The following text is a pre-publication version of an article that appeared in *Environmental Philosophy* and whose full reference is:

Dicks, Henry, « Aldo Leopold and the Ecological Imaginary: The Balance, the Pyramid, and the Round River », *Environmental Philosophy*, **11** (2), 2014, pp. 175 –209

The final, published version article is available here: <http://www.pdcnet.org/collection-anonymous/browse?fp=envirophil&fq=envirophil%2FVolume%2F8989%7C11%2F8998%7CIssue%3A%202%2F>

**Aldo Leopold and the Ecological Imaginary:**

**The Balance, the Pyramid, and the Round River**

Aldo Leopold accorded great significance to the images he used to describe both the land and humankind’s relation to it. Focusing on three key images of Leopold’s “ecological imaginary” – the balance, the pyramid, and the round river –, this article argues that the most profound of these is the round river. Contrasting this image with James Lovelock’s portrayal of the earth as Gaia, it further argues that Leopold’s round river can be interpreted as a contemporary, ecological reworking of the primordial, Homeric experience of Being, according to which the foundation of the world is a round river, Oceanus.

**Introduction: The Role of the Ecological Imaginary**

Aldo Leopold attributed great importance to the various ways that the land – and humankind’s relation to it – might be presented in the form of an image. In attributing such importance to images, Leopold in many respects wentagainst the grain of the philosophical tradition. In *Les Puissances de l’imagination: essai sur la fonction éthique de l’imagination* (2012), the contemporary French philosopher, Jean-Philippe Pierron, argues thatthe philosophical tradition has interpreted the image in two main ways, neither of which is positive: either the image is interpreted as an obstacle in the way of rigorous, objective, scientific knowledge, or it is interpreted as an aesthetic ornament with no significant role to play at the all-important conceptual level. Pierron further argues that it is the tendency of modern philosophy to focus on a “theory of knowledge” (*théorie de la connaissance*) that explains the tendency to see images in a negative light. Philosophy, it is presumed, should be concerned above all with providing science with the conceptual rigor it demands, and, to that end, it must banish images, which at worst mislead and at best provide mere decoration. Pierron’s key criticism of this way of thinking is that it overlooks the “ethical function” of the imagination, that is to say, the way that the images produced by the imagination may give rise to ethical ways of being. In another book, *Penser le développement durable*, he draws explicitly on Leopold to substantiate this point, citing Leopold’s famous “Thinking like a Mountain” as an example of the imagination’s ethical function (Pierron 2009, 237).

In broad agreement with Pierron’s analysis, this article maintains that Leopold’s images of the land are not concerned with ensuring scientific precision or epistemological certainty, but rather with bringing together various different fields of human activity, such that an integrated land ethic, a new way of collectively inhabiting the land, may emerge. Such images may thus be described as eco-poetic: their vocation is to bring forth (*poiein*) a new way of inhabiting the land (*oikos*). The various fields of activity in question include the natural sciences, such as hydrology, geology, and biology, with respect to which Leopold thought ecology constitutes a “new fusion point” (Leopold 1991b, 266), various applied sciences, particularly agronomy and engineering, so-called “humanities” subjects like economics, politics, and philosophy, and, last but not least, the common sense of what Leopold generally referred to as “laymen.”

Approaching Leopold via his ecological imaginary differs from the mainstream philosophical approach to his work in two main respects. The first difference concerns the fact that the philosophical reception of Leopold’s work has tended to focus almost exclusively on “The Land Ethic,” and in particular on its contribution to a specifically environmental ethic. As far as Leopold’s ecological imaginary is concerned, such an approach inevitably concentrates attention on the image of the land developed in that text: the land pyramid. The present article, by contrast, not only analyzes the relationship of the pyramid to two other important images of the land discussed by Leopold – the balance and the round river –, but further argues that it is the round river which constitutes the most profound of these three images.

The second major difference between the present article and the mainstream philosophical reception of Leopold concerns the powerful influence exerted by his most notable philosophical commentator and disciple, J. Baird Callicott. In “The Conceptual Foundations of the Land Ethic,” Callicott (1989a) does briefly mention the various images of the land put forward by Leopold (following other ecologists), notably the land as organism (Clements), community (Elton), pyramid (Elton), and energy circuit (Morowitz) (87-90). Nevertheless, in keeping with the title of Callicott’s article, his overall concern is primarily with what he sees as the common conceptual denominator of these images: ecological holism (84). In short, Callicott assumes that the foundations of the land ethic are conceptual, that its most important foundational concept is ecological holism, and that the images of the land that Leopold puts forward are but ways that the various permutations of this foundational concept get “poetically expressed” (89). Callicott thus follows the philosophical tradition in seeing concepts as primary and foundational, with images being secondary ways of expressing them.

Another way in which Callicott follows the philosophical tradition is in his division of Leopold’s thought in accordance with the three main branches of modern philosophy: metaphysics, ethics, and aesthetics. According to Callicott, Leopold’s land philosophyhas various metaphysical implications, particularly the “blurring” of the relation between self and other (Callicott 1989b); it supports a distinctively environmental ethic, according to which the land has intrinsic value and not just instrumental value for humans (Calicott 1989c, 1989d, 1989e); and it also harbors an environmental aesthetic, according to which what is beautiful in nature should be informed by scientific knowledge (Callicott 1989f). While Callicott’s reading is powerfully argued, and thus influential, the risk it presents is that of institutionalizing an interpretation of Leopold’s thought that presupposes the basic framework of modern philosophy. Callicott (1995) does of course also argue that the land ethic can inspire a form of environmental postmodernism – as he thinks is the case in the work of Holmes Rolston III (1994) –, which deconstructs and decenters the traditional, human subject prioritized by modern philosophy. Nevertheless, this deconstruction and decentering still operate within the fundamental categories of modern philosophy – subject/object, fact/value, etc. ­–, the principal innovation being only the redistribution of these basic categories in such a way that various non-human beings are also interpreted as subjects possessing intrinsic value. Callicott thus ignores the possibility that there may be another way of reading Leopold that is neither modern nor postmodern, and which, while not necessarily more “accurate,” brings to light different aspects of his thought, while also structuring these different aspects according to an alternative philosophical framework.

The present article explores just such an alternative reading of Leopold. Focusing on Leopold’s ecological imaginary, it argues that the vocation of Leopold’s eco-poetic images is to bring forth an alternative way of inhabiting the land, in which case these images could be said to constitute the very origin and source of his land philosophy. So, whereas modern philosophy often prioritizes objective facts, which it then subjects to epistemological and metaphysical analysis, while also analyzing the relation between these objective *facts* and ethical and aesthetic *values*, the present paper takes the position that the world is not an aggregate of facts and values, but rather a shared, specifically human, openness to things brought forth through the poetic imagination and possessing both ontological and ethical dimensions.

**The Balance, the Land Pyramid, and the Round River**

Leopold’s writing is replete with images of the land, which is variously presented as an organism (1991a), a community (1949a), a balance (1933), a pyramid (1949a, 1991b), a round river (1953a), an engine (1991c), a song (1949b), and much else besides. Likewise, the farm is presented as the “stage” on which the farmer walks among other “players” (animals, etc.), each living out their various “dramas” (1991c, 261); and yet the farm is also, and in the same essay, described as the “portrait” of the farmer himself (1991c, 263). Shooting game, by contrast, is a “grand opera” (1991d). The list could go on.

Leopold’s seemingly rather liberal use of imagery and metaphor can be interpreted in various ways. One plausible interpretation holds that these images are literary devices used to facilitate communication. In “Biotic Land Use,” Leopold remarks that it is necessary for ecologists to communicate with people from all walks of life, and that to that end a language capable of translating ecological concepts into “common speech” is imperative (Leopold 1999, 204). The various images he deploys could thus be thought, as Julianne L. Newton has argued, to be selected primarily through consideration of the audience in question:

Leopold emphasized the *energetic systems* language preferred by Arthur Tansley when communicating with other scientists; he used *organismic* language, the choice of Frederic Clements, particularly when communicating with people as citizens and leaning toward conservation philosophy; and he tended to employ *mechanistic* language when addressing land technicians and farmers who manipulated parts of nature for human benefit and tinkered with tractors. (Newton 2006, 219)

While there is no doubt much truth in Newton’s analysis, it is also clear that, as a communication strategy, it poses problems as regards integration: if Leopold has told the scientists that the land is an energy system, ordinary citizens and philosophers that it is an organism, and farmers and technicians that it is an engine or machine, what will happen when all these people talk to each other? It is not hard to imagine that in that instance the contrasting images deployed will not facilitate, but rather obstruct, successful communication. Moreover, there can also be little doubt that it would be somewhat arbitrary to place each and every image – no matter how briefly or casually developed – on an equal footing. After all, was Leopold not also engaged in an ongoing attempt to develop an image of humanity’s relation to the land with which scientists, engineers, farmers, philosophers, and lay people could *all* identify, thus giving rise to both a common language and a shared world? With this question in mind, we will now consider three key images of the land which Leopold discusses in considerable detail: the balance, the pyramid, and the round river.

1. **The Balance of Nature**

In “The Land Ethic,” Leopold affirms that an ethical relation to the land depends on a “mental image” of the land, such that it can be related to as something more than just a stockpile of economic resources (1949a, 214). Rejecting the image of the “balance of nature,” he instead proposes that of the “biotic pyramid” (214).

Before looking at the biotic or land pyramid, let us first consider why Leopold is critical of the image of nature as a “balance.” These reasons are spelled out in a prior text, “A Biotic View of Land” (1991b), substantial portions of which were later incorporated into “The Land Ethic.” According to this earlier text, the image of nature as a balance is widely used in both popular and professional discourses about ecology, and in both instances Leopold considers it problematic. As regards communication with “laymen,” the principal danger Leopold discerns is that the image may be taken far too literally, and in such a way that misleads:

To the lay mind, balance of nature probably conveys an actual image of the familiar weighing scale. There may even be the danger that the layman imputes to the biota properties which exist only on the grocer’s counter. (267)

As for professional ecologists, Leopold thinks this image presents both merits and defects:

Its merits are that it conceives of a collective total, that it imputes utility to all species, and that it implies oscillations when balance is disturbed. Its defects are that there is only one point at which balance occurs, and that balance is normally static. (267)

In the language of contemporary systems theory, one could say that the principal scientific defect of the image of the balance is twofold: first, it fails to present the balance of nature as consisting of oscillations around a *multiplicity* of set-points corresponding to different variables; second, it suggests that the land is homeostatic, maintaining *fixed* set-points around which the system balances, rather than homeorhetic, that is to say, balancing around *dynamic* set-points whose position may vary over time.

A further important question is where humankind stands in relation to the balance of nature. This question is not discussed in either “The Biotic View of Land” or in “The Land Ethic,” but it is discussed in the much earlier “Game Management” (Leopold, 1933). In this text, Leopold describes the balance of nature in terms of oscillating populations of interrelated species (26). He then goes on to observe that humankind may in some instances have upset the initial, natural balance, but that effective game management can nevertheless establish a new one (26). Translating back into the language of systems theory, one could say that countries faced with the issue of game management must accept the reality of homeorhesis, such that they may play a part in regulating game populations around a different set-point from the previous, natural one. Moreover, while this strategy may only be discussed by Leopold in the specific context of game management, a full understanding of the land would presumably require it to be extended to other ecological variables. In principle, then, the balance of nature could, *mutatis mutandis*, help play a role in either recognizing or establishing – and thereafter helping maintain – a wide range of ecological equilibria.

In view of all this, the claim that the land pyramid offers a “truer image” than the balance of nature would appear highly problematic, at least as long as truth is seen simply in terms of “correctness.” The difference between the two images is not that the land does not balance, whereas it does have the form of a pyramid. Leopold quite clearly thinks that the land does exhibit equilibria, just not around a fixed and unique set-point. The greater “truth” he imputes to the land pyramid would thus seem to lie elsewhere.

1. **The Land Pyramid**

The land pyramid is an image often found in ecology, having been developed notably by Charles Elton (1927), who talks rather of a “pyramid of numbers” (69-70). It represents the structure of the trophic relationships that obtain between various different members of the biotic community, and hence also the flow of energy throughout the system as a whole. As Leopold explains:

Plants absorb energy from the sun. This energy flows through a circuit called the biota, which may be represented by a pyramid consisting of layers. The bottom layer is the soil. A plant layer rests on the soil, an insect layer on the plants, a bird and rodent layer on the insects, and so on up through various animal groups to the apex layer, which consists of the larger carnivores. (Leopold 1949a, p.214-215)

But what, then, is humankind’s relationship to the land pyramid? According to Leopold, humans are omnivores located in the pyramid’s middle layer, alongside the “bears, raccoons, and squirrels which eat both meat and vegetables” (215). He subsequently observes, however, that our situation is not quite as simple as this image suggests, for the “invention of tools” has radically altered our relation to the rest of the biotic community (217). The various different manifestations of this altered relation include the following: the top predators have been “lopped off the apex of the pyramid,” reducing its complexity and shortening its food chains (217); the domestication of various plants and animals has given rise to new pests, hence the emergence of agricultural science, considered as a technique for their control (217); conventional agriculture has also depleted the soil, thereby giving rise to large-scale erosion (217); industry has polluted waters and obstructed their flow through the installation of dams (217); and transportation has made possible the importation of fertilizers from distant lands (218).

What does Leopold propose to do about this “almost worldwide display of disorganization” (218)? First, he thinks that we should be aware of the resistance of different biotas to our interventions, such that fragile biotas can be respected as such and exploited either not at all or significantly less (218-219). Second, and more generally, he thinks we should endeavor to reduce the overall violence of our modifications of the land pyramid (220). Of particular importance here, he thinks, is not exceeding the land pyramid’s natural elasticity. Agriculture, for example, will inevitably “distort” the pyramid, but it does not necessarily have to cause the pyramid to collapse entirely (see Newton 2006, 207). In view of this, Leopold advocates a change of attitude: rather than seeing ourselves as “conquerors” of the land, whose destiny is to rise in great numbers to the top of the pyramid, subjugating and oppressing all that lies beneath (at the risk of precipitating the collapse of the entire edifice), we must instead see ourselves as “citizens” of the biotic community, thus recognizing the role that other beings play not just in direct economic production, but also in the health and beauty of the land pyramid as a whole (223). The two concrete examples Leopold gives of this change of attitude are “organic” farming (1949a, 222) and the “sustainable forestry” of the German “*Dauerwald*”(1991b, 271).[[1]](#footnote-1) In both instances, the species that are directly beneficial to humans in economic terms (plants and animals for food, trees for timber) should be treated as part of a land pyramid with relatively long and complex food chains.

As in the case of the image of nature as a “balance,” the “land pyramid” would thus seem to provide a meaningful ontology of the land thanks to which laymen, scientists, practitioners, and philosophers may adopt an ethical stance to it. Moreover, in both instances, the inevitability of anthropogenic disruptions is acknowledged, while at the same time placed within specific limits: a critical understanding of the “balance of nature” implies that humans must either recognize existing equilibria or help maintain new equilibria; and an understanding of the “land pyramid” implies that we should minimize disruption of its complex, hierarchically structured food chains.

1. **The Round River**

Unlike the balance of nature and the land pyramid, the image of the land as a round river was not widely present in ecological discourse at the time Leopold was writing, and the same is still true today. Moreover, even amongst readers of Leopold, there can be little doubt that this image is much less frequently discussed than the land pyramid, a state of affairs which is no doubt largely attributable to the quasi-exclusive focus – particularly amongst professional philosophers – on “The Land Ethic.” Indeed, if one reads only “The Land Ethic,” one will gather that the balance of nature “fails to describe accurately what little we know about the land mechanism” (1949a, 214), and one will not have any inkling as to the existence of an alternative image of the land as a round river. Moreover, given Leopold’s view that philosophical advice depends on the “mental image” one has of the land (1991b, 266), such advice is likely to be oriented towards the sort of things Leopold himself discusses in the “The Land Ethic”: reducing the violence of our tools, minimizing biodiversity loss, organic farming, respecting non-economic and non-utilitarian values, participation in the biotic community, and so on.

Given the relationship Leopold posits between ecological imagery and ethics, it would seem important for environmental ethics also to consider his little-discussed image of the land as a “round river” put forward in “The Round River: A Parable” (1953a). This short text is comparable to “The Land Ethic” in that they both constitute the key or culminating contributions to the final, more theoretical sections of their respective books. “The Land Ethic” is not only the concluding text of *A Sand County Almanac*, but also, as Callicott observes, its “climatic essay” (Callicott 1989f, 75). Similarly, while “The Round River: A Parable” is only the penultimate text of *Round River*, the fact that it gives its name to the overall collection points to its key position within the book as a whole.[[2]](#footnote-2) There remains, however, an important question to answer regarding the relation between the two texts: which was written first? This question assumes particular significance if it is true that Leopold did not only use images to facilitate communication in front of specific audiences, but was also engaged in an ongoing quest to uncover a “true image” of the land. So, if it were the case that “The Round River: A Parable” were composed *after* “The Land Ethic,” it could perhaps be thought to represent a significant shift in Leopold’s ecological imaginary. Moreover, in the case of both “The Land Ethic” and “The Round River: A Parable,” Leopold was clearly *not* addressing a localized, target audience. So which text was written first? The final version of “The Land Ethic” was drafted in June 1947, though it was not written all at once, as is evidenced by the fact that substantial parts of it – including much of the section dedicated to the land pyramid – had already been made public in the 1939 lecture, “A Biotic View of Land.” By contrast, the exact date of composition of “The Round River: A Parable” is, as far as I have been able to ascertain, unknown, though it is almost certain to have been written after “A Biotic View of Land.”[[3]](#footnote-3) It thus seems fairly certain to say that the image of the land as a round river emerged into Leopold’s ecological imaginary *after* that of the land pyramid. The significance of this is, however, open to interpretation.[[4]](#footnote-4)

The image of the round river was drawn from the first story ever to appear in print about probably the most celebrated figure of American folklore: Paul Bunyan (MacGillivry 1906). In this story, the best-known version of which is *Round River Drive* (Malloch and MacGillivray 1914), Paul Bunyan sets off from his riverside camp, “driving” logs down an unnamed river. After several weeks of doing this, he realizes that he has in fact gone past exactly the same camp from which he departed, as well as other identical points on the riverbank, from which he concludes that the river he is travelling on is in fact round! It is from this tale that Leopold derives his new image of the land:

One of the marvels of early Wisconsin was the Round River, a river that flowed into itself, and thus sped around and around in a never-ending circuit. Paul Bunyan discovered it, and the Bunyan saga tells how he floated many a log down its restless waters. / No one has suspected Paul of speaking in parables, yet in this instance he did. Wisconsin not only *had* a round river, Wisconsin is one. The current is the stream of energy which flows out of the soil into plants, thence into animals, thence back into the soil in a never-ending circuit of life. “Dust unto dust” is a desiccated version of the Round River concept. (1953a, 158)

Before analyzing this image, let us first note that it does not contradict the image of the “land pyramid” as regards the empirical, scientific facts. Indeed, the section of “The Land Ethic” dedicated to the land pyramid clearly describes a circuit of nutrients[[5]](#footnote-5) flowing around the three main ecological guilds: producers, consumers, and decomposers (1949a, 216). Nevertheless, as we have already seen, Leopold’s aim in proposing images of the land was neither to make a contribution to the specialized body of work produced by ecological scientists, nor to provide them with greater epistemological security, but rather to develop an image thanks to which humankind as a whole – from scientists and technicians to philosophers and lay people – could collectively inhabit the land. It is for this reason, then, that in “The Round River: A Parable” Leopold explicitly argues that the image of the land as a round river could lead to an integrated understanding of the land, capable of giving rise to “collective wisdom”:

In our educational system, the biotic continuum is seldom pictured to us as a stream. From our tenderest years we are fed with facts about the soils, floras, and faunas that comprise the channel of Round River (biology), about their origins in time (geology and evolution), about the technique of exploiting them (agriculture and engineering). But the concept of a round river with drouths and freshets, backwaters and bars, is left to inference. To learn the hydrology of the biotic stream we must think at right angles to evolution and examine the collective behaviour of biotic materials. This calls for a reversal of specialization; instead of learning more and more about less and less, we must learn more and more about the whole biotic landscape. […] Ecology is destined to become the lore of Round River, a belated attempt to convert our collective knowledge of biotic materials into a collective wisdom of biotic navigation. (158-159)

It is not difficult to see that this poetic image of the land has both ontological and ethical implications, and that these may differ from those of the balance of nature and the land pyramid. Indeed, while the images of the balance, the pyramid, and the round river are far from contradictory – at least in the sense that the various aspects of the land they represent can consistently coexist (and no doubt also complement and reinforce each other) –, they are nevertheless significantly different. This is particularly true regarding the image of the land as a round river, which differs from the image of the balance and the pyramid in the following respects:

1. Whereas balances and pyramids are solid, the round river is fluid.
2. Whereas pyramids and balances are technological artifacts designed and constructed by humans, the round river is a mythical invention of American folklore which purports – with manifest irony – to describe a naturally occurring entity.
3. Whereas the land pyramid presents a linear, hierarchical structure with an elite minority at the top, the round river presents a circular loop in which the life and death of even the top predators are but moments in the basic circular flow.
4. Whereas the pyramid suggests a fixed and immobile set of paths and relationships between pre-existing organisms, and the balance of nature depicts quantitative oscillations of the numbers of pre-existing organisms around various set-points, the fertile waters of Round River constantly let emerge new beings, paths, and relations.

To make these distinctions is not of course to deny that the way Leopold qualifies each of these images may allow them to overcome – at least partially – the limitations of the images themselves. Consider, for example, the image of the pyramid. While pyramids are in the first instance rigid, solid structures, Leopold explicitly emphasizes the “elasticity” of the land pyramid, such that, via qualification, it is attributed a property that pyramids do not in the first instance possess. Likewise, whereas pyramids today are popularly thought to be either geometrical abstractions or physical objects in which no significant energy flow is present,[[6]](#footnote-6) Leopold explicitly emphasizes the flow of energy around the land pyramid. In short, as Leopold himself warned in the case of the balance, it is important not to interpret the basic image too inflexibly; it may be *qualified* in order to give a truer picture of the land. Nevertheless, it is also true that if one is to select *one basic image* to describe the land – and the very fact that Leopold rejects the balance of nature in favor of the land pyramid seemingly testifies to his belief in the importance of this –, there must exist criteria which allow the selection of one image over another.

With this in mind, let us note that what the land pyramid emphasizes *above all else* is the existence of hierarchically structured trophic levels. The circular flow of nutrients, and particularly the down-circuit, is only presented through *adding* arrows to the image, as is the case in Leopold’s own diagram (1991b, 268). A similar point could be made with respect to the possible addition to the image of ecological equilibria. The image of the land pyramid could easily be constructed in such a way that it presents the set-points around which the numbers of organisms found in each trophic level balance. To represent the balance of nature itself, it would thus be necessary to depict oscillations around these set-points, most obviously by adding a third, temporal dimension to the pyramid’s initial, two-dimensional, spatial form. The oscillations could thus be said to correspond to the *elasticity* of the pyramid, though, given that new equilibria may emerge over time, it should not be forgotten that the pyramid is not *perfectly elastic*; it can be distorted in such a way that the result of distortion becomes normalized.

To summarize, the pyramid presents hierarchically structured trophic levels as the *primary* ecological phenomenon, with the flow of nutrients around the pyramid and the oscillations in the relative numbers of organisms attributed the role of *secondary* phenomena to be described, if at all, via *qualifications* of the basic pyramidal structure. If, on the other hand, set-point equilibria or nutrient cycling were the *primary* ecological phenomenon, it would make sense to depict the land as either a balance or a round river and then to qualify *that image*. Indeed, if the primary ecological phenomenon were deemed to be, say, nutrient cycling, it would be quite absurd to settle on the image of the pyramid: to the extent that a pyramid is a solid, static, hierarchical, human-made object, it could hardly be a less appropriate way of presenting a naturally occurring circular flow, and it would make much more sense to start with the image of the round river and then to qualify *that image* so as to include other phenomena, such as trophic levels.

In view of the above, it would seem that we are now in a better position to see what Leopold may have meant by a “truer image” of the land. Truth, here, is not in the first instance a question of correctness of representation. The balance, the pyramid, and the round river can all be said, *mutatis mutandis*, to represent ecological phenomena correctly, but in each case the choice of image ineluctably presents one specific ecological phenomenon as *primary and essential* – set-point equilibria; hierarchical trophic levels; nutrient cycling –, with other ecological phenomena only being presentable through *secondary* *qualifications* of the basic image. In philosophical terms, one could say that each image proposes an interpretation of the land’s *essence*, as well as of its additional or emergent *qualities*. The “greater truth” of any given image would thus depend on whether it presents the land’s essence or, on the contrary, whether it mistakenly describes as essential what is in fact an additional or emergent quality.

Given our earlier analysis of the ethical function of the imagination, the fact that each of the images in question can be said to offer an interpretation of both the land’s essence and its additional or emergent qualities is of great significance. After all, what we see as primary and essential, and what we see as secondary and inessential (or less essential), plays a major role in determining the prioritization of our various projects, and therewith also our ethics. Moreover, it is important to recall that each image also ascribes a specific place to humankind and therewith also a specific environmental ethic, such as recognizing or establishing equilibria or avoiding excessive distortion of complex food chains.

So what, then, is humankind’s primary and essential ecological role if the land is fundamentally a round river? Leopold explains humankind’s relation to the round river via the following, extended metaphor:

We of the genus *Homo* ride the logs that float down the Round River, and by a little judicious “burling” we have learned to guide their direction and speed. This feat entitles us to the specific appellation *sapiens*. The techniqueof burling is called economics, the remembering of old routes is called history, the selection of new ones is called statesmanship, the conversation about oncoming riffles and rapids is called politics. (1953a, 158)

Here, then, we have an image not just of the land, but also of various different activities in which humans engage during the course of their habitation of the land: economics, history, statesmanship, and politics. When one further recalls the importance Leopold attributes to various natural and applied sciences for understanding and exploiting the round river, it would seem that this image provides a picture of humankind’s relation to the land that is capable of integrating and articulating many of humanity’s principal activities. Nevertheless, we still have not answered the question of what specific ethics may emerge from this image, that is, what its “ethical function” might be.

With this question in mind, let us note that in a similar way to “The Land Ethic” the remainder of “The Round River: A Parable” is divided into two parts: a first part describing various different aspects of the round river as it was prior to the arrival of modern humanity (159-162); and a second part detailing how the development of lands previously inhabited by native Indians has given rise to a radical “modification” of the round river (163-165). The consequences of this modification are similar to those described in “The Land Ethic”: a decrease in the fertility, diversity, stability, and beauty of the land. In view of this pervasive degradation, the text concludes by discussing the example of an engineer whom the government orders to “straighten” a creek in the name of flood control. Its final lines read as follows:

Some engineers are beginning to have a feeling in their bones that the meanderings of a creek not only improve the landscape but are a necessary part of the hydrologic functioning. The ecologist sees clearly that for similar reasons we can get along with less channel improvement on Round River. (165)

What is the significance of this image? Criticisms of “creek straightening” are present elsewhere in Leopold’s work. In “The Farmer as a Conservationist,” he offers the following advice: “Begin with the creek: it will be unstraightened” (1991c, 263). He then adds: “[y]ou can’t hurry water down the creek without hurting the creek, the neighbors, and yourself” (264). Creek straightening, it would seem, represents a short-term, linear solution to the problem of localized flooding, one which ultimately harms other members of the biotic community and, presumably via an unspecified “boomerang effect,” even the person responsible for straightening the creek in the first place. In the wider context of the round river, creek straightening would thus seem to represent a failure to recognize and act in accordance with the basic circularity of the land system. If land, as Leopold maintained in another text of the early 1940s, is a “circulatory system” (Leopold 1943), then the sort of linear thinking represented by creek straightening would violate the land in much the same way that disrupting natural equilibria would violate the balance of nature, and distorting food chains would violate the land pyramid.

So, as in the case of the balance of nature and the land pyramid, the image of land as a round river would seem to have specific ethical implications, according primary significance to one aspect of the land (circular flow) and only secondary significance to others (hierarchical food chains, set-point equilibria). With this in mind, the following section will compare the ontological and ethical implications of the image of the land as a “round river” with a much better known image of the contemporary ecological imaginary: James Lovelock’s depiction of the earth as “Gaia.”

**Two Ecological Imaginaries: Gaia and Round River**

According to Lovelock, the image of Gaia represents the earth, understood as a self-regulating system operating on a planetary scale. This cybernetic vision in turn leads him to claim that Gaia has an aim: to maintain the earth as a habitable place for the biota. If one species or other becomes too numerous and starts making the earth significantly less habitable, this deviation will be corrected through one or more feedback mechanisms. Thus it is that in *The Revenge of Gaia* (2007), Lovelock proposes that, if we humans keep on destroying Gaia’s habitability, she will “take revenge” by drastically reducing our numbers.

In response to objections that Gaia is teleological – hence also, Lovelock’s critics maintain, his interpretation of the earth as a deity capable of adopting such intentional strategies as revenge –, Lovelock developed a computer simulation, Daisyworld. This simulation depicts a planet inhabited by black and white daisies whose interactions with their shared environment maintain a constant temperature, despite external forcing from a progressively warming sun. Temperature being the single variable that determines the habitability of Daisyworld, the model thus demonstrates that interactions between living beings and their physical environment may regulate the atmosphere in favor of habitability without any sort of intentionality being posited. Subsequent models of Daisyworld have introduced greater species diversity, with different types of daisies being added, as well as rabbits which eat the daisies, foxes which eat the rabbits, and so on. Even more recently, a variety of so-called “guild models” have been developed which introduce nutrient cycling between various species, though they do not retain the initial set-up of a world populated by daisies with differing albedos (see Wood et al. 2008).

It is not hard to see that these three aspects of Daisyworld-inspired earth-system modeling – cybernetic regulation, food chains, nutrient recycling – correspond to the three basic images of the land proposed by Leopold: the balance of nature corresponds to cybernetic regulation; the food chain running from daisies via rabbits to foxes corresponds to the biotic pyramid; and the cycling of nutrients between species corresponds to the round river. Nevertheless, there is an important difference between their respective geneses: whereas Daisyworld starts with the balance of nature, with food chains and nutrient cycling only being modeled later on and in that order, Leopold’s schema unfolds in precisely the opposite direction. The first section of “The Round River: A Parable” describes the round river as a system of nutrient cycling (Leopold 1953a, 158-159), and it is only in the second section that Leopold analyses the emergence of what in “The Land Ethic” he calls the “land pyramid,” that is to say, a complex, hierarchically organized food web involving multiple species (159-162). Given that “The Land Ethic” rejects the image of nature as a “balance,” we might expect the comparison with Daisyworld to break down at this point. The third section (162), however, is explicitly dedicated to examining the “balance” of nature, hence its opening line: “For the biotic community to survive, its internal processes must balance, else its member-species would disappear” (162). Having noted that there are examples in nature of such balance being maintained over periods of several millennia, Leopold then remarks that “science cannot explain the mechanisms of stability” (162). Cybernetic self-regulation, whose mathematical formalization was greatly aided by the publication of Norbert Wiener’s *Cybernetics* (1948) and which was subsequently applied to ecology by thinkers like Eugene Odum (1953), Gregory Bateson (1978), and James Lovelock (2000), provides the most convincing explanation to date of the mechanisms of ecological stability. Nevertheless, as the tripartite structure of Leopold’s analysis of the land reveals, at its most fundamental the land is not a balance, for any balance is predicated on the prior existence of a land pyramid, and, *a fortiori*, a round river.[[7]](#footnote-7)

It is also important to note that a schema beginning with nutrient cycling accords with a coherent articulation of some of the fundamental concepts of systems theory. The three key images analyzed in this article – the round river (nutrient cycling); the land pyramid (trophic levels); and the balance of nature (stability mechanisms) – correspond to three basic systemic concepts: self-production, self-organization, and self-regulation. Only once there arises nutrient cycling between at least two species does the land come into existence as a “system,” that is, as something that, in keeping with the etymology of the word “system” – Gk. *syn-* (together) + *istemi* (to stand, to be) –, “stands or is together.” And, as this system comes into existence *through* and *as* a dynamic circular flow, it can be said to be “self-producing.” Once this initial, self-producing system has arisen, a complex and hierarchically structured community – the land pyramid – may arise within it, and in that sense the round river can also be said to be “self-organizing.” As Newton observes: “The land pyramid […] depend[s] upon the self-organization of its full complement of native species” (Newton 2006, 342). Finally, once this self-producing system has organized itself in a sufficiently diverse and complex manner, a further property may also arise: a balance – to be understood in terms of multiple, homeorhetic set-point equilibria – between the system’s various elements, and therewith also the emergent property of “self-regulation.” The original Daisyworld model, by contrast, does not reproduce the genesis of self-regulation via the preceding stages of self-production and self-organization, but instead provides an abstract model of a *single* *emergent property*.

Apparently unaware of the philosophical complications that arise from the emergent – and perhaps even accidental[[8]](#footnote-8) – status of the distinctively Gaian property of self-regulation, Lovelock has stated: “[t]he concept of Gaia […] is for me the essential basis of a coherent and practical environmentalism” (Lovelock 2007, 173). The ontological interpretation of the earth as Gaia, a cybernetic system, thus gives rise to a quite specific set of ethical and political positions. In keeping with the Daisyworld model, Lovelock thinks that it is above all the temperature of the earth that may deviate from a given norm, and he thus focuses first and foremost on how we might assist Gaia in correcting any such deviation. This leads him to emphasize two main forms of response to the contemporary problem of global warming: first, low-carbon nuclear energy as a replacement for fossil fuels (2010, 68-76); second, various forms of geo-engineering (2010, 92-104). It is not hard to see that these proposals issue more or less directly from his fundamentally cybernetic ontology. Nuclear energy requires long-term, centralized investments of the sort that only governments – from the Greek*,* “*kybernetes*” – are willing to provide. And geo-engineering would not only appear to require some sort of planetary government if it is to be put into place, but would further consist in a deliberate and precisely calculated attempt to control one or more of the variables considered necessary to maintain the earth system in a state not too far from current levels of habitability.[[9]](#footnote-9) Moreover, at times Lovelock even goes so far as to propose a suspension of democracy and its replacement with a top-down, command-and-control form of government (2014, 119-120).

In view of this, an interesting question emerges: what would happen if we were to adopt not Lovelock’s cybernetic Gaia, but Leopold’s Round River, as the primordial image called on to bring forth an alternative way of inhabiting the land? With this possibility in mind, consider the following passage from Barry Commoner’s *The Closing Circle*:

We have become accustomed to think of separate, singular events, each dependent upon a unique, singular cause. But in the ecosphere every effect is also a cause: an animal’s waste becomes food for soil bacteria; what bacteria excrete nourishes plants; animals eat the plants. Such ecological cycles are hard to fit into human experience in the age of technology, where machine A always yields product B, and product B, once used, is cast away, having no further meaning for the machine, the product, or the user. […] Here is the first great fault in the life of man in the ecosphere. We have broken out of the circle of life, converting its endless cycles into man-made, linear events: oil is taken from the ground, distilled into fuel, burned in an engine, converted thereby into noxious fumes, which are emitted into the air. (Commoner 1971, 12)

The ecological cycle described here clearly corresponds to what Leopold calls “Round River.” Where Commoner goes beyond Leopold, however, is in his extended, book-length criticism of how a linear, technological way of thinking breaks open this cycle. Such a position in turn implies an alternative way of thinking about global warming: the *basic* problem with fossil fuels is not that they endanger planetary homeostasis, but rather that their use embodies the “linear, self-destructive course” (299) Commoner thinks is characteristic of modern technology in general.

Much the same criticism could be made of Lovelock. When Lovelock proposes replacing fossil fuels with nuclear power, he is clearly proposing the replacement of one linear approach to energy production with another: nuclear power involves the transformation of a non-renewable resource into a harmful waste, and, in that respect, it is comparable to the burning of fossil fuels. Likewise, when geo-engineers propose seeding the oceans with iron filings to promote algal growth, or putting mirrors in space to reflect sunlight, linear thinking is again paramount. And as for his suggestion that combatting climate change may require the suspension of democracy, it is again not hard to see that this is a simplistic linear solution to a complex problem and that other major problems would no doubt follow. As in the case of Leopold’s metonymic “creek straightening,” the focus is always on resolving isolated problems without taking on board the other problems associated with them, as well as those likely to result from these isolated solutions.[[10]](#footnote-10)

In view of the problematically linear thinking characteristic of Lovelock’s cybernetic imaginary,[[11]](#footnote-11) let us reconsider Leopold’s image of man as the “navigator” of Round River. In some respects, this image resembles the one from which Norbert Wiener coined the word “cybernetics”: the image of a steersman (*kybernetes*) capable of correcting deviations from his chosen trajectory via negative feedback mechanisms. And yet there is a basic difference between the two images: whereas Wiener’s steersman is free to choose an arbitrary, linear destination, relative to which cybernetics can be seen as just an effective technique, Leopold’s biotic navigators are both enabled and constrained in their decisions by the circulating flow of Round River. Freedom to decide in favor of one thing rather than another, one outcome rather than another, is thus predicated on the prior existence of a round river from which all that is emerges, and to which our decisions must remained attuned if we are to endure. By contrast, what most people today see as freedom – the ability to make goal-oriented decisions constrained only by unbreakable laws of nature and the liberty of others – will ultimately prove self-destructive. Our techno-economic know-how may enable us to forge new entities, paths, relations, and so on, but the round river itself is something beyond which we cannot go, not without destroying ourselves. And yet, as Commoner has argued, and as our analysis of Gaia theory would appear to confirm, it is precisely this round river that the linear thinking characteristic of contemporary technology fails to see, as if the various activities Leopold attributes to *homo sapiens* – agriculture, engineering, economics, history, statesmanship, politics – could be carried out without paying any attention to the way in which they have emerged from, and are at the same time partially still immersed within, the circulating flow of the round river. An alternative would thus appear to present itself: either we continue to ignore and override the round river through a way of thinking that is essentially and fundamentally linear, thus challenging the world’s essential foundation, or we let ourselves be carried by its circular flow, attuning ourselves to the underlying self-production from which the properties of self-organization and self-regulation in turn emerge.

The ethical implications of this are highly significant. Our focus should not be, as is the case in cybernetics, on “controlling” the environment, as was also the case in Leopold’s early *Game Management* (1933), a text in which he still saw nature as essentially a balance. Likewise, even the maintenance and development of complex food chains, and thus of diversity, is ultimately of secondary importance. Our primary and essential ecological duty is rather to what Commoner calls “closing the circle,” that is to say, preserving the “integrity” of the land that arises from the circulation of nutrients,[[12]](#footnote-12) and thanks to which the complex food chains that constitute the land pyramid, as well as the stability produced by the balance of nature, in turn emerge. Such, in any case, is the ethical lesson of “The Round River: A Parable.” Indeed, in this text Leopold asks two questions of the modern world: “(1) Does it maintain fertility? (2) Does it maintain a diverse flora and fauna?” (1953a, 163) A short while later, he adds a third question: “Can stability be synthesized out of imported plants and animals?” (165) These three questions in turn suggest a subtle reworking of his famous “land ethic,” according to which “[a] thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.” (1949a, 225) The reworking involves both an addition and an interpretation. The proposed addition is the word “diversity” between the words “integrity” and “stability,” such that the three systemic qualities thereby described – integrity, diversity, and stability – correspond to the round river (integrity), the land pyramid (diversity), and the balance of nature (stability). The proposed interpretation involves understanding that our primary and essential duty is towards integrity, for it is from integrity that diversity and stability emerge. Integrity, in other words, goes hand in hand with fertility. As for beauty, that can perhaps also be seen as an emergent property, arising from the integrity, diversity, and stability of the land.

In addition to the ethical implications of the image of the land as a round river, it is also interesting to note that the image of humanity as the navigator of Round River has various “existential” implications which Leopold does not himself explore, but which, taken together, may give rise to the sort of existential complexity characteristic of what Martin Heidegger (1995) calls *Dasein* or “being-in-the-world.” Just as Heidegger maintains that for *Dasein* to exist authenticallyis for it to “be towards death” (304-311), the image of the round river implies that the natural destiny of the human individual is to return to the soil, to decompose, and thus also to let other beings rise anew and take its place. It is the Round River that is immortal, and the individual human who is mortal. Moreover, our unique ability to *foresee* our inevitable return to the soil implies that we are not just another species of animal. Indeed, in a manner reminiscent of Heidegger, “The Round River: A Parable” maintains a clear ontological divide between humans and other living beings: humans, and humans alone, are temporal beings, and, as such, can partially raise themselves up out of the round river (via tool-use and economics), such that they may look backwards to the past (history), forward to divergent and challenging futures (politics), and, on the basis of these memories and projections, make resolute decisions about which paths to take (statesmanship). And yet, this is not of course to posit humanity as *fully* *transcendent* with respect to Round River. We may have emerged from the circular current in which all other living beings remain immersed, but, if we are to endure, we must learn to “attune” ourselves to the round river’s circular flow.[[13]](#footnote-13)

**Aldo Leopold’s Iliad**

There is a longstanding connection between Leopold and Homer. This is no doubt due in large part to the oft-quoted opening lines of “The Land Ethic”: “When god-like Odysseus returned from the wars in Troy […]” (1949a, 201). But there are many other references to Homer in Leopold’s thought, most notably another text from *A Sand County Almanac*, “Odyssey” (1949c), in which Leopold describes the circulation of atoms around an ecosystem as a journey comparable to Odysseus’s departure from and return to Ithaca. The Leopold-Homer connection has also been explored in the secondary literature on Leopold, particularly Newton’s *Aldo Leopold’s Odyssey*. The epithet for Newton’s introduction, a quotation from *The Odyssey* – “Launch out on his story, Muse… start from where you will – sing for our time too” (Newton 3) –, summarizes her view of the connection between Homer’s Muse and Leopold’s musings. As she goes on to explain: “[t]o ‘sing for our time too,’ Homer’s Muse would need to be updated and enlightened with ecological and evolutionary understandings.” (Newton, p.15) But it is not just ecology and evolution that she thinks can be imagined in Homeric terms: Leopold’s own life and times are also presented as an “odyssey” (Newton, p.5).

Continuing and modifying this tradition, the following analysis will explore the ontological and ethical implications of Leopold’s image of the land as a round river by comparing it not so much, as is traditional, with *The Odyssey*, but rather with *The Iliad*, and more specifically with Homer’s depiction in this poem of Oceanus, a primordial round river from which he thought all that is ultimately emerged. To compare Leopold’s round river with Homer’s does not of course imply that Leopold drew directly on Homer’s poems in the development of this image. Indeed, there is no reason to doubt Leopold’s statement that it was taken from what he calls the “Bunyan saga” (1953a, 158). This in turn suggests that the round river, whether of Homer, Bunyan, or Leopold, may better be understood as what the eighteenth-century Italian philosopher, Giambattista Vico (1948), calls a “*carattere poetico*” (poetic model) *or* “*universale fantastico*” (universal of the imagination). Such a view is, moreover, in keeping with the overall philosophical framework of the present article. According to Vico, *caretteri poetici* are not literary or rhetorical expressions of underlying concepts, but rather the primary and most essential forms of human thought. Moreover, Vico also holds that the first and most essential of these poetic images, at least as far as the history of the Western world is concerned, are to be found in Homer, and that it is to these primordial, Homeric images that history compels us periodically to return. As the contemporary critic, Alberto Manguel, explains:

Misunderstood or ignored by his contemporaries, Vico proposed a cyclical theory of history that began with Homer and his poetic knowledge, and eventually returned to it, in an ever-ascending spiral. Philosophers in Vico’s age offered two conflicting theories of knowledge: the first was based on evidence and argument, “the philosophy of life and existence,” while the second was centred on introspection and thought, “the philosophy of the irrational.” Vico offered a third possibility: the imagination, an independent power of mind that he called *fantasia*. Poetic images, such as those created by Homer to tell “true” stories but condemned as lies by Plato, were not “concepts in poetic cloaks.” These *universali fantastici* or “universal images born from the imagination” were to be considered on their own terms. Western philosophy had always seen these images as literary or rhetorical and, because they were not conceptual, they were regarded as “not philosophical.” In contrast, Vico took Homer’s side against Plato’s rationalism and argued for a knowledge he called *sapienza poetica* or poetic wisdom […]. (Manguel 2007, 151)

In what follows we will explore the poetic wisdom of both Homer and Leopold through a consideration of seven important aspects of the round river qua *carattere poetico*.

1. **The Round River’s Mythical or Folkloric Origin**

According to Vico, Homer did not exist as an individual, but was rather the imaginary author of poems composed collectively by the Greek people (Vico 1948, 323-328). Whether or not Vico is correct on this count, it seems fair to say that the stories recounted in *The* *Iliad* and *The* *Odyssey* belonged to popular Greek myth before they became fixed in the definitive form they possess today and which we traditionally attribute to an individual named “Homer.” A similar point also applies to the tale from which Leopold derives his image of the land as a round river: the story of Paul Bunyan’s journey around the round river originated in North American folklore before it was set down in verse.[[14]](#footnote-14) Moreover, in both cases it is clear that the round river – though presented as a naturally occurring phenomenon – did not exist in any simplistic, empirical way. Herodotus, for instance, claimed that there was no empirical evidence for a round river encircling the earth and thus denied its existence (Houlle 2010, 94-95). In the case of the Bunyan tale, by contrast, there is no need to cite lack of empirical evidence in order to deny the round river’s empirical existence: the heroism of Bunyan’s feat derives from the story’s manifest irony.[[15]](#footnote-15) In both cases, then, the round river is a mythical or folkloric invention of a people and it describes a phenomenon which it presents – with or without irony – as naturally occurring.

1. **The Round River’s Primordial Circularity**

Oceanus, as Thierry Houlle has observed, was for Homer and the tradition to which he belonged the very first of the gods: “In the Homeric tradition, Oceanus is not preceded in the genesis of the gods and of the world by any other entity” (2010, 85, my translation). Houlle further notes that Oceanus is a self-maintaining, circular flow, about whose origins nothing is explicitly stated: “The river appears perpetually maintained by its own waters, but we know nothing explicit about the origin of these waters or the existence of sources” (83, my translation). Implicit in these remarks is the idea that circularity and primordiality are essentially related: as a dynamic circular flow, Oceanus brings itself into existence; it does not, therefore, require explanation by means of some other, preceding entity that caused it to exist; it is, in a word, self-producing. Much the same is true of Leopold’s round river: it is not said to be engendered by any preceding entity; it exists *through* and *as* a dynamic circular flow, and, in that respect, it could also be said to bring itself into existence. This is not of course to claim that Leopold’s round river is a perpetual motion machine, for Leopold is obviously aware that it is powered by solar energy. Nevertheless, despite our common tendency to assume that anything describable by a noun is an “entity,” there is an important sense in which energy is not an entity possessing an identity, for it is rather the process of cancelling out a difference (gravitational, thermodynamic, chemical, etc.). In view of this, there is nothing contradictory about saying that the round river is not brought forth by some other “entity,” but rather by itself, that is to say, by its own circular flow.

**The Round River’s Primordial Fertility**

A second property common to the round rivers of both Homer and Leopold is fertility, the capacity to let emerge and thereafter carry other beings. In *The* *Iliad*, Homer explicitly describes Oceanus as “the primeval source of all that lives” (Homer 1974, 246) and the expression “Oceanus from which the gods arose” appears on multiple occasions (245, 247). From remarks such as these, Tara Showleh concludes that Oceanus was for Homer the “primeval god from whom all other gods came and from which life itself arose” (2008, 86). In a similar vein, Thierry Houlle observes that “[t]he river is called “genesis,” that which gives birth, the source of life, whether that life be of immortals or mortals; its paternity makes it the source or original principle of every being” (85, my translation). Much the same is also true of Leopold’s round river, which is quite clearly said to be the source of all fertility, and thus also of all living and human beings (and presumably also of their gods) (Leopold 1953a, 159-162).

1. **The Round River as Primordial Gatherer**

Both Homer’s Oceanus and Leopold’s Round River hold the world together, gathering the beings that emerge in their midst within a primordial unity. In Homer, this is clearly demonstrated by a scene that takes place in Book XX of *The Iliad*. As the Achaeans and Trojans prepare for battle, Zeus summons to mount Olympus all the gods but one, Oceanus. According to R.B. Onians (1951, 316), the reason for this is that Oceanus is required to “hold things together,” in which case it cannot be present as just another being, assembled together with others, as a mere part of the world. Oceanus, it would seem, is the original *logos*, the primordial gatherer whose basic logic underlies all emerging into the open and all disclosure of “things” – a word which originally designated the public assembly or agora in which infra-worldly “things” qua “matters of concern” could be openly discussed, and thereafter “categorized” (from Gk. “*cata*-,” meaning “against,” and “*agora*,” meaning “public assembly”).[[16]](#footnote-16) Moreover, the fluid, circular border within which Oceanus gathers together all mortal and immortal beings also creates a distinction between light and dark, life and death, native and foreign (Houlle 2010, 82). In *The Odyssey*, we learn that the far shore of Oceanus is the location not only of the land of the Cimmerians, of whom Homer says “[n]ever does the resplendent sun look on this people with his beams […]; dismal night overhangs these wretches always” (Homer 1980, Book XII, 128), but also of Hades, the Greek underworld and realm of the dead. A similar principle applies to Leopold’s round river. It is the round river which gathers all living beings together and whose basic, circular *logos* they can never escape. Beyond this round river – driven, like the Greek world, by the light of the sun – there lie only darkness and death. Moreover, at the scale of a single ecosystem or bioregion, the round river likewise creates a distinction between the native and the non-native, with all intrusion of the non-native constituting a possible incursion of death and destruction: “the native plants and animals kept the energy circuit open; others may or may not” (Leopold 1949a, 218).

1. **The Round River and the World**

A further commonality between the round rivers of Leopold and Homer emerges when we consider their placement within their respective images of the world: the world qua navigation of round river (Leopold) and the world as depicted on the shield of Achilles (Homer).

The opening lines of Homer’s description of the shield of Achilles speak first of all of the shield’s “shining rim” on which, in the description’s concluding lines, Hephaestus portrays Oceanus (Homer 1974, Book XVIII, 334, 337). Within the boundary of this primordial round river are four further circles, depicting various different natural and human phenomena. The natural phenomena include the earth, the sea, and the heavens (the sun, moon, and stars). And the human phenomena include agriculture (fields at harvest, vineyards, animal husbandry), artisanship (pottery), economic exchange (markets), politics (cities in war and at peace), legal proceedings (courts of town elders), stately rule (a king), and numerous festivities (music, banquets, marriages, dancing). According to Lewis Mumford, the shield of Achilles thus provides “the first adequate description of the daily round of a Greek community” (1961, 149).[[17]](#footnote-17)

Leopold’s “round river” may likewise be seen as “the first adequate description” of a modern community attuned to the basic circular flow of the land. As is the case in *The* *Iliad*, just a few pages are necessary for Leopold to depict not only the round river and the various natural phenomena that emerge within it, but also such human activities as economics, politics, statesmanship, and history, as well as – and it is perhaps here that the modern community differs most obviously from that of Homer’s time – various sciences (1953a, 159-165). Is there another image of a modern community that is comparable in both cosmological scope and poetic economy to that of Leopold’s “The Round River: A Parable”? Moreover, is it not, as in the *Iliad*, precisely the gathering *logos* of the round river that makes such a unified image of the world possible? With these questions in mind, it is interesting to note that in “Goose Music,” the text immediately following “The Round River: A Parable,” Leopold writes: “in dire necessity somebody might write another *Iliad*” (Leopold 1953b, 170). Leopold may not have written another *Iliad*, but there is a strong case for saying that out of the “dire necessity” of preserving the land from destruction he forged another shield of Achilles. On this view, Leopold is not so much a contemporary Odysseus as a contemporary Homer, a man who took perhaps the most famous folkloric story of his native country and, from that story, brought forth a world.[[18]](#footnote-18)

1. **The Round River as Parable**

In the previous section, we saw that both Homer and Leopold offer images of the world as both emerging from and gathered within a primordial round river. But does this mean that what both authors offer are ultimately “worldviews”?[[19]](#footnote-19)

The shield of Achilles may present a picture of the world, but it is also a weapon forged at a moment of “dire necessity” in the Trojan War. The Achaeans had been pushed back to their ships (Books XI to XV), their great warrior, Patroclus, slaughtered by Hector (Book XVI), and, while Achilles may for that reason have decided to enter the fray (Book XVIII), he could not do so without armor, his own having been seized by Hector from Patroclus’s corpse. Achilles’s brief appearance on the Achaean ships may have been enough to drive back the Trojans long enough to recapture Patroclus’s body (Book XVIII, 326-7), but even he could not hope to defeat Hector without “new-forged and finer arms” (Book XVIII, 325). Moreover, while the shield thus forged by Hephaestus possessed remarkable mechanical properties,[[20]](#footnote-20) it is what is on the shield that is most significant. Technology, of which Hephaestus is the divine representative, may be necessary for the Achaeans to emerge victorious[[21]](#footnote-21), but only when deployed in the service of a specific, unified image of the world. Achilles may fight with a technological masterpiece, but what he ultimately defends his people with, and at the same time fights for, is a world brought forth and held together by the round river, Oceanus, the first and foremost of the gods.[[22]](#footnote-22)

In view of this, it would seem that while Simone Weil may be right to say that Achilles embodies “pure force” (Weil 1941, 2), what makes *The* *Iliad* the greatest poem ever composed is not, as she thinks, its uncompromising presentation of force as the poem’s “true hero” (2), but rather the way that this force is deployed behind the founding image of the Greek world. Weil at one point remarks: “The extraordinary equity that inspires *The Iliad* may perhaps also exist in other works unknown to us, but it has never been imitated. One hardly notices that the poet is Greek, not Trojan.” (29, my translation) But, if *The Iliad* is seen as the “bringing forth” of the Greek world, Weil’s observation does not hold: she has confused equity with grace in victory. As the final book of *The Iliad* reveals, Homer did indeed have as much, if not more, sympathy with Priam’s sorrow for Hector as with Achilles’ sorrow for Patroclus (Book XXIV). Nevertheless, it is Achilles, an Achaean, who alone fights with and for what was destined to become the unifying Greek conception of the world. No God-given image adorned the shield of Hector, and nowhere does Homer depict the lost world of the Trojans. To what extent this world was the same as that of the Achaeans we do not know; all we know is that the world that prevailed was the one depicted on the shield of Achilles, forged by the Achaean-supporting Hephaestus, and immortalized in song by Homer, the founding poet of the West. The true hero of the *Iliad*, then, is not force, for even the unrivalled force of Achilles would have been powerless were it not deployed behind his “immortal shield.”

It is also important in this context to recall that without Oceanus “holding things together,” the gods could not have assembled on mount Olympus[[23]](#footnote-23), and thus taken sides for either the Achaeans or the Trojans, thereby putting up for decision the eventual outcome of a war that would otherwise have been a foregone conclusion.[[24]](#footnote-24) In Book XX, Zeus, having himself abstained from taking sides, says: “[b]ut you others, go into action, side with men of Troy or with Achaeans, as each has a mind to. Suppose Achilles takes the Trojans on alone: not for a minute will they hold him” (350). As long as “pure force” is to determine the outcome of events, Achilles, its unrivalled incarnation, will always prevail. By contrast, in a world held together by Oceanus, in which it is possible to assemble publicly and take sides with respect to “things,” the outcome of history becomes an open question and force alone is no longer sufficient. Indeed, when Achilles does eventually defeat Hector, it is not ultimately because of his superior force, or even because of his superior technology, but because Athena, the goddess of wisdom, takes his side (Book XXII, 388-389). And wisdom, it would seem, favours neither force nor technology alone, but rather their deployment behind a world gathered together by Oceanus, in which the outcome of “things” is held open to decision, and in which she herself can thus come into play.

In view of this reading of the shield of Achilles, *The* *Iliad* can be seen not just as the primordial Greek example of what Vico calls “poetic wisdom,” but also as containing a parable. As the etymology of the word “parable” tells us, parables work by “casting” (Gk. -*bole*) something “beside” (*para*-) something else, such that an ethics may be inferred. In *The* *Iliad*, this takes place through the forging of the shield of Achilles, an image of the world “cast beside” the world itself. And what the shield of Achilles ultimately tells us is not only that the human spheres of markets, politics, and so on, emerge from and are held together by Oceanus, but also that this poetic image is the greatest arm that anyone may possess, for it is favoured by wisdom itself. Technology may be required to forge and support it, and force may be required successfully to wield it, but ultimately only wisdom can enable it to prevail.

Leopold’s “The Round River: a Parable” also casts one thing beside another in such a way that an ethics may be inferred. Beside the prevailing view of his and our time, according to which the land is but a stockpile of economics resources, and in which human knowledge and skill have taken the path of fragmentation, analysis, and scientific specialization, Leopold casts a poetic image that aims once again to integrate and gather together the various skills and activities constitutive of contemporary human existence (science, technology, economics, politics, etc.), thanks to a common understanding of the foundation of the world as at base a round river. It is, Leopold argues, from out of this round river that all that is has emerged, and we cannot but attune ourselves to its gathering logic (*logos*) if we are to continue to exist. Leopold’s round river is of course not quite the same as Homer’s, but it likewise sings for a time of “dire necessity.” Indeed, we find ourselves at a point in history where the Greek world that first emerged in Homer’s poetry, and which today, after various historical transformations, encompasses almost the entire globe, has turned its back on the self-production of the round river and is instead heading towards self-destruction.

1. **The Concealment of Round River**

The final point that the round rivers of Homer and Leopold have in common is the way they have both been concealed. We have already seen that, for Homer, Oceanus was the very first of the gods. But this Homeric view is not generally considered authoritative. Indeed, not only has *The Iliad* not typically been interpreted as a poem whose “true hero” is the poetic wisdom of a world brought forth and held together by Oceanus, but subsequent authors have not even maintained the Homeric belief that Oceanus was the primordial deity. *The Iliad* may often be considered the founding poem of the Western world, but almost all subsequent thinkers and scholars – Plato, for example – have taken Hesiod’s *Theogony* to be the definitive source of information regarding the gods and their lineages (Houlle 2010, 86-87). And, according to Hesiod, it is not Oceanus, but Gaia, a goddess barely mentioned in *The Iliad*,who is the primordial deity.

Leopold’s image of the round river has likewise been concealed – perhaps even by its author, if it is true, as Susan Flader has suggested, that Leopold himself may have considered it unsuitable for publication. Whatever one might think about this, it is certainly the case that Leopold scholarship has tended to focus almost exclusively on his image of the land pyramid. In the broader ecological imaginary, by contrast, it is probably still the image of the balance that tends to dominate, and more specifically the image of Gaia, which now commands widespread endorsement from scientists, intellectuals[[25]](#footnote-25), and the public alike. Just as Homer’s Oceanus was eclipsed by Hesiod’s Gaia, so today it is Lovelock’s reworking of Gaia that stands in the way of Leopold’s (unwitting) reworking of Oceanus. Whether Oceanus will yet emerge from Gaia’s shadow, and the sun’s rays shine down upon and let flow the round river, remains to be seen.

**Conclusion**

The first part of this article compared three images of Leopold’s ecological imaginary – the balance, the pyramid, and the round river –, arguing that the most profound of these images is the round river, for whereas the round river is the “essence” of the land, the pyramid and the balance are but “emergent properties.” Pursuing this idea in the article’s second part, the concept of the round river was shown to correspond to a key concept that first emerged in the field of systems theory: self-production.

According to the contemporary French thinker, Edgar Morin (1977, 368), self-production can be seen as a regeneration of the pre-Socratic notion of “*physis*.” A previous article of mine (Dicks 2011) put forward a similar position, arguing that Maturana and Varela’s (1980) concept of autopoiesis can be seen as a rediscovery of the Greek notion of *physis* qua “*poiēsis en heautoi*,” as discussed by Heidegger in “The Question Concerning Technology”(1993, 317). That article further claimed that *physis* qua self-production or autopoiesis is “Being itself.” From the perspective of the present article, such a position presents a problem inasmuch as self-production or autopoiesis is a philosophical concept, not an eco-poetic image. Indeed, even when autopoiesis is interpreted as “self-poetizing” (Dicks 2011), such that its poetic dimension – its capacity to bring forth a world – is made manifest, that poetic dimension still does not attain the primordial, ontological depth of the round river qua *carettere poetico* or eco-poetic image.

With this in mind, it is important to note that Heidegger himself, in his study of Hölderlin’s *Der Rhein*, expressed the view that a true rediscovery of Being itself would involve an even more primordial experience of Being than the pre-Socratic experience of *physis*:

If today we give ourselves the task of bringing about a transformation of science as a whole, this must first be noted: science as a whole cannot transform itself, and even less can it do so by measures which aim solely to change its pedagogical system. It can only undergo transformation through another metaphysics, that is to say, through a fundamental new experience of Being. […] This fundamental experience will have to be more original than that of the Greeks, which expresses itself in the word and the concept of *physis*. (Heidegger 1980, 196, my translation)

Where this “more original” experience of Being might be found can be inferred from another passage, presented just a few pages before, in which Heidegger explains the meaning of Hölderlin’s famous verse “poetically man dwells” (*dichterisch wohnet / Der Mensch auf diese Erde*):

This means: the historical *Dasein* of a people is fundamentally carried and led by Being, which the poet, who has already experienced it, is the first to place into words and thus install within a people. This process can be summarized by saying: the poet sets forth Being. This setting forth of Being was first accomplished by Homer, whom Hölderlin calls the “poet of poets.” (Heidegger 1980, 184, my translation)

Heidegger’s position here is in keeping with the third part of the present article. The first experience of Being – more original, though akin, to the pre-Socratic experience of *physis*[[26]](#footnote-26) – was first poetized by Homer, in particular in his poetic image of the world as, in its deepest foundation, a “round river” which gathers together and lets emerge all mortal and immortal beings. From this point of view, even the concept of *physis* (self-production) is but a philosophical echo, a conceptual abstraction, of the original Greek experience of Being set forth by Homer. Several millennia later, at a time of similarly dire necessity to that of the Achaeans prior to Achilles’s decisive intervention in the Trojan War, the image of the world presented in Aldo Leopold’s “The Round River: A Parable” may be seen as a rediscovery and reworking of the original, yet historically overlooked, experience of Being first poetized by Homer. It is up to us, heirs of Homer and heirs of Leopold, to use it wisely.

**Acknowledgements**

I would like to thank Lyonnaise des Eaux for their support of the Industrial Chair: Rationalities, Uses, and Imaginaries of Water, of the Faculty of Philosophy of University Jean Moulin Lyon 3, in which this research was carried out. I would also like to thank the Aldo Leopold Foundation for their help regarding the question of the composition date of “The Round River: A Parable,” and in particular Susan Flader, Curt Meine, and Jennifer Kobylecky.

**Bibliography**

Bateson, Gregory. 1978. *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry,*

*Evolution, and Epistemology*. London: Granada Publishing.

Braungart, Michael and McDonough, William. 2009. *Cradle to Cradle: Re-Making the Way we Make*

*Things*. London: Vintage.

Callicott, J. Baird. 1989. *In Defense of the Land Ethic: Essays in Environmental Philosophy*. New York:

SUNY.

−. 1989a. The Conceptual Foundations of the Land Ethic. *In Defense of the Land Ethic*, 75-99.

−. 1989b. The Metaphysical Implications of Ecology. *In Defense of the Land Ethic*, 101-114.

−. 1989c. Animal Liberation: A Triangular Affair. *In Defense of the Land Ethic*, 15-38.

−. 1989d. Elements of an Environmental Ethic: Moral Considerability and the Biotic Community. *In*

*Defense of the Land Ethic*, 63-73.

−. 1989e. On the intrinsic value of non-human species. *In Defense of the Land Ethic*, 129-155.

−. 1989f. Leopold’s Land Aesthetic. *In Defense of the Land Ethic*, 239-247.

−. 1995. Intrinsic Value in Nature: A Metaethical Analysis. *Electronic Journal of Analytic Philosophy*, 3.

−. 2011. The Worldview Concept and Aldo Leopold’s Project of “World View” Remediation. *Journal*

*for the Study of Religion, Nature and Culture* 5 (4), 2011: 509-528.

Commoner, Barry. 1971. *The Closing Circle: Nature, Man, and Technology*. New York: Alfred Knopf.

Costanza, Robert, et al. 1997. The Value of the Worlds Ecosystem Services and Natural Capital.

*Nature*, 387: 253-259.

Dicks, Henry. 2011. The Self-Poetizing Earth: Heidegger, Santiago Theory, and Gaia Theory.

*Environmental Philosophy*,8 (1): 41-61.

Dorson, Richard. 1977. *American Folklore*. Chicago: University of Chicago Press.

Elton, Charles. 1927. *Animal Ecology*. New York: Macmillan.

Flader, Susan. 1994. *Thinking Like a Mountain: Aldo Leopold and the Evolution of an Ecological*

*Attitude Towards Deer, Wolves, and Forests*. Wisconsin: University of Wisconsin Press.

Haar, Michel. 1987. *The Song of the Earth: Heidegger and the Grounds of the History of Being*.

Indiana: Indiana University Press.

Heidegger, Martin. 1980. *Gesaumtaufgabe 2, Band 39: Hölderlin’s Hymnen“Germanien*” *und “Der*

*Rhein*”. Frankfurt: Vittorio Klosterman.

−. 1993. The Question Concerning Technology. *Basic Writings*, 311-341

−. 1995. *Being and Time*. Oxford: Blackwell.

−. 2001. Poetically man dwells. *Poetry, Language, Thought*. New York: Harper Collins, 209-227.

Homer. 1974. *The Iliad*. Trans. R. Fitzgerald. Oxford: Oxford University Press.

−. 1980. *The Odyssey*. Trans. W. Shewring. Oxford: Oxford University Press.

Houlle, Thierry. 2010. *L’Eau et la Pensée Grecque*. Paris: Harmattan.

Kalligeropolous, Demetrios and Soutlana Vasileiadou, 2008. Interpreting the Representations on the

Shield of Achilles. *Science and Technology in Homeric Epics*, ed. S. A. Paipetis, Springer 2008, 77-84.

Latour, Bruno. 1999. *Politiques de la Nature: Comment faire entrer les sciences en démocratie*. Paris,

Editions la Découverte.

−. 2011. *Waiting for Gaia: Composing the Common World through Arts and Politics*. A

Lecture at the French Institute, London (21 November).

−. 2012. *Enquête sur les modes d’existence : une anthropologie des modernes*. Paris: Editions la

Découverte.

−. 2014. Agency at the Time of the Anthropocene. *New Literary History*, 45: 1-18.

Lenton, Tim. 1998. Gaia and Natural Selection. *Nature* ,394: 439-447.

Leopold, Aldo. 1933. *Game Management*, New York: Charles Scribner’s and Sons.

−. 1943. Land as Circulatory System (unpublished manuscript dated 12 July).

−.1949a. The Land Ethic. *A Sand County Almanac* (and Sketches Here and There). Oxford: Oxford

University Press, 201-226.

−.1949b. Song of the Gavilan, *A Sand County Almanac*, 149-154.

−.1949c. Odyssey. *A Sand County Almanac*, 104-108.

−.1953a. The Round River: A Parable. *Round River*. Oxford: Oxford University Press, 158-165.

−.1953b. Goose Music. *Round River*, 166-173.

−.1991a. Some Fundamentals of Conservation in the Southwest [1923]. *The River of the Mother of*

*God and Other Essays by Aldo Leopold*, ed. S. L. Flader and J. B. Callicott. Wisconsin: The

University of Wisconsin Press, 86-97.

−.1991b. A Biotic View of Land [1939]. *The River of the Mother of God*, 266-273.

−.1991c.The Farmer as a Conservationist [1939]. *The River of the Mother of God*, 255-265.

−.1991d. Grand Game Opera [1932]. *The River of the Mother of God*, 169-172.

−.1999. Biotic Land Use. *Aldo Leopold: For the Health of the Land; Previously*

*Unpublished Essays and Other Writings*, ed. J. B. Callicott and E.T. Freyfogle. Washington: Island Press, 198-206

Leopold, Luna. 1977. *A reverence for rivers*. Keynote Address to the Governor’s Conference on the

California Drought. Los Angeles, California (March 7).

<http://eps.berkeley.edu/people/lunaleopold/(127)%20A%20Reverence%20for%20Rivers.pdf>

(consulted 30 April 2014)

Lovelock, James. 2007. *The Revenge of Gaia: Why the Earth is Fighting Back – and How We Can Still*

*Save Humanity*. London: Penguin.

−. 2009. *Gaia: A New Look at Life on Earth*. Oxford: Oxford University Press.

−. 2010. *The Vanishing Face of Gaia*. London: Penguin.

−. 2014. *A Rough Ride to the Future*. London: Penguin.

MacGillivray, James. 1906. Round River. *The Press* [Oscado, Michigan] (10 August)

Malloch, Douglas and James MacGillivray. 1914. The Round River Drive. *American Lumberman* (25

April).

Manguel, Alberto. 2007. *The Iliad and the Odyssey: A bibliography*. New York: Grove Press.

Maturana, Humberto and Francisco Varela. 1980. *Autopoiesis and Cognition: The Realization of the*

*Living*, Dordrecht: D. Reidel.

Morin, Edgar. 1977. *La Méthode: Tome 1, la Nature de la Nature*. Paris: Editions du Seuil.

−. 1990. Epistémologie de la Technique. *Science avec Conscience*. Paris: Editions du Seuil, 99-107.

Mumford, Lewis. 1961. *The City in History*. New York: Houghton Mifflin Harcourt.

Newton, Julianne L. 2006. *Aldo Leopold’s Odyssey*, Washington: Island Press.

Odum, Eugene P. 1953. Fundamentals of ecology, Philadelphia: W. B. Saunders Company.

Onians, Richard B. 1951. *The Origins of European Thought*. Cambridge: Cambridge University Press.

Paipetis, Stephanos A. 2010. *The Shield of Achilles*. Greek American News Agency (10 January).

<http://www.greekamericannewsagency.com/2010-01-19-17-52-24/2010-02-21-15-30-28/7214-the-shield-of-achilles> (consulted 30 April 2014)

Pierron, Jean-Philippe. 2009. *Penser le Développement Durable*. Paris: Ellipses.

−. 2012. *Les Puissances de l’imagination: essai sur la Fonction Ethique de l’Imagination*. Paris: Cerf.

Rolston, Holmes. 1994. Value in Nature and the Nature of Value. *Philosophy and the*

*Natural Environment*, ed. R Attfield and A. Belsey. Cambridge: Cambridge University Press, 13-30

Showleh, Taha. 2008. The River Ocean: Homer’s Cosmogony. *Science and Technology in Homeric*

*Epics*, ed. S. A. Paipetis. Springer, 85-91.

Vico, Giambattista, *The New Science of Giamattista Vico* [1725/1744], trans. T. G. Bergin and M. H.

Frisch, Ithaca and London: Cornell University Press, 1948

Weil, Simon. 1941. *L’Iliade ou le Poème de la Force*, Marseille: Cahiers du Sud.

<http://www.ebooksgratuits.com/pdf/weil_iliade.pdf> (consulted 30 April 2014)

Wiener, Norbert. 1948. *Cybernetics: Or Control and Communication in the Animal and the Machine*.

New York: The Technology Press.

Wood, Andrew J., et al. 2008. Daisyworld: A review. *Review of Geophysics*, 46 (1): 1-23.

1. For a nuanced analysis of Leopold’s overall position with respect to the *Dauerwald*, see Flader (1994). [↑](#footnote-ref-1)
2. Unlike *A Sand County* Alamanac, which was compiled by Aldo Leopold himself, *Round River* was compiled by Luna Leopold, from his father’s journals. Given that Luna Leopold was himself a renowned hydrologist, one could speculate that it was perhaps his “reverences for rivers” (L. Leopold, 1977) that led him to name the overall collection after “The Round River: A parable.” [↑](#footnote-ref-2)
3. Personal correspondence with two prominent Leopold scholars has established that “The Round River: A Parable” was most likely composed in the 1940s. Susan Flader tells me that in her copy of *Round River* she “pencilled in” the date as “circa 1941” and Curt Meine tells me that he thinks the text was “likely drafted” in the “early to mid-1940s.” [↑](#footnote-ref-3)
4. In personal correspondence, Susan Flader has expressed the view that Leopold chose not to publish “The Round River: A Parable” and that this choice is significant. To her, it suggests that, although the image of the round river would appear to have been developed after that of the land pyramid, it does not constitute an advance in his thinking, and, furthermore, that he himself may have considered the parable unsuccessful. Such a view is in keeping with the traditional privilege accorded to the land pyramid amongst Leopold readers and scholars. There are, however, other possibilities one might entertain. **Perhaps if Leopold had lived longer, he would have developed the round river image into another, subtly different view of the land fit to be published as a major statement of his “later thought.” Alternatively, perhaps Leopold wanted attention to focus on what he saw as his major philosophical innovation: the possibility of an ethical relation to the land. If he had used an image that was not well established within the science of ecology, as is the case regarding the round river, it may have proved an unwanted distraction.** [↑](#footnote-ref-4)
5. In both “The Land Ethic” and “The Round River: A Parable,” Leopold talks of a circuit of *energy*, rather than a circuit of *nutrients*. However, given that what flows around this circuit is not just energy, but also various different forms of matter that are not necessarily used by living beings for the stored energy they possess (water, minerals, etc.), the more general term “nutrients” will sometimes be employed, for it covers both the material and energetic components of the circuit. [↑](#footnote-ref-5)
6. Given the philosophical framework of this article, these “popular” views can be seen to suppose two equally erroneous ontologies. The first, *idealist* ontology holds that pyramids are in the first instance geometrical forms which may become embodied in physical reality. The second, *naturalist* ontology holds that pyramids are physical objects possessing certain qualities describable by the natural sciences. If, however, the world comes into being through the poetic imagination, it makes sense to see pyramids as what they were for the people who originally conceived them, the ancient Egyptians, from whose word “*pimar*” our own word “pyramid” derives (via the Greek *pyramis*). And for the ancient Egyptians, pyramids symbolized: (i) the “primordial mound” (*Benben*) which arose from the “primordial waters” (*Nu*); (ii) the descent of the sun’s rays, hence their association with the Sun god (*Ra*); (iii) the point of entry to the realm of the dead, hence their positioning on the West bank of the Nile, the point where the life-giving sun sets. Viewed in this light, Leopold’s land pyramid – with its origin in the round river, its dependence on solar energy, and its down-circuit of death and decay – would appear closer to the true essence of pyramids than the view that pyramids are geometrical forms or physical objects amenable to description by the natural sciences. [↑](#footnote-ref-6)
7. Further, indirect support in favour of the view that nutrient cycling is the primary ecological phenomenon comes from the field of ecological economics. Robert Costanza et al. (1997) estimate the total economic value of global ecosystem services as $33.208 trillion per year. Of theseventeen categories of ecosystem services that together make up that figure, nutrient cycling contributes $17.075 trillion per year, over half the total value. Climate regulation, by contrast, accounts for only $0.684 trillion. [↑](#footnote-ref-7)
8. It is far from clear that Gaian self-regulation necessarily emerges from self-production and self-organization. Indeed, as Tim Lenton (1994) has suggested, self-regulation may have arisen simply by chance. Translating this idea into more philosophical terms, one could say that whereas self-production is the “essence” of the land, self-regulation may be only an “accidental property.” [↑](#footnote-ref-8)
9. Lovelock is, however, aware of the difficulty of this and has thus suggested that we attempt to regulate only the temperature of cities (Lovelock 2014, 112-123). [↑](#footnote-ref-9)
10. For a similar and broadly commensurable criticism of Gaia theory, see my paper, “The Self-Poetizing Earth: Heidegger, Santiago Theory, and Gaia Theory” (Dicks 2011). [↑](#footnote-ref-10)
11. To characterize cybernetics as “linear” is obviously not to deny that cybernetic feedback implies a specific form of circular causality (see Lovelock 2009, 48), but rather that it is always in the service of some sort of linear end or *telos* (Lovelock 2010, 117-118), such that, when cybernetics is posited as fundamental, it conceals the fact that all “ends” are only isolated, abstract moments arising within deeper processes of self-production. Edgar Morin calls this characteristically cybernetic obliviousness to self-production (*physis*) the “logic of the artificial machine” (1990, 103). [↑](#footnote-ref-11)
12. In keeping with the concept of “cradle to cradle” put forward by Michael Braungart and William McDonough (2009), it is possible to conceive of nutrients as both “biological” (water, oxygen, nitrogen…) and “technical” (metals, glass, plastics…). [↑](#footnote-ref-12)
13. Heidegger’s notion of “attunement” (*Stimmung*)has been analysed extensively by Michel Haar in *The Song of the Earth* (1987). A similar notion is also present in Leopold’s work, particularly “The Song of Gavilan:” “[t]he song of a river ordinarily means the tune that waters play on rock, root, and rapid. […] This song of the waters is audible to every ear, but there is other music in these hills, by no means audible to all. To hear even a few notes of it you must first live here for a long time, and you must know the speech of hills and rivers. Then on a still night, when the campfire is low and the Pleiades have climbed over rimrocks, sit quietly and listen for a wolf to howl, and think hard of everything you have seen and try to understand. Then you may hear it – a vast pulsating harmony – its score inscribed on a thousand hills, its notes the lives and deaths of plants and animals, its rhythms spanning the seconds and the centuries” (Leopold 1949b, 149). In the second half of this text, Leopold explains how university research “dismembers” this “song of songs,” analysing the various instruments that compose it before they are “broken” under the forward march of “progress” (153-4). The detection of the song’s harmony, he observes in passing, is left to poets. (153). We live, however, in a time when poetry, as Heidegger has noted, “is either rejected as a frivolous mooning and vaporizing into the unknown, and a flight into dreamland, or is counted as a part of literature” (Heidegger 2001, 212), rather than as humanity’s primary and essential way of “dwelling.” [↑](#footnote-ref-13)
14. This idea has been contested to the extent that the oral tradition on which the written manuscripts about Paul Bunyan were based was rather slight. Indeed, the Bunyan tales would appear to be mainly the invention of journalists and advertisers (Dorson 1977, 214-215). [↑](#footnote-ref-14)
15. This is in accordance Vico’s view that irony is a specifically modern way of understanding and presenting poetic tropes (Vico 1948, 131). [↑](#footnote-ref-15)
16. For a comparable discussion of “things,” see Latour (1999, 89). [↑](#footnote-ref-16)
17. Vico, by contrast, offers a reading of the shield of Achilles, according to which it “contains the history of the world.” (Vico 1948, 228) Curiously, however, Vico’s description of this history omits all reference to Oceanus, claiming quite erroneously that the “last” thing to be portrayed on the shield of Achilles is the “history of the arts of humanity” (Vico 1948, 259). This is in keeping with the fact that Vico’s readings of Homer attribute very little significance to Oceanus. This lacuna may plausibly be accounted for by Vico’s belief that the first god to have been brought forth by the poetic imagination was Jove (Zeus). [↑](#footnote-ref-17)
18. The transition from the round river of Paul Bunyan to that of Leopold arguably corresponds to Vico’s theory of history as *corso* (flow) and *ricorso* (recurison), and thus, one might add, as itself a “round river.” For Vico, civilisation cycles through successive historical stages, the first of which is the age of the gods, the specific trope of which is metaphor, understood as *carettere poetico*, and the last of which is the age of men, in which reason prevails, the result being that poetic tropes – metaphor, metonymy, or synecdoche – are presented and understood only ironically. The transition from the irony of *Round River Drive* to the poetic wisdom of “The Round River: A Parable,” from Paul Bunyan, the “*enfant terrible*” (Leopold 1953a, 163) of modern America, to the “renaissance” of Homer’s Oceanus in “The Round River: A Parable,” could thus be interpreted as the beginning of a new cycle, or, to use an expression from Heidegger, “another beginning.” Moreover, given Leopold’s characterization of Paul Bunyan as America’s “*enfant terrible*,” it is interesting to reflect on what the Bunyan saga, as a founding story of American folklore, reveals about the nation’s ecological imaginary. Behind the ostensive irony, does *Round River Drive* not testify to the belief that the land can be exploited without restraint, that a “hundred million” trees can be felled, stockpiled in endless “pyramids” (MacGilivray 1914), and driven forever down the round river? Such an interpretation is comparable to Richard Dorson’s analysis of Paul Bunyan’s emergence and significance: “The nation demanded demigods, to reflect its massive triumphs in subduing the continent and conquering its foes, and professional writers furnished them ready made. / Paul Bunyan […] set the archetype for the twentieth-century folk-hero, a good-natured giant breathing 100 per cent Americanism and playfully tampering with man and nature.” (Dorson 1977, 216) [↑](#footnote-ref-18)
19. In a recent article, Callicott (2011) has argued that what Leopold was concerned with above all was “worldview remediation.” However, in keeping with the view expressed in “The Conceptual Foundations of the Land Ethic,” Callicott thinks that Leopold’s images are ultimately just literary or rhetorical devices whose purpose is to “express” a *fundamentally scientific* *worldview* to a lay audience, and in such a way that – in opposition to the naturalistic fallacy – values may be inferred from facts. The present article, by contrast, holds that Leopold’s image of the world as the collective navigation of round river does not conjoin objective facts (describable by science) with subjective values (whether moral, aesthetic, or spiritual) for the benefit of a lay audience, for what it rather conjoins are essences (ontology) and ways of being (ethics) in an integrated poetic image that holds for humanity as a whole. From this point of view, modern philosophy may well be correct to say that one cannot get *from facts to values*; but that does not mean that one cannot get *from essences to ways of being*, for essences, unlike facts, tell us what is primary and essential, as well as, by implication, what is secondary and inessential (or less essential), such that our ways of being may become attuned to these essences, and, in this particular instance, to the essence of the land: the round river. [↑](#footnote-ref-19)
20. As recent mechanical analysis carried out by S.A. Paipetis (2010) has shown, the shield’s layers of bronze, tin, and gold would have been better able to scatter the kinetic energy unleashed by Hector’s spear than bronze alone, the single hardest of these three metals. [↑](#footnote-ref-20)
21. It is significant that Hephaestus also sides with Achilles and the Achaeans (Homer 1974, Book XX, 351) [↑](#footnote-ref-21)
22. It is interesting to note that in the conclusion of *The New Science*, Vico likens religion to a shield which holds the world together: “if religion is lost among the peoples, they have nothing left to enable them to live in society: no shield of defense, nor means of counsel, nor basis of support, nor even a form by which they may exist in the world at all” (Vico 1948, 426). [↑](#footnote-ref-22)
23. Given the view defended in the present article, according to which the land pyramid arises from the round river, it is perhaps significant that where Oceanus allows the gods to assemble is another pyramidal structure, Mount Olympus. [↑](#footnote-ref-23)
24. This is not to say that public assembly emerges “automatically” from Oceanus. As *The Iliad* clearly tells us, Themis, under Zeus’ command,is also required for public assembly to take place (Homer Book XX, 350). [↑](#footnote-ref-24)
25. Bruno Latour (2011, 2012, 2014) is perhaps the most recent, high-profile convert to the Gaian imaginary. [↑](#footnote-ref-25)
26. Some scholars consider that the shield of Achilles was an important source of inspiration for the pre-Socratics’ understanding of the universe. Kalligeropolous and Vasileiadou, for example, describe the shield of Achilles as “a model of the universe, which deeply affected the perception of nature by the Presocratic philosophers – Anaximander, Anaxagoras, Empedocles, and later on, Plato and Aristotle” (Kalligeropolous and Vasileiadou 2008, 443). [↑](#footnote-ref-26)