

Literary Ecologies

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There are two sides to the field of literary ecology: we can study novels, poems, or films that treat climate change or other ecological issues, but we can also consider language and literature themselves as ecosystems. I will talk here about this broader ecosystem. Indeed, the field of literary ecology in this sense has itself evolved over the past two centuries, and the connection with ecology, and with evolutionary theory, goes back to the very origins of the intertwined disciplines of comparative philology and comparative literature. I will turn at the end of my discussion to a notable Italian example of a literary work dealing with ecological crisis.

The sole diagram that Charles Darwin included in *On the Origin of Species* (1859) portrayed species evolution as branching out from a common root or trunk (Figure 1a). The linguists of his day, in fact, were already developing the tree metaphor for linguistic evolution. In a note on *Die ersten Spaltungen des indogermanischen Urvolkes* (1853), the prominent German linguist August Schleicher had sketched a family tree of the Germanic peoples, and when Darwin's book came out in German in 1860 he read it with great excitement as a confirmation of his insight. He elaborated his own tree model the following year in his next book, *Die Deutsche Sprache*, where he posited that German and other modern Indo-European languages have all evolved from a common «Stammbaum» (Figure 1b).

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graph LR
    Root[indogermanische wortsprache] --> Flawodeutsch[flawodeutsch.]
    Root --> Ariograeco[ariograeco.]
    Flawodeutsch --> Flawokeltisch[flawokeltisch.]
    Flawodeutsch --> Flawitalokeltisch[flawitalokeltisch.]
    Ariograeco --> Ariokeltisch[ariokeltisch.]
    Ariograeco --> Ariograecoitalokeltisch[ariograecoitalokeltisch.]
    Flawokeltisch --> Keltisch[keltisch.]
    Flawokeltisch --> Italisch[italisch.]
    Flawokeltisch --> Albanesisch[albanesisch.]
    Ariokeltisch --> Griechisch[griechisch.]
    Ariokeltisch --> Erantisch[erantisch.]
    Ariokeltisch --> Indisch[indisch.]
  
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Two years later, Schleicher published a book-length essay, *Die Darwinische Theorie und die Sprachwissenschaft* (1863). This was translated into English as *Darwinism Tested by the Science of Language* (1869), with «tested» here meaning that Darwin's results were being confirmed by the linguistic investigation. There Schleicher drew out the implications of the botanical analogy – or the organic *reality* of language, as he saw it:

Languages are organisms of nature; they have never been directed by the will of man; they rose and developed themselves according to definite laws; they grew old, and died out. ... The science of language is consequently a science of nature; its method is generally altogether the same as that of any other natural science. ... We may learn from the experience of the naturalist, that nothing is of any importance to science, but such *facts* as have been established by close objective observation. All those trifling, futile interpretations [by historical linguists], those fanciful etymologies, that vague groping and guessing ... become perfectly intolerable to the student who has learned to take his stand on the ground of sober observation. Nothing but the close watching of the different organisms and of the laws that regulate their life, nothing but our unabated study of the scientific object ... should form the basis also of *our* training. (*Darwinism Tested*, 19-20)

So in the mid-nineteenth century we can see a clear and vital interchange between ecological and linguistic studies, but the relationship had roots of its own well before Darwin and Schleicher. The botanical theory of evolution was already anticipated by Johann Wolfgang Goethe during his extended stay in Italy in 1786-1788. Though Goethe undertook his *italienische Reise* primarily in search of poetic and artistic inspiration, he made extensive notes on plants and minerals throughout his journey, and he came to realize the influence of climate on plants. This let him to develop a personal theory of botanical evolution, countering Linnaeus's static classification of plant species, which Linnaeus had seen as God-given and unchanging. After Goethe returned from Italy he published a booklet, *Die Urpflanze* (1789), where he argued that all plants have evolved from the leaves of a single archetypal plant, the *Urpflanze*. As he had written in his diary during his journey, as he subsequently recorded in his *Italian Journey*:

While walking in the Public Gardens of Palermo, it came to me in a flash that in the organ of the plant which we are accustomed to call the leaf lies the true Proteus who can hide or reveal himself in vegetal forms. From first to last, the plant is nothing but leaf, which is so inseparable from the future seed that one cannot think of one without the other. (Diary entry, Rome, July 31, 1787)

In *On the Origin of Species*, Darwin alludes to Goethe's theory, referring to it as common knowledge that plants have evolved through metamorphosis from a primitive form.¹ Meanwhile in 1821, in his essay *A Defence of Poetry*, Percy Bysshe Shelley had applied botanical theory to culture itself, seeing poetry as the generative Ur-force. Poetry, he

¹ For more on this connection, see ENZEL (1982).

asserted, «is at the same time the root and blossom of all other systems of thought; it is that from which all spring, and that which adorns all; and that which, if blighted, denies the fruit and the seed, and withholds from the barren world the nourishment and the succession of the scions of the tree of life» (47). The image of «the tree of life» ultimately goes back to the Book of Genesis, but it was a new and even radical idea in 1821 to connect the Edenic tree to the nascent theory of evolution, which was anathema to believers in the Bible's literal historicity.

A decade after Schleicher promoted his Darwinian tree theory of Indo-European languages, the comparative linguist Johannes Schmidt proposed an alternative *Wellentheorie* or «wave theory» in his book in *Die Verwandtschaftsverhältnisse der indogermanischen Sprachen* (1872), which he published with Hermann Böhlau, the same publisher who had brought out Schleicher's book. For Schmidt, languages cannot be understood purely as separate branches that grow and increasingly diverge from a common root. Instead, linguistic communities are constantly in contact, and innovations in one language or dialect will spread outwards, like waves when a stone is dropped into a pond. Schmidt doesn't include any diagrams in his book, but he provides long lists of words that had been adopted from one European language by some but not by others, with the extent of such borrowings depending on each language's proximity or distance from the point of origin of the borrowing or neologism.

A few years later, the first journal of comparative and world literature was founded in 1877 in the Romanian city of Cluj, then in the Austrian-Hungarian Empire. In a programmatic essay on the journal's goals, the journal's co-editor Hugo Meltzl emphasized the importance of languages, and not just the dominant few European languages: his journal had no fewer than eleven «official» languages. In his essay, he makes what is probably the very first comparison of small languages to endangered species:

A people, however insignificant politically, is as important as the largest nation. [...] From this comparative-polyglot standpoint should be considered the *ukaz* of the Censorship Office of the Russian Ministry of the Interior of May 16, 1876, which prohibits the literary use of the Ukrainian language. It would appear as the greatest sin against the Holy Spirit, even if it were directed only against the folksongs of an obscure horde of Kirghizes instead of a people of fifteen million. In a time when certain animal species such as the mountain goat and the European bison are protected against extinction

by elaborate and strict laws, the willful extinction of a human species (or its literature, which amounts to the same thing) should be impossible. (46)

A decade later, an Irish barrister, Hutcheson Macaulay Posnett, gave Comparative Literature its name in English. He had previously written a book on the evolution of legal systems, using a social-Darwinist frame, and in this book he applied Darwinian principles to literature. He argued that around the world, literature has evolved in tandem with a four-stage evolution of society, from the clan to the city-state to the empire and finally to the modern nation. He published his book in an *International Scientific Series*, which included books on all kinds of topics in the natural and social sciences – everything from Volcanoes to Jellyfish to Psychology to Evolutionary Theory. He starts with a preface defending his use of a scientific model derived from Darwin:

To assume a position on the border-lands of Science and Literature is perhaps to provoke the hostility of both the great parties into which our modern thinkers and educationists may be divided. The men of Literature may declare that we have fallen into the hands of the Philistines, and that the mere attempt to explain literary development by scientific principles, is worthy of none but a Philistine. The men of Science may be inclined to underrate the value of a study which the unveiled presence of that mysterious element, imagination, makes *apparently* less definite than their own. In a word, our position may arouse hostility and fail to secure friendship. (v)

Hoping to forestall such responses, he continues:

What, then, is our apology for assuming it? To our friends, the men of Science, we would say that the culture of imagination is of the utmost service, alike in the discovery of new truths and in the diffusion of truths already known; that the supposed hostility of Science to Literature, by discrediting this faculty, tends to lower our attainments alike in Science and Literature; and that the study on which we now propose to enter affords a splendid field for the exercise at once of analysis and of imagination. (vi)

He concludes: «To such rational study this volume is intended as a contribution, however slight – an effort, it may be feeble, to treat Literature as something of higher import to man than elegant dilettantism or, what is possibly worse, pedantry devoted to the worship of words» (vi).

The longstanding connections between evolution, ecology, language, and literature have taken on new life today as literary scholars seek to understand literature in global terms, far beyond the national (or, at

most, regional) borders that traditionally circumscribed literary studies. In the early 2000s, the Italian comparatist Franco Moretti, then teaching at Stanford, explored evolutionary theory in several influential studies, and both the tree model and the competing wave model inform his 2007 *Graphs, Maps, and Trees*. His mapping project began a decade earlier, when he was teaching at Columbia University, with research leading to his *Atlas of the European Novel* (1998). There he began to explore literary devices such as free indirect discourse, and entire genres such as the Bildungsroman or the detective story, as evolving and spreading worldwide, either as Schleicher-like trees or in Schmidtian waves—if not both. As he remarks in an influential essay, *Conjectures on World Literature* (2000):

When historians have analysed culture on a world scale (or on a large scale anyway), they have tended to use two basic cognitive metaphors: the tree and the wave. [...] Now, trees and waves are both metaphors—but except for this, they have absolutely nothing in common. The tree describes the passage from unity to diversity: one tree, with many branches: from Indo-European, to dozens of different languages. The wave is the opposite: it observes uniformity engulfing an initial diversity... Trees and branches are what nation-states cling to; waves are what markets do. And so on. Nothing in common, between the two metaphors. But – *they both work*. Cultural history is made of trees *and* waves. [...] as world culture oscillates between the two mechanisms, its products are inevitably composite ones. (66-67)

Moretti himself had begun this work through a move of his own, from one cultural and linguistic ecosystem to another. As he later described his initial foray into this research, soon after he moved from the University of Verona to Columbia in 1990, it began when Carlo Ginzburg invited him to write an essay on Modern European Literature for a history of Literature to be published by Einaudi:

I took forms as the literary analogue of species, and charted the morphological transformations triggered by European geography. [...] This was a happy essay. Evolution, geography, and formalism – the three approaches that would define my approach for over a decade – first came into systematic contact while writing these pages. I felt curious, full of energy; I kept studying, adding, correcting... I was writing in Italian; for the last time, as it turned out – though, at the time, I didn't know it. In Italian, sentences run easier; details, and even nuances, seem to emerge all by themselves. In English, it would all be different. (*Modern European Literature*, 1)

Since then, a range of scholars in the growing field of ecocriticism have pursued ecological frameworks for their work. In *An Ecology of World Literature* (2015), Alexander Beecroft argued that an ecological model is better suited for world literature than the more unitary world systems theory developed in economics:

If we are dealing with a system in which the various inputs are not in fact equivalent with each other [...] ecology understands, accepts, and insists on, the distinct and naturally interactive nature of these various inputs, also that changes in the external environment [...] can have complex and shifting impacts on various species found in a given context. [...] [A]ny given literature must, I believe, be understood as being in an ecological relationship to other phenomena – political, economic, sociocultural, religious – as well as to the other languages and literatures with which it is in contact. (20)

Beecroft acknowledges Moretti's influence, but his main focus is not on waves and trees; instead, he draws on contemporary ecologists' discussions of biomes as a valuable complement to the study of regional ecozones. Whereas Posnett imagined a worldwide evolution in four common stages, and Moretti saw the European novel as a kind of invasive species, Beecroft (who was trained both in Classics and in classical Chinese) prefers to study comparable formations that can appear at widely different times and places. These he compares to the fourteen biomes found in different ecozones, such as deserts, tundras, and Mediterranean climates. In this way he can compare similar poetic manifestations in classical Greece and China as examples of a common biome in their very separate ecozones, based in particular patterns of environmental constraints of language, religion, socio-political organization, and literary forms.

To take an example of this approach from my own work, when I was editing an anthology of world literature some years ago, I was struck to observe some surprising similarities between two plays written on opposite sides of the world around the turn of the eighteenth century: *Le Bourgeois Gentilhomme* (1670) by the French playwright Molière, and *Love Suicides at Amijima* (1721) by Chikamatsu Mon'zaemon. These great playwrights were close contemporaries; Chikamatsu was twenty years old when Molière died. The French and Japanese theatrical traditions were completely independent of each other and varied in fundamental ways, and neither of these playwrights could ever have heard of the other, and so they weren't evolving from a common root, nor was one theatrical tradition washing over the other like a tidal wave.

Instead, in Beecroft's terms, their plays reflect a comparable «biome»: a new urban social and commercial order that was emerging amid a decaying feudal aristocracy. In Japan as in France, the rising bourgeoisie began to make itself heard with new force during the seventeenth and eighteenth centuries, decisively displacing the older aristocracy during the nineteenth century. Literary works began to treat this shift during its first phases, and fascinating comparisons can be made among works from very different cultures that were undergoing their own versions of this social and economic transformation.

In *Le Bourgeois Gentilhomme* and in *Love Suicides at Amijima*, both dramatists were thinking hard about the new social order that was starting to come into being around them. This common concern yields fascinating convergences – as well as equally interesting divergences – between their works. Molière's title is intended as a paradox: a middle-class merchant was not supposed to be a gentleman. The term «gentilhomme» had originated in the Middle Ages to signify someone born within the extended circle of the nobility. Molière's fatuous hero Monsieur Jourdain, however, has deluded himself into thinking he can vault into the upper class by mere virtue of the wealth he has inherited from his father, a prosperous cloth merchant. For his part, Chikamatsu's hero Jihei is a paper merchant, who is mocked by a samurai who is his rival for the affections of the heroine, a geisha named Koharu. So there is an underlying social and economic similarity, and in addition there is an important commonality of what we might describe as their literary «microenvironments», as both Molière and Chikamatsu were intensely self-aware playwrights who reflected on acting itself within their plays. In Japan as in France, clothing was a powerful marker of social status, and both Molière and Chikamatsu portray characters who try to adopt a new social role by donning a new costume. Molière's Monsieur Jourdain is obsessed with the extravagant, ill-fitting clothes his tailor foists off on him as the latest fashion among the nobility; he is discomfited that his wife and her maid can't stop laughing when they see him in his ridiculous plumes and ruffles. In *Love Suicides at Amijima*, Jihei dresses up to impress the proprietress of the brothel when he goes to buy Koharu's freedom, but on his way he is confronted by his angry father-in-law, who accuses Jihei of seeking to disguise his humble origins: «My esteemed son-in-law» he says sarcastically, «what a rare pleasure to see you dressed in your finest attire, with a dirk and a silken cloak! Ahhh – that's how a gentleman of means spends his money! No one would take you for a paper dealer» (411).

Both plays include metatheatrical speeches describing the act of dressing up as a form of play-acting. Monsieur Jourdain has refused to allow his daughter to marry her true love, Cléonte, because he isn't a nobleman, but the clever servant Coveille solves the problem by proposing «an idea I got from a play I saw some time ago» (42). He dresses Cléonte as a Turkish prince, and Jourdain is only too happy to accept this exotic nobleman as his son-in-law. Cléonte then costumes Jourdain in Turkish finery, prompting Jourdain's astonished daughter to exclaim: «Is this a play?».

Far more seriously, in *Love Suicides at Amijima* Jihei and Koharu have realized that they can never be free in their love, and they are planning to commit suicide. Desperately trying to prevent some such rash act, Jihei's brother Magoemon dresses up as a samurai and comes to Koharu in the guise of a customer, using the authority of his assumed upper-class rank to add weight to his words as he tries to dissuade her from throwing her life away. Magoemon feels like an actor in his samurai outfit: «Here I am» he grumbles, «dressed up like a masquerader at a festival or maybe a lunatic! I put on swords for the first time in my life and announced myself, like a bit player in a costume piece» (401).

In both plays, traditional social norms assert themselves beneath the new roles. Molière and Chikamatsu both used their own profession of acting as a powerful metaphor for life in a world of unstable social identities. Yet the differences between their plays are considerable as well, including very different religious traditions as well as the personal choices the two playwrights had made in their own lives. A full comparison of the two plays has to involve the substantial differences as well as the similarities between their responses to their respective biomes, much as ecologists will find significant differences in species and subspecies within comparable biomes in differing ecosystems.²

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Linguists and literary scholars have drawn extensively on evolution and ecology ever since the turn of the eighteenth century, and I hope to have shown how useful these sciences have been for them. But what, really, is the use of literature for science? Here I will return to Shelley's *Defence of Poetry*, which offers a perspective that I have always found inspiring. As he says toward the end of his essay:

² I discuss these plays further in *What Is World Literature*, 67-73.

We have more moral, political, and historical wisdom than we know how to reduce into practice; we have more scientific and economical knowledge than can be accommodated to the just distribution of the produce which it multiplies. [...] There is no want of knowledge respecting what is wisest and best in morals, government, and political economy, or at least, what is wiser and better than what men now practise and endure. But we [...] want the creative faculty to imagine that which we know; we want the generous impulse to act that which we imagine; we want the poetry of life; our calculations have outrun conception; we have eaten more than we can digest [...] and man, having enslaved the elements, remains himself a slave. (45)

A growing number of artists and scholars now are responding to this need to develop our faculty to *imagine* that which we know.

Here I will mention three scholarly examples, among many today. In *Sense of Place, Sense of Planet: The Environmental Imagination of the Global* (2008), Ursule Heise advocates for more imaginative understandings of both literature and ecosystems as at once locally rooted and inextricably bound up with global processes. In *The Disposition of Nature: Environmental Crisis and World Literature* (2019), Jennifer Wenzel extends Heise's emphasis on the environmental imagination to bring literature together with ideas from ecology, geography, anthropology, history, and law, and she argues for the importance of literature to environmental thought, proposing, as the publisher's description says, that «a supple understanding of cultural imagination and narrative logics can foster more robust accounts of global inequality and energize movements for justice and livable futures».

Thirdly, in *Literature for a Changing Planet*, Martin Puchner puts equal stress on the importance of teasing out the ecological implications of literary works that don't take account of the ecological harms on which their societies depend. He gives as a prime example *The Epic of Gilgamesh*, whose hero invades a distant forest, kills its guardian spirit, and cuts down its cedar trees to use in his palaces and temples. Puchner argues that *Gilgamesh* has too often been read as a tale of heroic adventure, and as an existential meditation on the fear of death, but it has rarely been seen as a document in the early history of unrestrained resource extraction. Against his view, others have noted that the epic isn't simply endorsing Gilgamesh's brash actions, which are a manifestation of the excesses that he will have to outgrow in order to become the king he should be.

All three books, and the wider community of scholars who debate them, are struggling with the challenge of imagining both literature and the environment on a global scale. As Ursula Heise says in her book's conclusion, entitled *Some Like It Hot*: «Like other processes of global systematic transformation, ecological or not, climate change poses a challenge for narrative and lyrical forms that have conventionally focused above all on individuals, families, or nations, since it requires an articulation of connections between events at vastly different scales» (205). In the body of her book, she argues that too many apocalyptic novels and films on ecological disasters only serve as dystopian escapist entertainment. By contrast, she champions innovative and experimental works that find new ways to deal with the blend of local and global processes at work today. As she says in her concluding paragraph,

All these works, implicitly or explicitly, highlight the imbrication of local places, ecologies, and cultural practices in global networks. [...] They thereby participate in the search for the stories and images of a new kind of eco-cosmopolitan environmentalism that might be able effectively to engage with steadily increasing patterns of global connectivity, including those created by broadening risk scenarios. This book understands itself as a part of the same search. (210)

Science, art, and literary scholarship come together in Ursula Heise's work.

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Much of today's ecocriticism focuses on novels and films produced in the past two decades, as the scope of environmental dangers has grown and has increasingly awakened public awareness – almost everywhere except in the current administration in Washington and in the robust conservative media ecosystem that supports it. But I will conclude with an earlier example, Italo Calvino's *Le città invisibili* (1972), in which a philosophical Marco Polo describes to Kublai Khan a series of wildly imaginative cities that he has supposedly seen around the Chinese Empire, grouped under headings such as *Le città e la memoria*, *Le città e i segni*, *Le città e il nome*. In the 1970s, Calvino's book was received as a modern Arabian Nights tale of fantastic imaginary cities, and as a metafictional meditation on language and desire. But as the book proceeds, orientalist medievalism gives way to probing accounts of the problems of modern life: from mechanized warfare to the loss of

religious faith to endless urban sprawl, in what Polo calls «reticoli senza principio né fine» (140). He names Los Angeles and Kyoto-Osaka as examples of these endless networks.

Ecological problems are highlighted in several of these later cities, particularly involving overpopulation and endless consumption of resources. To give one example:

La città di Leonia rifà se stessa tutti i giorni [...] Non solo tubi di dentifricio schiacciati, lampadine fulminate, giornali, contenitori, materiali d'imballaggio, ma anche scaldabagni, enciclopedie, pianoforti, servizi di porcellana [...] Dove portino ogni giorno il loro carico gli spazzaturai nessuno se lo chiede: fuori della città, certo; ma ogni anno la città s'espande, e gli immondezzei devono arretrare più lontano; l'imponenza del gettito aumenta e le cataste s'innalzano, si stratificano, si dispiegano su un perimetro più vasto. [...] Forse il mondo intero, oltre i confini di Leonia, è ricoperto da crateri di spazzatura, ognuno con al centro una metropoli in eruzione ininterrotta. I confini tra le città estranee e nemiche sono bastioni infetti in cui i detriti dell'una e dell'altra si puntellano a vicenda, si sovrastano, si mescolano. (113-14)

In a 1983 discussion, now included as a preface to the book, Calvino asked himself about his project:

Che cosa è oggi la città, per noi? Penso d'aver scritto qualcosa come un ultimo poema d'amore alle città, nel momento in cui diventa sempre più difficile viverle come città. Forse stiamo avvicinandoci a un momento di crisi della vita urbana, e *Le città invisibili* sono un sogno che nasce dal cuore delle città invivibili. (ix)

From “invisibili” to “invivibili” – just one letter different: but such a difference. Half a century ago, Calvino was already fully attuned to the nascent climate crisis of today.

At the end of the book, Kublai Khan asks Marco Polo what can be the point of imagining so many alternative cities, when his empire is decaying and his cities are falling into ruin. He thinks that society is headed toward an inferno – a Dante reference that takes on new relevance in these days of climate change, when people around Europe are dying of heat stroke, and when Marco Polo's Venice is threatened with submersion by rising sea levels. In the book's closing words, Marco gives his reply:

L'inferno dei viventi non è qualcosa che sarà; se ce n'è uno, è quello che è già qui, l'inferno che abitiamo tutti i giorni, che formiamo stando insieme. Due modi ci sono per non soffrirne. Il primo riesce facile a molti: accettare l'inferno e diventarne parte, fine al punto di non vederlo più. Il secondo è rischioso, ed esige

attenzione e apprendimento continui: cercare, e saper riconoscere, chi e cosa, in mezzo all'inferno, non è inferno, e farlo durare, e dargli spazio. (164)

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