

1 Introduction

On November 17, 1946, Italo Calvino, then a 23-year-old journalist and would-be writer, published a curious article in *L'Unità*, the Italian Communist Party's newspaper with which he collaborated. Titled "Goats are Watching Us," the article reported on a commemoration of the "goats sacrificed for humanity's sake" organized by the farmers of San Fernando Valley, California. Some will observe, he wrote, that no similar ceremony has ever been held for the children, women, and old people killed by bombs in Hiroshima, Turin, or Milan, who died without knowing why "on the altar of war's needs." In the goats' commemoration, however, Calvino saw "a secret remorse of humankind towards animals, united to a typically human hypocrisy." He added:

Have you ever asked yourselves what the goats on Bikini must have thought? And the cats in bombed houses? And the dogs in war zones? And the fish struck by torpedoes? How must they have judged us humans in those moments, in their logic – which exists and, although simpler, is . . . a much more humane logic?

Yes, we do owe animals an explanation, if not a reparation. . . . We must apologize to them if we upset this world which is also theirs, if we involve them in business that does not concern them. (Calvino 2001: II, 2131–2132. My translation)

The inspiring reason for the article and these peculiar considerations is a remarkable event that was well in line with the climate of the period. That same year, in July, the United States had conducted the so-called Operation Crossroads, detonating a couple of atomic bombs at the Bikini Atoll, and some goats had been "sacrificed" in the experiment. This piece contains, therefore, a significant historical find, apart from the pulverized caprines: the radiation of nuclear fallout. According to geologists, this very fallout – and that of the bombs that, before and after, were tested by the thousands on both sides of the Iron Curtain – might mark the "Golden Spike," namely the ground zero, of a new period which would affect all life on Earth: the Anthropocene.

This novel "Age of the Human," which would definitively close the brief Holocene adventure, has been a subject of debate for some years now. Geologists talk about it, although the International Stratigraphy Commission has not yet officially ratified its entry into geology textbooks.¹ Even more,

¹ The first official proposal to call "Anthropocene" the last phase of the Quaternary is by Paul Crutzen and Eugene Stoermer (2000). As of May 2021, the hypothesis is still being evaluated by the International Commission on Stratigraphy (ICS) and the International Union of Geological Sciences (IUGS). However, on August 29, 2016, the ICS Anthropocene Working Group (AWG) presented a formal recommendation oriented toward recognition at the International Geological Congress. In May 2019, the AWG voted in favor of submitting a formal proposal to the ICS by

humanists talk about it, especially those who are interested in environmental issues. This is not surprising. The constitution of this period does indeed have a powerful narrative force: for the first time, a geological model manages to accommodate within a single frame apparently disconnected phenomena, such as climate change due to the modification of atmospheric chemistry, the upheaval of the surface and depths of our planet, mass extinctions, ecosystem pollution, social injustices, and (unsurprisingly) global pandemics.

Speaking of narrative force is not hyperbole. It is also thanks to the *Anthropocene as a framework* that the interweaving of these phenomena is revealed, which we now see not only as interdependent but also as linked to a common trigger: the profound and pervasive impact of our species. For those who observe it with the eyes of history or literature, then, the Anthropocene no longer seems just a hypothesis of geologists, but the plot of a huge planetary novel.

A few years ago, while studying Calvino, an Italian author who happens to be one of the foremost novelists of the twentieth century, I noticed a series of curious coincidences. Starting at the end of World War II, the parable of his works ran parallel to the major phases of the Great Acceleration: the upsurging growth rate that signals the impact of human activity on the planet's cycles, and hence the beginning of the Anthropocene. Not only that: writing about nuclear fallout and the changing atmosphere and climate, the avalanche of concrete that would bury age-old landscapes, the inequalities propagating across industrial society, and the ways life forms were being affected by all these changes, Calvino was following, step by step, what we now recognize as the progression of this epoch, its manifold strata. In fact, even if the geological notion was only to arise half a century later, the effects of modernity on atmosphere, lithosphere, biosphere, and sociosphere were already perfectly visible in the Italy of his time. And they were emerging simultaneously in his novels and stories, which might be read as a “narrative stratigraphy” of this new epoch.²

In my explorations, the sphere of life came to occupy a prominent space. In particular, I found it fascinating and insightful how Calvino represented animals by putting them in constant conversation with the world and time to which they belong. Whether parts of an evolving rural ecology or trapped in the cages of a zoo, helpless victims of science or residues of wildness in a city that swallows every critter free and untamed, these animals appeared to me as epitomes of the

2021, situating the Golden Spike around the mid-twentieth century (beginning of the atomic era). Data available at: <http://quaternary.stratigraphy.org/working-groups/anthropocene/>.

² For a reconstruction of this “narrative stratigraphy” through a literary-textual reading of Calvino's works, see Iovino 2018. On the Anthropocene's “extraordinary strata” (lithosphere, atmosphere, biosphere, and sociosphere), see Zalasiewicz 2016.

Anthropocene life. So, I decided to delve into this fictional (and yet so real) biosphere by selecting from Calvino's literary animals those representing the forms of global displacement, alienation, alteration, and extinction that characterize nonhuman (and human) existence in our days.

Global displacement, alienation, alteration, and extinction: these categories are not listed at random. In fact, the current state of life forms on planet Earth is terribly complicated and deserves a few preliminary considerations before we start our investigation of Calvino's stories. As one authoritative study put it, the Anthropocene biosphere possesses

four key parameters: (1) the widespread (near-global) resetting of ecosystem composition and structure, partly as a result of cross-global species invasions; (2) a major change in the energy budget that all species rely upon . . . with one species (*Homo sapiens*) consuming some 25% to 40% of net primary production . . .; (3) the human-directed evolution of plants and animals; and (4) the increasing coupling of the biosphere with an ever more rapidly evolving technosphere. (Williams et al. 2015: 5)

Let's summarize: invasion of alien species, human overexploitation of the planet's resources, systematic disruption of ecosystems and habitats, and technological manipulation of life. Taken singularly, these phenomena are already enough to dramatically alter the conditions of living beings and ecosystems. Combined, they trigger an amplified array of cascade effects, of which the most staggering and macroscopic one is what biologists call the Sixth Extinction: the biggest die-off of life forms since the Cretaceous–Tertiary (K–T) extinction event, nearly 66 million years ago, when three-quarters of the plant and animal species on Earth were wiped out by a comet or asteroid.

Not by chance, the American anthropologist Anna Tsing and her research collective in Aarhus, Denmark, describe the Anthropocene as a landscape populated by “ghosts” and “monsters” (Tsing et al. 2017). Ghosts are the shadows cast by extinction: they emerge from the multitude of absences left behind by this quiet systemic loss that obliterates “living arrangements that took millions of years to put into place” (Gan et al. 2017: G1). Monsters are the presences filling these empty hollows: hybrid and invasive species, parasites, creatures whose genes have been damaged by radioactivity and pollution, and all the forces at work in the hazy zones of an altered biology (including, of course, viruses). In these landscapes, “urban” and “rural” become blurred categories, both being permeable terrains for larger-scale dynamics. Infiltrated by the erratic effects of global exchanges, for example, the country often becomes a setting for dark pastoral: a planetary plantation where cultures are homogenized and new slaveries established, or a conquest territory for alien

organisms that travel with goods along the borderless routes of world commerce. On the other hand, cities, with their rarefying “green” spots, turn into accidental habitats for feral species or temporary shelters for marginal creatures and people. And, where “nature” is no longer at home in urban areas, these very cities also become spaces of confinement or coerced domestication, where the cultural and the technological merge with the biological in problematic ways. This happens in labs, zoos, industrial farms, and all the places where our bioschizophrenic modernity situates those beings that are considered disposable – or just, irreducibly, “others.” Life in the Anthropocene, in other words, is often an “alter-life”: a life which has been altered and “othered” by human intervention.

All this raises issues of justice both within and among species. Social justice, too, is one of the matters at stake in the Anthropocene biosphere. This is why some theorists prefer names such as “Capitalocene” or “Plantationocene,” stressing the fact that the real culprit is not a generic “human being,” but the political and economic systems involved in the commodification of natural forms: capitalism, imperialism, colonialism, neoliberalism, and new slaveries.³ Like the dying and vilified nonhuman others, the subaltern, colonized, marginalized humans are also victims of an *Anthropos* with which they certainly do not identify. The human experience of social injustice is also part of the larger picture of our biosphere. And, finally, the Anthropocene affects species in all their environments: environments of life and of meanings. Its dynamics shake individuals with their fragile balances, their challenges and inequalities, their signs, their stories.

All these themes and articulations of the Anthropocene life are present in Calvino’s work, and this Element will heed some of them. A real case of alien species invasion, for example, is the subject of *The Argentine Ant* (published in 1952), where the composition of the Riviera’s biota, transformed by little arthropods accidentally imported from the Paraná region, distorts the physiognomy of a landscape, turning a familiar place into a dissonant and uncanny dimension (Section 2). The clash between the “city of men” and the habitat of feral species, within an urban space that is “full of refugees . . . without refuge,”

³ “Capitalocene” is the name popularized by Jason Moore (2015, 2016a), and elaborated by him, Andreas Malm, and Donna Haraway. “Plantationocene” is a coinage by Anna Tsing (2015). Haraway (2016) adds to these terms the positive “Chthulucene,” which is, more than an existing age, a project meant to overcome bad “-cenes” in the name of multispecies companionships. Historian Charles Mann (2011) has proposed the name “Homogenocene,” meaning the global homogenization of ecosystem composition and cultures developing from the imperialist expansion inaugurated by Columbus’s travels. More recently, Marco Armiero (2021) has proposed the term “Wasteocene,” through which, stressing the omnipresence of waste in the earth’s bio-geophysical cycles, he also pinpoints the mechanisms of exclusion that underlie the production of waste at the material, social, and political levels.

as Donna Haraway says (2016: 160), is one of the leitmotifs of *Marcovaldo*, and in particular of the episode “The Garden of Stubborn Cats,” which is at the same time an elegy for Holocene coexistences and a hymn to resilient hybrid communities (Section 3). And, prominently, Calvino writes about the dark zones where the Anthropocene confines and “others” its living bodies: the lab, the factory, and the zoo, which are par excellence the places where humans subjugate other beings, generating forms of domination that delve into their very flesh. In these three sites – whose appearance on a mass scale coincides with the beginning of the industrial era – the fate of animals frequently converges with that of disempowered people, as we will see in the stories of “The Poisonous Rabbit” (Section 4), “The Workshop Hen” (Section 5), and “The Albino Gorilla” (Section 6). Finally, Calvino also tells us something about extinction, which, although not the explicit focus of these stories, casts its shadow on and emerges from them in unexpected forms. The environmental humanities’ theoretical toolbox, with research in multispecies ethnography, biosemiotics, animal studies, environmental justice, new materialisms, and posthumanism, will guide us through these texts and themes.

But what makes Italo Calvino (1923–1985) so interesting for a study like this? What can he say to those who look for ecological topics in literature? The answer is easy: everything. His novels and short stories are animated by a basic premise: the need to broaden the gaze of literature beyond the human, focusing on life, on *bios* – and on the imagination that animates this life.

Calvino has been exploring this territory from the very beginning of his career. A son of botanists, he grows up amid an “experimental” garden, where animals and plants populate a landscape that is at the same time tangible and theoretical. At Villa Meridiana, his home but also a research ecosystem in the Western Riviera, mud, insects, birds, and roots cohabit with scientific concepts, Linnean taxonomies, and observation instruments. Into this landscape, Italo brings his passion for political action (he is only twenty-one when he becomes a partisan during the Nazi-Fascist occupation) and his curiosity for everything that makes a story, especially if this story belongs to the world “outside the self.” He is an attentive observer and interpreter of the nonhuman, of the reality bubbling beyond our understanding and control. As a mature writer, this sensibility joins his creativity even more powerfully, giving life to strange figures that complement and demystify the imagination of traditional humanism. All this, without giving up a compassionate interest for the human, especially if different, heterodox, or marginalized.

And so, if in *Cosmicomics* (1965) a cartoon-like and paradoxical irony is employed to show the universal kinship of all existing forms, in *Marcovaldo* (1963) a subproletarian *bon sauvage* tries to disentangle the “nature vs. city”

jumble as he is called to face precarious housing, poor health, lack of green areas, industrial pollution, and animal welfare. *The Baron in the Trees* (1957) tells the story of the subversive rejection of an ancien-régime dinner which ends up in a life detached from the ground and suspended in the leafy highways of Europe – a story caught just a moment before this wooden world disappears. *The Watcher* (1963) looks for the human in “the last city of imperfection” of disabled men and women. *Invisible Cities* (1972) discloses the endless metamorphoses of urban organisms, dreamed or lived, prefiguring today’s debate on life in the age of super-megalopolises and disappearing places. Finally, *Mr. Palomar* (1983) creates, via the eyes of a pensive and irritable middle-aged man, an observatory through which the world can look at itself in all the multifaceted presences outside and around the human.

These are only a few examples of a creativity “beyond the human,” that in the course of a short lifetime bloomed into a huge number of stories, novels, essays, articles, poems, opera librettos . . . And, of course, this Element will not even come close to exhausting the topic of life in Calvino, or that of the animal – a question that “goes to the heart of his project as a writer and an intellectual.”⁴

But the goal of any research – whatever its subject or kind – is not to extinguish a topic, but rather to open more discourses, and perhaps elicit new curiosities and questions. A small attempt at stirring up these curiosities and questions, and a modest exercise in the practice of the environmental humanities, this Element is meant to invite its readers along a double path: one that, starting from Calvino’s literary animals, ushers in a deeper understanding of the dynamics of life in the Anthropocene, and another that, starting from the Anthropocene animals, ushers in the discovery of one of the protagonists of the twentieth-century literary scene. A double treat, indeed, because both – animated by an imagination which is multiple and singular, alien and intimate, brotherly and surreal – deserve our attention.

Italo Calvino’s Life: A Lightning-fast Overview

Italo Calvino was born in Cuba in October 1923 to a couple of Italian scientists. He is two years old when the family moves to Sanremo, in the Liguria region, where an Experimental Floriculture Station will be housed in the family residence, Villa Meridiana, directed by his father, Mario, with the support of his mother, Eva Mameli. Nature is always at home in his imagination, even if as

⁴ Bolongaro 2009: 107. I borrow the expression “beyond the human” from Past 2019. Elena Past, with Deborah Amberson, is a pioneering figure in animal–humanities-oriented Italian studies. See Amberson and Past 2014. This Element is part of a more comprehensive research-in-progress on Calvino and ecology. That forthcoming work will contain more detailed analyses of issues, texts, and literary examples, that, due to its limited size, could not be included here.

a typically rebellious child he refuses to learn the “technical” language of botany and agronomy, specialties of his parents. In fact, he is the only literary person in a family of scientists: two uncles and their wives are chemists. His younger brother, Floriano, will become a geologist.

Italo is seventeen when Italy enters the war and is not yet twenty-one when the Nazi-Fascist occupation forces him to join the partisan brigades in the Ligurian Alps, going into hiding. He begins to write shortly after, and his stories are stories of places and animals, of soldiers and shyness, of gardens and children, of cities, of eccentric and marginal humans, of rough and mysterious youth mixed with violence and landscape.

After the war he moves to Turin, one of Italy’s major industrial cities, then in full postwar reconstruction. There he graduates in literature with a thesis on Joseph Conrad, becomes a journalist, and begins working for the progressive publisher Einaudi, where he remains until 1961. He would later become Einaudi’s editorial consultant. An active member of the Italian Communist Party, he moves away from it in 1957, disappointed by the repressive intervention of the USSR in Hungary in 1956. In 1964 he marries Esther “Chichita” Singer, an Argentine translator for UNESCO, in Cuba. The couple, who had met in Paris in 1962, moves to Rome first, where Giovanna is born in 1965, and then back to Paris, where Italo works in close contact with the leading figures of the cultural scene. He is among the animators of OuLiPo (*Ouvroir de Littérature Potentielle*, Workshop of Potential Literature), one of the most original experimental literary groups of the time. Other members are Raymond Queneau, Georges Perec, François Le Lionnais: all people who, like him, enjoy seeing the *ars combinatoria* hidden in stories and words.

Meanwhile, he writes, and in 1980 he returns to Rome, which he will periodically leave for trips abroad and holidays in Tuscany, where the family has a house in the Roccamare pine forest, near Castiglione della Pescaia.

In 1984 he is invited to Harvard to give the prestigious Norton Lectures during the 1985/86 academic year. By the summer of 1985 he has written five out of six of these lectures, and is ready to leave for Massachusetts, when a stroke hits him in September. Less than two weeks later, he dies, aged sixty-one. An absolute protagonist of the modern literary scene, he is one of the most celebrated novelists and intellectuals world-wide.

2 Ants

The landscapes of the Anthropocene are not necessarily gloomy postapocalyptic territories. Some of them, indeed, still possess a certain aesthetic appeal: a beauty, sometimes; and always a vitality, however troublesome and baffling.

Think of Sanremo, today. I agree: it is not that easy to come to terms with the cascade of buildings playing “piggyback with one another” and the thousands of closed windows waiting to be opened by “the Milanese families who [want] a place by the sea” (Calvino 1971: 163–164). However, if viewed from above, the postcard effect is anything but unpleasant. This picture embraces a harbor filled with yachts and cruise ships, the brownish roofs of yellow and pink houses, tiny gardens with plumbago plants, palm trees, and maritime pines timidly punctuating the promenade, with its residual testimonies of Belle Époque splendors. All around, a vast expanse of new houses, almost uninterrupted, mingles with the ancient walls of La Pigna, this dark pinecone shut in its urban scales. Finally, interspersed with small agricultural patches, a huge blanket of greenhouses and geometrically enclosed fields nests one of Europe’s biggest industrial flower crops. This is the “inexhaustible surface” that one – a bird, a human, or a drone – sees, flying over Sanremo and its surroundings. But if, for once, one could “venture to seek what’s underneath,” another landscape would appear. And this is where the Anthropocene grounds become haunted – and haunting.⁵ In the pullulating life of the dark soil, the silence of the fields is troubled by “thousands of underground nests,” with ants coming and going in “a long procession” (Calvino 1971: 150–151). It is the edge of the Mediterranean megacolony of *Linepithema humile*, the formidable Argentine ant, one of “the world’s one hundred worst animal invaders” (Lowe et al.: 2000). Believe it or not, these never-ending subterranean labyrinths extend over nearly 4,000 miles (6,000 kilometers), from the coasts of the Italian Riviera to the Atlantic shores of Spain.

Species such as the Argentine ant are very good ambassadors for the biosphere of the Anthropocene. As noted, one of the features of life in this epoch is the extensive resetting of ecosystemic structures due to “cross-global species invasions” (Williams et al. 2015: 5). Of course, these “bioinvaders” do not travel on their own. Whether driven by market, science, or imperialistic expansion, human traffic sometimes causes a deliberate or accidental introduction of species, which are allowed to “cross a natural barrier dispersal,” dramatically interfering with the composition of ecosystems. This is not a problem per se, but might become one if an “exotic species,” unable to integrate with the “ecological community,” damages or degrades “the local ecosystem, displacing or eliminating native species.”⁶ In the case of *Linepithema humile*, global barrier crossing has been very successful. Native to the Paraná region, this arthropod

⁵ These quotes and passages allude to *Mr. Palomar*’s famous episode “From the Terrace” (Calvino 1985: 55): “This is how birds think, or at least this is how Mr. Palomar thinks, imagining himself a bird. It is only after you have come to know the surface of things, he concludes, that you can venture to seek what is underneath. But the surface of things is inexhaustible.”

⁶ Noss and Corripeders 1994: 11–12. On “bioinvaders,” see Johnson 2010.

has made its way around the continents, expanding its realms to California, Japan, Hawaii, South Africa, Australia, and even New Zealand.⁷

Italy showed the first signs of ant colonization around the 1920s. From the vantage point of his family's botanic observatory, the young Calvino had firsthand experience of a landscape dominated by industry and flowers, and it is there, in the form of a minuscule but unstoppable nonhuman agent, that the traces of the Anthropocene begin to emerge. We can follow this transformation in *The Argentine Ant*, a novella Italo started writing in 1949 and published in 1952. Due to the almost Kafkaesque character of the story, for many years Calvino had a hard time convincing his readers of its historical accuracy. In a letter he wrote to literary critic Goffredo Fofi on January 30, 1984, he was very clear: "*The Argentine Ant* . . . is the most realistic story I have written in my life; it describes with absolute exactness the situation that came about because of the invasion of the Argentine ants into the cultivated areas of San Remo and a large swathe of the Western Riviera di Ponente during my childhood, in the twenties and thirties."⁸ He had been even more explicit thirty years earlier in responding to Cesare Cases, who had interpreted *The Argentine Ant* as an allegory of capitalism:

Whoever has been in the Riviera knows that there is no exaggeration in my story: facts, characters, struggling methods, different behaviors toward the ants, an ant-dominated life, are constantly part of my childhood experience. (Now, after the adoption of DDT, the situation has slightly changed, but not that much). It is a realistic account, then: one that suggests a definition of *nature* and of the human attitude towards it. . . . I am interested above all in the way nature is considered, which is much more important than all capitalisms and transient epiphenomena; but nature in our eyes is like history – we find in it the same monstrous cruelty of the world in which we live.⁹

A realistic account, a direct personal experience, and an attempt to define "nature" and human attitudes toward it: this was *The Argentine Ant* according to its author. In these statements, the words "monstrous cruelty" are those that strike me the most. Nota bene: not because "nature" is cruel, but because it is *as cruel as* "the world in which we live." However apparently uninterested in following the ripples of capitalism, Calvino was well aware that a monstrous nature was one with the monsters of Capital. Strictly connected to the prosperity of the Riviera, itself a result of the global import-export of plants and the

⁷ Van Wilgenburg et al. 2010; Inglis-Arkeell 2015.

⁸ Calvino 2013: 529. In this letter Calvino was commenting on an article by Mario Barengi, who had defined the novella as "oneiric-Kafkaesque."

⁹ December 20, 1958. Calvino 2000: 575. My translation.

industrial transformation of floriculture, the arrival of *Linepithema humile* (formerly classified as *Iridomyrmex humilis*) was indeed one of these monsters.

The ant invasion was particularly problematic in this area, where a Consorzio obbligatorio di difesa contro la formica argentina (Obligatory consortium of protection against the Argentine ant) had been active since the early 1920s.¹⁰ That was also the time when Mario Calvino, a Professor of Agriculture and a small plantation manager, was living across continents. His activities were split among Italy, Mexico, Cuba, and Brazil.¹¹ Whether the plant specimens he sent to Sanremo from overseas (avocado, grapefruit, and several flower varieties) might have contributed to further entangling the knots of the Anthropocene biosphere is something we will never know for sure. But Italo would not overcome this doubt. According to Domenico Scarpa and Silvio Perrella, the detail that Calvino “mercifully omits” when he insists on the truthfulness of *The Argentine Ant* is that his father might have been unintentionally responsible for the importation of these upsetting aliens: “the ants arrived in the Riviera along with the exotic plants that Mario Calvino had brought with him as he moved back to Italy” from Cuba, where he was working and where Italo was born (Scarpa 1999: 128; Perrella 2010: 45). If proven true, this would be sadly ironic for a man, an agriculturalist, who had invested so much of his energy in innovating the Riviera’s plantation systems in a way that would preserve botanical variety and what we now call “biodiversity.” As we learn from Calvino’s openly autobiographical *The Road to San Giovanni* (1962), his father was fiercely opposed to floral monocultures. However, he could not help feeling guilty vis-à-vis the widespread carnation farms “stretching around in squalid and ferocious geometry” that his work had involuntarily prompted.¹²

Whether or not Mario Calvino played a part in it, by the beginning of the 1920s the ants’ invasion was a full-blown case. In 1923, the City Council of Sanremo issued a public alarm, providing a precise delimitation of the infested territory, “where surveillance is mandatory by law, due to the risk that the Riviera’s flowers and plants destined to be shipped throughout Italy might become a vehicle of expansion” (Castello, n.d.). And, indeed, this propagation all over Italy was a reality.¹³ This gives a sense of how tangible the presence of

¹⁰ Its institution was enforced through a decree published in the *Gazzetta Ufficiale del Regno d’Italia* on July 24, 1922.

¹¹ See Mez 1974.

¹² Calvino 1993: 31. He also writes that Mario “realized that this thing he had hoped and worked for did mean economic and technical progress for our backward agriculture, yes, but also destruction of wholeness and harmony, loss of variety, subordination to money” (32).

¹³ A Decree of the Ministry of Agriculture had declared the ant as “a plague and harmful parasite” as early as 1919: Decreto del Ministero dell’Agricoltura, September 28, 1919, published in