

## Soil between Nature and Culture

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A typical feature of scientific thinking in its western tradition is that nature and culture are distinguished. This fundamental split was prefigured by the distinction between the divine spirit and all of nature which can be found in Judaism, Christianity and Islam. In science, this dualistic ontology clearly appeared in a secularized form during 17<sup>th</sup> century. In consequence, ‘primary’ and ‘secondary’ qualities of natural bodies had been distinguished: measurable physical, chemical and biological properties became the ‘primary’ qualities of the ‘object’. Other qualities, being perceivable by the human senses and the mind only, be that perception ephemeral or generic, have been treated as being ‘secondary’. It's the – however sometimes difficult – distinction between ‘matter’ and ‘spirit’, ‘objective’ and ‘subjective’, ‘natural’ and ‘cultural’, ‘science’ and ‘art’, and similar.

French anthropologist Philippe Descola is one of the great contemporary theoreticians of the *nature-culture split*, showing this one to be neither natural nor universal. He argues that our tendency to highlight the separateness of culture from nature facilitates a treatment of nature that is not respectful, and causes the well-known environmental consequences (Descola 2005, 2013).

This separation between nature and culture affects the soil, too. For one of the founders of pedology (soil science), Vasilii Dokuchaev (1846-1903), as for current soil scientists in general, soil is defined as a “natural object” which would be ruled by causality, and not so much as a vital or even spiritual ‘subject’. Thus, soil is studied for the causal chains of its formation (genesis), its physical, biological, and chemical properties as well as concerning its functional use and services for humanity. The International Union of Soil Science Societies (IUSS) has dedicated three of its four divisions to that approach.

However, even being framed as a “natural object” only, the soil is recently (since about 2000) acknowledged by the scientific community as a ‘partner’ for cultural techniques also outside agriculture in the narrow sense: e.g., pigments for drawing (Ugolini, 2010), ceramic material, and colours and clays for customary or ritual body painting.

Our ancestors used pigments derived from the earth for rock art over the world, showing natural-spiritual observations. (In Europe for example, see the sites of Chauvet, 36,000 years BP: <http://www.ardeche-guide.com/la-grotte-ornee-du-pont-d-arc-dite-grotte-chauvet>, or Lascaux: 17000 years BP.) Metallic oxides and clays from soil offering different colours (goethite for yellow colour, hematite for red, manganese oxides for black, kaolinite for white), or plant residues such as coal and ashes, offer humans means to represent forms of life and spirit symbolically as images. With these primordial but differentiated means,

they also transform the bodily ‘apparition’ of humans by ritual body painting, well known for example from the Nuba tribes in Sudan (photographed by Leni Riefenstahl, 1976).

A second cultural layer of soil appears less visible for the scientific community, and is usually not integrated in perception by scientists. This layer is traceable by the polysemy (multiple meaning) of words like ‘soil’ or ‘earth’. In French, ‘sol’ often hints to an ‘origin’, as can be seen by expressions like “*Le sol de nos ancêtres*” (“soil of our ancestors”, for human societies referring to past specific cultures and traditions). In German, the term ‘Grund’ can be used for ‘soil’ and for ‘cause’/‘reason’, both. In Hebrew, the memory is alive that the name ‘Adam’ comes from ‘Adamah’, that is ‘soil’, and ‘Eva’ that is ‘life’ (Figure 1a, the creation of Adam from soil and Eve from Adam). Also in the Quran it is said (English translation of sura 23.12): “And truly, We created man of purest clay”. And Mohammed said: “Keep the dignity of the earth, who resembles your mother.” (Sahih Muslim 2011, quoted from Makki and Safaei-Shahverdi, 2015.)

In many cultures of the world people know a Goddess or a female god-image dwelling in all living matter (Frazer 1951, Patzel, 2010a). The Germanic Goddess Frija/Freyja, later called ‘Holle’, is a less known example of a Cosmic Mother who dwelled in the earth, and was riding over the earth to bestow fertility on the fields (Timm, 2003). In France, there was a documented correspondence of the (former) Latin Goddess Ceres and the later “*mère du blé*” (corn mother). Other occurrences have been Isis-Hathor (Egypt), Astarte (Palestine/Syria), Istar/Inanna (Mesopotamia), Kali (India), the Aztec Maize Mother, Demeter-Persephone-Kore (Greece), and in a certain respect the Christian Mary, all symbolized by the female figure (Figure 1b). Mary was called “Queen of heavens, earth, and seas” (*regina celi, terre et maris*), and especially “blessed earth” giving birth to the wheat and to the Christ, both being mutually identified symbolically. (For examples, see Wackernagel 1867, especially the sermons von Heinrich von Laufenberg in 15<sup>th</sup> Century p. 602 f. and *passim*.) In the very influential Latin *vulgata* translation of the Bible it stands (Isaiah 45.8): “*aperiatur terra et germinet salvatorem*” (may earth open up and bring forth the redeemer). In her “Earth Mother” aspect, Mary was usually pictured wearing a garment of corn ears (see Figure 1c).

Figure 1d (Mandragora) also hints at the rich mutual symbolism in the relations between the soil-dwelling plants and humans, which could be found in folk beliefs as well as in alchemy (see Feller *et al*, 2010).

This cultural dimension – having in most cases a religious basis – occurs in different forms in all civilisations. It fits not in materialistic concepts of ‘nature’: and it may become important again (and is often ignored in development projects) for alternative approaches in order to change our behavioural patterns towards soils, soil materials, and soil-based life (Feller *et al*, 2015). One example, where a new balance of symbolic and agronomic approaches to the soil has to be found, is the 1990s case of a Swiss development aid worker who tried to persuade farmers in India to abandon cross ploughing in order to reduce erosion. Puzzled by the farmers’ reluctance to accept his agronomic arguments. Högger looked for cultural reasons. He then learned the myth of Ābh Kanbi the

Heavenly King of ploughing, and Dharti Rāni the Queen Earth. In crosswise ploughing, the creative union of Heaven and Earth would be renewed and the chaotic “Snake of the Earth” would be brought into a fruitful order between the opposites (Högger, 2000). This Indian myth shows the Indo-European, and eventually worldwide, imaginative view of an intimate conjunction of polarities, leading to soil fertility, which was symbolically also seen in the acts of drilling or ploughing, sowing, and raining.



*Figure 1a: Creation of Adam and Eve from the soil. Palatine Chapel, Palermo (Photo Jean-Pierre Dalbera).*



*Figure 1b: A symbol of archetypal „mother of the plants“ (Lost Gardens of Heligan, UK).*

Other examples of the closest relation, even identity of culture, nature, and spirit are to be found with the Buryats, living around Lake Baikal, where the soil is holy and not to be ploughed, because it is living the body of Mother Earth (Intigrinova, in Lahmar and Ribaut, 2001). Or the Dogon in Mali, where the fertile Earth is a divinity, sacred as such (according to Laleye, in Lahmar and Ribaut, 2001).





Figure 1c:  
Mary in the garment of ears.  
Bavarian woodcarving, 1450/60.



Figure 1d:  
Harvest of Mandragora from the  
soil. (Source: peacay on Flickr  
(nr.4247726617), from Yale  
Medical Library MS 18, f. 49v.  
Herbarium Apuleii and other  
works)

These examples show how important beliefs and observances may be with regard to the appropriation and adoption of particular agricultural practices such as minimal or no-tillage systems, a topic that is presently of concern not only for scientists but also for farmers in the USA, Brazil, Argentina and, more recently, in Europe, Africa and South East Asia.

The inner reality of the cultural dimension of soil can be called the “inner soil”, including all kinds of symbolic meaning of, and even spiritual relations to the soil (Patzel 2010b). From a psychological standpoint, the investigation of the “inner soil” leads to the questions: What are our unconscious or subconscious drivers and guiding images in our perceptions and conceptualisations of soil, leading us to love it or to be disgusted by it, and to like or dislike certain soil management practices? What are our concepts of soil fertility? Which mental and cultural patterns lead us, for example, to prefer in our relationship to the soil, a computer-technical approach, an economic product-value approach, an eco-functional approach, a relation formed by manual labour with soil, or one guided by intuitions and symbolic thinking? There are many alternative and complementary approaches with which to deal with soil.

Compagnone et al. (2013) did a case study in the French Vendee region with farmers involved in three types of agricultural systems: conservation, organic and 'conventional' agriculture. They showed how their “soil in the head” was characterized by different aspects of soil, due to the different "critical issues" of their farming methods, and to their different access to knowledge. We draw the hypothesis that a high respect, even a veneration of the soil being the fertile earth has found different expressions in the movement of organic agriculture as well as in the no or reduced tillage movement. Whilst organic agriculture stresses the importance of soil life as source for plant, animal and human life, and the renouncement to biocides, the no-till movement highlights the integrity of soil as a living ‘body’ not to be disturbed by humans.

It is one of IUSS Division four's original topics to integrate viewpoints and results from the social science and humanities. For Division 4 “The Role of Soils in Sustaining Society and the Environment”, history, education, health, justice, and economy, for example, all imply cultural dimensions. These perspectives open up the spectrum from physical and cultural soil services for human societies to the soil being a “cultural entity”.

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