Alien Evolution and Dialectical Materialism in Eastern European Science Fiction

In his 1968 essay “About 5,750 words,” Samuel Delany dilates the reading process, slowing it to a crawl in order to argue that science fiction constitutes a distinct mode of signification and reading. In Delany's view, the normal functioning of the text, whereby each successive word modifies the image accumulating in the mind of the reader, takes on a unique cast in science fiction texts that differentiates them from naturalistic fiction. As an example he offers a winged dog:

Let us examine what happens between the following two words:

*winged dog*

As naturalistic fiction it is meaningless. As fantasy it is merely a visual correction. At the subjunctive level of SF, however, one must momentarily consider, as one makes that visual correction, an entire track of evolution: whether the dog has forelegs or not. The visual correction must include modification of breastbone and musculature if the wings are to be functional, as well as a whole slew of other factors from hollow bones to heart rate; or if we subsequently learn as the series of words goes on that grafting was the cause, there are all the implications (to consider) of a technology capable of such an operation. All of this information hovers tacitly about and between those two words. (12–13)

One merit of Delany's definition is the way it gestures towards common science fiction themes without being bound by them, emphasizing instead the distinct mode of reading and writing that functions differently on the level of science fiction’s word-to-word concatenations—its style, in other words—that characterize other modes, such as reportage, naturalistic fiction, and fantasy. The characteristic play of images and words that unfolds as the reader parses phrases such as...
“winged dog,” “the door dilated,” and “the red sun is high, the blue low” (5–13) determines a text as science fiction, rather than any set of motifs, topoi, or settings.

Yet the evolutionary motif of Delany’s example is not incidental. In a science fiction text, the winged dog wants to be accounted for in terms of a material development. However different the imagined societies, ecologies, technologies of science fiction literature may be from our own, the imperative that they be in principle scientifically explainable and coherent has long been a constitutional one for science fiction. Delany’s dilation of the process of parsing the two-word phrase, “winged dog,” indicates as much, as the reader must wonder about both the alternative biological and technological trajectories that lead to such a creature. Delany thus suggests that an evolutionary framework structures the language of science fiction apart from any individual motif. Istvan Csicsery-Ronay, Jr. similarly foregrounds material evolution in the generic qualities of science-fictional aliens, arguing that their “differences from human being cannot [...] be heteronomic; they cannot have been formed by forces and rules different from physical forces and their sublimations in material culture” (“Some Things We Know about Aliens,” 6). Put plainly, science fiction and evolution seem to have a special relationship—the genre’s fabulations are accompanied by the expectation of material explanation.

But what happens when science fiction is written and read in the context of a worldview that already sees nature and culture as linked fields of material evolution? In the Dialectics of Nature, the ur-text of dialectical materialism, Friedrich Engels characterizes life and consciousness, as well as phenomena of physics and chemistry, as instances of “the motion of matter” occurring on different levels (“Introduction,” par. 27). In the 20th century, Soviet biochemist Aleksandr Oparin—who in the 1920s and 1930s
articulated a modern, coherent theory of the development of life on Earth out of the conditions of a radically different atmosphere, thus placing the origin of life on an evolutionary rather than a speculative footing—invoked Engels, writing that “life is a special form of the movement of matter, which arises as a new quality at a definite stage in the historical development of matter” (quoted in Graham 1972, p. 261). A central idea of dialectical materialism is that all matter is constantly involved in dialectical transformations that periodically give rise to qualitatively new levels in the organization of matter, including the emergence of life out of inorganic matter.

While dialectical materialism is tainted by its historical role as the official philosophy of Marxism in the Soviet Union and the Eastern Bloc, its expansion of evolution from a biological phenomenon to a principle of the development of all matter is germane to question of alien life in the science fiction from these countries for two reasons. On the one hand, authors in the Eastern Bloc experienced the orthodoxy of dialectical materialism as a direct constraint on the imaginative possibilities of science fiction, particularly in terms of the genre’s representation of the form taken by intelligent, alien life—for good historical reasons, dialectical materialism was seen as a limiting, anthropomorphic determinism. But on the other hand, dialectical materialism’s broader relationship to ideas about evolution and the emergence of intelligence from matter suggests a more fertile ground for posing questions that are also central in science fiction: will intelligent life emerge elsewhere like it did on Earth? Will intelligent beings look like humans? Is life inherent to matter? Is intelligence inherent to life? Does the development of life and of intelligent societies follow converging paths? Or might other kinds of intelligent life be so different from humans that they are by definition unrecognizable by human standards?
Science fiction from the Eastern Bloc often raised the question of the relationship between human and non-human life in a particularly pressing way. The tension between determinism and anthropomorphism, in turn, speaks to the play of continuity and rupture at the heart of science fiction as a genre. In the three novels I will discuss in this essay—Ivan Efremov’s *Andromeda* (USSR, 1957), Stanisław Lem’s *Solaris* (Poland, 1961), and Angela and Karlheinz Steinmüller’s *Andymon* (GDR, 1982)—the relationship between human and alien is not used as a stage for fantasies of conquest or invasion, nor as a quasi-religious revelation offered by transcendentally higher forms of intelligence, as it often is in Western science fiction.\(^6\) Rather, between the poles of anthropomorphic determinism and unbridgeable difference, these three novels stage the encounter between the human and the alien as a question of evolution, knowledge, and labor. In raising the possibility of intelligent life emerging from the cosmos, *Andromeda, Solaris,* and *Andymon* link biological evolution to the imagined futures of humanity, intertwining the possibilities of intelligent aliens and a non-alienated humanity.

To be sure, the three novels pose and answer these questions in radically different ways—Efremov’s novel celebrates a galactic, communist humanism that welcomes the people of Earth to the Great Circle in the far future, while Lem’s novel offers the unfathomable intelligence of a living ocean of plasma. Striking an agnostic path, the Steinmüllers’ novel presents an ambiguous crystal tree on an otherwise lifeless planet. Yet the juxtaposition of these three novels is not arbitrary but is suggested by two of the authors themselves. In their 1995 study of East German science fiction, Angela and Karlheinz Steinmüller contrast a determinism they identify in *Andromeda* to Lem’s more exploratory view of non-human life:
Fully in the spirit of the ruling picture of history, Efremov represented a strictly determinist view of natural and social development, regardless of which planet one is on. [...] The Pole Stanisław Lem represented an opposing position, with his cybernetically inspired speculations about an ocean gifted with reason [...] However, GDR science fiction remained committed to the Efremovian theory into the seventies, with minor exceptions. (89) 7

In linking a biological and social determinism to a prevailing conception of history, the Steinmüllers indicate the scope and the stakes of a problem that exceeded literary considerations while being communicable through them. Science fiction in the socialist countries of Eastern Europe provided a space for raising political and philosophical questions about the relationship between the human and the non-human, between history and the future. In part, this ability of science fiction literature to raise such questions stems from the genre's habitual focus on the development of human society into speculative futures. Moreover, the ability of various science fiction texts to enter into implicit dialogue with each other, on the portrayal of alien life, for example, also has to do with science fiction's status as a “mega-text” constituted from the accumulation of shared referents and tropes, and dependent on the reader's awareness of these and ability to decode them. 8

More specifically to the science fiction of the Eastern Bloc countries, the conditions of state censorship and the existence of cultural formations such as science fiction fan clubs meant that science fiction, as an alternate public sphere, was both able and compelled to provide a coded way of thinking about utopia, the future, communism, and other topics that could not be addressed directly, (precisely through recognizable tropes such as the alien). 9 But these novels’ ability to think about human possibilities and limitations in terms of alien life has another cause as well: namely, within the broader framework of dialectical materialism, the question of biological evolution also implicated the question of the human future. In
Efremov’s humanist optimism, Lem’s radical skepticism, and the Steinmüllers’ agnostic exploration of recognition and difference, we can track three different ways in which Eastern European science fiction posed the question of the alien as the question of the human.

**Evolution as Beautiful Convergence in *Andromeda* (1957)**

The Steinmüllers see in *Andromeda* a deterministic conception of both biological and social development, and it isn’t hard to see why. The novel, set many hundreds of years in the future, depicts the classless future of a no-longer-alienated humanity, which has joined the “Great Circle”—a galactic network of communication and cultural exchange that sends broadcasts about the various civilizations and scientific discoveries of its member planets around the circle. “Man” is privileged as the pinnacle of the evolution of intelligent life,¹⁰ which is also distinctly communist throughout the cosmos, since peaceful unification and the development of the relations of production are among the social and technological prerequisites for entry into the Great Circle.¹¹ Human activity consists in the exploration and celebration of the cosmos; Efremov’s characters are scientists, artists, historians, and expedition commanders. Money, war, and class divisions are things of the distant past. While the novel’s characters frequently speculation about deviations in the course of progress and different paces, the end result of biological evolution and social development is the same throughout the galaxy. *Andromeda* represents a view of evolution as convergence, the endpoint of which is characterized by beautiful, rational bodies and societies. Although Efremov’s text constituted a break with the previous situation of
science fiction under Stalinism, it thus also came to stand for an orthodox, determinist anthropomorphism.

Beauty and harmony mark the culmination of development, linking the development of living matter and of the productive forces, and distinguishing higher forms of development from biological ugliness and social atavism. Early in the novel, several main characters view a new transmission sent as a message of welcome and introduction from a distant planet. Viewing the documentary summary of the planet’s development, Darr Veter—the newly retired “Director of the Outer Stations”—reflects on the upwards development of life.

A chain of animal and plant forms, sometimes monstrously incomprehensible, sometimes beautiful, appeared as ghosts of the past. [...] It was a long ladder of ascending forms of life, the ladder of developing living matter. [...] ‘The more difficult and the longer the path of blind animal evolution up to the thinking being, the more purposeful and perfected are the higher forms of life and, therefore, the more beautiful,’ thought Darr Veter. (63–65)

In discussing the history of the Era of Disunity (the capitalist era, in other words), Darr Veter explains, “The perfect form of scientifically organized society is not merely a quantitative accumulation of productive forces but a qualitative stage of development. It’s all really very simple” (115), echoing one of the three maxims of dialectical materialism, “the law of the transformation of quantity into quality.”

Evolution in Andromeda is a convergent phenomenon, in other words, representing the transcendence of struggle, competition, and ugliness, which lie in the natural and human past. The consequent overdetermination of the novel’s vision of a dialectics of nature can be almost comical, at times, as in this depiction of a dinosaur skeleton unearthed by a paleontological expedition:
Darr Veter could not take his eyes off the clumsy, heavy skeleton of the ancient beast that had been compelled to live as the prisoner of unresolved contradictions. Increases in muscular power had led to thicker bones that were put to great strain, and the heavier weight of the bigger bones again required a strengthening of the muscles. This direct dependence led the evolution of archaic organisms into a complete deadlock until some important physiological mutation resolved the old contradictions and brought about a new evolutionary stage. It seemed unbelievable that such creatures were amongst the ancestors of man with his beautiful body capable of great activity and precise movements.

Darr Veter looked at the excrescences over the brows of the Permian reptile that betrayed its stupid ferocity and compared it with lithe, supple Veda with such bright eyes in her intelligent, lively face. What a tremendous difference in the organization of living matter! (123–124)

The beauty of the human body is the signature of its higher evolutionary perfection. “Unresolved contradictions” indicate, in the natural world, competition, strife, brutality, and ugliness. Extraterrestrial life in the novel accordingly falls into one of two categories: intelligent, rational, essentially humanoid life—all those societies that comprise the Great Circle—and predatory, violent life. The novel’s closest encounter with the latter kind is a near-fatal run-in with the creatures of a dark planet orbiting an “iron star,” the immense gravity of which snares the unsuspecting explorers as they struggle to return to Earth. The planet’s electrified alien occupants, a species of huge jellyfish and a more dangerous creature that resembles “a black cross with widely outstretched arms and a convex ellipse in the middle” (104), are correspondingly brutish, frightening, and definitely non-human. The novel frequently emphasizes a thematic counterpoint between light and darkness, intellect and instinct, beauty and ugliness, the human and the alien. In the universe of Andromeda, life is either intelligent, rational, human, and forward-looking, or brutish, cruel, alien, and fundamentally of the past.

This distinction pertains to terrestrial life too. As part of the total rationalization of Earth’s surface, “harmful” creatures have also been eradicated. The “Destroyer Battalions,”
one of the most daring of the collective labor projects chosen by the youth of Earth as a rite of passage, are tasked with keeping the remnants of various predators and parasites in check:

The sea was transparent, shining, cleansed of the relics of the past, of predatory sharks, poisonous fish, molluscs and medusae in the same way as the life of present-day man has been cleansed of the evil and fear of past centuries. But somewhere in the distant corners of the boundless ocean the seeds of harmful life have survived and we have the Destroyer Battalions to thank for keeping our ocean waters safe and clean.

And is it not true that in the same way there suddenly arises savage stubbornness, the self-confidence of the cretin, the egoism of the beast in the transparent soul of youth? (284)

The analogy (“in the same way as”) is perhaps misleading, if only because it understates the case. Over and over again, the novel identifies “harmful life” with a transcended human past, and the higher forms to which evolution leads with the reconciled, communist present.

Beautiful bodies, especially women’s bodies, are the visual evidence of the harmony and perfection that await at the summit of evolution. They thus also testify, in Andromeda’s signifying framework, to the history of evolutionary and social struggles, as well as to the fact that this history has been overcome. Elana Gomel has articulated the paradox in Efremov’s work of the “perfect body of the utopian subject, which simultaneously sums up and repudiates the evolutionary process that has brought it into being” (365). Early on in the novel, several of the main characters view a transmission from a distant world, seeing images of the alien planet’s landscape and ecology, and the expressive dance of two people from that world. “A majestic and at the same time sorrowful music could be felt in the rhythmic change of movement, as though recalling the great ladder of countless unnamed victims sacrificed to the development of life that had produced man, that beautiful and
intelligent being” (64). Besides the striking fact that “man” here refers to extraterrestrial life, one should note the association of beauty with intelligence. In the novel’s understanding of beauty as “an instinctively comprehended purposefulness of structure that is adapted to definite objectives” (65), physical beauty is associated with rationality, purpose, and intelligence—culminating in the scientific organization that overcomes the blind struggle of human and evolutionary history alike. This is also why beauty norms in the novel are not subject to pluralism or relativism. Beauty, like evolution, is a convergent phenomenon that, if it exists at all on a given planet, exists because evolution is striving towards its highest form. Of astronavigator Nisa Creet, comatose after her encounter with the electric, cruciform monster, we read, “A hundred generations of the healthy, clean and full life of her ancestors had produced the strong and supple lines of the female body that approached the acme of artistic perfection—the most beautiful creation of Earth’s powerful life” (164). As the acme of life not just on earth, women are the favored representatives for the transmissions broadcast to the Great Circle. “‘Communications for the different planets are always read by beautiful women. This gives them an impression of the sense of the beautiful as perceived by the inhabitants of our world, and in general it tells them a lot,’ continued Darr Veter” (48). What is curious and characteristic about this claim, is the coexistence of a pluralistic implication that different “senses of the beautiful” are possible on different worlds alongside the impossibly narrow scope of biology, morphology, gender, and the concept of beauty necessitated by the existence of “beautiful women” throughout the galaxy in the first place.14

The socio-biological picture of an evolution that issues in the beautiful, harmonious bodies that mark intelligent, rational life indicates the particular intellectual trajectory
taken by Darwinism in its Russian, Marxist, and Soviet receptions, particularly regarding questions of cooperation and convergence. In contrast to the social Darwinism that accompanied the reception of Darwinism in the Anglo-American world, with its emphasis on the “struggle for existence,” Russian thinkers such as Kropotkin, Timiriazev, and Lavrov emphasized the principles of cooperation and solidarity they saw in the natural world (Graham 1993 66–70, Foster 206). Discussing anthropomorphism in Efremov’s work, Gomel describes the principle of evolutionary convergence, “which insists that rational beings must of necessity be human-like and that no ‘intelligent monsters’ are possible” (363). An early source for this idea is Engels’ *Dialectics of Nature*, in the section titled “The Part Played by Labour in the Transition from Ape to Man,” where an upright gait and consequently free hands are at the beginning of a dialectical interplay between labor and development, culture and nature, brain and environment. By the mid-20th century, this theory had become ossified to the point where Nikolay Toman’s fictional text, “A Debate on SF—Moscow 1965,” which stages a debate among editors and writers on the possibilities and limits of science fiction in the context of the Thaw, could have one character sneer, “Well, do you think that everything has to be predigested? […] Everything has to be strictly according to Engels and his theory about the role of labor in man’s evolution?” (171–172). As Istvan Csicsery-Ronay, Jr. summarizes the effect of Engels’ theory on Soviet science fiction: “In Soviet Marxism-Leninism this hypothesis became the dogma of anthropomorphism: self-aware intelligence must be the result of the body that derives from labour, and this must necessarily take human form. Ergo, no non-humanoid intelligent beings can possibly exist in the universe. Under Stalin it was politically dangerous for Soviet artists to imagine aliens except as humanoids” (15). Thus the evolutionary
determinism of the human form in Efremov's novel would be the biological correlate of the
historical determinism that results in the harmonious cooperation of the Great Circle Era,
and in the very unthinkable judgment of political conflict amongst intelligent life. Karlheinz
Steinmüller describes how dialectical materialism's theory of development ensures both
the emergence of life and of communism:

According to dialectical materialism, as I was taught at university, there is a lawful
development in nature and society towards higher forms (cf. Engels' Dialectics of
Nature). Matter necessarily produces life as soon as the conditions for it are present.
[... ] Life in turn develops, roughly speaking according to the laws recognized by
Darwin, higher and higher. [...] For extraterrestrial intelligence [in East German
Science fiction], the Marxist-Leninist doctrine of society pertained: technologically
advanced beings live in a communist society, since the development of productive
forces leads to the development of the relations of production. And aggressive
capitalist beings would destroy themselves (like in Lem's Astronauci). 15

So is Andromeda merely an exuberant expression of stricture? Yes and no. It is a
certainly product of its time, but both the relevant contexts and the novel's imaginative
reconfiguration of these are broader than Stalinism alone. The possibility of intelligence
emerging organically from inorganic nature—the birth of light out of darkness, in
Andromeda's cosmogony—is a central concern of much science fiction for obvious reasons.
Andromeda's depiction of human beauty as a higher form of “the organization of living
matter” (124) echoes the dialectical-materialist view that life and intelligence are
qualitatively higher stages of matter in motion. Yet needless to say, theories of evolution
that assumed notions of progress and perfectibility, placing humans at the pinnacle, are not
limited to either dialectical materialism or the Soviet Union. 16 And while the novel may
seem to present-day readers like a parody of Soviet ideology, it is important to recognize
the role played by Efremov in Soviet science fiction. As Natalia Chumarova has shown,
Andromeda's contemporary reception in the Soviet Union was mixed, with some critics
finding that it actually deviated too far from orthodox Marxist-Leninism in its conception of historical development. It also inaugurated generic shifts in Soviet science fiction from the depiction of the near to the far future, and from a focus on scientific and technological advances to a more social emphasis on character (38–39). In the orthodox context of Stalinism, where—as contemporaries both lamented and exhorted—science fiction was supposed stick to the limits of the five-year plan (Toman 166, Fritzsche 81), Efremov’s speculation about human cosmic history hundreds of years into the future is a bold one. In its departure from the proscription against depictions of the future, Efremov’s novel imagines what a truly cosmic, reconciled humanity might look like in the distant future, and is thus far from being an expression of Stalinist orthodoxy or a representative of a narrowly-understood Socialist Realism.

Furthermore, in the sense that it depicts the vocation of intelligent life to comprehend the universe from which it arose, *Andromeda* represents nature’s reconciliation with itself, a claim that might seem surprising to current ecological sensitivities, given the novel’s glib optimism about rationalizing nature. Yet it is important to register the ways in which a particularly joyful earthboundedness exists alongside such a total rationalization. Where our own present-day disposition might predispose us to identify in *Andromeda’s* depiction of progress a technocratic abandonment of nature, nothing could be farther from the truth. The novel abounds in depictions of outdoor recreation and the aesthetic appreciation of nature. Furthermore, the past is often present in the novel in ways that are not merely the threatening reminder of a beastliness overcome, but which on the contrary serve to augment the present. After a mechanical breakdown leaves them stranded in the steppe, Veda Kong and Darr Veter revel in the
archaic experience of nature. "The soft rustling of the wind and the heat brought
forgetfulness, thoughts flowed drowsily, and pictures of long-forgotten days passed slowly,
one after another, through his memory, a long procession of ancient peoples, tribes and
individuals. ... It was as though a gigantic river of time were flowing out of the past, with
the events, people and clothes changing every second" (112). The culmination of the past
does not require its disappearance.

Still other tensions in the novel complicate the self-identity of its cosmic
humanism—the tone of its apotheosis of the human is one of yearning as much as
triumph. The immense distances of the galaxy mean that the message sent by the “flame-
red” people originated hundreds of years ago. The realization that “[all] those people we
have just seen have long been dead” provokes a distinct melancholy among the human
characters (67), for it means that the fulfillment of galactic human communion cannot be
realized in the present, cannot be present for itself. Indeed, this mournful absence caused
by the vast times needed for communication and the ineluctable pastness of such
transmissions of greeting and solidarity is an important theme, and is what motivates Mven
Mass—Darr Veter’s successor as Director of the Outer Stations—to conduct the devastating
experiment to overcome the limitations of space-time. Furthermore, despite the pervasive
linkage of human intelligence and human beauty as present throughout the cosmos, we
read of the “flame-red” people, curiously, that “For the first time in the eight hundred years
since we joined the Great Circle a planet has appeared in the Universe inhabited by beings
who are our brothers not only in intellect but in body as well” (67–68). How is this
possible, given how emphatically the novel insists that intelligent life throughout the
universe is also recognizable as “man”? In a way, the fetishization of human beauty might
be responsible for this apparent tension, as it demands that human form be both the convergent endpoint of all evolution towards intelligent life, on the one hand, and special enough to justify the libidinal attention lavished on it in the novel, on the other. This play of familiarity and wonder extends to the as-yet undiscovered central regions of the galaxy as well, where the possibility of newness and difference is represented as a haunting aesthetic experience—Mven Mass’—that cannot be wrangled into conceptual knowledge. In subtle ways, the novel’s anthropomorphism collapses under its own weight; its liberated, beautiful, intelligent human tends to slip from the fully realized back into to a utopian aspiration. *Andromeda* exemplifies a convergent, at times determinist view of biological evolution and historical development, to be sure. It also suggests the interesting fissures that emerge when this view is so overdetermined and fraught with significance.

**Knowledge, Evolution, and Alterity in *Solaris* (1961)**

*Solaris* is a tougher nut to crack, because its depiction of a radically different form of life problematizes the very knowability of the Other. Indeed, Lem’s novel goes so far as to suggest that the truly alien escapes the categories which try to understand it, since these may necessarily be anthropomorphic. *Solaris* thus provided science fiction writers in the socialist states of Eastern Europe with an imaginative, anti-determinist model of the representation of alien intelligence. In addition to the Steinmüllers’ juxtaposition of Lem and Efremov, a character in Nikolay Toman’s text also invokes Lem to argue for speculative possibilities beyond orthodoxy and mysticism. “‘Why such extreme cases!’ Omegin claps his hands. ‘Everything can’t be strictly within the limits of the Primer of Marxist Philosophy.” Polish science-fiction writers have things better. They can create a planet covered with a
solid ocean of thinking plasma. And no one demands of them that they explain how this ability to think was attained”" (171). Within a cultural-political context that demanded “party-consciousness” of writers,22 operated within the bounds of a particular kind of humanism, and traditionally discouraged utopian speculation about the far future, Lem’s 1961 novel served as a touchstone for a radical alterity, a drastically different configuration of evolution, intelligence, and the human than found in Andromeda.

Yet Omegin’s lament isn’t quite right either, since one of the most compelling features of Solaris consists in its pervasive, multiple, contradictory, and self-reflective attempts precisely “to explain how this ability to think was attained.” Briefly: Solaris, set in the distant future, portrays the ambiguous contact between a humanity and the utterly singular planet Solaris, the only inhabitant of which seems to be a “solid ocean of thinking plasma.” The novel takes place decades after the discovery of the planet, after various generations of “Solaricists” have unsuccessfully tried to explain (let alone communicate with) the ocean. The novel begins with psychologist Kris Kelvin arriving at the nearly deserted research station that floats above the planet. Its action consists primarily in his attempts to make sense of what he experiences there. Most of the novel chronicles the inconclusive conversations of the characters on board the station, as well as the various dead-ends arrived at in the field of “Solaristics.” The invented library that fills the novel, overdetermining the ocean’s mysterious intelligence, is one of its special pleasures.23

Perhaps inevitably, Solaris poses nearly as much difficulty for the scholarship as does Solaris.24 In so carefully constructing a puzzle about the possibility of knowing something truly different from the knower, Lem has bequeathed to science fiction a uniquely thoughtful twist on the trope of contact, inflected through the theme of knowledge as such.
The ocean represents a life form that seems designed to frustrate human attempts to understand it. We learn early on that the ocean’s unique properties may have evolved through a “dialectical development”\(^\text{25}\) as a stabilizing adaptation in the context of its unique situation as the planetary satellite of a double star (the “Civita-Vitty hypothesis”):

“starting from its original form, that of a proto-ocean, a solution of sluggishly interacting chemical substances, under the pressure of conditions (meaning the orbital changes that threatened its existence), without passing through all the terrestrial stages of development [...] Without developing a nervous system, it had been able to jump directly to the phase of a ‘homeostatic ocean.’ Put simply, unlike terrestrial organisms it did not adapt to its surroundings over the course of hundreds of millions of years, so as only then to produce a rational species, but it had gained control over its environment from the start.” ("Solaricists")\(^\text{26}\)

It is not just the fact of the ocean’s alienness that is at issue—since the possibility of “civilizations of other beings similar to us” is broached elsewhere in the novel—but rather its radical difference. In raising the question of “the relationship between matter and consciousness” ("Solaricists") the ocean and the theories that seek to explain it raise the possibility that beings arising in such vastly different contexts develop forms of intelligence, knowledge, and consciousness that might simply be incompatible. The ocean’s ontological situation as the satellite of two stars both rules out the development of familiar life forms and potentially creates an epistemological framework that is by definition inaccessible to human cognition.

The novel thematizes this possibility or impossibility of knowability as a kind of increasingly complex thought experiment. Unable to account for the strange behavior of the ocean and those on the station, Kelvin hypothesizes that he must be either going mad or dreaming. These facile hypotheses are cleverly dispensed with early in the novel, leaving Kelvin to conclude, “I was not mad. The last ray of hope had faded” ("Sartorius"). The ocean
and its apparitions insist on being accounted for as material reality rather than fantasy, and yet its behaviors not only frustrate the human attempts to comprehend them, they also call the possibility of knowledge into doubt in various ways. The ocean’s changing behavior and its transformative effects on the equipment used to study it elude the demand that experimental results be repeatable, “since it was never possible to produce the same reaction to a stimulus twice” (“Solaricists”). The ocean’s singularity frustrates specific attempts to learn about it and, it seems, the general project of human science.

It is not just what the ocean is that causes epistemological problems for human science, but what it does, as well, which can only be—haplessly—explained in terms of experiment, production, creation, terms themselves dubious for their intrinsic connection to human notions of agency. Beyond the stabilization of its orbit around two stars, Solaris evinces two primary signs of intelligence: the colossal and temporary structures—“mimoids,” “symetriads,” “asymetriads,” and so on—it generates from its own substance, and the “visitors,” human-like apparitions bound to the four remaining inhabitants of the research station. The former have posed a challenge for generations of Solaricists, while the visitors appear for the first time only days before Kelvin’s arrival at the station. Plausible explanations for both the structures and the visitors vacillate between the poles of rationality and blind material reaction, intention and accident, contact and incommunicability, human and other. The engagement with these, and the desperate struggle to understand them, drives the novel.

The ocean’s structures range from mimoids that “imitate the forms around them, whether close or remote,” (“Monsters”) to geometric abstractions on a scale too vast for human understanding. At times, the ocean seems to demonstrate the capacity to reason in
its “choice” of representations. An accident early in the history of the planet’s exploration—
well before the events of the novel—costs the life of a certain Fechner. A member of the
search party, André Berton, whose account was later written off as the product of a
hallucinating mind, sees the churning formation on the ocean’s surface of a kind of garden,
an urban landscape, and a gigantic mock-up of a small child. These apparitions are later
revealed to have been mock-ups of what the ocean “found” in the mind of Fechner, and are
described in one of the many source texts that make up the novel as an experiment—
“Operation Human”—on the ocean’s part, as it attempted to make sense of those
attempting to make sense of it. While such endeavor suggests a familiar, even a
sympathetic kind of agency, the uncanny depiction of the “child’s” face as it runs through all
the possible expressions in a computational, permutational way shifts the valence of this
behavior back within the realm of the inhuman.

‘The worst was the face, I guess because the face is the most expressive part of the
body. That face was like a face... No, I don’t know how to describe it. It was alive, yes,
yet it wasn’t human. I mean, the features very much were, the eyes, the complexion,
everything. But the look, the expressions, not at all. [...] A face can’t look as if one
half of it is happy and the other half sad, as if one part is threatening or afraid and
the other half exultant, or something like that. But with this child that’s how it was.
Plus, all these movements and facial expressions took place at an amazing speed. I
was only there for a short time. Ten seconds perhaps. I don’t know if it was even
that long.’ (“The Minor Apocrypha”)

Likewise, the non-mimetic structures created by the ocean hint at rationality—it is
suggested that they are modeling the laws of physics or solving complex mathematical
systems—yet the scale of these phenomena so far exceeds the frames of human experience
and narrative as to defeat all the attempts made to grasp them as forms of symbolic or
purposive action:
“A human being is capable of taking in very few things at one time; we see only what is happening in front of us, here and now. Visualizing a simultaneous multiplicity of processes, however they may be interconnected, however they may complement one another, is beyond us. We experience this even with relatively simple phenomena. The fate of a single person can mean many things, the fate of several hundred is hard to encompass; but the history of thousands, millions, means essentially nothing at all. A symmetriad is millions, no, billions, to the nth power; it is unimaginability itself.” (“Monsters”)

In its depiction of the ocean’s myriad forms, the novel uses these various strategies—mechanical permutations, mathematical immensity, the production and disappearance of forms without rhyme or reason—to precisely frustrate the application of human categories such as expression, intent, purpose, even structure.

And though the human form of the “visitors” suggests they might be more accessible, this suggestion only sharpens their paradoxical alienness. Bound to their human hosts by an uncertain force, perfect replicas of each host’s innermost trauma or desire, the visitors’ familiarity is elusive. Kelvin wakes after his first “night” on the station to see what seems to be his wife Harey, who had killed herself a decade earlier, a debt that weighs on Kelvin’s conscience. It quickly becomes apparent that she has no notion that she is anything other than the original Harey, although she cannot be separated from Kelvin, exerts a monstrous strength when separated from him, and heals more or less instantaneously. Blood tests show her composition to be a perfect copy of the human body, down to the molecular level, after which the simulacrum dissolves into emptiness. “I ought to have seen a trembling haze of atoms, like a quaking jelly, but it wasn’t there. The screen glowed pure silver. I turned the dial all the way to the maximum” (“Deliberations”). (Harey seems to be comprised of neutrinos rather than atoms). Despite the alienness of her origins and composition, she and Kelvin gradually form an emotional bond of some kind that
supplants (and seeks to atone for) Kelvin's guilt-laden memory of the dead Harey. He tells her, as her confused awareness of her alien origins and her growing autonomy have reached a crisis point and resulted in a traumatically reprised—and failed—suicide attempt, "You've already taken her place" ("Liquid Oxygen"). Yet alien she remains, and the deft pacing of Lem’s narrative rebukes the temptations of familiarity with reminders of Harey’s inhumanity—and vice-versa.28

So it remains unclear whether these phenomena, which at times seem to be intuitively, emotionally, or aesthetically graspable, actually indicate any intelligence or intention at all. When it seems impossible that the ocean’s complex replication of intimate memories could be explained except in terms of intention and understanding, Dr. Snaut—the station’s cybernetician and something like the resident rationalist—invokes the distinction between brain and mind to suggest that the ocean may simply have transcribed material processes and chemical traces in the brain without reference to the meaning these have for the human characters. In Snaut’s words:

‘After all, in the brain there aren’t any words, feelings, the recollection of a person is an image written in the language of nucleic acids on megamolecular asynchronous crystals. So it took what was most clearly etched in us, most locked away, fullest, most deeply imprinted, you know? But it had no need whatsoever to know what the thing was to us, what meaning it held. Just as if we were able to create a symmetriad and toss it into the ocean, knowing the architecture and the technology and structural materials, but with no understanding of what it’s for, what it means to the ocean...’ ("Success")

At one point we learn that Kelvin’s dissertation had correlated the recordings of human cortical processes “accompanying the most powerful emotions” to shapes in the ocean’s mimoids and symmetriads, finding “a noteworthy analogy,” yet the context practically mocks the possibility that such a mathematical correlation could mean anything at all, let
alone indicate recognizable affect on the ocean’s part. Taken to its extreme, the novel’s play with familiarity and difference leads to the suspicion that it is not possible to know the ocean because the structure of human knowledge remains inextricably bound to its anthropic roots. This is the position of a notorious pamphlet by a certain Grattenstrom, which sought to demonstrate that even the most seemingly abstract, sublimely theoretical, mathematicized achievements of science have in reality moved only a step or two away from a prehistoric, coarsely sensory-based, anthropomorphic understanding of the world around us. Grattenstrom examined the formulas of relativity theory and of the theorem of force fields; he looked at parastatics and the hypotheses of a unified cosmic field, in search of traces of the human body—all that comes from and is a consequence of the existence of our senses, the structure of our organism, and the limitations and weaknesses of humankind’s animal physiology. He reached the conclusion that there cannot now, nor in the future could there ever be, talk of “contact” between human beings and any non-humanoid civilization. (“Thinkers”) If some in the history of Solaristics believe that the challenge of Solaris is about the limits of human cognition, Grattenstrom’s position thus suggests that those limits are ultimately coextensive with the human world—the alien lies by definition outside, and contact is a priori impossible.

It is tempting to take this skepticism to be the novel’s definitive position. Yet the problem with this view is that the novel does not let things rest here either, but undermines this possibility as well. In a sense, this is the product of its radical skepticism, which extends to skepticism itself. The jests found in the history of Solaristics that its increasingly specialized subfields aim too high if they aspire to communicate with the ocean ("How can you communicate with the ocean if you can’t communicate with each other?"), and the growing suspicion that humanity is looking for itself in the cosmos rather than for the other, suggest an important point: to declare the alien definitely unknowable
is to presume a stable vantage point of the self, yet what Solaris shows is that the paradigm of unknowability is not just the other, but also the self. “Can a person be responsible for his own subconscious? [...] Human beings set out to encounter other worlds, other civilizations, without having fully gotten to know their own hidden recesses, their blind alleys, well shafts, dark barricaded doors” (“A Conversation”). Consider too these two expressions of love, the first from a still-aware Harey to Kelvin, the second from Kelvin to a fully aware Harey, about to eliminate herself for good with the help of the two other human characters remaining on the station and the “annihilator” they have constructed:

“‘I love you.’ I felt like screaming.” (“Monsters”)  

“‘I love you.’ Her forehead rested against my shoulder; I felt the tense flutter of her eyelashes and the wetness of tears.” (“Success”)  

In a sense, they are the symmetrical bookends of Kelvin’s encounter with a radically alien intelligence that, for whatever reason and in whatever way, has taken the visible form of his dead wife. Yet in another sense, what is so strange about this relationship is how normal it seems, since for a declaration of love to shoot past its target is all too human.  

In considering the ocean of Solaris, we are far from a concept of evolution that sees it as a regular, lawful development into ever-higher stages, yet, since this is a science fiction novel, the characters’ conundrum—and ours—is that the need to explain intelligence’s emergence from the development of matter cannot be wished away either. Solaris obstructs readings that settle on either contact or the impossibility of contact, refusing knowledge while disallowing the abandonment of knowledge claims. Mediated, systematic knowledge and immediate, intuitive knowledge are equally problematized, but so is an absolute skepticism that would declare knowledge impossible. All options remain
suspended. In this suspension, Kelvin arrives at something like acceptance. Terrifying dreams in the days before Harey's final suicide place him in totally alien surroundings, in places devoid of sky, earth, floors, ceilings, or walls, as if I were shrunken or imprisoned in a substance that was alien to me, as if my whole body had become part of some half-dead, unmoving, shapeless lump. Or, rather, that I myself was that lump, deprived of flesh, surrounded by at first indistinct pale pink patches suspended in a medium with different optical properties than air, such that it was only from very close up things became clear, even excessively and supernaturally so, because in those dreams of mine my immediate surroundings were more concrete and material than anything I experienced awake. ("Dreams")

In these dreams he experiences embodiment as a tactile and “symmetrical act of creation,” facing a being both “foreign and familiar.” When the end comes, the novel’s final scene is inconclusive. The image of Kelvin, outside of the station for the first time since the first pages in order to fly to a nearby mimoid and “encounter” the ocean, is one of the most memorable in the novel. His “handshake” with the predictably responsive ocean (“It looked as if a ductile flower had grown out of the ocean, its calyx encircling my fingers in such a way that it became their exact negative, though without touching them”) is a fitting symbol for humanity’s encounter with Solaris: ambiguously poised between mechanical response and significant gesture, asymptotically approaching contact without ever actually making it ("The Old Mimoid").

Ann Weinstone has read Kelvin’s dreams and this final scene to argue that he “comes to see himself as part of a continuum in which he is not compelled to choose either the subject or the object position; where the ‘prison’ of the gaze from nowhere is opened from the outside” (185). This mutual blurring of figure and ground, “creature and creator,” the ambiguous culmination of the novel’s (characters’) speculations about epistemology and ontology, is rendered as the possible indistinction between landscape and character.
Yet these literary categories correspond also to environment and organism, matter and consciousness, and the emergence of the latter from the former is precisely the mystery posed by Solaris and one of the implications at the heart of dialectical materialist view about intelligence as a stage in the organization of the motion of matter. Biologists Richard Levins and Richard Lewontin, arguing for a more dialectical picture of evolution, have described the organism as both “subject and object of evolution” in a way that might illuminate Kelvin’s predicament at the end of the novel—suspended between subject and object positions, unable to know for sure and unable not to try to know, the novel’s ambiguous ending suggests not the amorphous impossibility of knowledge, but the necessary, material situatedness of the knower/known. In Kelvin’s dreams of mutual creation and dissolving into his surroundings, and in his asymptotically physical contact with the ocean, the novel reprises in reverse the mysterious process by which conscious life emerges from cosmic processes in the first place. And by systematically probing and undermining the epistemological ramifications of anthropomorphism, Solaris represents evolution as a figuration of difference rather than convergence.

**Labor, Terraforming, and a “New Cosmic Genus” in Andymon (1982)**

If for a moment we bracket out the question of Science fiction innovation, here posed in terms of how radically a novel might imagine non-human aliens, then we can say that, for all of Andromeda’s apparent determinism and Solaris’ radical skepticism, they both raise the specter that the non-human is categorically unknowable. In Efremov’s novel, this is implicit both in the idea that humans will know the other because, if it is intelligent, it is fundamentally human, and in the possibility that human contact across such vast divides
will never be self-identical, will always have missed its moment or remain aspirational. In Lem’s, this unknowability is due to the constitutional anthropomorphism of human categories of knowledge. Yet it does not suffice to stop here, as though human and non-human, self and other, stood in static opposition to each other in these novels. Labor, long understood by the dialectical tradition as the processual admixture of self and other, subject and object, human and nature, complicates this opposition. If labor stands at the origin of a reductively anthropomorphic conception of dialectical materialism, indexed to Engels (“Everything has to be strictly according to Engels and his theory about the role of labor in man’s evolution?”), it also mediates between the human and its other in all three novels, most intensively in Angela and Karlheinz Steinmüllers’ Andymon. While Efremov’s novel represents labor as a cosmic vocation for cathected human energy, and while labor in Solaris consists of the labors of science and the struggles to communicate, at once futile and necessary, labor in Andymon appears in the topos of terraforming. As the Steinmüllers’ juxtaposition of Efremov and Lem suggests, Andymon embraces the latter’s radical agnosticism in its brief depiction of alien life. Yet in returning to the nexus of world-making and the non-human alien also found in Andromeda, Andymon suggests that the science fiction topoi of terraforming and the alien might usefully be constellated as a dialogue about alterity and history. The alien may be unknowable by terrestrial standards, but the Other is what might emerge out of human praxis. Andymon’s twist on the evolution of intelligent life is to bring it into contact with human history, itself seen as an open-ended evolution.

Andymon tells the story of the settlement of a distant planet of the same name by a group of humans whose origin is a mystery even to themselves. Born out of automated
incubators aboard a vast, automated space ship on a course for the new planet and raised through childhood and adolescence by its humanoid robotic attendants, they arrive at the planet as the eldest cohort of eight reaches adulthood. The remaining two thirds of the novel tells of their parallel projects to transform Andymon’s hostile, toxic surface into a terrestrial biosphere and to establish, in the absence of direct models, a just and free human society. As I have argued in another essay, the idea of biological unpredictability plays an important role in structuring the utopian possibilities of Andymon, particularly to the extent that the novel engages with the strictures both of classically insular utopian texts and of the cultural politics, vis-à-vis utopia and the future, of the GDR. In light of the Steinmüllers’ statement contrasting Efremov’s determinism to Lem’s experimentation, it is clear that the relationship among history and evolution is a significant one for Andymon. By way of a conclusion, I would like to bring labor, as it appears in the topos of terraforming, into dialogue with this relationship.

The encounter between terraforming and the alien occurs by chance. The narrator, Beth, and Gamma, his partner, have set out to look around the planet one last time before the engineered deluge will transform it forever and seed the possibility of terrestrial life. Yet the old, pre-contact Andymon, which they had determined to be lifeless, has one last surprise in store for them. Exploring a cave, they discover an ambiguous thing.

In the deep recess of the cave the crystal tree stood before us, bizarre and taller than a man’s height, a formation like a fantastical coral stock, and glinted in a rich ultramarine or bright cherry red, depending on the light’s angle of incidence. Its countless, acutely-angled ramifications glittered carmine and violet, only the most delicate outermost edges and points were fringed with a metallic green hue.

[...] Flaming waves of purple and cinnabar ran over the walls of the cave, which were likewise sown with red crystals. The ringing subsided, and suddenly I felt gripped by cold. What if this
subterranean crystal structure were alive? Of course our probes had looked for signs of life on Andymon, but life as we knew it from Earth. What if our very first probe had found life on Andymon?

Gamma was silent for a long time. I stared at the trunk of the crystal tree, as thick as an arm, it showed me a thousand facets, blood-red and almost brown and radiant bright. With every breath, every little movement the mosaic changed. I was about to repeat my question when she answered. How could we have explored a planet in a few weeks? Years, decades wouldn’t have been enough. Would we have had the strength to give Andymon up? Certainly, we had all learned that life is something infinitely scarce in the cosmos, worth protecting even in its most primitive forms ... But where does life begin when it doesn’t follow earthly patterns?” (127–128)

As in Solaris, a double doubt is voiced—not only might alien life be unrecognizable by terrestrial standards, but any search for life, no matter how self-aware, might unwittingly import anthropocentric or geocentric parameters into its conception of its object, thus definitionally precluding the very possibility of discovering alien life. Crystal is well chosen for this conundrum. As the product of structured, inorganic growth it is a classical trope for the uncertain threshold between life and non-life, form and matter. The crystal tree might be a uniquely spectacular mineral outgrowth or it might be a living being—in either case, it is an evanescence found by chance on the otherwise drab planet, and is soon buried in the flood of algae that is the first wave of engineered life on the planet.

The crystal tree’s visual form conveys both the rarity and the ungraspability of alien life. The shimmering display of unfamiliar color combinations marks the tree off from the taupe uniformity of the lifeless planet, serving as a visual reminder of the “infinite scarcity” of life in the cosmos, while the very fact that the encounter with the tree is staged as an aesthetic experience indicts the failure of a definitive taxonomy of this strange apparition. The tree’s visual novelty, represented in the text as the experience of an improbable combination of colors and shapes that shift and reconfigure according to the position of the
viewer, both provokes and substitutes for the absence of an adequate conceptual or evolutionary understanding of this being.\(^{33}\) It ultimately remains ambiguous whether the crystal tree is alive or not.

So the tree makes way for the new life created and tended to by the planet’s human settlers. As an episode in the history of Andymon, this missed connection might evoke the unintended and intended consequences of historical colonialism. As an instance of the topos of the alien, the tree’s fleeting appearance and rapid disappearance bespeaks the foundational uncertainty about the possibility of knowledge of the truly other. But in the context of the novel’s considerations of the idea of utopia, it is more complex still, since both alien biological alterity and the uncertainty of future evolution—both, in other words, the tree and its accidental destruction—point to the possibility of the other and the new. This convergence indicates the shifting role of unknowability in the novel. Whereas a lack of knowledge is a source of anxiety about origins in the first part of the novel, during the settlement of Andymon and the construction of its society a lack of knowledge gains a positive function to the extent that it enables an open, undetermined, and thus shapeable future.

Thus while the crystal tree and the effects of terraforming that destroy it are opposed on the level of the novel’s plot, they both signify evolution as an open-ended process that cannot be known in advance, generating novelty and alterity. In this context, terraforming constitutes a mediation of self and other whereby the environment is reworked to human purposes without thereby being reduced to a simple reflection of its creators. It is a transformational, dialectical endeavor in which the (human) subjects mix their labor with the (non-human) object and generate something new out of the process.
The processes of creating a new ecology, a new society, and a new kind of human being (“eine neue kosmische Gattung,” 6) are explicitly seen as parallel in *Andymon*. Biologically, historically, and anthropologically, the exertions of the self are the condition for the emergence of the other. Thus *Andymon* treats the topos of the alien as a question of the encounter with the radically other in a different way than does *Andromeda* or *Solaris*; here the question is rather one of production or creation, but always with the caveat that this is a kind of production that does not know in advance what it will produce. The future of human life on *Andymon* is thereby just as unknowable and potentially utopian as the crystal tree’s shimmering promise of alien alterity.

**Conclusion: Science fiction, evolution, and two evaluations of dialectical materialism**

The question of prediction or, more strongly, of determinism has to do with two alternate evaluations of dialectical materialism. On the one hand, as we have seen, there is the strong, at times exasperated, rejection from within science fiction of the anthropomorphism that holds that all intelligent life must be human in form, because the human form, with its affordances for labor and speech, is the precondition for the evolution of intelligence. We have seen variations of this criticism, tied to Engels, voiced by a character in Nikolay Toman’s fictional debate about Science fiction, and articulated by Csicsery-Ronay in his essay, “Some Things We Know about Aliens.” This version of dialectical materialism, which the Steinmüllers identify with the biological and historical determinism of *Andromeda*, had by the 1960s become a trite dogma and, as dogma, an obligatory part of the university curriculum. Against this calcified anthropomorphism, the
radical imagination of the alien in Lem’s Solaris appeared as an invigorating renovation of the topos.

Yet on the other, in a different field on a different continent, dialectical materialism found a welcome reception in one strain of American ecology and evolutionary biology, particularly in the work of Harvard biologists Stephen Jay Gould, Richard Levins, and Richard Lewontin. Instead of a convergent, determinist (let alone teleological) picture of evolution, Gould, Levins, and Lewontin drew on the dialectical tradition to articulate a coevolutionary picture in which no absolute demarcation can be drawn between organism and environment, subject and object. In Engels they see the early outline of a theory of gene-culture coevolution, or how “the activity of the organism sets the stage for its own evolution” that is “especially dramatic in human evolution” (Levins and Lewontin 58). In accounting for the mutually formative relationship among brain, behavior, tool-making, and speech, Engels made “the best nineteenth-century case for gene-culture coevolution” (Gould, quoted in Foster, 203). Shorn of its anthropomorphic determinism and historically-contingent aura of orthodoxy, dialectical materialism has thus also offered a way of thinking about the complex, chance interplay of body, brain, and behavior, organism and environment, human culture and biological evolution. Fittingly enough, Levins and Lewontin evoke the non-human alien as an example of the contingency of evolution, in their obituary for Gould: “Therefore, if intelligent life should ever visit us from elsewhere in the universe, we should not expect them to have a human shape, suffer from sexist hierarchy, or have a command deck on their space ship” (19).

Considering both of these evaluations of dialectical materialism strikes me as a promising way for thinking about these three novels—both to historicize their reaction to
an orthodox dialectical materialism and to reconsider how their dialectical constructions of the relationship between human and alien, intelligence and cosmos, character and landscape might also broaden the question beyond the narrow choice between determinism and imagination. *Andromeda, Solaris,* and *Andymon* would then certainly point to shifting configurations in the relationships between biology and history, and among humanism, socialism, and science fiction, with each novel’s approach to evolution also indexing its picture of knowledge and of history. But, as literary texts, they would also do more than exemplify a particular worldview, by exploring—and representing tensions within—the dialectical relationships among labor, knowledge, aesthetic experience, self and other.

So the alien circulates throughout these novels, commenting on depictions of aliens in other novels and on extraliterary discourses of evolution and the human, borne on the swift currents of science fiction, a genre that is also a “mega-text” (Broderick), the referential possibilities of which allow a topos like the alien to become a dialogue. If, as Samuel Delany suggests, science fiction’s language summons an evolutionary account in order to be intelligible as a plausible, material development, then science fiction that poses the question of evolution within a historical context that so loaded this question of development is especially resonant. In his essay, “The Unknowability Thesis,” Fredric Jameson reads the alien essentially as allegory, asking, “What, then, if the alien body were little more than a distorted expression of Utopian possibilities? If its otherness were unknowable because it signified a radical otherness latent in human history and human praxis, rather than the not-I of a physical nature?” (118) *Andromeda* would then defer utopian fulfillment despite itself, investing the dual bodies of beautiful humans and ugly
monsters with an unreachable consummation and an all-too-present atavism, respectively. Solaris (which Jameson is here in part referring to) would pose the problem of the thinking oceanic body as the inaccessibility of human cognition to itself, and Andymon would proffer the ambiguity of the crystal tree as an emblem of alterity, which both promises and threatens to withhold a radically other kind of human. Ultimately, I think that Jameson is right, but only if we modulate the claim to reflect that, in a certain historical context, the trope of alien otherness links physical nature and human praxis in a more dialectical than allegorical way. For dialectical materialism broadly and these three novels in particular, non-human nature is, emphatically, both the ground and the object of human action—the alien signifies both “a radical otherness latent in human history and human praxis” and the “not-I of a physical nature,” and it signifies the one because it signifies the other.

Works cited


1 I am grateful to Erik Born for reading and providing insightful feedback on a draft of this essay.
2 Delany defines subjunctivity in this essay as “the tension on the thread of meaning that runs between [...] sound-image and sound-image.” The subjunctive level of science fiction is defined as “events that have not happened,” as distinct from reportage (“this happened”), naturalistic fiction, (“could have happened”), and fantasy (“could not have happened”) (10–11).
3 Delany’s definition thus fits well with other definitions of the genre that hinge upon some understanding of plausible material continuity between its fictional worlds and societies and those of the reader. Of these, Darko Suvin’s “cognitive estrangement” is perhaps the most familiar (3–15). Fredric Jameson’s idea of a “mode of production aesthetic,” which he uses to distinguish science fiction from the “formal framework determined by concepts of [...] religion” that characterizes fantasy (58), goes in a similar direction.
4 In placing the origin of life on an evolutionary rather than a speculative footing, Oparin thus suggested a unifying framework within which different scientific approaches, and questions ranging from the astrophysical to the microbiological, could be considered (Lazcano 221). On Oparin’s theory of the origin of life, see Farley, Lazcano, Miller et al., and Grote. On the relationship between the Oparin-Haldane hypothesis and dialectical materialism, see Graham 1972 (257–296) and 1993 (108–112). Graham writes, “The emergence of life from nonliving matter remains the favored view of Marxist philosophers and biologists. Dialectical materialism has been deeply penetrated by the concept of an over-all development of matter, with no impassable barriers” (1972, 296).

Beyond any relationship between Marxism and biology, it is also worth noting that both the anti-reductionism of dialectical materialism (i.e., the premise that life is a distinct system that requires its own explanation, one that cannot be reduced to laws of chemistry or physics) and its attempt to transcend a mechanism/vitalism dichotomy place it firmly within the broader context of early-twentieth century biology, with similarities to the organicist biology of Joseph Needham (see Donna Haraway’s 1976 Crystals, Fabrics, and Fields) and the philosophical anthropology of Helmuth Plessner (especially Die Stufen des Organischen und der Mensch (1928)). (I thank Mathias Grote for introducing me to Oparin and some of the literature on him as we were shoveling snow.)
5 Historian of science Loren Graham has argued for distinguishing between an “authentic phase” of dialectical materialism as a nonreductionist materialism, during which it contributed to advances in psychology (Vygotsky) and theories of the origin of life (Oparin), to a later phase as a “calcified and dogmatic system that hobbled science” (Lysenko); the negative Western reception of dialectical materialism is due, according to Graham, to a focus on the later phase (1993, 100). In his earlier work, he argued that “despite the bureaucratic support of the Soviet state for dialectical materialism, a number of able Soviet scientists have created intellectual schema within the framework of dialectical materialism that are sincerely held by their authors and that, furthermore, are intrinsically interesting as the most advanced developments of philosophical materialism” (3–4).

6 The classic texts for these two poles might be Wells’ War of the Worlds and Clarke’s 2001: A Space Odyssey.
7 Translation mine.
8 Damien Broderick has described the role of “the extensive generic mega-text built up over fifty years, even a century, of mutually layered science fiction texts. Using a similar strategy of semiological compensation, or redundancy and over-coding, which Hamon and Brooke-Rose discern
in realism, the science fiction mega-text works by embedding each new work, seen by Delany as a self-structuring web of non-mundane signifiers and syntagms, in an even vaster web of interpenetrating semantic and tropic givens or vectors." (143)

9 On the ways in which science fiction fan clubs and the genre’s niche status allowed it to navigate conditions of state censorship, see Fritzsche, especially pp. 181–193.

10 As we read about humanity’s first contact with the Great Circle: “There appeared on the screen a man, who was not like us but was undoubtedly a man, and he pointed to an inscription made in the symbols of the Great Circle.” (57)

11 “People living in the Era of the Great Circle were not interested in lists of destructive wars and horrible sufferings or the so-called great rulers that filled the ancient history books. More important to them was the development of productive forces and the forming of ideas, the history of art and knowledge and the struggle to create a real man, the way in which the creative urge had been developed, and people had arrived at new conceptions of the world, of social relations and of the duty, rights and happiness of man, conceptions that had nurtured the mighty tree of communist society that flourished throughout the planet.” (51–52).

12 After the first encounter with the “jellyfish,” the crew shelter in their spaceship, watching movies from Earth to ride out a storm. “The film had been well chosen. The blue waters of teh Indian Ocean splashed at the feet of those sitting in the ship’s library. The film showed the Neptune Games, the world-wide competition in all types of aquatic sports. [...] Thousands of beautiful young bodies, tanned by the sun, ringing songs, laughter, the festive music of the finals” (99). Later, Commander Erg Noor’s thoughts shift directly from the monsters of the dark planet to the sun: “Erg Noor looked at the distant Sun that was at that moment also shining on Earth. The Sun is man’s eternal hope, has been since the prehistoric days when man dragged out a pitiful existence in the teeth of ruthless nature. The Sun is the incarnation of the bright forces of the intellect driving away the darkness and the monsters of the night” (172).

13 The context of Gomel’s claim is worth quoting in more detail: “If, as Soviet ideology confidently promises, utopia is to arise out of the bloody chaos of class struggle, war, and state violence, it must be both the consummation and the negation of the historical process. The perfect body of the utopian subject, which simultaneously sums up and repudiates the evolutionary process that has brought it into being, is this paradox made flesh. The utopian subject finds his Other in his own history, whose signature is both invisible and ineradicable” (365).

14 As Elana Gomel writes, “The inscription of gender in Soviet science fiction encapsulates its general dynamics: the more it changes, the more it remains the same.” (368)

15 Personal correspondence, 5/7/2017. Translation mine.

16 In their essay, “Evolution as Theory and Ideology,” Richard Levins and Richard Lewontin analyze different common components of theories and ideologies of evolution: change, order, direction, progress, perfectibility. A given picture of evolution may have some of these and not the others (9–27).

17 "Ivan Efremov was the first Soviet science-fiction writer to project a realization of an ideal society not ten or a hundred years in the future but thousands of years in the future. By doing this he questioned the possibility of building a perfect society in a few decades." (Chumarova 38)

18 In previously describing Andromeda as “classically socialist-realist,” I was therefore wrong – mea culpa! (Gelderloos 476).

Csienszky-Ronay, Jr. has written of the newly discovered vocation of science fiction literature during the “Thaw” following Stalin’s death: “For a generation unburdened of Stalin, witnessing the Space Age, believing in the promise of gradual (albeit minimal) improvements in personal life, sf represented a potent synthesis of ideology and science, of personal and social happiness. Utopia,
which had inspired the classic of writers of the revolutionary period, and had been outlawed by Stalin, once again became topical. As Khrushchev’s Communist Party itself incorporated utopian imaginings into its 22nd Congress, the scientific intelligentsia was given license to dream about engineering social-and-personal-happiness.” (2004, 338) Efremov also offers an illuminating definition of the “aims of Soviet science-fiction: its philosophy is to serve the development of the imaginative and creative faculty of our people as an asset in the study of social life; and its chief aim is to search for the new, and through this search to gain an insight into the future” (“Stories” 10).

19 Rafail Nudelman has characterized the role of nature in Efremov’s work in this way: “The constant motif of Efremov’s culturological criticism is the rejection of an urban civilization separated from its irrational ‘roots.’ Its utopianism lies in the call for a rational reorganization of society on the basis of a combination of higher technology and an almost mystical spirituality, in a fusion with the powers of the ‘soil.’ At the same time, Efremov calls for a tight social organization, where one’s place is determined by one’s biological (sometimes racial) type, the force of one’s will, and the spiritual weight of one’s personality.” (59)

20 In “Progress versus Utopia, or, Can We Imagine the Future?” Fredric Jameson reads Andromeda’s repression of negativity—particularly Darr Vetor’s psychic fatigue and Mven Mass’s hubris—as symptomatic of deeper contradictions in the “Soviet Utopian Imagination” (291). In reading Efremov’s novel against the grain in this way, I suggest that Jameson neglects what seem to be the equally interesting contradictions in the Andromeda’s images of utopian fulfillment, even taken on their own terms.

21 “A dense blue haze spread in even layers that were pierced by vertical black cylinders rotating fairly rapidly. The contours of the cylinders were scarcely perceptible—from time to time they contracted until they were like squat cones with their bases joined. Then the blue haze would break up into fiery crescents that revolved madly about the axes of the cones. Blackness retreated into the heights, huge, dazzlingly white columns grew up and from behind them faceted points, green in colour, formed diagonal curtains. … Mven Mass rubbed his forehead in an effort to grasp anything that made sense.

On the screen the pointed green blades wound in spirals around the white columns and suddenly showered down in a stream of gleaming metal globes that lay in the form of a broad, circular belt. The belt began to grow in width and in height. Mven Mass smiled and switched off the record, returning to his former contemplation…” (208)

22 On the importance of partijnost in Soviet science fiction even into the Thaw, see Csicsery-Ronay, Jr. (2004, 340–341); on the role of Parteilichkeit in the publishing of East German science fiction, see Fritzsche (95), and Zima for a discussion of Parteilichkeit in East German literature more generally.

23 As Kelvin states, “There would not have been space in the room I was in for all the original literature on the topic.” (“Solaricists”)

24 In a way, the epistemological frustration portrayed in the novel also characterizes the novel’s reception, a point made by Istvan Csicsery-Ronay, Jr.: “[r]eaders of Solaris are Solarists, too” (1985, 12).

25 This is not just a product of translation: the original says that the ocean “jest wynikiem dialektycznego rozwoju” (20).

26 As of May, 2017, Bill Johnston’s translation – the only English translation made directly from the Polish original – is available only as a Kindle e-book, and lacks page numbers. In-text citations to Solaris will indicate the chapter name instead.
27 Because of the inconsistencies of the earlier English-language translation, which was not a translation of the original but of the French translation of the Polish original, Harey is referred to as "Rheya" in much of the scholarship on Solaris.

28 To give only one example, Kelvin, unknowingly reprising the earlier reaction of the other scientists aboard the station, gets rid of the first apparition of "Harey" by shooting her away from the station in a rocket; the description of the trapped creature’s voice evokes the “truer face” of Solaris underneath the familiar, human face it had taken on: “I had switched the loudspeaker off right after takeoff, and I lacked the courage to turn it back on. I would have done virtually anything not to have to hear again that terrible voice, which carried no vestige of anything human. This much I could say—all appearances had been smashed, and from under the appearance of Harey’s face another, truer face had begun to show, compared to which the alternative of madness was truly becoming a liberation.” (“Harey”)

29 For a full and nuanced articulation of this reading, see Fredric Jameson’s “The Unknowability Thesis” (107–118).

30 “A black wave crawled sluggishly up onto the shore, spreading and at the same time losing its color; when it retreated, the edge of the previously untouched rock was marked with trembling filaments of slime. I moved further down and reached out my hand to the next wave. It faithfully repeated the phenomenon that humans had first witnessed almost a century before: it hesitated, withdrew, then flowed over my hand yet without touching it, in such a way that a narrow layer of air remained between the surface of my gauntlet and the inside of the covering, which instantly changed consistency, turning from liquid to almost fleshy. […] It looked as if a ductile flower had grown out of the ocean, its calyx encircling my fingers in such a way that it became their exact negative, though without touching them.” (“The Old Mimoid”)

31 See Levins and Lewontin, “The Organism as the Subject and Object of Evolution” (85–106). Their argument that “[t]he metaphor of adaptation must therefore be replaced by one of construction, a metaphor that has implications for the form of evolutionary theory” (104), is suggestive for understanding Solaris.

32 My previous work on this novel has read it as a dialogue among science fiction, utopia, and socialist realism, arguing that Andymon privileges openness and uncertainty through various strategies including the depiction of spatial closures, in order to reclaim space for the utopian imagination in a cultural-political context that resembled/tacitly privileged the static closure of classical utopias. It touched only obliquely on the question of biological alterity.

33 Fredric Jameson begins his discussion of the fundamental alterity of the alien body by considering representations of alien perception, and the new qualities (such as new colors) enabled by that perception (119–121).

34 Describing how dialectical materialism was taught and received in universities in the GDR, Steinmüller writes, “At universities and colleges, Marxism-Leninism (ML) belonged to the mandatory subjects in every field. The “three components” of ML were taught: 1. historical and dialectical materialism, 2. political economy and 3. scientific communism. […] Most young people (and this can be applied to the Soviet Union as well) experienced “diamat,” as a component of ML, as orthodoxy as well, and whoever wanted to make a career adopted the belief system for themselves (naive and starry-eyed or cynical or distanced.” (Personal correspondence, 5/20. Translation mine.)

35 See especially Levins and Lewontin, “The Organism as the Subject and Object of Evolution” (85–106). For an overview of the foundations of an ecological Marxism and its dialectical legacies after Marx and Engels, see Foster, especially pp. 250–253.