NATURE IN THE HUMAN BEING –

The Human Being in Nature in Support of an Ecology Main-Lesson in Class Nine

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When we study the human skeleton with our fourteen year-olds in Class Eight, there is often a surprising quietness among them. The very boys who were not exactly gentle with each other in the break now observe the fine structure of foot and leg with a certain reverence. We hold up drawings beside them which show the delicate curved course of the trajectories (directions taken by the osseous structure) within the joints. There are structures here which go beyond the individual parts of the skeleton. This is a source of wonder if one begins one's studies by focusing on details, perhaps even modelling a hip joint. It seems appropriate during the time of puberty to start with details which can be apprehended as sober facts and only then to discover for oneself the comprehensive structures that unite them. The bony structure referred to above, which is found in the spongiosa (tissue on the inside of the bone) makes it possible for us throughout the long period of growth of the skeleton and, indeed, throughout our lives, to overcome ever and again the dully perceived burden of gravity. The skeleton hardens, but despite this, never becomes too heavy. It is truly astonishing: matter, hard bony substance, is given lasting form by the activity of our will. Thus while jumping or climbing in the mountains, we can experience, now somewhat more consciously, something of this power which can overcome gravity something of the liberating levity which carries us through life. The power of uprightness, which forms us from early childhood on, right into the details of our bones and vertebrae, and thus sculpts the human form, both functionally and beautifully, has a certain mystery about it. In conventional physics we do not recognise the term levity, and Newton showed interest in the phenomenon of the falling apple, without, as far as we know, concerning himself unduly with the question of how it got up into the tree in the first place. Nevertheless the activity of this power which overcomes gravity may be clearly felt, particularly when from time to time, it is missing or weaker, or if, for one reason or another, we are downcast. Does not our fundamental experience of reality have something to do with a dull perception of the activity of our own will? That is to say, with effectiveness. How different, on the other hand, is the formation and structure of the skull. Particularly in the upper part of the skull, the bones are formed differently and even earlier than the bones of our arms and legs.

This so called skull casing develops like a shell around the brain as it forms itself. The structures that form it harden quickly, grow together, and then form the dome that we so much admire. There seems to be no will activity involved here and once this form has been completed it is difficult to alter it. Despite the completely opposite principles by which this is formed, the whole nevertheless contributes to the uniform human being. We thus also discover the middle, the chest area, which is composed of both types of ossification. The plate

forms typical of the skull and the spare bones typical of the extremities, which are developed in the course of one's youth.

During what is a turbulent time for all young people today, the time of puberty, which Steiner characterised with the more comprehensive expression, "ripeness for the earth", our pupils' attention is directed much more intensely than at first appears to the world of the adult. How often do they encounter prejudice, rules for the sake of rules; and how often, even resignation and indifference! All the while they carry within them a secret, scarcely formed question: What image of the human being does the adult carry within him? Is it a static image; or is there room in it for dynamic developments which might even bring about changes in the world of the adults?

The theme that we have sketched above, which naturally encompasses a great deal more (among other things it is important to deal with major sense organs in this connection), is to present to the Eighth Class as clearly and concretely as possible, a situation of the human being in the world. The central issue here is that they perceive the meaning of uprightness, which makes it possible for us to liberate ourselves from the ties of instinct and nature. This makes it possible for us to become conscious that we stand opposite things in the world. We can develop objective consciousness and can learn to know the world in increasing freedom.

From the Eighth to the Ninth Class: A Transition to the Active Human Being

If we now step into Class Nine as a subject teacher to introduce a natural science main-lesson, we find faces that have changed. The looks we get are questioning and challenging, and we may find that the classic formula 'anthropology is continued' which is to be found in the generally used and valued curriculum of the Waldorf schools (compiled by Caroline von Heydebrand) presents certain problems. Is it possible simply to continue anything at this time of general and necessary upheaval? Must not steps be taken, in the first place by teachers themselves, to awaken a new consciousness? Is it not our task to be versatile precisely in nurturing this new consciousness? This alone would enable us to introduce new developments. Questions like these led to an arrangement which has been tried in the classroom for a number of years, in a variety of different ways.

While, on the one hand, in Class Eight we pursued the question of the position of the human being in nature, i.e., a study in which the human being appears as an image, in the Ninth Class, on the other hand, we can look at the human being as an agent, as a creator of culture. We had seen how the human being became emancipated from the ties of nature in the whole composition of his bodily form. Can one now take the opposite route? If we succeed in finding such a path then this may have the consequence that the human being, whilst retaining the qualities that are in many ways emancipated from nature, can freely resolve and energetically strive with now considerably extended insight and knowledge, to re-integrate into nature as a whole. Still further: a human being might thus bestow new impulses for development on nature.

The Ecology Main-lesson – An Example From the Tropics

Taking this theme and searching for an answer to a question, it is worthwhile to take a particular, perhaps even a limited, geographical area, perhaps also with a particular climate and vegetation, and study it in detail, such as the tropical rainforest and the savannah on its borders.

What are the natural conditions here? How does plant life adapt to the soil conditions? Which animals live there? And not least, how have human beings lived in this area so far? What is the situation today? How will it be tomorrow? Scientific research now shows that there are alternative solutions for particular areas. As a basis for forming our own judgement we would do well to look at these alternatives. Thus in many tropical areas the significant growth in population is a completely new factor in relation to past history. This factor will have a considerable influence on natural events in one direction or another. Can our own research, even if it is initially carried out in the classroom, contribute anything of significance to the situation? If it is to do so we should give it the opportunity to develop over a certain number of years and achieve a certain maturity.

In our work in this main-lesson, we do *not* set ourselves the task of cataloguing the various organisms and natural influences, of studying them independently, and of giving them names. Far rather, we try to discover how one thing is linked with another. It very soon becomes apparent that these relationships are not those of cause and effect, in the way we so often expect. In the living world, different laws obtain. A concrete example will make this clear. In the African savannah, there is an harmonious equilibrium of grasses and trees which is maintained by the working together of a great variety of organisms. Thus, for instance, one may observe that a group of giraffes, which begins to graze at an acacia, moves on after a short while to start on another acacia. In the crown of the tree there are delicate feathery leaves which are skilfully nipped off by the giraffe using its long and subtle tongue. Among the leaves are long, pointed thorns some of which are swollen at their base. These are the home of ants, which had previously irritated the acacia, so that the swellings came about (as a result of the acacia's own activity), and could then provide homes for the ants. Now when the giraffes come along and begin to feed on the leaves, the ants are disturbed, and begin to irritate the giraffes. These then move on, but for this very reason are able later to return, which would not be possible if the acacia had lost too many of its leaves since it grows to the limits of its own potential. In the end, even we human beings derive pleasure from this process, for the deserted dwellings of the ants make a wonderful music in the wind. The Africans call this tree the *flute acacia*. We can see here one of the many networks of different life processes, some of which have not yet been researched scientifically. Each life form owes its existence to the other. Insights of this kind form a significant part of the new science of this century: ecology.

One of the classic researchers in this area, August Thienemann, points out that the concept ecology was first used by Ernst Haeckel. He used the word *oikos* in the sense of *household* and *living relationships*. However, ecology is not simply a matter of living relationships. We have to be capable of crossing boundaries in our thinking if we want to carry these relationships in our consciousness as a whole system. Comparable boundaries have already been crossed in this century in the realm of physics, and the renowned quantum physicist Arthur Zajonc even goes as far as to refer to an *ecological consciousness*. This means that we have to extend the boundaries of natural science, which has become excessively focused on individual objects, and look more at the relationships between organisms, and at the relationships between organisms and their environment. The important Finnish philosopher, Georg Henrick von Wright, agrees with the Anglo-American physicist Freeman Dyson that it is possible to develop a *cosmic ecology*. This does not mean that the individual organism becomes meaningless, but rather that we can only understand it as an organism in the context of a multifarious living nexus within which we also have to take account of hierarchical differences within the kingdoms of nature.

The Human Being and Nature: Co-Operation or Destruction?

How does the human being relate to these complex living networks? There was a time in which it was thought one could distinguish in principle between people living in civilisation and others entirely in natural surroundings. A closer look reveals, however, that all human beings bear the stamp of civilisation to a greater or lesser extent; there is, of course, a considerable difference between peoples whose whole way of life revolves around nature, and the inhabitants of a big city such as, say, London. A number of detailed anthropological surveys are now available on the life of peoples or groups of tribes who were previously considered primitive races, for example, the Makuna Indians in the north western part of the Amazon. Surveys have shown that this community, consisting of small villages of between 15 and 20 inhabitants, has developed a perfect integration within the local ecology with no sign of wastage. The Makunas live by hunting and by gathering widely dispersed fruits and seeds. They also cultivate areas left bare by fire which they desert after about three years, and which regenerate in the form of secondary forest within fifteen to twenty years. Their agrarian culture is diverse and there is no sign of want or malnutrition in any of their villages. The people have an extensive knowledge of the plants and animals, which they need for their nourishment and a complicated system of eating taboos and other rules that ensures moderation. Compared with the economy of the immigrant white settlers we find one significant difference: the consumption of the Makunas is based on needs, whereas the white settlers strive for the greatest possible production in the shortest possible time. The latter results in the pillaging of both forests and rivers. Similar forms of highly developed ecological cultivation may be found in other places, for instance, among the Kayapo on the border of the Amazon forest with the savannah lands around it. There, too, husbandry is based on skilful use of slash and burn techniques. Gradually a picture emerges of tropical landscapes that have been cultivated for ages. At the same time nature was not left the poorer for it, but rather benefited in the form of greater differentiation in the various landscapes (as may be seen from the richer composition of formerly cultivated areas). Thus it is possible, in principle, that groups of human beings, sometimes even whole peoples, can integrate themselves harmoniously within an ecological network and, at the same time, enrich nature by means of new developments. Natural ecosystems are in any case subject to climatic change, volcanic eruptions or fire catastrophes, and generally show remarkable resilience. Sometimes indeed, a whole system is given a new direction. Thus, too, nature constantly takes up the cultural impulses of the human being and after a while brings them into a state of equilibrium. At least into the middle of this century our own European cultivated areas bore witness to this type of cooperation between nature and the human being.

Where the situation becomes problematical is when there is a combination of industrial thinking which is one-sidedly geared to production with massive use of scientifically oriented technology, and a strong increase in the population. There is a great need now in view of the widespread pessimism, even among the younger generation, to contemplate ways in which a positive development can be brought about, even by modern human beings who have lost touch with nature and are geared to urban life. They do exist, and could be brought about with some effort. What is certain is that we have no alternative but to bring about a change in our attitude to nature. For this to come about our thinking needs to change in quality. It seems to me that the time of "ripeness for the earth" in the life of the human being is a particularly apt one for such a change to come about. It should perhaps begin with an acquired understanding of anthropology. In contrast to the animals, who have been wisely embedded in their various

ecological niches – which is reflected in specialisation right into anatomical detail and the instinctive behaviour that goes with it – the human being is adapted for freedom by the form of his brain, his face, teeth, speech organs and, not least, by his hands, which have been preserved from any form of specialisation.

However, freedom means not only emancipation but also the possibility of cooperation and communication. It may be seen as our task to show this by means of individual, well-chosen examples worked through thoroughly with the pupils. We may feel it is a great cultural task that we have to carry out in the field of pedagogy. Thus in my opinion a newly conceived anthropology of the senses, in which the senses are seen as intentional sense activity, is an area which could be very fruitful combined with the description of various animals and their peculiar sense organisations. Our whole civilisation endows us for life with the view that our senses are receptive systems and thus makes the chasm between subject and object appear unalterable. It may, however, be demonstrated, that it is precisely our senses which have the capacity to unite us intimately with the world if they are cultivated appropriately. At a time in which multi-media culture is developing rapidly and expanding vigorously, this question is not merely a philosophical one. Other areas of research also seem to me to be very topical today: for example, research into the anthropology of speech and its application in contemporary pedagogy. The first beginnings of such research and the new perspectives it offers are already available. Once this has been discovered we can see rich fields of research opening up in social anthropology and also social ecology. What is essentially new in this research, is, as I have shown above, its whole approach. It is no longer a question of determining individual phenomena, perceived and treated as objects but rather a matter of seeing connections, and being willing and able to act out of an imaginative consciousness. If, in Class Eight, we can see with astonishment how individual bones develop within an overall network and are able to carry out their allotted task effectively within this, we can also develop, step by step, the corresponding concept of an ecological whole in Class Nine. This concept also includes our own existence to the extent that we are willing to take the leap from an anthropocentric to an ecocentric consciousness.

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