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The *Bildung* of Humanity and Earth. The ecospiritual potential of Waldorf education

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ABSTRACT. This paper purports to identify the critical potential of Waldorf education within the context of environmental education and ecospirituality. It sees Steiner's thinking as a further development of early Romantic philosophy and takes both as rooted in Western esotericism. In line with this, the Romantic critique of the mechanistic view of Nature, characteristic of Enlightenment science and philosophy, has a parallel in Steiner's critique of the materialist world view, and how this is spread through mainstream education. Steiner's conception of the relations between humanity and the Earth/Nature is showed to have forerunners in the conceptions of Herder and Novalis. Hence, this is part of the ideational grounds of Waldorf education. The technocratic, neoliberal and capitalist regime, that rules globally today, stands in sharp contrast to the visions of Romanticism, as well as of Waldorf education. This contrast is illustrated by examples from the Indian environmentalist Vandana Shiva. Finally, the participatory epistemology and vision of child in Waldorf education illustrate how its critical potential in environmental education and ecospirituality can be realized.

Keywords: ecospirituality, Herder, Novalis, Waldorf curriculum.

Where there is no vision,
the people perish.
_____ *Proverbs 29:18*

Introduction

This paper is an attempt to delineate the critical potential of Waldorf education in the context of environmental education and what has lately been called ecospirituality (see f ex Smith, 2009; van Schalkwyk, 2011). Ecospirituality can be shortly described as a spiritual view of the connection between humanity and Nature or Earth. Drawing upon various sources, Smith characterizes it as the result of humanity beginning "to understand its deep connection within the evolution of the universe and that human wellbeing is intimately entwined with the wellbeing of Earth's ecosystems" (2009, p. 653). Such an understanding of human existence is in strong agreement with the anthroposophical underpinnings of Waldorf education (see further below). Generally speaking, in any form of schooling one may identify two kinds of curriculum elements; I call them ideational grounds and practical-concrete elements. The first consists of the visions, ideas and concepts that inform the *teachers*' understanding of what they are doing and why. The second refers to the subject contents and methods of teaching commonly applied.

Steiner put a strong emphasis on the ideational grounds of Waldorf education, claiming f ex that it makes a great difference for the students if the teacher personally devotes a lot of thought to the nature of human being and development, compared to if (s)he does not entertain such thoughts (cf. Steiner, 1992, p. 27).

Presumably, this would apply also to whether the teacher ponders questions of humanity's relation to the cosmos, or not. It probably affects the "imponderabilia" of the classroom atmosphere, as well as the feeling life of the students.

Against this background the question arises, what are the ideational grounds and practical-concrete elements of Waldorf education that potentially contribute to an ecospiritual environmental education? The notion of "critical potential" implies, that there is something that needs to be criticized, opposed, developed, or overcome. In the various strands of present more or less radical environmental movements, different things are targeted as such objects of criticism (cf. Taylor, 2008). Here, I will especially attend to the rationalistic, mechanistic and materialistic understandings of the human being, society and Nature, as being such targets of critique.[1] Waldorf education does not build on such ideational grounds but tries to overcome them; not in the sense of rejecting them, but by creating a wider, more inclusive, and holistic curriculum (Gidley, 2002).

In our cultural history, for a few decades at the end of 18th and beginning of the 19th century, the early Romantic thinkers also expressed highly critical views of the mechanistic ideas of Nature that developed within Enlightenment science and philosophy (Safranski, 2009). They would surely have opposed the views that we live on a planet that purely by chance has given rise to life and to a particular life-form called humanity (cf. Monod, 1972); a life-form that in itself has no inherent meaning. Neither does the Earth, according to this view, have a meaning, nor any other planet, or the universe itself. Even though they may be causally linked, ultimately the relations between humanity, Nature and the planet Earth are all contingent. They influence and depend on each other in various ways, but there is no essential (spiritual) connection between them.

The Romantics opposed the reduction of all relations to contingency, and the negation of deep connections between things (Safranski, 2009). However, their criticism has often been misunderstood as a rejection of science, research and progress (social and technological) altogether (McGrath, 2012, p. 22f). In fact, many of the Romantics had an *alternative vision* of what science and progress could be. This vision was to a large extent a result of their inspiration from Western esotericism (Hanegraaff, 1998), which also, in its own way, adheres to the ideas of science, progress and development (McGrath, ibid., same page). The Western esoteric tradition (to which anthroposophy belongs) is not opposed to science and progress as such; but it envisages other versions of them – ones which include the reality of the spirit. For this reason, Western esotericism can be called "an alternative Modernity" (ibid., same page) and, by extension, this can be ascribed also to Romanticism. The early Romantics further endorsed many of the social ideals of Enlightenment, such as individuality, freedom, anti-authoritarianism, and equality. But

> …they accuse the Enlightenment of having degraded these very ideals to atomistic individualism, rootlessness, selfinterestedness, and abstract legalism, and they aim to correct this by showing the way to an alternative. (Kleingeld, 2008, p. 269)

Steiner would surely agree with these criticisms (cf. Steiner, 1985). He appreciated Romanticism as an important spiritual impulse in Western cultural history, and often referred to the Romantic thinkers (mainly Goethe, but also Herder, Novalis, and Schelling) with approval, presumably because they anticipated many of his own insights. It is worthwhile to consider Steiner's ideas about education and human development in the context of especially two early Romantic thinkers: Herder and Novalis. Such comparison shows that Steiner really belongs to Western cultural history. Steiner and the early Romantics drew upon the same source of inspiration, viz. that of Western esotericism. In the Romantics, however, this inspiration is mixed with contingent influences on the level of individual biographies (Safranski, ibid.), whereas in Steiner's anthroposophy it is fairly coherently expressed as an organic "system" of ideas.

In the following I first shortly present Herder's and Novalis' Romantic understanding of the *Bildung* of humanity and of the Earth. This is also an important aspect of anthroposophy and therefore part of the ideational ground of Waldorf education. Second, leaning on Vandana Shiva and other critical voices I describe the human, social and ecological consequences of the techno-politico-capitalistic "machine" that

1. I disregard here the many alternative perspectives that *also* exist in f ex educational science and research; none of which, however, have found a general acceptance among policy makers and teachers.

destructively eats its way through the world. I believe it is necessary to see these threats clearly, in order to awaken the courage and energy to work against them. Serious study of these threats could be part of the Waldorf curriculum in higher grades. Finally, I will describe some ideational and practical-concrete elements of Waldorf education, having to do with a participatory rather than objectivistic epistemology, and the postponement of cognitive judgment until puberty. These, I argue, are important elements for a sustainable ecospiritual education.

The Romantic vision

Menschenbildung – the cultivation of humanity

The idea of *Bildung* is sometimes traced back to the medieval German mystic Meister Eckhardt, who based this idea on the biblical notion that the human being is created in the image (*Bild*) of God (Bechthold-Hengelhaupt, 1990). In stark contrast, the word today in common speech is most often used to denote knowledge personally assimilated as a kind of mental baggage.

The Romantic idea of *Bildung* is different from both of these alternatives. It is about the human being shaping her own humanity. This is expressed in the term *Menschenbildung*, which was coined by J.G. Herder in the 18th century (Herder, 1989) and has a deep spiritual meaning. Steiner (1987a) considered Herder as belonging to the theosophical fold, even though Herder never used the term himself. For Steiner, Herder was someone who studied the Christian scriptures in order to strive for higher soul development and to find a connection with the world spirit (*Weltgeist*) (Steiner, ibid., p. 442f).

Herder considered the human being as basically not a "being" but a becoming. Nothing in creation stands still, it is always moving and developing. But the becoming of humans is essentially *open*, not regulated by Nature in a pre-determined way. In this respect, humans are different from animals. An individual animal can only develop so much within the framework given to it by Nature; it would take numberless generations for it to change essentially as a species. The human individual, however, can in principle make quantum leaps in its *individual* evolution.[2] These changes are, in comparison to those of animals, open and not predetermined by Nature. Therefore, Herder could say that the human being is the first being "let free" of creation (Herder, 1989). *Menschenbildung* for Herder meant the evolutionary change of humanity, created out of humanity itself. Humanity's remoulding of itself and of its culture and life-conditions he called "the promotion of humanity" (*Beförderung der Humanität*) (Safranski, 2009, p. 23). However, the open, free, and autopoietic character of humanity's future *Bildung*, the absence of a predetermined goal, was not a nihilistic stance on the part of the Romantics. Herder, as well as Coleridge, Wordsworth and others, realized that the ideal of self-determination must be nourished by a moral or spiritual vision of what we ought to become (Engell, 1981, p. 247). For the Romantics, the production of such a vision was the work of *imagination*, which they considered to be a mode of transcendental knowledge, not to be mixed up with mere fancy (ibid., p. 176).

The idea that everything is history, even Nature itself, was a new way of understanding the world in Herder's time (Safranski, ibid.). By seeing the history of Nature as an evolutionary process, divine creativity is drawn into the process of Nature. Nature's developmental history has gone through the stages of the mineral, the plant, and the animal. Each stage contains the seed of the next one, and they are all pre-stages for the human. The specific nature of the human stage is that here the creative process is handed over to humanity itself. Nature abdicates its ruling position and gives it to humanity. The powers that enable humanity to take on this task are intelligence and language. The human being's relative lack of instincts and of protection against hostile environmental forces makes the task a necessity. Thus, our creative power is an expression of both strength and weakness.

For Herder (as for Steiner), there is a significant difference between a living and concrete intellect, and a dead, abstract one. Living thinking dives down into the unconscious and irrational elements of existence; into the creative, driving-driven *life*.[3] Abstract reason stays on the surface of life, most often content with

2. This is in line with Steiner's view that human *individuality* corresponds to animal species (Steiner, 1987b).
3. Novalis would later propose the notion of the "night-side" of the human being (die Nachtmensch) and suggest its necessary

categorizing phenomena and mapping out the external relations between them. For Herder, the concept of "humanity" is actually such a dead abstraction. In reality there are only individual human beings, each one involved in their own specific process of becoming human. Certainly, nobody can live for themselves only, but society should be arranged so that everyone has optimal freedom to realize their potential (Safranski, ibid., p. 21).[4]

Not only is there no humanity in general, there is also no single faculty of reason for all mankind, as the Enlightenment philosophers liked to believe. Reason is culturally conditioned by its time and place in the world; and no cultural form of rationality is more valuable than any other. Just as childhood is not of less value than adulthood, each culture with its particular characteristics is of equal value to the whole.[5]

The role of knowledge and learning in becoming human is therefore pragmatic and contextual. Knowledge has no intrinsic value in itself, it is primarily functional. This comes to clear expression in one of Herder's followers in anthropology and linguistics, Wilhelm von Humboldt. For Humboldt, the purpose of higher studies in History, Greek, and Mathematics was not that the students should become learned scholars in these subjects, but that they should develop their spiritual capacities and human potential. Humboldt says:

> It is the ultimate task of our very existence to achieve as much substance as possible for the concept of humanity in our person, both during the span of our life and beyond it, through the traces we leave by means of our vital activity. This can be fulfilled only by the linking of self to the world to achieve the most general, most animated, and most unrestrained interplay. This alone is the yardstick by which each branch of human knowledge can be judged. (2000, p. 58-59; italics here)

Humboldt developed these ideas in the context of academic studies, but in Waldorf education they are applied already in the early school years. German didactic theories of *Bildung* has an interesting concept related to this: *Bildungsgehalt*, perhaps translatable as "educational formation content" (Klafki, 1963). Each subject has a certain content which has the potential of serving the child's or the student's "becoming-human", their *Menschenbildung*.[6]

Bildung der Erde

Herder's reflections on human development included cosmic issues. When seeing, he says, that the places which our Sun occupies in the galaxy, and that this Earth occupies in our "Sun temple" (the solar system), are determined by laws, I will not only be full of joy in stepping into the harmonious choir of numberless living beings, but I will also consider it to be my most sublime task to ask "what I in this place *should* be, and probably only in it *can* be?" (Herder, 1989, p. 21; my transl. and italics). In other words, what is the meaning of human life *on Earth*, considering that the Earth lawfully belongs to the solar system, and this in turn to the cosmos?

Novalis may have picked up this question of Herder's.[7] In one of the fragments in his *Pollen* (*Blüthenstaub*, #32), he says: "We are on a mission: we are called upon to educate the Earth".[8] The book consists only of inspired fragments, so there is no further explanation.[9] Wood (2007) mentions that Novalis' "Romantic Encyclopedia" (*Das Allgemeine Brouillon*) is a following up of this proclamation, but says nothing about how or why. The *Bruoillon* is Novalis' unfinished project of creating a Romantic version of an encyclopaedia

integration with the "day-side" of rational consciousness. Cf. Steiner (1998; lecture 1).

4. Cf. Steiner's (1985) ideas for social three-folding.

5. Jensen, A.K., "Philosophy of history", *Internet Encyclopedia of Philosophy,* https://www.iep.utm.edu/page/7/?cat=-1#H8. (Accessed 2020-07-14)

6. In Waldorf education not only academic subjects serve *Menschenbildung*, but also practical and aesthetic ones.

7. Steiner considered Novalis a "foreboder" (*Vorboten*) of anthroposophy (1991a, p. 172).

8. "Wir sind auf einer Mißion: zur Bildung der Erde sind wir berufen." https://www.lyrik.ch/lyrik/spur3/novalis/novalis3.htm. (Accessed 2020-07-16)

9. The early Romantics favoured fragments and called them "tasks for thought" (*Denkaufgaben*) (Kleingeld, 2008, p. 279, note 32). Fragments were supposed to activate the thinking of the reader and they bore witness to the impossibility of capturing the whole truth in one single system of thought. The fragmentary way of expressing philosophical insight may seem to contradict the holistic principle behind the Romantic world conception. However, if all fragments are seen in the light of each other – even perhaps as mirroring each other in various ways – the "Whole" may be intuited as an implicit vision informing all the fragments.

of all knowledge. The project of "educating the Earth" has often been interpreted as a political idea about educating the various people of the Earth in this Romantic knowledge (cf. Kleingeld, 2008). The purpose would be to elevate humanity to a higher level – "the goal of all goals" for Novalis and his Romantic friends (Wood, ibid.). However, I'd like to suggest that such an evolutionary change of humanity would, according to Novalis, also affect our planetary home, *the Earth itself*.

This interpretation is based on the conception that Earth and humanity are internally related, that they belong together in an inseparable way. During eons of time, humanity and the Earth have evolved in mutual interdependence (Bosse, 2019). In Novalis' world conception of magical idealism, everything in the world is mirrored in everything else (cf. Liedtke, 1999, p. 179). The Earth is constituted by the whole Universe, and the human being is constituted by the Earth. But humanity also affects the Earth, not only through its actions but through its inner state of mind. Earth and humanity are mutually related by their "sensibilities and irritabilities" (ibid.). "Bildung des Geistes ist Mitbildung des Weltgeistes" says Novalis (quoted in ibid., p. 179). We could also say, "Menschenbildung ist Mitbildung der Erde".

Steiner often pointed to such an inner connection between humanity and the Earth. He pointed to the necessity of being aware of the stage of the total Earth evolution that we are living in (Steiner, 1998, p. 9ff). The human being must find her place in the whole historical becoming of her planet (*Sich-Hineinstellen in das ganze Geschichtliche Werden seines Planeten*) (ibid., p. 12). Furthermore, in another lecture, he even claimed that human soul drives and a mindset of "practical materialism" (*eine praktisch-materialistische Gesinnung*) may influence deep levels of the internal planet, causing volcanic eruptions and other natural catastrophes (Steiner, 1989a, p. 42). Of course, this flies in the face of most modern (Western) people, schooled (or indoctrinated) as we are in the scientific-materialist world view. One should remember though that we cannot go deeper into the Earth than a small fraction of its radius; much of what we know about its inner depths is inferential and uncertain. However, I do not have the competence, nor is this the place to argue for or against Steiner's claim. Suffice it to note that it agrees with Novalis' view of the internal relation between mankind and Earth.

The practical-materialist vision

In this section I present some examples of how what Steiner calls "the practical-materialist mindset" is affecting our planet's biosphere as well as human/social life. I believe that these facts should be generally known and contemplated, *especially by teachers*, in order to realize the seriousness of our situation. About a hundred years ago, Steiner pointed to the potential disasters awaiting mankind, if materialist science and morals were not abolished (Steiner, 1980, p. 143). He also hoped that Waldorf education would play a significant part in changing the course of events. Are Waldorf schools taking on this challenge? Looking at the examples below, must we not ask ourselves how they can be addressed in the Waldorf classroom? If Steiner's hope is to be realized, teachers must inform themselves about the world situation, and present it to their students, in line with Steiner's (1993) recommendation that teachers in the higher grades should be *representatives of the world* to their students.

That humanity is seriously affecting the Earth is being more and more recognized today. It is expressed by the term anthropocene, denoting a new epoch of Earth evolution, in which humanity plays the main role, particularly by all the ways in which we disrupt the ecology of Nature (for a more elaborate discussion of the term, see Lewis & Maslin, 2015). Of course, humanity in its form of *homo sapiens* has always had a certain impact on Nature, but through the unprecedent development of science and technology in the last centuries, this impact has increased enormously. And the root cause of this development is precisely what Steiner called "the mindset of practical materialism", as mentioned above.

Inspired by Vandana and Kartikey Shiva's book *Oneness vs. the 1%* (2018), I use the term "TPC-machine" for the assemblage of technology, politics, and capitalism, and their interacting mechanisms for appropriating money and power over the future development of humanity and the Earth.[10] Shiva and

10. For Deleuze and Guattari, a "machine" is anything that acts or make things happen. Human beings can be constituents of a

Shiva describe numberless examples of how biotechnology and financial/corporative capitalism buy into politics and threaten bio- and cultural diversity, as well as democratic developments of humanity's various interactions with the Earth.[11] The technology aspect includes GMO production, agrochemical technology, geo-engineering, and information technology. The latter is the common denominator of them all. The political aspect includes business and government co-operations, as well as the heavy use of lobby groups in order to bypass democratic decision making. The capitalist aspect includes above all financial capitalism – making money on money – and the merging of companies in ever bigger corporations in order to centralize economic power.[12] All of these areas involve more or less immoral, even outright criminal actions.

Vandana Shiva's evaluative perspective is that of biodiversity, of indigenous people, and of the small farmer. From this point of view the so-called Green Revolution of biotechnology is revealed as nothing but a fraud, launched by the TPC-machine and its servants. The strategy used is described by Shiva as follows:

> You create a new field [of GMO plants or medical drugs], you invest in it. You force governments to invest in it, you destroy the regulation. You destroy the alternatives, you attack the scientists. And you create a whole machinery for your monopoly.[13]

Shiva & Shiva (2018) give examples of how this strategy has been used by Western companies, especially in India and Africa.

The practical-materialist mindset creates monocultures of people (cultures), as well as of crops. GMO crops often yield impressive harvests for the first couple of years – provided the patented seeds are supplied with expensive fertilizers and pesticides. After a long time of persistent use, the crops may again be decimated by pests (Shiva, 1993; see also Hawthorne, 2002).

The TPC-machine is one of the main contributors to the climate crisis. Industrialized, fossil fuel-based agriculture contributes 50% to global warming (Shiva & Shiva, 2018, p. 63). At the same time, Monsanto (now Bayers) is using digital technology

> …to pirate climate resistant seeds that farmers have bred, turn climate data and soil data into new commodities for new monopolies, and link them to insurance. The company sees a 3 trillion USD market in agriculture with the convergence of data, insurance, seeds and chemicals. (ibid.)[14]

The plant world may be the main focus of industrial and GMO agriculture, but such agriculture contributes to global warming, which in turn influence the emergence of new viruses, or the spread of the already existing ones.[15] And so does global deforestation, which has been clearly described by science journalist Sonia Shah (2016). The TPC-machine relates to animals with the same senseless crudity as to plants and forests. Animals are subjected to horrible tortures in order to provide data for the creation of new medicines. They are often subject to terrible stress when transported to be slaughtered, and in the slaughterhouse itself. The emotional stress that they suffer creates good conditions for virus transmutation and the emergence of new infectious diseases (Glöckler, 2020).

Anthropocene will perhaps be a rather short period in Earth's history as our cosmic home may soon become uninhabitable. Some time ago Stephen Hawking announced humanity's need to find a new planet to colonize within 100 years, because the one we have lived on so far is collapsing.[16] The logic of colonization

machine, f ex of the capitalist machine (2004, p. 504ff).

11. The book is a bit unsystematic in its disposition and not all of the events described are verified by sources. But enough of them are.

12. How financial capitalism is linked to information technology has been marvellously described by Schirrmacher (2013).

13. See f ex "Why the Bill Gates global health empire promises more empire and less public health", available: https://thegrayzone.com/2020/07/08/bill-gates-global-health-policy/ (Accessed 2020-07-20).

14. Cf. "Monsanto to acquire the climate corporation, combination to provide farmers with broad suite of tools offering greater on-farm insights", available: https://www.monsanto.com/news-releases/monsanto-to-acquire-the-climate-corporation-combination-to-provide-farmers-with-broad-suite-of-tools-offering-greater-on-farm-insights/ (Accessed 2020-07-18). For "tools" read digital gadgets, for "insights" read data.

15. See "Viruses and climate change: how the two threats converge", available: https://www.bbva.com/en/viruses-and-climate-change-how-the-two-threats-converge/. (Accessed 2020-07-20).

16. "Stephen Hawking: We have 100 years to find a new planet", available: https://www.ecowatch.com/stephen-hawking-bbc-2392439489.html. (Accessed 2020-07-21).

is also part of the TPC-machine's construction. Capitalism needs new markets, or new land from which to extract raw material (Shiva & Shiva, 2018, p x-xi). In times past, these drives joined forces with the military to conquer new territories. Today, violent aggression is less needed because softer but more fraudulent means have been found to achieve the same goals. Colonization seems now, however, to take on cosmic proportions. Herder's question, what can humanity become *on Earth***,** has been neglected for a long time. Today it is probably forgotten that there once was a human being seriously asking it. How do we deal with these issues in the Waldorf school?

What we have looked at so far fall outside of the usual framing of Waldorf education, which is commonly conceived solely within the horizons of Steiner's lectures and books. However, the vision of the Romantics and the activist criticism of Vandana Shiva (and others) could easily be incorporated into the ideational grounds of Waldorf education; in my view they could even be subject contents of the curriculum. In the next section I deal with elements which fall more directly within the horizons of Steiner's educational thinking.

Specific Waldorf curriculum elements that have a critical potential for environmental education

A participatory epistemology

Technology is based on science – the two are becoming ever more inseparable – so technology becomes a Trojan horse for the scientific materialist world view. The "T" of the TPC-machine therefore brings along conceptions of mainstream science, its epistemology and its "dogmas" (Sheldrake, 2012).[17] Unfortunately, science teachers in general may become unintentional servants of the TPC-machine by transmitting the "dogmas" of science and its epistemic stance of objectivism and subject-object dualism. Teachers, of course, are not supposed to proclaim any particular world view, but scientific materialism remains implicit in the very discourse of science, unless one keeps strictly to observed facts only (cf. Dahlin, 2001; see also Bosse, 2019, p. 494ff).

We noted in the beginning that for Humboldt, the only value of knowledge from an educational point of view is how much it contributes to the *linking of the self to the world* in a most general, animated, and unrestrained interplay. How much can science education contribute to the realization of such an ideal? Of course, those students who for some reason find science interesting and rewarding will in it also find a link to – primarily – the world of science and research. But for all the rest? Some basic epistemic elements of natural science are 1) subject-object dualism, 2) impersonal and objectifying observation, and 3) physicalist reductionism. Therefore, in the picture of the world that it presents, we find nothing of our soul and spirit; we are essentially left out of it. How then can this knowledge link us to the world? I am not saying that it cannot, but in order to find the link we have to move into another epistemological stance than that of present science. The early Romantics were the first to elaborate such an epistemological alternative (Goethe, Novalis, Schelling, a.o.); and Steiner further developed it.[18] The alternative I consider most interesting in this context is that of *participation*, suggested by Tarnas some decades ago (1998, p. 433ff). Tarnas sees the Romantic philosophers as forerunners to this epistemology. It is based on the insight that Nature does not exist as an independently given reality external to the human mind. "Rather, nature's unfolding truth emerges only with the *active participation* of the human mind" (ibid., p. 434; my italics). The mind is not outside the world as a passive observer; it actually participates in what is perceived and cognized.

Steiner's philosophical and educational ideas are based on a similar conception (Schieren, 2012). For Steiner, the participation aspect of cognition means that the *will* is actively involved in thinking and the formation of conceptions. Waldorf pedagogy and curriculum are constructed so that students may come to see, or at least feel subconsciously, that they participate in the phenomena they study (cf. Dahlin, 2017, p. 100f). In studying the world, they in a certain sense study themselves. A good practical example of this idea

17. Sheldrake identifies ten "dogmas" of science; these include for example "Nature is mechanistic", "Matter is unconscious", and "Nature has no purpose".

18. Nowadays there are of course a number of alternatives to objectivist epistemology, but they are mostly discussed outside of natural science itself (see f ex Harding, 1998).

is the "working and learning on a farm"-project, described by Schieren (ibid).[19] Naturally, the participatory epistemology is not an explicit content of the curriculum, but an underlying guiding principle for teaching and instruction. As such, it probably works better against the subject-object dualism of mainstream science epistemology.

Awakening interest in the world

Genuine participation implies active interest. According to Steiner's development psychology, if teachers cannot awaken an active interest in the world in their teenage students, the students' interests will turn back on themselves, on their own pleasures and wellbeing (Steiner, 1993). Thus, one may wonder if the widespread self-centred attitudes of modern societies are (at least partly) the result of boring school experiences; of lessons that have been unable to awaken a sound interest in the world and a healthy disregard of one's own self?

Already in 1929/30 Ita Wegman, close friend of Steiner's, published an article in which she prophesized that the times were not far off when humanity would need to become more responsible for the future of the Earth (Wegman, 1929/30). She realized that the history of humanity and the changes of Nature would become ever more intertwined and that humanity's responsibility for the Earth would increase. Since that time, there have been many alarm bells ringing and calling for action against the ecological crisis. One wonders why the majority of us still not heed these calls enough to *really* change our lifestyles and policies. Is it because we are actually more interested in our own comfort and pleasure, than in the planet and its future? Is this due to having spent our teenage school years in too many non-enthusiastic, boring lessons, unable to awaken any impulse to link up with the world in active, non-self-centred ways? Have the effects of such boring lessons perhaps been amplified by media and advertisement, pushing us to become dutiful consumers of things that enhance our own "well-being" (Ewen, 1976; Wearing, McDonald, & Wearing, 2013)? Meanwhile, the TPC-machine has gathered and developed its forces.

Postponing cognitive judgment

In connection with the possible loss of interest in the world, it is worth mentioning one result from the evaluation of Swedish Waldorf schools carried out by some colleagues and myself about fifteen years ago (Dahlin, Nobel, & Liljeroth, 2007). Comparing the engagement in social and moral questions among Waldorf and mainstream school students, we found a higher level of such engagement among Waldorf students, when comparing responses from the twelfth school year (the late teens). Comparing the responses from the seventh school year with those of the twelfth, the engagement *rose* among the Waldorf students but remained the same or even sank – in some respects – among mainstream students (cf. Dahlin, 2010).[20] In line with this, another comparative study by Gidley (1998) noted that upper secondary Waldorf students showed more willingness to act for a better future, and were less likely to merely refer passively to general technological development as the solution for ecological problems.

The postponement of cognitive judgments to later school years is a well-known aspect of Waldorf education. I hypothesize that the greater interest shown by late teenage Waldorf students in social and moral problems is due to not having been exposed in early years to information that demands making individual cognitive judgments. This is partly supported by Ashley's (2005) reflection on the comparative study of British Waldorf and mainstream schools: such early exposure may result in "early closure", i.e., losing interest. This illustrates the importance of right timing. Ordinary developmental thinking very often follows the simplistic logic of one-dimensional, linear models. A common notion is therefore that if something needs to be learned, it is best to start as early as possible. Child development is however more complex than that, and Steiner recognized this. He therefore carefully pointed out the suitable age for bringing in various teaching subjects and methods.

19. The farm was organic, the students were in the nineth year, and they were living on the farm for two weeks.
20. This was based on the analysis of cohorts, not on longitudinal data.

Thus, in the teenage school years, soul forces are liberated that seek answers to the "big questions" of life (Steiner, 1993). Students instinctively long for the teacher to narrate and explain not only the causes but also the purposes and goals that drive world events. The teacher is no longer a storyteller for children, but a narrator of *real-life* stories for becoming adults.

The Earth is a living being

The real-life stories told by the teacher could be about the TPC-machine and its ravages – but then also about the resistance to it. One relatively recent expression of this resistance is the rights of Nature movement. It launches the idea that "Mother Earth is a living being"[21] and should therefore be given judicial rights.[22] Steiner himself said humanity has to learn (again) to see itself as inextricably part of the life of the Earth, and that it would give our cultural life a huge impulse toward morality if already in childhood we came to understand that the Earth suffers from our immoral deeds (1989b, p. 129f). Some Waldorf schools are lucky enough to have a school garden, which may provide the opportunity for such intimate experiences of Nature and Earth.

Summary and conclusion

To sum up, this paper has identified the following ideational grounds (points 1-3 below) and practical-concrete elements of the Waldorf curriculum (points 4-5), that have the critical potential to counterbalance scientific materialism and capitalist/consumerist exploitation of Nature:

1. the Romantic view of especially Herder and Novalis, that humanity and Earth belong together in an essential/spiritual sense;
2. the participatory epistemology inherent in Steiner's understanding of knowledge and learning;
3. promoting the experience of Nature/Earth as a living being;
4. awakening a moral interest in the world in the higher grades; and
5. postponing cognitive judgment to these grades.

The views of Herder and Novalis, the participatory view of learning, and the experience of Earth as a living being are all "romantic" elements that can be found in Steiner's anthroposophy. They are also in agreement with the principles of ecospirituality (Smith, 2009). The postponement of cognitive judgment to higher grades goes together with awakening interest in the world in the same grades. These latter points are important contributions of Waldorf education to a fruitful ecospiritual approach to environmental education. Without them, what is possibly achieved in lower grades may be undone in higher grades through "early closure".

21. See https://pwccc.wordpress.com/programa/. (Accessed 2020-07-23).
22. See for example https://www.earthlawcenter.org/, and https://therightsofnature.org.

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