



## Races, Species and Care of Plants

Thibault De Meyer

To cite this article: Thibault De Meyer (2018): Races, Species and Care of Plants, Science as Culture, DOI: [10.1080/09505431.2018.1485643](https://doi.org/10.1080/09505431.2018.1485643)

To link to this article: <https://doi.org/10.1080/09505431.2018.1485643>



Published online: 18 Jun 2018.



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## Review

## Races, Species and Care of Plants

*Care of the Species. Races of Corn and the Science of Plant Biodiversity*, by John Hartigan, Minneapolis, University of Minnesota Press, 2017, 376 pp., \$27.00 (paperback).

Philosophers of biology are divided between two main understandings of the concept of 'species.' For the realists, species exist in nature, silently awaiting humans to discover them. For the idealists or nominalists, species are mental constructions that are useful to humans, but that do not correspond to an underlying reality. Scholars in science and technology studies (STS) have mainly defended a sociocultural constructionist view of species, a version of idealism. For instance, Londa Schiebinger (1993) shows how the class 'Mammalia' (the mammals) was coined and propagated in the eighteenth century because it reinforced some dimensions of gender politics. Following that kind of analysis, species and taxa are products of human power relations. The concept of race, for its part, has been more widely rejected on the ground of its sociocultural construction, even by biologists such as Richard Lewontin (1972) or Albert Jacquard (1984). As we will see, in his *Care of the Species* John Hartigan opposes such social reductionisms.

Hartigan's book studies the interactions between scientists and plants and tries to follow the agency of both the humans and the vegetal. It is thus a work clearly inscribed in the emerging field of multispecies studies, a varied and lively domain of research where anthropologists, historians, philosophers, and other scholars, who traditionally took the non-human living beings as pure decor for the human actions, begin to describe animals, plants, fungi, bacteria as actors (for a review, see van Dooren et al. 2016). Some have, however, questioned the appropriateness of the concept of multispecies since it contains the notion of species, which is, following Tim Ingold (2013, p. 19), a product of the 'sovereign perspective' of the humans; that is a reason why some prefer the term 'more-than-human studies' (see for instance Barua 2013). Based on interviews with taxonomists, Eben Kirksey (2015) opposes that view and argues that the species concept is valuable as inducers of practices. More precisely, it can enhance or discourage some actions in relation to some beings. For instance, when Jodi Rowley's description of the Helen's Flying Frog (*Rhacophorus helenae*) was relayed by the *National Geographic* in 2009, the commercialization of that species grew rapidly. By subsequently adding it to the 'endangered species' list in 2014, Rowley looked in particular to counter such a detrimental activity.

### Humans and plants

John Hartigan develops a similar argument in relation to what the concept of species can do but strangely does not engage with Kirksey's work save for a passing mention in a footnote. Contrary to the latter, Hartigan works the concept of species in close relation to that of race. That is mainly because of his biographical trajectory. He started his career in ethnography by writing about races in America—first in the everyday life, but later also as a scientific concept. In a paper published in this journal, he analyzes the still

ongoing controversy around genetic and medical uses of racial classifications (Hartigan 2008). This interest in the interactions between sciences and races led him to study the Mexican genome project of the National Institute for Genomic Medicine (INMEGEM for the Spanish abbreviation). This project, launched in 2005, aimed at mapping the diversity of the Mexican population.

As he recounts in *Care of the Species*, Hartigan switched in 2010 to another institution, the National Laboratory of Genomics for Biodiversity (LANGEBIO). He decided to work in this new setting in order to compare how the concept of race differs when applied to humans or to plants. In the end, he carried out 6 years of ethnography which provide a rich material around the use of the race and species concepts in botany, plant genetics, plant breeding, and gardening.

In addition to LANGEBIO, he conducted observations in two other institutions in Mexico: the International Maize and Wheat Improvement Center (CIMMYT) and the National Research Institute of Forestry, Agriculture and Livestock (INIFAP). His descriptions of those scientific centers in Mexico, all three focusing on maize, make the first part of the book. In the second, he investigates three botanical gardens in Spain: the Royal Botanical Garden in Madrid, the botanical garden of Barcelona and that of the University of Valencia. Throughout the book, he also makes use of some archival and historical research.

## Artificial and natural

The problem of the ontological status of the species—do they exist?—is not new in philosophy. It was already posed by the Ancients and during the Middle Ages but became a pressing one with the beginning of the taxonomical endeavors in the seventeenth and eighteenth centuries. Carl von Linnaeus (1707–1778) believed that God created living beings according to real, natural species. However, we humans do not know where the exact limits of those species are. According to the father of modern taxonomy, to know for sure where to find the joints we should pay attention instantaneously to all the features of organisms, something our limited cognitive capacities impede. And yet, we can nevertheless approximate the ‘natural system’ by selecting some criteria, such as the sexual parts, to classify the organisms.

Georges-Louis Leclerc, comte de Buffon (1707–1788), criticized harshly the concept of species as understood by Linnaeus. He argued instead that Linnaean species are purely artificial categories based on superficial resemblances imposed on nature. The French naturalist is famous for his defence of the definition of species as interfertility—two individuals are part of a same species if they could, at least in theory, have offspring—a definition that proved nonetheless impractical for two reasons at least. First, because that definition is more difficult to apply to plant species, as they tend to be more interfertile than animals. Moreover, this definition cannot replace the efficacy of the eye. In the Linnaean system, it is possible to categorize a dead specimen by analyzing its physical features. In contrast, to apply the Buffonian definition of species, we must test the interfertility of at least two living individuals, which is not always possible.

Hartigan is not always very accurate in his discussion of Linnaeus and Buffon. For instance, he credits the Swedish taxonomist for the application of races to humans, when in fact he never used the term (Hoquet 2014). Richard Richards (2016) provides a more precise overview of those central figures of the history of taxonomy. Some imprecisions notwithstanding, the way Hartigan reads those naturalists is more original and thought-provoking: he pays attention to details philosophers in general don’t attend to.

Hartigan begins by noting that the concept of race, coined in fifteenth century Italy, was exclusively used for domesticated animals such as horses and dogs. He continues with a quote of Buffon:

In the history of each domestic animal we have seen to what a degree the education, protection, and *care of man* influence the disposition, manner, and even the form of animals. We have seen that these causes, added to the effects of climate, modify and change the species so as to render them very different from what they were originally [...] (quoted in Hartigan, p. 38-9)

Hartigan underlines the notion of care that the French scientist juxtaposed with that of domesticated species; the care one provides to a species modifies that species. This notion is also present in Charles Darwin (1809–1882) when he speaks of the ‘accuracy of eye and judgement’ needed for artificial selection opposed to the carelessness of natural selection (quoted in Hartigan, p. 41).

However, at the present time, the distinction between domesticated and wild, or between artificial and natural, is blurred. With the concept of anthropocene, scientists want to emphasize that human activities have affected all species. Take for instance a recent article by Marlee Tucker et al. (2018), who show how free, so-called ‘wild,’ mammals change their moving behaviors due to human presence. The concept of care used by Buffon and Darwin in relation to domesticated species might thus become a guide for our relations with other species in this troubling epoch.

### Custodians of the race

In fact, Hartigan pays attention to those passages of the *Natural History* and the *Origin of Species* because he reads them in parallel to his ethnographic observations. In INIFAP, the researchers try to work with breeders in order to preserve the diversity of races of maize (*razas de maïs*). An agronomist of that institute explains to the ethnographer that, contrary to what is often implied in the press, the loss of diversity is not mainly due to transgenics—it is, in the agronomist’s terms, a ‘socioeconomic problem.’ He explains:

[...] All the *razas* are associated with a particular use they’re given. That’s what we’re losing. For example, if the people leave farming and go work in the United States, then we lose the *razas* too. Because they are one (quoted p. 61)

INIFAP’s aim is to work with breeders, called the ‘custodians of the race’ (*custodios de la raza*). The scientists teach those custodians some selection techniques. Before the explanations by the scientists, for replanting, they would take some maize plant at random (they lack a tradition of breeding due to the colonial history and the system of *latifundistas* which enrolled slaves instead of breeders). With the intervention of INIFAP, they look for plants that present some desired features (they learn to pay attention to signs of good health).

In that example, as in a lot of others provided in the book, races are not thought of as abstract entities existing out there. Some would argue that they are social representations. They could call attention to the fact that the numbers of corn races vary from one report to another. That position reduces the races to human agency, something Hartigan refuses. Races of plants, following him, are products and inducers of care. Thus the question should not be whether races exist or not, but how they generate practices. As in the citations of Buffon and Darwin, races of maize need care and an expert eye.

## Taxonomies as devices of attention

Hartigan's gesture is reminiscent of the recent proposition by Martin Savransky in *The Adventure of Relevance*. Even if it is a coincidence since they don't refer to each other's work, both invite us to ask 'how, in what degrees and manners, things come to matter in specific situations' (Savransky 2016, p. 20). In fact, that question is important to the actors' themselves. In the three botanical gardens studied in the book, the curators actively ask how to make plants relevant to the public. In ordinary urban life, plants are mostly noticed if they are beautiful or useful (as medication, for instance). The director of the Barcelona garden took Hartigan to a landscape park. There he explains to the ethnographer that people come to have a good time, but plants and trees only serve an esthetic function. He also relates that some trees are in a bad state and that they should be cut, but the park groundskeepers do not listen to him. In contrast, the director continues, in the botanical garden, visitors come with another mindset, they come to learn and pay attention to the plants. Even if the labels are not read, their mere presence reminds the public of the care and knowledge necessary for maintaining the plant species.

Hartigan went down in the herbarium of Madrid's garden, the oldest of Spain. An herbarium is a collection of plant specimens pasted on paper and stored following a taxonomic order. The location of a specimen in the collection tells of the species to which it belongs. To attribute a specimen to a species, the botanist must respond successively to various binary questions. Those questions that are called taxonomic keys are: for example, is the plant oblonged; is it petioled; has it two sheaths ... ? Those keys function as devices of attention, they guide the gaze toward details otherwise difficult to notice. Against some philosophers such as Buffon, who criticize taxonomies as simple representations, Hartigan takes a stand in favor of the practices of care and attention taxonomies make possible:

The subject of care shifts the question of species concepts from the realm of academia or philosophy (representation and classification) toward sites and moments of encounter and the pressing questions of how to recognize and accommodate life forms in a world where so many species are rapidly going extinct. (p. 216)

In botany, plants come to matter in part thanks to those taxonomic keys.

## The richness of ethnography

There is much more in this engaging book: a chapter on the social–natural history of maize in Mexico, a discussion on model organisms, a description of the techniques for maize reproduction, a reflexion on the problem of representation in botanical gardens ... The last chapter proposes some methodological advice to study ethnographically nonhuman subjects such as plants. In a nutshell, he recommends following the lead of people, scientists among others, who already entertain relations with them. This seems a humbler stance than that of Michael Marder (2013), a prominent philosopher of plants who thinks, in a Heideggerian vein, that the scientific observation obscures the plants themselves.

Each chapter brings the reader to other places, each shares pieces of conversations. Based on those encounters, Hartigan constructs stimulating theoretical propositions. The richness of the inquiry was made possible thanks to the ethnographic method. Botanical species are widely discussed in philosophy of biology. However, it is only by following scientists that Hartigan was able to notice the pragmatic and situated implications of the race and species concepts. Those implications and the material devices necessary for

their maintenance are overlooked when the concepts are studied far from the field. Hartigan's approach should be an invitation for philosophers of science to turn to ethnography when studying abstract concepts. Once again, it becomes evident that the social studies of sciences do not look only for the social determinants of scientific facts; as already seen, Hartigan is expressly opposed to such social reductionisms.

The book as a whole calls for the careful protection of biodiversity. It advocates, in other words, for fragile life forms. It is also a defence of the disappearing science of taxonomy. As some informers explained to Hartigan, that art of observation is overturned by the rise of genetics and cladistics (computer generated statistical analysis to cluster species in families). A botanist recounts, for instance, a PhD student who mistook a specimen found in nature for the species he was a specialist of. That young scholar knew the genetic indicators of the plant without knowing even the rudiments of its visible parts. At the end of his inquiry, Hartigan visits the herbarium of his own university in Texas which he came to know thanks to a Spanish botanist who spoke about it. The herbarium is located in an old edifice that does not even conform to the security measures. As a lot of herbaria around the world, it has no budget, it continues to exist only through endowments. This is another characteristic of ethnography: it accounts for fragile cultures, those on the edge of extinction. This characteristic makes ethnography—the art of encounters and observations—a particular important discipline in this period of mass extinction.

In conclusion, against some criticisms around the concept of 'multispecies studies,' *Care of the species* shows how in very concrete ways the species are essential to such studies. They are not the product of the human domination as Ingold argues. On the contrary, in specific settings such as the botanical gardens in Spain or the institutes for genetic diversity in Mexico, species and other taxonomical categories constitute devices to pay attention to particular ways of living. If, for the multispecies ethnographies, species are essential, they must not be therefore reified. The power of this new field of inquiry is to bend the ontological question in order to ask pragmatic, situated questions: in what manner and to what extent do species matter?


## Funding

This work was supported by Université de Liège.

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Thibault De Meyer  
Université de Liège, Liège, Belgium  
 tibo.de.meyer.olivares@gmail.com

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<https://doi.org/10.1080/09505431.2018.1485643>

