as chemical signs, light, visual signals, sound, magnetic fields, degree of humidity, etc.

The volume intends to shift the focus away from the anthropocentric view of human exceptionalism as far as "language" is concerned, a faculty that is generally considered the demonstration of the unique quality of the human brain vis-à-vis other animal species. Here the perspective is reversed: plants have capabilities which are profoundly different from animal (including human) faculties. Thus, we tend not to perceive, and we are not able to account for how plants communicate unless we find new ways to do research about it, compensating for our human limitations (physical and mental) and expanding our comprehension to capture evidence of the languages of plants. In their introduction, the editors give emphasis to the term "language" to underline that plants are not "lacking" in communicative skills, but, rather, they have sophisticated communicative means to interact with their ecosystems; therefore, different complementary perspectives are required to capture that complexity. The word "communication" would have been more comprehensive, especially at times when studies of human verbal language are expanding towards, and giving salience to, embodied multimodal expressions of meaning (Jewitt, 2017). It is clear, however, that the volume aims at shifting the boundaries of "language" to encompass plant communication and interaction.

The volume starts from the research field that has recently widened scope and depth in plant communication research: plant sciences. As mentioned earlier, I am in no position to assess as an expert these studies; nonetheless, the scientific literature presented, the questions asked by the researchers, and the methodology used reveal interesting horizons. Plants are able to accomplish extraordinary feats to communicate with, in and beyond their ecosystem, establish communicative networks with other plants and animals, and change the ecosystem they belong to when needed. It is a domain of remarkable abilities which are difficult to even conceive due to the biological difference between human and plant embodied existence, whereby even the concept of "individual being" is instantiated differently.

Several plant biologists and scientists are critical of the "humanized" language adopted by plant biologists or scientists as the volume contributors (see Firn's critique, for instance, 2004). The critical issues are the following: why should we use the term "language" or

“intelligence” when we are dealing with such an immensely different domain from our own? Why should we humanize plants by using terms such as “language”, “intelligence” or “sensitivity” to describe them? The answer the authors provide is that these notions are much more complex than as they are embodied in human animals, since they are instantiated differently in animals and plants. In fact, the book reverses the issue: if these terms were not used, we humans would not understand the relevance of what plant scholars are investigating.

In Part 1, Richard Karban (Chapter 1) establishes a comparison between plant and animal communication, their similarities and profound differences. In Chapter 2, Robert Raguso and André Kessler investigate “the chemical tongues” of plants through the chemical signals of volatile substances which have an effect not only on the plant itself and other plants, but also on animals, especially pollinators and herbivores, including, of course, humans. Christian Nansen in Chapter 3 presents experiments with radiometric signals perceived and emitted by plants to speak to other plants and animals. Monica Gagliano (Chapter 4) critiques the anthropocentric ideology that brought to the theories of uniqueness and superiority of human language. She argues that human language is close to non-human communication and non-human communication has traits of the human language; using examples from scientific experiments, she aims to demonstrate that plants communicate in a complex way through means other than voice: using chemical volatile components, interacting root systems, visual signs, intercepting magnetic fields, etc. Gagliano (2017, p. 95) also states that plant biology is not enough to understand plants because it needs to be complemented by studies in plant interaction.

Part 2 is devoted to studies in philosophy which expand on the limited perspective given to plants in Western thought. As mentioned in the Introduction, “[t]he notion that plants are imperfect and ontologically lacking the characteristics that render animals superior, including movement, intentionality, or the ability to communicate, was to remain a philosophical tenet long after the Renaissance” (Gagliano, Ryan, & Vieira, 2017, p. ix). In Chapter 5, Michael Marder (Marder, 2017, p. 103) poses the following intriguing questions: “How to translate the language, or the languages, of plants into terms that are intelligible within the scope of our human languages? What is lost in this transposition, above all when it strives to make everything about the plants’ communication with themselves, with other plants, with insects or other animals transparent? What are the conditions of possibility for a cross-kingdoms translation and what is the place of the untranslatable in it? And, in the first place, is the expression ‘the language of plants’ defensible?”. Marder investigates these wide-ranging, thought-provoking issues through philosophical studies demonstrating the need for humans to find ways to perceive and appreciate plant language(s) because “[t]he connections they forge are nothing short of the language of life itself” (p. 120). This concept is taken up by Luce Irigay in Chapter 6. Irigay believes that humans “wandered away from the vegetal world as we moved away from our living being” (Irigay, 2017, p. 126) and this is the reason why we are no longer able to interpret the silent language of plants. Plants live, act and communicate through their own

action: their speech acts are embodied and reveal what humans lost when human language became the filter based on logic which prevents them from comprehending their own relation with the world. In Chapter 7, Nancy Baker looks at Wittgenstein's work on the language of animals and applies it to plants. She states that "the new plant biology is not discovering or inventing new criteria for our concepts but rather discovering contexts and behaviors we did not see before and that, once seen, we recognize as the criteria for the application of those concept" (Baker, 2017, p. 148). In Chapter 8, Karen Houle investigates the linguistic responsibility of language use through the concept of linguistic justice expressing "rightness" and "wrongness". Language is performative and through it we act on the world by influencing the course of justice and the relation among the different beings: us and other than us. In Chapter 9, Timothy Morton looks at how philosophical thought in different ages can contribute to shedding light on "[w]hat vegetables are saying about themselves".

Part 3 is a selection of studies which present and discuss literary works in a variety of genres and languages with plants as protagonists. In Chapter 10, Isabel Kranz interestingly compares a novel by Vanessa Diffenbaugh on the language of flowers, published in 2011, a Victorian manual on the language of flowers, and Linnaeus' work on the categorization of plants. Chapter 11, written by Patrícia Vieira, one of the editors, asks long-standing questions for human culture: "What would plants say about themselves, about their environment, and, especially, what would they say about us?" (Vieira, 2017, p. 215). Vieira offers answers discussing examples from world literatures. Plants are compared to Spivak's notion of the subaltern whose thoughts, ideas and voices are imposed upon by the colonial mind and actions. Vieira follows the steps of post-colonial studies to interpret the stories of plants; she calls *phytographia* "the specific modes in which the vegetal world is embedded in human cultural production", thus representing the inscription of plants in human life through literature. In Chapter 12, Joni Adamson and Catriona Sandiland analyse a post-apocalyptic novel by John Wyndham to investigate an intriguing kind of invented vegetality ("the triffids") and the writer's ability to represent biopolitics through the plants' capacities of a so-called invasive plant species. In Chapter 13, Erin James discusses Stephen Wright's novel in which the protagonist thinks of himself as a plant in order to try and find his roots again back home after the experience of the Vietnam war. The novel experiments with the plant-as-narrator device and reflects on how it is possible (or impossible) to express the capabilities of plants and their intelligence. The chapter also analyses Ursula Le-Guin's plant-narrated short story in which events are represented through the surprising point of view of an oak as a first-person narrator. The closing chapter of the book (Chapter 14) is written by John Ryan and deals with "the silent voices of plants in poetry", as the subtitle states. The following challenging questions are investigated through literary studies: "How might it be possible to think of voice otherwise — as nonverbal, bodily, and ecological articulation and as an ontological concern rather than an auditory phenomenon — and how might plants particularly help us in doing so? How might poetry be a medium for hearing and listening to plants — where language (rather than electric sensors and

algorithms) becomes a shared and porous interface between the speaking Us and the silent plant Other?” (Ryan, 2017, p. 275). The chapter analyses a series of literary works which give voice to plants. Interestingly, Ryan mentions that if plant voice depends on the human desire to hear it, this “affirms, rather than undermines, the extent of our interdependence with vegetal life and the need for ethical and inclusive concepts of voice” (Ryan, 2017, p. 276). As examples of “phytopoetics”, the inner voice of plants as “presencing”, Ryan analyses poems by Louise Glück and Elisabeth Bletsoe, and discusses how they instantiate variations of the silently polyphonic voices of plants. The readers are called to move away from conventional notions of voice towards differently embodied, nonverbal, located voices as “ecological presencing”.

The dialogue across disciplines as carried out in the volume offers readers the rare opportunity to have a cross-disciplinary view of the phenomena investigated. Reading this volume generates a wealth of questions, problematic issues, as well as awe for the field of plant communication and the multifaceted ways in which it can be investigated. It is hoped that linguists, ecolinguists and semioticians have their saying too on these issues and offer their views from their own perspectives. Gagliano (2017, p. 129) provocatively asks: “What if language is a fundamentally natural and inevitable consequence of being that emerges as an organism makes meaning of its surroundings and, in turn, engraves the very identity of that organism and its physical embodiment in its world?” The question is particularly relevant for readers interested in language and ecology, language as ecology, and multimodal communication and ecology. Through the means of human language, this volume offers new and controversial horizons to view the complexity of how we act on our environment and its perception through communication. The authors clearly show the need to establish bridges across disciplines in order to investigate the communication of plants. Plants offer us the air we breathe, the food we eat, the medicines that cure us, and even the energy we use; rather than representing plants as objects to exploit or neglect, our human communication should widely acknowledge the salience of plants in ecosystems, and what we can learn from them and their awe-inspiring interaction with the environment. Indigenous tribes have maintained this ability to communicate respectively with and about plants. There is scope to learn. This thought-provoking volume indicates a path promoting the dialogue between sciences, humanities and creativity.

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