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ENVIRONMENTAL LITERACY

Basically, environmental literacy means that you can both 'read' your environment and 'write' on it. That means: 1) that you perceive harmful developments in your environment, and 2) you react to destructive changes either by preventing or by mending them. Your goal is sustainability.

The term 'environmental literacy' first appeared within international educational studies in the 1960s (Hsu & Roth 1998, 249). Environmental historians adopted it some forty years later. In 1974, the educational psychologist Thomas David wrote that environmental literacy is:

an increased sensitivity to the environment on several levels of experience coupled with an active, problem-seeking attitude toward the physical environment, and the ability to modify one's environment to respond to one's own definition of function, in collaboration with others. (David 1974, 704).

Thus, environmental literacy is an organized way of thinking about the environment in relation to knowledge, understanding, attitudes, and active involvement.

Within educational studies there have been debates over what 'environmental literacy' means, and how you can read and write it. Anthropologists and geographers have discussed different kinds of knowledge and the possibilities to apply them to environmental literacy research. (Stables & Bishop 2001; Gayford 2002; McGregor 2004. For more on the concept of Environmental literacy, see Milton 1997; Niemi 2005; Hares *et al.* 2006.¹)

Anthropologist Charles Maisels has suggested that, 'different social categories have different relationships to the environment, more or less buffered, and/or they relate to different facets of the environment, that is, exploit essentially different environments' (Maisels 1990, 17). Thus, people read their environment in different ways at different points in time and in different cultures. Everyone sees her own surroundings in a familiar way, as a member of her own community, culture and time: the environment is a part of the culture within which it is read. Environmental knowledge reflects the local circumstances on

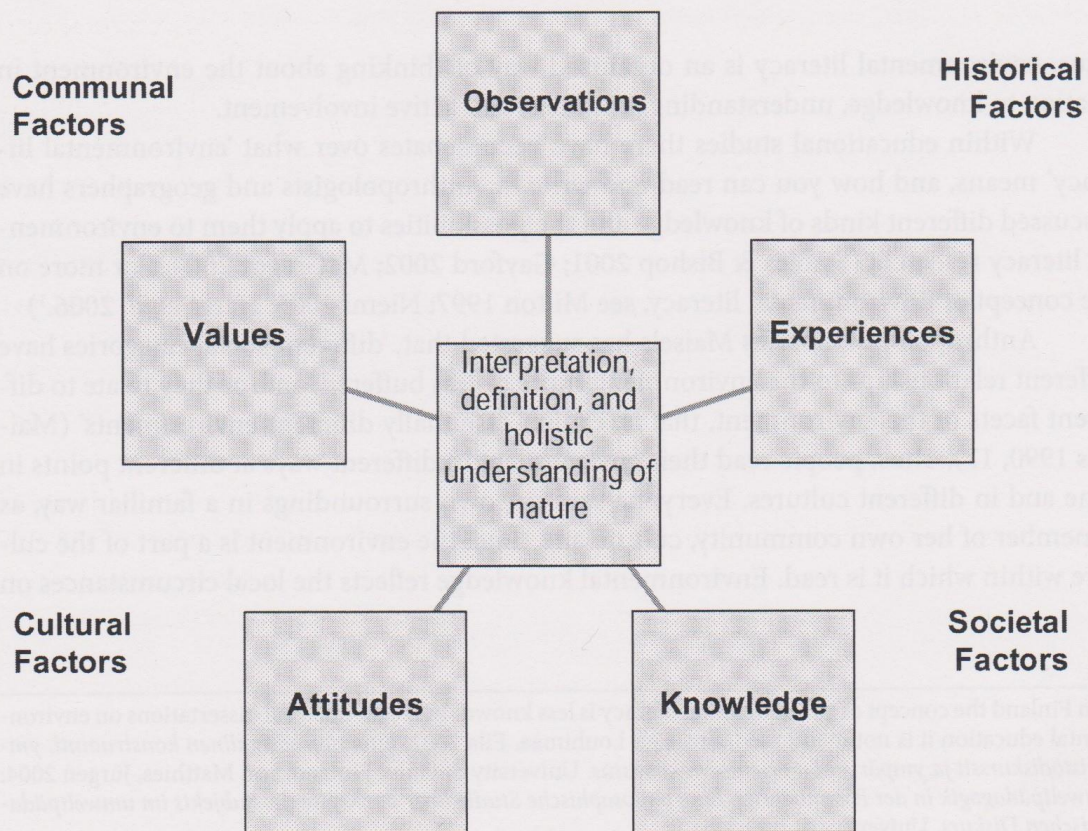
¹ In Finland the concept of environmental literacy is less known. In recent doctoral dissertations on environmental education it is not mentioned. See, e.g., Louhimaa, Eila 2002: *Luonnon sosiaalinen konstruointi, ympäristödiskurssit ja ympäristöön orientoiva kasvatus*. University of Oulu, Finland, and Matthies, Jürgen 2004: *Umweltpädagogik in der Postmoderne. Eine philosophische Studie über die Kreise des Subjekts im umweltpädagogischen Diskurs*. University of Jyväskylä.)

which the everyday livelihood of inhabitants depends. Some knowledge is relevant everywhere, some knowledge is particular to a certain place, area or region.

A child learns environmental literacy from her parents, other older persons and peers through the process of enculturation. It is not an inherited skill but a learning process that continues throughout the individual's whole life. It requires a profound understanding of the systems of the natural world, the relationships and interactions between the living and non-living environment. It varies between individuals depending, for instance, on age, gender, education, profession or occupation, social position, political ideology, and dwelling place.

'The way we view the natural world is culturally determined', says Professor Emeritus in Ecology Frank B. Golley. For instance, a person from a Euro-American culture may see forests as having only a monetary value and fail to see any of the other properties of the forests. He observes only the highly valued cultural attributes, including the accumulation of money and expression of power over nature and other humans, without recognizing the destruction of other properties and values within the system. With a slight shift in purpose

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or goal, however, he may see them differently. If he looks around from an ecological perspective, he understands that natural organisms are unique products of natural selection, evolution, and ecological interaction. The linkage of apparent objects into complex systems of interaction is essential to the analysis. By moving back and forth across different levels of explanation, the observer may focus on individual objects, wholes, and linkages. A complete explanation involves all of these perspectives. (Golley 1998, 67–8.)

Besides articles on the subject, important books include, *Ecological Literacy. Education and the Transition to a Postmodern World* (1992) by Professor of Environmental Studies David W. Orr and *A Primer for Environmental Literacy* (1998) by Frank B Golley. Orr is responding to the crisis of sustainability looming before the modern world and what that portends for the theory and practice of education. Golley derives his information from the environmental sciences, ecology, anthropology, biology, and human ecology. Both scholars argue that environmental literacy connotes more than knowing the names of the organisms and understanding geomorphology. They emphasize that you should feel the landscape through all your senses. This feeling of place distinguishes each site and makes a place special and memorable. (Golley 1998, ix; Orr 1992, ix.) Their ideas are close to Yi-Fu Tuan's notion of 'topophilia', the affective bond between people and place or setting (Tuan 1974, 4). Large numbers of books have been written on 'place' and 'space'. In various studies place is considered as a text to be read. (See for instance Adams *et al.* 2001, xiii–xxxiii). So reading places resembles environmental literacy.

The concept of environmental literacy is very close to that of environmental consciousness. Both are based on a combination of observations, experiences, knowledge, attitudes, and values, which together result in an interpretation, definition and a holistic understanding of nature and the problems in it. According to J. Kortelainen, the second level of environmental consciousness deals with your attitudes and sentiments concerning the information you gain from your environment. The very same information creates diverse experiences depending on your interests, values, and worldview. At the third level of environmental consciousness, you respond to your environmental perceptions and act or plan to act according to your knowledge and attitudes. (Kortelainen 1994, 109, 10–11.)

A case study on environmental literacy: Adolf Erik Nordenskiöld (1832–1901)

Most environmental history studies use environmental literacy to analyze the contemporary environment (Eskonheimo 2006; Hares 2006). The researchers have made field studies and conducted interviews among certain groups of people. My approach is different. I use the concept of environmental literacy while studying a particular historical individual. Donald Worster has stated:

At the smallest scale the subject of environmental history is the individual person interacting with nature over time. But the difficulties of explaining change or developments even at the level of the person are many. Biography should offer an im-

portant lesson for others as they try to explain why change occurs over time or what motivates whole communities, nations, or generations to behave toward the earth as they do. (Worster 15.9.2005).

My case is (Nils) Adolf Erik Nordenskiöld, a Finnish-Swedish explorer and scientist. He is usually known in the international literature as Nils Nordenskiöld. But he, his family and all his friends used the name Adolf. (The biographical information of this article is based on his autobiography: Nordenskiöld 1877.)

In an essay written in 1880, Nordenskiöld expressed his anxiety about the future of nature, which was threatened by the overwhelming new technology. He was the first person who publicly suggested establishing national parks in the Nordic countries. Gradually his idea spread and the first national parks were founded in the Nordic countries at the beginning of the twentieth century exactly in the way he suggested. He motivated his contemporaries to perceive and treat their environment in a new way. Nowadays he is considered to be one of the initiators of Finnish nature conservation.

I examine Nordenskiöld's texts, that is his books, letters, diaries, notebooks, and so on, and search them for signs of the development of his environmental literacy. Nordenskiöld's rich, unpublished, and almost unexplored documents are kept in Stockholm, Sweden, in the Center for History of Science at the Royal Swedish Academy of Sciences. I also try to find clues to persons and texts that possibly influenced Nordenskiöld. Thanks to his wide social network, he most probably adopted environmental ideas and opinions from numerous sources.

Adolf Erik Nordenskiöld was born into a Finnish noble family in 1832. At that time Finland was a part of the Russian empire. The family lived in the manor house Frugård, in Mäntsälä in southern Finland. At the family estate young Nordenskiöld had excellent opportunities to observe nature very closely and thoroughly. Besides, the family had an extensive library with numerous natural scientific books. His father, Nils Gustav Nordenskiöld (1792–1866), was an internationally recognized scientist and Chief Director of Mining in Finland who travelled widely in his own country and throughout Europe. From early on, Adolf Erik often accompanied his father on expeditions to interesting mineralogical sites. Thus, he gained a sharp and reliable eye for identifying minerals. This skill was very important later in his life.

'Environmental literacy begins with experience of the environment,' Golley states. He continues: 'To build environmental literacy, it is necessary to go beyond books and libraries and experience nature directly.' (Golley 1998, ix–x.) Nordenskiöld observed and experienced nature closely from his childhood onwards. His father exerted a decisive influence on the young boy's interest in the history of science and in nature. The father guided his son in observing the environment and from him Adolf Erik learned to read his environment. Later in his life Nordenskiöld's environmental literacy developed further on his expeditions in the Nordic countries and on waters of the Arctic Sea.

'Experience in the natural world is both an essential part of understanding the environment, and conducive to good thinking', David W. Orr writes. He adds: 'Good thinking proceeds from the friction between reflective thought and real problems.' Nordenskiöld gradually reached a thorough understanding of the ways in which people and whole societies became destructive. The environmentally literate person, according to Orr, appreciates the ways in which social structures, religion, science, politics, technology, patriarchy, culture, agriculture, and human cursedness combine as causes of our predicament. (Orr 1992, 91-3.)

Young Nordenskiöld studied geology, chemistry and mineralogy at the Alexander University in Helsinki. After graduation, he gave political speeches that the Russian Governor-General of Finland found too patriotic and anti-tsarist and, in 1857, he was forced to leave his native country. He found a new home in Stockholm and the next year, at the age of 26, was appointed Director of the Mineralogical Department of the Swedish Museum of Natural History and Professor in mineralogy at the Swedish Academy of Science. In 1880, after his journey around Europe and Asia, Nordenskiöld was made a Baron and, in 1893, he was appointed Director of the Swedish Academy. He spent the rest of his life studying early cartography. He died in 1901 at the age of 69.

The arctic expeditions

Nordenskiöld spent half of his life, from the age of 25 to the age of 51, on expeditions. During those years he spent ten summers and two winters in the Polar region. Supposedly, he learned to know this environment well. He explored Spitzbergen five times, Greenland two times, the Obi—Yenisei rivers in Russia twice and, in 1878-9, he sailed through the North-East Passage.

The geologist and zoologist Otto Torell commanded the first two Arctic voyages that Nordenskiöld participated in, in 1858 and 1861. These expeditions laid the foundation for the Swedish scientific polar expeditions. Later on, Nordenskiöld was the commander of the Swedish expeditions. He was a precise, accurate, and responsible leader. He made very thorough preparations for every expedition. Gradually, he gained a wide knowledge of Arctic history and Arctic conditions. He had exceptional talents as an organizer, promoter, and leader to the fullest extent. On the voyages that he led the tradition of detailed scientific observations became a significant part of the Arctic explorations. It was extraordinary that a scientist took part in so many expeditions, which covered such a wide area: from the Bering Strait in the east to Greenland in the west. Nordenskiöld was the scientific hero of his time. (Nathorst 1902, 141-224; Kish 1968, 495.)

Nordenskiöld's expeditions had two main purposes: scientific research and economic surveys. He wanted to gather new knowledge about the Polar region and publish reports in scientific journals and meetings. He also made economic surveys during some of his expeditions. By gathering information on the economic profitability of the Arctic he

worked as an agent for a few Swedish and Russian businessmen and even for the Swedish crown.

Before he left for the Arctic, Nordenskiöld had gained a rather strong environmental literacy: a combination of personal knowledge, observations, experiences, attitudes, and values resulting together in an interpretation, definition and a holistic understanding of nature. He had studied geology, mineralogy, and natural history at the university; he had a good scientific knowledge. He checked the information of the regions from literature, charts and maps before the voyages and used this literary knowledge on the expeditions. He also conversed with the local fishermen, whalers, and hunters, thus relying on their local knowledge of the regions.

During his expeditions, Nordenskiöld observed and experienced the Arctic nature onboard the ships, ferries, and boats, and also on ice. On land he went mostly by foot. He shared his experiences with his colleagues, with the crews of the ships, and with the local peoples. He observed the Arctic natural environment, weather, and inhabitants with the help of the knowledge he had gained and with scientific instruments. His main interests were geography, topography, mineralogy, geology, and fossils. The scientific staff of his expeditions also included experts in zoology, botany, meteorology, and the other natural sciences.

Environmental literacy requires the ability to think beyond conventional categories. It is a continuous dialogue with the environment. David Lowenthal considered already at the end of 1960s that:

... we respond to and affect the environment not directly, but through the medium of a personally apprehended milieu. This milieu differs for each of us according to his personal history; and for each of us it varies also with mood, with purpose, and with attentiveness. What we see, what we study, and the way we shape and build in the landscape is selected and structured for each of us by custom, culture, desire, and faith. To understand perceptual processes requires examination of all these facets of human behavior. (Lowenthal 1967, 1.)

Extinction in nature

Most social changes develop gradually during a long period of time. Nordenskiöld's ideas on conservation developed gradually as well. The first sprouts can be found in his diary, which he wrote on the expedition to Spitzbergen in 1858. He observed the decreasing numbers of birds because greedy hunters collected all the eggs and shot most of the birds just for their feathers. (CHS F02a:1.)

In his book, *Svenska expeditionen till Spetsbergen och Jan Mayen, utförda under åren 1863 och 1864* (The Swedish expeditions to the Spitzbergen and Jan Mayen during the years 1863 and 1864), Nordenskiöld reported cases of over-hunting and extinction. He had witnessed the unnecessary killing of birds and greedy exploitation of walrus—only

the grease was taken while the body was left on the shore. Nordenskiöld was afraid of the extinction of birds and animals. (Duner *et al.* 1867, 111–13.)

Whalers, fishermen and bird hunters read the arctic environment in their own ways, which differed from the ways of Nordenskiöld. The hunters saw around them masses of whales, walrus, seals and birds, which would guarantee their daily living. Their gaze was the traditional gaze of their trade. Nordenskiöld observed excellent opportunities for research in many natural sciences and wanted to preserve research possibilities for future generations. When he arrived in the arctic regions with a different gaze, Nordenskiöld was the one of the first who recognized the imminent distinction of certain animals. He also published some of the first cries for help for the defenseless arctic nature. His environmental literacy deviated from the prevailing one.

On his voyages, Nordenskiöld widened his knowledge of the Arctic by listening to the inhabitants of those regions. He benefited greatly from and often relied on the information the local fishermen gave to him. One of his colleagues on the expeditions to Spitsbergen, A. G. Nathorst, stated that he had in many respects 'absolutely extraordinary eyes'. Nordenskiöld had the ability to form quick and reliable perceptions. Fossils excited him in particular. He sent his numerous palaeontological findings to Professor Oswald Heer in Zürich who catalogued and arranged them. Heer based several of his publications on these fossils. (Nathorst 1902, 141–206, 199; Ramsay 1953, 85, 122–3, 153; Andersson 1901, 20–1.)

Nordenskiöld's expeditions in the Arctic regions changed and enlarged his knowledge. His environmental literacy had an affect on his own knowledge as well as on prevailing knowledge, attitudes and values regarding the environment. He was among the first ones to observe environmental problems and to suggest possible solutions. For instance, he recommended establishing national parks in the Nordic countries in order to preserve the pristine nature in the same way as in Yosemite (1864) and in Yellowstone (1872) in the United States.

Nordenskiöld's proposal to establish national parks was based on his own observations, his environmental literacy and on the information of other scientists and professionals. With his proposal he tried to arouse people to realize the threats he had observed. This document is the bedrock of the history of the Finnish conservation movement.

Conclusions

Nordenskiöld gained a strong environmental literacy; he reacted to the changes he perceived in nature. He had the ability to think broad-mindedly and to understand the interconnectedness between phenomena, and he was concerned about what he observed and acted on what he perceived. In his scholarly and popular publications, private correspondence, and diaries Nordenskiöld was able to sum up and present his environmental ideas in convincing, creative, and influential ways that his contemporaries and later generations understood.

Environmental literacy can be expressed in many ways. Experience, when combined with scientific investigation based on imagination, intuition, and disciplined thought, sometimes results in insights that are profoundly different from those of the professional or the activist (Golley 1998, xi). Nordenskiöld was a brilliant synthesizer. He could innovatively combine the knowledge and experience he had gained from different sources: from the network of natural scientists and from his international and national contacts, from the books in his library, from the fishermen, hunters, and whalers in the Arctic waters and, especially, from his own observations. With his strong environmental literacy he understood how technological progress threatened nature. He was one of the early actors in the history of conservation. He chose the possibility to influence his fellow citizens by publishing his interpretations of his observations.

Every new ideology needs individuals courageous and open-minded enough to adapt new ways of thought. Nordenskiöld was one to take the first steps, to make the first proposals, to understand that something must be done in order to prevent catastrophes. He told a new story about the Arctic environment, one that started to change people's relationship with nature. 'People tell stories in order to make sense of their world, and some of the most frequently repeated narratives contain a society's basic assumptions about its relationship to the environment', says David E. Nye in his article 'Technology, Nature, and American Origin Stories'. He also suggests that we need to change our stories if we want to change our relationship with nature. (Nye 2003, 8.) Nordenskiöld's texts are one story and his own position in the history of conservation is another, both of which might help people to understand an individuals' role in history and the fact that everybody has an impact on history and the environment.

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ETHNOLOGY IN THE 21ST CENTURY
Transnational reflections of past, present and future

Toimittajat – Edited by
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ETHNOLOGY 21st CENTURY

Ethnology in the 21st Century

Transnational Reflections of
Past, Present and Future

Ethnology in the 21st Century on laaja-alainen artikkeliteos, jossa tutustutaan kansatieteen eli etnologian alalla 2000-luvun alkupuolella tehtävään tutkimukseen niin Suomessa kuin muuallakin Euroopassa. Artikkelit käsittelevät monipuolisesti etnologisen tutkimuksen kenttää eri näkökulmista ja eri aikatasoilla: mukana on yhtä hyvin menneisyyteen, nykyisyyteen kuin tulevaisuuteenkin liittyviä teemoja.

Temaattisesti artikkelit käsittelevät etnologiaa monista perspektiiveistä. Mukana on niin visuaalisuuteen, muistiin, tulevaisuuden tutkimukseen kuin museoihin liittyviä tekstejä. Lisäksi esimerkiksi maaseutuun ja kaupunkiin, ympäristöön ja esineisiin liittyvät tutkimussuunnat ovat edustettuina. Näkökulmina myös kansainvälisyys, liikkuvuus, kulttuuriset prosessit sekä kulttuurien kohtaaminen eri tasoilla ovat vahvasti mukana useissa eri artikkeleissa.

Artikkelikokoelmassa on kaikkiaan 29 tekstiä, osa suomeksi ja osa englanniksi. Kaikissa suomenkielisissä artikkeleissa on mukana englanninkielinen tiivistelmä.

Ethnology in the 21st Century is an extensive collection of articles presenting ethnological research conducted both in Finland and elsewhere in Europe at the beginning of the 21st century. The articles are multifaceted and discuss the field of ethnology from various perspectives and at different stages of time: there are themes connected as well with the past, present and future.

Thematically, the articles discuss ethnology from many viewpoints. There are texts about visibility, memory, future studies and museums. In addition, the book contains examples from various branches of rural and urban studies as well as environmental research and material culture. Internationality, mobility, cultural processes and cultural encounters have been addressed in several articles as well.

The book includes 29 articles in all: they are partly in Finnish and partly in English. All of the Finnish articles are followed by an English abstract.

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