

An Ecosemiotic Approach to Nature Writing¹

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Any cultural analysis must first discern and define its object. This may seem self-evident, but still needs attention, because unconscious and conscious choices made during the process of defining tend to have a significant influence on the outcome of analysis. The most apparent and often used method is to delimit an object according to some formal criteria, such as the physical body of a book, duration of a movie, or the material form of an artwork. Also, spatial-historical characteristics such as the authorship of texts or their belonging to some cultural period or geographic location are often used to determine relevant objects. If the analysis is semiotically oriented and focused on meaning relations or discursive elements, a decision must be reached on which possible associations and connotations are relevant for the study and which are not.

For ecocriticism the question of the object would appear to be especially important, because the usual objects of ecocritical study are inclined to extend beyond the sphere of cultural meanings. Nature writing, nature poetry, nature documentaries, environmental art and other objects of interest for ecocriticism would seem to relate to external structures of nature that have a semiotic activity, memory and course of change of their own. In addition to the imagination of the author, and social, ideological, cultural and psychological meanings and tensions between them, objects of ecocriticism also embrace organisms, natural communities and landscapes with their special properties and abilities to grow, communicate, learn and multiply. This characteristic feature of nature writing raises problems and methodological questions which are introduced by the following example from the Estonian tradition of nature writing.

One of the most influential figures in Estonian nature writing is Johannes Piiper, a long-time professor of zoology at the University of Tartu. He has published several collections of short nature essays, which are characterised by a very precise observational style, richness of sensory perception of nature and communication of the exact dates and names of routes or places where he wrote them. In one miniature he describes the archaic Kavilda valley in central Estonia, a long winding ravine on a plain with a small river running along its bottom.³ He portrays this area as consisting of hillsides covered in a mosaic of green and brownish fields of grain and clover, with groves of trees and bushes, and a lonely farmhouse with a shingle roof and whitewashed chimney standing in deep peaceful quietude. I have visited Kavilda. But I did not find there the landscape that Piiper described. I saw a deep valley covered with overgrown deciduous trees – birches, alders and willows, some of them fallen into the river – and a watery flood plain that was almost impossible to cross.

The reason for this difference between Piiper's writing and my experience lies in time. His Kavilda was a post-Second World War landscape (described in 1948) still largely shaped by the traditional small farms of the pre-war Estonian Republic, whereas my Kavilda (visited in 1998) was the byproduct of large-scale Soviet agriculture, which ignored any landscape unsuitable for improvement and mechanization. When I read Piiper's description, my principal reaction was amazement at how fast a forest can grow in fifty years. Consequently, it seems that the sphere of possible interpretations of nature writing does not depend only on the written text but also on the structures of nature itself, which have a memory, dynamics and course of change of their own. And if the nature outside the written text changes, its meanings can no longer be conveyed to the reader in the way they were understood by the author and his contemporaries.

Another thought-provoking issue concerning this topic is translation of nature writing. In the case of literary works it is generally held that translating is more complicated if the source culture and target culture differ to a great extent. Translating nature essays introduces another kind of difficulty. Translating becomes more complicated when the nature experience of the target culture and language is different from that of the original. For instance, in the Estonian translation of Henry David Thoreau's *Walden*, the translator Erkki Sivonen has tried to transfer the names and descriptions of animals of the original essay.⁴ The author's sensations are, however, in fact impossible to transfer because of the different nature experience of the Estonian reader. Thoreau writes about a Brown Thrasher who sings all morning at the top of a birch above a field on a local farm: "Drop it, drop it – cover it up, cover it up, – pull it up, pull it up, pull it up."⁵ In the fauna of Northern Europe this particular bird is absent; the species most closely corresponding to that description would probably be the Song Thrush, *Turdus philomelos*.⁶ The size, behaviour, song and temper of the Brown Thrasher (*Toxostoma rufum*) are, however, different from those of the Song Thrush as well as of any other bird suitable for such transference of meaning. Thus, because of the difference in nature experience, some meanings of the original literary work remain untranslatable.

These examples demonstrate that in reading nature essays, not only is the written text interpreted, but also nature with its species and landscapes is taken into account. If such association with structures originating from outside the human culture is essential to nature writing, then ecocritical analysis should also take into consideration the realm of the natural environment itself and experiences of the author and readers that connect the environment with the text. The object of ecocriticism can by no means be limited to the physical body of the book. In the search for theoretical grounds to make such an extension, the present article turns to semiotic theories, focusing especially on the emerging field of ecosemiotics and on the works of the Tartu-Moscow school of cultural semiotics.

Textuality of nature and its relevance for ecocritical analysis

The relationship between nature writing and the natural environment has been a central concern for ecocriticism, and there are several ways to approach this topic. For example, William Howarth has pointed to the ecological interactional perspective as a possibility for ecocriticism to describe relations between nature and culture.⁷ Glen Love has emphasised evolutionary relations between environment and humans' creative activities. He sees the physical world as an interpretative context for literature and literary research, which take place "within a biosphere, the part of the earth and its atmosphere in which life exists".⁸ Greg Garrard has emphasised the inherent duality of ecocritical studies, because they need "to keep one eye on the ways in which 'nature' is always in some ways culturally constructed, and the other on the fact that nature really exists."⁹ It would seem to be important for ecocriticism to argue for the existence and significance of nature as outside reality, both because of the identity of the paradigm and also for ethical reasons.¹⁰ This position is often intuitively adopted and poetically expressed, but it is much more complicated to explain this in a theoretically coherent way. Here semiotic theories, especially those that take into account semiotic processes in nature, can hopefully aid ecocriticism in finding more solid theoretical ground.

One possible direction for such a quest would be to focus on the concept of "text", despite the first impression that this concept belongs to the centre of *cultural* semiotics and theory. If we do not limit ourselves to considering the concepts of text and textual process in the narrow sense, we can observe how and to what extent these can be applied in describing the natural environment and nature experience. "Text" has been a central concept for the Tartu-Moscow school of cultural semiotics, and it has been used to signify not a written sequence of words, but rather a basic unit of culture which functions as a text, that is, which transports, as a whole, some meaning and function.¹¹ Text is the meeting ground of internal structure and external codes in the given culture, and as such, it has a memory and semiotic potential of its own. According to this view, artefacts such as national costumes or paintings or musical pieces may be texts, given that these are interpreted and valued as being significant. Consequently, the property of being a text is not immanent, but rather depends on the practices of culture, so that a text in one culture or context is not necessarily a text in another culture or context: "a poem functions as a text in the sphere of art, but does not function as a text according to the definition of the collective's scientific, religious, or legal attitudes."¹² Generally speaking, text in the sense of the Tartu-Moscow school of cultural semiotics is determined by its function.¹³

Although the central figures of the Tartu-Moscow school developed their theories in the framework of Saussurean semiology and did not pay much attention to the natural environment, there is no reason why the concept of text should not be broadened to embrace also the structures of nature.¹⁴ For this, in a given culture there needs to exist a practice of interaction with nature's structures in such a way that they become distinctively meaningful. Unlike in the case of texts of culture, here subject and addressee are principally different and in many cases there need not be any subject present at all. In this respect, texts of nature are thus similar to foreign cultural texts imported or carried over from another culture, or to historical texts which have been long forgotten and then retrieved. These may also not have a specific subject, their code is often unfamiliar and in consequence they tend to introduce cultural polyglotism.¹⁵

There are some interesting elaborations of this line of thought. The British education theorist and semiotician Andrew Stables has introduced the notion of "environment as text", and argued that the blurring of the concept of author in modern literary theory makes it possible to open the concept of text to natural phenomena. Writings by Roland Barthes, Hans-Georg Gadamer and others have engendered a view of meanings in/of texts as socially or culturally constructed. Stables notes that in landscapes the network of shared meanings extends beyond the human sphere, and that it is difficult to draw a distinction between the creative activities of humans, other life forms, and natural forces.¹⁶ How and to what extent environment functions as a text depends on the specific cultural and social tradition. In western culture, Anne W. Spirn has analysed architectural interpretations of the natural environment, emphasising many possible parallels with written texts. In her view, landscape contains "patterns of shape, structure, material, formation, and function"; it is "pragmatic, poetic, rhetorical, polemical" and can be "spoken, written, read or imagined".¹⁷ If people are illiterate or ignorant of the "language of landscape" or misinterpret it, cultural, social and environmental failures often follow.

The authorship of "environment as text" can be collective and obscure, as it is in rural landscapes where humans and various living and nonliving forces act together, or in the forest that is an outcome of living activities and interrelations of numerous different organisms. In other cases, the authorship of text-like structures in nature is much more concrete. One such example whose textual property is quite easy to accept is animal tracks.¹⁸ A professional hunter or zoologist who is literate in animal communication systems can study tracks in the snow and follow the long chase of an elk by a pack of wolves, with its unique style, dialogue, dynamics, and culmination. The names and descriptions of the participants in this event are obviously attributed by the human culture, but one must accept that the script in the snow itself is marked down by "nonhuman writers".

One may argue that such similarities between objects of nature and texts are just metaphoric and do not have any real structural foundation. And there is strong support for this claim, when we consider syntactic components or the linguistic structure of the written language and look for the parallels in natural environment, or compare human languages with animal communication systems. From the semiotic perspective presented here, human writing and nature's structures are, however, similar, because they both function as texts, that is, they are perceived, interpreted and valued. In cultures such as Estonian, Norwegian or American, where nature writing and other forms of nature representation are well developed, nature inevitably takes part in the textual communication in culture. It even seems that it is not obligatory to know the exact meaning of a natural phenomenon for it to perform as text, just as in order for a cultural artefact to act as text it is not required that its meaning is understood: "utterances circulating in a collective but not understood by it are attributed textual meaning, as occurs with fragments of phrases and texts brought from another culture, inscriptions left by a population that has already disappeared from a region, ruins of buildings of unknown purpose, or statements, introduced from another closed social group, for instance, the discourse of doctors as perceived by a patient."¹⁹

Assuming that nature has text-like characteristics, nature's objects and structures can become expressed by and related to human textual representations by meaning processes. The environmental writer David Abram has examined practices of many Native American (Amahuaca, Apache, Koyukon) and Australian traditional cultures, and he argues that in these cultures, texts and landscape are often mutually coupled. Songs and tales help to remember the properties, resources and dynamics of the landscape as well as the proper behaviour toward it, whereas the variability of landscape acts as a visual memory tool pointing to the stories, teachings and traditions

of the culture.²⁰ The same would seem to apply at least to some extent also to modern nature writing, where the written texts and the natural environment connect and intertwine in complicated ways.

I would like to quote an essay entitled "Cow Parsley" by Estonian nature writer Fred Jüssi as an example of a text that relies on structures in nature:

A sudden gust of wind made the cow parsley move. ... In its own fashion, it is quite a sun-loving plant. Thriving wildly in the gardens, it also seems a bit inexperienced, unreal, but not sad. A patch of land filled with cow parsley is truly abandoned, but it becomes sad only if you take a scythe and cut it down. Put your garden "in order". The paths that wind their way through chest-high cow parsley are delightful, especially on days when butterflies are fluttering around.²¹

"Wind", "sun", "wild", as well as "sadness", "abandon" are powerful words to use; so what connects these to a simple plant such as cow parsley? Is the writing just difficult to follow or is there some hidden layer of meaning in this text? The description of cow parsley is a "closed text" first in the sense that it presupposes that the reader is able to visualise the plant, and knows the character of cow parsley, for instance its special relationship with butterflies. Furthermore, the text expects the reader to have a specific experience of the local nature, alluding directly to Estonia's disappearing rural life with its mosaic landscapes of pastures, meadows, forests and small farmsteads. These landscapes that have had their own dynamics, stories of growth and decline are now remembered by cow parsley growing in the "truly abandoned" gardens.

A semiotically oriented ecocritical study should thus not analyse nature essays immanently, but take into account "another text" that is composed of the structures of nature, and include also humans' (writers' and readers') experience and their interrelations with both texts. From the viewpoint adhered to in this paper, a quadripartite model would seem suitable for studying nature writing. We can distinguish the following entities that are related to nature writing, and have their own semiotic activity and memory: 1) a perceivable natural environment, 2) an author of nature writing, 3) a written piece of nature writing, 4) a reader of nature writing. Mutual influences between these entities are not fixed but interactive and may form unique patterns in each and every case. For example, if the nature experience of the reader differs greatly from that of the author, the coupling between the written text and the natural environment becomes an obstacle for understanding the nature writing. For instance, the reading of a nature essay about a specific place such as Thoreau's Walden Pond is very different if: 1) the reader is a local of the Concord region; 2) the reader has visited the region (and if it happened in spring or in autumn); or 3) the reader does not have any personal experience with the place (or even with forests and landscapes of the temperate climate zone). In the last of these scenarios, the essay may inspire the reader to visit the Walden area, in which case the reading experience will have produced certain expectations concerning the real experience and the reader may, for instance, even be disappointed because the real Walden seems much less "natural" than Thoreau's Walden.

Interpreting meanings of nature

In the above, the textuality of natural phenomena has been brought out and possibilities for written text to function in relation to natural phenomena have been exemplified. Such description, however, is quite static. To obtain a more dynamic picture, we also need to study interpretation strategies that can be used to make a connection with nature. This kind of approach becomes possible in a semiotic paradigm that does not consider meaning processes as a distinctive feature of human culture, but holds the view that they can connect structures of very different nature and origin. This understanding is present in Charles S. Peirce's concept of semiosis, understood as sign process where something (sign) stands to somebody for something else (object) in some respect or capacity (interpretant).²² Such a sign can be a textual entity of culture such as a sentence in a nature essay, but it may also have a natural origin such as tracks indicating the presence of an animal in respect of the knowledge of its species (for future discussion let us assume it is an elk). In the context of this article, Peirce's concept of "object" becomes essential, as it covers the entities we aim to describe when talking or writing about nature. Peirce's object can be anything that a sign can stand for, from an imaginable abstract idea to perceptible objects of the physical world. Peirce also distinguishes between immediate object and dynamic object, indicating the object first

as part of the sign and secondly as an entity outside of the sign that somehow contrives for the particular sign to appear.²³ In the example of animal tracks, the immediate object would be the knowledge of an elk as it appears to us by looking at the tracks, and the dynamic object would be the elk as it is, or the elk as the sum of all other experiences of it.

The existence of different meanings in and attributed to nature forms part of the subject matter of ecosemiotics, a branch of semiotics which emerged in the 1990s.²⁴ The scope of ecosemiotics can be expressed as a study of semiotic relations between an organism and its environment,²⁵ various interpretations and representations of nature,²⁶ communicative processes between human culture and living nature and problems in these,²⁷ or a culture's relations with the local environment.²⁸ Ecosemiotics can also be described according to three basic dimensions of semiotics: "It includes nature's structure as it appears, its classification (syntactics); it describes what it means for people, what there is in nature (semantics); and it finds out the personal or social relation to the components of nature, which can be one's participation in nature (pragmatics)."²⁹

Ecosemiotics can differentiate our relationships with nature by asking what kind of meaning processes are involved in nature experience, what meanings they generate, and how these meanings can be categorised. By acknowledging semiotic processes outside human culture, ecosemiotics can also highlight animal aspects of our interpretation processes. A distinction between natural and cultural signs was first made already by St Augustine: He distinguished between natural signs, which lead to the knowledge of something else apart from any intention or desire of using them as signs (such as smoke indicating fire or animal footprints the presence of animal), and given signs or conventional signs that bear their meaning in intentional communication by the use of language and other human sign systems.³⁰ There are many other typologies that are useful for ecosemiotics, such as Peirce's well-known distinction between icons as signs based on likeness or similarity, indexes as signs based on physical relation and symbols as arbitrary signs.³¹ This typology can be used to draw attention to simpler levels of semiotic processes, as iconic and indexical sign-relations are the foremost characteristic of animal communication. In his study about Amazon Indians, the Swedish anthropologist and ecosemiotician Alf Hornborg introduced a distinction between sensory, linguistic and economic signs. Besides linguistic signs operating on the level of human language, he writes about economic signs that regulate movements of artefacts, people, resources, and exchange values, and sensory signs that maintain interactions between human and nonhuman organisms. Sensory signs include myriads of "sensations of the eye, ear, nose, tongue, and skin, only a fraction of which have been reflected upon and assigned linguistic categories".³²

Professor of biosemiotics at the University of Tartu, Kalevi Kull has compiled a general ecosemiotic typology for analysing different meaning layers of nature. Elaborating on Jakob von Uexküll's *Umwelt*-theory, he distinguishes four types of natures based on their accessibility and disturbance: "Zero nature is nature itself (e.g., absolute wilderness). First nature is the nature as we see, identify, describe and interpret it. Second nature is the nature which we have materially interpreted, this is materially translated nature, i.e. a changed nature, a produced nature. Third nature is a virtual nature, as it exists in art and science."³³ This typology describes physical as well as representational processes on the culture-nature scale and enables us to analyse various relations between culture and nature, from representations of wilderness (0) to wastelands (2), from learning and knowing (1) to changing nature through processes of cultivation, contamination and restoration (2), but also the creation of many abstract simulacra of nature (3) as "interpretation of interpretation, the translation of translation, the image of image of nature."³⁴ This processual typology is best suited for describing the culturisation of nature, the replacing of authentic structures and representations with culturally changed and mediated ones. A significant outcome of this study is the understanding that perception of nature leads easily to modification of nature because of recognising, using oppositions, decontextualising, assigning value, and other strategies that we use in interpretation.

The position of nature writing remains ambiguous here. First, it can be regarded as a process of transformation from lower to higher types of nature by human action. At the same time, nature writing is a representational phenomenon and as such it includes and reflects different types of nature with their interrelations and transformations. Nature writing includes cultural or scientific understandings (folk beliefs, terminology and facts about nature) and personal recollections (previous experiences, reflections and

mental pictures), whose occurrence, distribution and dynamics can be analysed. Besides those pervasively “cultural” layers of meanings we can also search for traces of more simple “animal” meanings in the form of physical cause-effect relations and spatial relations, multi-sensory and bodily experiences (what was heard, touched, smelled, etc.).

The existence of different types of meaning process related to nature becomes evident from the dispute between the representatives of the Tartu-Moscow school and the American semiotician Thomas A. Sebeok regarding primary and secondary modelling systems. The Tartu-Moscow school has considered natural language to be the primary modelling system. Complex cultural phenomena (literature, art, music, film, myth, religion) are regarded as secondary modelling systems, because these are derived and built upon natural language.³⁵

Thomas A. Sebeok has argued against such categorisation, claiming that natural language is both ontogenetically and phylogenetically preceded by yet another modelling system – the-world-as-perceived, where signs are distinguished by the organism’s species-specific sensory apparatus and nervous system and aligned with its behavioural resources and motor events.³⁶ The existence of this primary modelling system is hard to notice for humans, because we are born into it (which makes it self-evident) and also because it is later to a large extent overwritten by the system of conventional meanings. The existence and properties of the-world-as-perceived become, however, more apparent if the perceptual possibilities and communication systems of different species are studied. According to Sebeok, humans possess two mutually sustaining modelling systems – the anthroposemiotic verbal, which is unique to the human species, and the zoosemiotic nonverbal, which unites us with the world of nonhuman animals.³⁷ Direct and spatial perceptions, tactile and smelling sensations as well as many occurrences of nonverbal communication between humans belong to the sphere of nonverbal modelling. Language resources are often insufficient for describing these kinds of phenomena, but it is certainly possible (and often done) to express these kinds of sensations by textual means.

Zoosemiotic nonverbal modelling enables communicative relations between humans and animals, as it relies on the biological foundations which are common to humans and many animals.³⁸ Similarities which make the occurrence of meaningful relations between humans and animals possible lie in morphology (bilateral symmetry, positions of limbs, body and face), perception (concordance in sense organs, communication channels and diapasons), basic needs and dispositions (need for food, water, shelter, avoidance of accidents, pain and death), being subjected to the same physical forces (gravity), inhabiting the same environment and relating with it, etc. An efficient possibility of zoosemiotic communication is imitation, as manifested in mimicking the grimaces or sounds, or in learning the behaviour of others by observing and repeating it. In nature writing, imitative representations may appear for instance in cases where the forms and rhythms of bird song are expressed by the means of human language.

An important realisation of the ecosemiotic approach is that nature as an object of human modelling is not empty or indifferent, without any semiotic activity in itself. Rather, nature – as we perceive it on our visits to the wild – is a result of numerous interpretative practices, it has changed and been remade countless times before us, it is filled with various signs, meanings and signals for and by other living beings. The Baltic-German biologist Jakob von Uexküll described nature as a composition of various interrelated subjective worlds or environments. For introducing these worlds he uses the term *Umwelt*, denoting a species-specific sphere, constructed by the subjects and governed by meanings.³⁹ Usable objects or other living beings in the surrounding environment are taken into an animal’s *Umwelt* by functional cycles of perception and action (*Funktionskreis*) according with the plan of body structures and meanings for the animal. The same object can obtain very different roles in *Umwelten* of different organisms: for instance, flowers are decorative elements for a human, paths for an ant, building materials for a cicada-larva and fodder for a cow.⁴⁰ In principle, this approach means that the position of the subject in semiotic and literary processes is permitted to be occupied also by other living beings and forces of nature.

The natural environment is filled with ecological relations between different organisms. Some of them are plainly physical, such as the adaptations of plants to accumulate light and water, but many clearly also include a communicative aspect, for instance various interplays between predators and prey-animals or species-mates in the same flock or herd. A potential author or reader of nature writing who visits the wild becomes surrounded by this multitude of dialogues. He/she is constantly turned to, at

least in the form of tweeting warblers, biting mosquitoes or some suddenly emerging larger animal. If a human settles down in a natural environment for a longer time, nature opens itself up to him/her in the form of many animals searching for food, a mate or nesting place, being curious and avoiding danger, growing and migrating, competing or cooperating.

Here the cases where the dialogic situations between the author or other humans and animals are depicted in nature writing deserve special attention, as they express possible relations between the human cultural semiotic sphere and nature's other semiotic spheres. It should be noted that communication in the form of transmitted messages and shared vocabulary is not necessary for a dialogic relation to occur with nature. A dialogue can also take place using utterances in the form of actions. Actions are part of various communicative relations between humans and animals, for instance stroking a cat, feeding wild birds in winter, milking a cow, going for a walk with one's dog, etc. These situations can be considered dialogic if transmitted messages and actions respond to each other and carry meanings in the *Umwelten* of both participants. Even if in the beginning there is no common language between participants, mutual communication by actions and responses tends to lead to learning and getting to know each other.

A question that ecosemiotics would like ecocriticism to answer is to what extent and in what forms these dialogues with and approaches from foreign sign systems are presented in nature writing. Has the author listened and understood the "languages of nature"; has he/she regarded it significant to share the utterances of other living beings with the reader and to what extent have his/her perceptions of animal communication later been overwritten by cultural meanings? In practical analysis these questions may manifest as, for instance, the relationship between anthropomorphism and subject-centredness, where the former is understood as the projecting of characteristics and problems of human nature and society onto the animal world and the latter as the appreciating and valuing of other living beings in themselves and translating their life into human language as adequately as possible.

Conclusions

The starting point of this article was an understanding that nature can have text-like characteristics. This is firstly because of the inherent structures of trees, animal bodies, landscapes and other nature's phenomena, which allow function and meaning to be associated with these by human culture. Secondly, nature in itself is not semiotically void – it includes living organisms that perceive and communicate with one another and is therefore filled with semiotic activity that takes place in various semiotic spheres and sign systems. Such nature has its own activity, memory and course of change.

Against such a background, nature writing cannot help but rely on nature's structures and meanings, use them, cite them, point to them. From a semiotic perspective, nature writing becomes a two-fold structure, with part of its meanings presented in the written text and part of them remaining in the natural environment. Writing and reading such a text becomes a relational process, as not all details concerning the climate, landforms and organisms need to be written down. Many meanings of nature writing remain in nature and are read from nature. This peculiarity becomes visible in such cases when the connection between a nature essay and the respective natural environment is disrupted due to the changes in natural environment or due to transporting the nature writing from one culture to another through translation. In such cases the nature writing may become a "closed text". Therefore, the ecosemiotic approach presented in this article argues for the need to develop methodologies that would enable analyses of nature writing in relation to local natural environments.

Another semiotic insight concerns the diversity of meaning processes that humans use to establish relations with nature. Besides conventional cultural meanings of nature, such as natural symbols, romantic allegories or even common descriptions of animals and plants, there are also much more immediate meanings and meaning processes present in nature experience. These include spatial relations, multi-sensory and bodily experiences, biological needs, cause-effect relations and others. Awareness that, more than just cultural beings capable of thought, language and cognition, we are also living organisms with an evolutionary background and experience gives us reason to search for those more subtle meanings. And where else but in relation to nature could our ancient interpretative capabilities occur? Where else but in the natural environment

would we become more aware of our biological existence and different senses, capabilities and limits of our organism?

Compared to such direct nature experience, nature writing has an ambivalent position. On the one hand it is nature experience filtered by culture and marked down using conventional means of language. On the other hand nature writing is a representational phenomenon that includes many types of meanings. Nature writing can thus also contain traces of simple sign relations and interpretation practices that tend to become buried under layers of symbolic and conventional meanings in more "culturalised" types of texts. Developing a methodology for analysis and studying traces of these nonverbal modelling strategies in nature essays can be regarded as a promising future direction for an ecosemiotic approach to nature writing.

Notes

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3. J. Piiper (1972), *Rännakuid Eesti radadel II. (Wanderings in Estonia II)*, Eesti Raamat, Tallinn, p. 71.
4. H.D. Thoreau (1994), *Walden ehk elu metsas (Walden or, Life in the Woods)*, E. Sivonen (trans), Hortus Litterarum, Tallinn.
5. H.D. Thoreau (1893), *Walden or, Life in the Woods* (= Riverside Edition. The Writings of Henry David Thoreau. Vol. 2), Houghton Mifflin, Boston, p. 246.
6. The emphasis here is on the Song Thrush's habit of singing for a long period at a time, singing in the treetops and repeating syllables. In addition, in Estonian folk tradition the Song Thrush was one of many species associated with working in farm fields (M. Mäger (1994), *Linnud rahva keeles ja meeles. (Birds in Language and Folklore)* 2, Koolibri, Tallinn, pp. 48-49).
7. W. Howarth (1996), "Some Principles of Ecocriticism" in C. Glotfelty & H. Fromm (eds), *The Ecocriticism Reader: Landmarks in Literary Ecology*, University of Georgia Press, Athens, GA. pp. 71-76.
8. G.A. Love (2003), *Practical Ecocriticism: Literature, Biology, and the Environment*, University of Virginia Press, Charlottesville, p. 16.
9. G. Garrard (2004), *Ecocriticism*, Routledge, London, p. 10.
10. For discussion see C. Grewe-Volpp (2006), "Nature 'Out There' and as 'A Social Player': Some Basic Consequences for a Literary Ecocritical Analysis" in C. Gersdorf & S. Mayer (eds), *Nature in Literary and Cultural Studies: Transatlantic Conversations on Ecocriticism*, Rodopi, Amsterdam, pp. 71-86.
11. See V.V. Ivanov, J.M. Lotman, A.M. Pjatigorski, V.N. Toporov & B.A. Uspenskij (1998), Тезисы к семиотическому изучению культур. *Theses on the Semiotic Study of Cultures*. Kultuurisemiootika teesid. S. Salupere (trans), Ü. Pärli (ed), Tartu Ülikool, semiootika osakond, Tartu, p. 38.
12. J.M. Lotman, Juri M. & A.M. Pjatigorskij (1977), "Text and Function" in D. P. Lucid (ed, trans), *Soviet Semiotics. An Anthology*, John Hopkins University Press, Baltimore, p. 127.
13. See J.M. Lotman (1977), "Problems in the Typology of Texts" in D. P. Lucid (ed, trans), *Soviet Semiotics. An Anthology*, John Hopkins University Press, Baltimore, pp. 119-120.
14. The full potential of the notion "text" is certainly expressed in describing the structures and processes of human culture. According to J. M. Lotman, a text can fulfil the following social-communicative functions: contact between the sender and the addressee; contact between the audience and the cultural tradition; contact of the reader with his/her own self; contact of the reader with the text; contact between the text and the cultural context (J.M. Lotman (1981), "Семиотика культуры и понятие текста" ("The Semiotics of Culture and the Concept of 'Text'"), Структура и семиотика художественного текста. Труды по знаковым системам (*Structure and Semiotics of the Artistic Text. Sign Systems Studies*) 12 (=Ученые записки Тартуского университета 515), Тартуский университет, Тарту, стр. 3-7, p. 6). At the same time the notion of "text" has also been used in the Tartu-Moscow school in a much wider sense. B. A. Uspenskij has considered it suitable for describing human linguistic, paralinguistic and kinetic behaviour (B.A. Uspenskij (1966), "Персоналогические проблемы в лингвистическом аспекте" ("Personological Problems from a Linguistic Aspect") in Тезисы докладов во второй летней школе по вторичным моделирующим системам (*Theses of the Second Summer School for Secondary Modelling Systems*) 16.-26. августа 1966, Тарту. стр. 6-12, p. 6). M. B. Yampolsky has written of natural or physiognomic texts, which manifest in a connection between a part of the culture that is fixed in conventional language and the reality of world. Such text is "created" in the language of the physically justified connections whereas its interpretation remains problematic because of the absence of an effective code of reading (M.B. Yampolsky (1989), "Зоофизиогномика в системе культуры" ("Zoophysiognomy in the System of Culture") in Труды по знаковым системам (*Sign Systems Studies*) 23 (= Ученые записки Тартуского университета 855), Тартуский университет, Тарту, стр. 63-79, p. 63).

15. See V.V. Ivanov, J.M. Lotman, A.M. Pjatigorski, V.N. Toporov & B.A. Uspenskij (1998), Тезисы к семиотическому изучению культур. *Theses on the Semiotic Study of Cultures. Kultuurisemiootika teesid*. S. Salupere (trans), Ü. Pärli (ed), Tartu Ülikool, semiootika osakond, Tartu, p. 44.
16. A. Stables (1997), "The Landscape and the 'Death of the Author'," *Canadian Journal of Environmental Education*, 2, pp. 104-13.
17. A.W. Spirn (1998), *The Language of Landscape*, Yale University Press, New Haven, p. 15.
18. For semiotic approaches see G.W. Hewes (1994), "Evolution of Human Semiosis and the Reading of Animal Tracks" in W. Nöth (ed), *Origins of Semiosis, Sign Evolution in Nature and Culture*, Mouton de Gruyter, Berlin, pp. 139-49; E. Vladimirova & J. Mozgovoy (2003), "Sign Field Theory and Tracking Techniques Used in Studies of Small Carnivorous Mammals," *Evolution and Cognition*, 9 (1), pp. 1-17.
19. J.M. Lotman, Juri M. & A.M. Pjatigorski (1977), "Text and Function" in D. P. Lucid (ed, trans), *Soviet Semiotics: An Anthology*, John Hopkins University Press, Baltimore, p. 129.
20. E.g. D. Abram (1996), *The Spell of the Sensuous*, Vintage, New York, pp. 175-77.
21. F. Jüssi (2001), "Cow Parsley," *Estonian Literary Magazine*, 13, p. 11.
22. C.S. Peirce (1994), *The Collected Papers of Charles Sanders Peirce*. Electronic version (Folio Bound Views), vols. 1-6, C. Hartshorne & P. Weiss (eds), vols. 7-8, A.W. Burks (ed), Harvard University Press, Cambridge, MA, par. 2: 228.
23. *Ibid.*, par. 8: 314.
24. See W. Nöth (1996), "Ökosemiotik", *Zeitschrift für Semiotik*, 18 (1), pp. 7-18; G. Tembrock (1997), "Ökosemiose" in R. Posner, K. Röbering & T.A. Sebeok (eds), *Semiotik. Ein Handbuch zu den zeichentheoretischen Grundlagen von Natur und Kultur / Semiotics. A Handbook on the Sign-Theoretic Foundations of Nature and Culture 1*, Walter de Gruyter, Berlin, pp. 571-90; and K. Kull (1998), "Semiotic Ecology: Different Natures in the Semiosphere," *Sign Systems Studies*, 26, pp. 344-71.
25. W. Nöth (2001), "Ecosemiotics and the Semiotics of Nature," *Sign Systems Studies*, 29 (1), pp. 71-82.
26. E.g. I.G. Simmons (1993), *Interpreting Nature: Cultural Constructions of the Environment*, Routledge, London.
27. J. Hoffmeyer (1996), *Signs of Meaning in the Universe*. B. J. Haveland (trans), Indiana University Press, Bloomington, p. 96; R. Keskaik (2003), "Loodus kui sõnum: mis on ökosemiootiline vaade loodusele?" ("Nature as a Message: What is an Ecosemiotic View of Nature?"), *Looduskaitsealaseid töid 7*, Tartu Üliõpilaste Looduskaitsering, Tartu, p. 49.
28. T. Maran (2002), "Ecosemiotic Basis of Locality / Lokaalsuse ökosemiootilised alused" in V. Sarapik, K. Tüür & M. Laanemets (eds), *Koht ja paik / Place and Location II* (= *Eesti Kunstiakadeemia Toimetised 10*), Eesti Kunstiakadeemia, Tallinn. pp. 68-80, 81-92.
29. K. Kull (1998), "Semiotic Ecology: Different Natures in the Semiosphere," *Sign Systems Studies*, 26, p. 351.
30. Augustine (1996), *De Doctrina Christiana*, R. P. H. Green (ed), Oxford University Press, Oxford, par. II: 2, 3; pp. 56-59.
31. C.S. Peirce (1994), *The Collected Papers of Charles Sanders Peirce*, op. cit., par. 2: 247-249.
32. A. Hornborg (2001), "Vital Signs: An Ecosemiotic Perspective on the Human Ecology of Amazonia," *Sign Systems Studies*, 29 (1), p. 128.
33. K. Kull (1998), "Semiotic Ecology: Different Natures in the Semiosphere," *Sign Systems Studies*, 26, p. 355. The distinction between first and second nature has a long history (dating back to at least Cicero, see Cicero (2003), *De Natura Deorum*. Liber 1. Cambridge Greek and Latin Classics, A. R. Dyck (ed), Cambridge University Press, Cambridge, par. LX) and many ramifications. Kalevi Kull elaborates this distinction into a quadripartite typology and gives it a strong theoretical and semiotic foundation.
34. K. Kull (1998), "Semiotic Ecology: Different Natures in the Semiosphere," *Sign Systems Studies*, 26, p. 355.
35. E.g. J.M. Lotman (2000), *Universe of the Mind: A Semiotic Theory of Culture*. A. Shukman (trans), Indiana University Press, Bloomington, pp. 47-48.
36. T.A. Sebeok (1988), "In What Sense Is Language a Primary Modeling System?" in H. Bross & R. Kaufmann (eds), *Semiotics of Culture*. Proceedings of the 25th Symposium of the Tartu-Moscow School of Semiotics, Imatra, Finland, 27-29 July 1987, Arator, Helsinki, pp. 67-80, p. 73-74. This dispute ran in parallel to the discussion about the semiotic threshold as the simplest level of organisation where semiotic processes can still occur. Umberto Eco, the author of the concept, draws the line between human culture and nature; many representatives of biosemiotic views (Thomas A. Sebeok, Jesper Hoffmeyer) have emphasised the interconnectedness of sign processes and life processes, whereas pansemiotic views, proceeding from the writings of Charles S. Peirce, allow a lowering of the threshold to comprise also physical and chemical processes (see W. Nöth (2000), "Umberto Eco's Semiotic Threshold," *Sign Systems Studies*, 28, pp. 49-61).
37. T.A. Sebeok (1988), "In What Sense Is Language a Primary Modeling System?", op. cit., pp. 73-74.
38. T.A. Sebeok (1990), "Zoosemiotic Components of Human Communication" in T.A. Sebeok, *Essays in Zoosemiotics* (= Monograph Series of the TSC 5), Toronto Semiotic Circle, Victoria College in the University of Toronto, Toronto, pp. 48-75.
39. J. von Uexküll (1982), "Theory of Meaning," *Semiotica*, 42 (1), pp. 26-33.
40. *Ibid.*, p. 31.