

NOTES ON COSMIC EDUCATION

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Tendencies of Children

The tendencies of children between 6 to 12 years to be taken into consideration for teaching history and geography are their desire to know how and why, the what for, their incipient sense of justice and a tendency to hero-worship those who did outstanding feats. The desire to 'incarnate' knowledge - to use Dr. Montessori's own language - is as great in this period as it was in the previous year span of 3 to 6 to the children of that age group. Dr. Montessori gave what she called the 'keys of the world', that is the means to explore sensorially and to classify consciously. She also gave them techniques of behaviour, which enabled them to better fit into society. Confronted with the changed tendencies and potentialities of the children from 6 to 12 Dr. Montessori said: If to the small children we have to give the world, to the older ones we must give the universe.



Sources of Inspiration

Among the authors, who impressed Dr. Montessori were the astronomer Jean, Ranke, who wrote about man, Antonio Stoppani ²³⁴ who was a geologist, and H.G. Wells. Stoppani was among the first to consider the earth not just as a deposit of minerals and fossils, but as something in which many forces were at work to create and maintain a cosmic order. We might say as something, which was living and planning for the future. The phenomena that happened on the planet were as though being directed by an Intelligence, a *Super Intelligence*.



That type of geography made sense to Dr. Montessori. Whereas the geography studied at the time consisted mainly in memorizing names of rivers, mountains, capitals and so forth, Stoppani illustrated the work of water in moulding, carving, carrying,

¹ Dictated by Mario Montessori in Amsterdam in my presence.

² Stoppani was possibly a relative of Dr. Montessori.

depositing and the work of the wind in guiding the water along the oceanic currents. And he also spoke of the work of living beings in purifying the air and the water.

In the “Science of Life” by H.G. Wells different aspects were illustrated both in the vegetable and in the animal kingdom. There was the evolutionary aspect connected with the geological eras, and there was the aspect of inter relation of different types of life as is to be seen, for example, in the plants producing flowers, which in their structure closely conform the physical structure of the insects that fertilise them and each detail to ensure pollination arranged in such a way that, again, every thing seems to be planned and administered by a *Super Intelligence*.

The Cosmic Task

This *Super Intelligence* was also found in the phenomena described by Jeans. Dr. Montessori called it the *Guiding Unconscious*, which was immensely vaster in its scope than the conscious part in the realm of life. In the living being, this unconscious part, the co operation for maintaining the cosmic order, is attached like the *sine qua non* to their existence. Thus, for instance, the insects, which visit the flowers, are only conscious of satisfying their own needs (that of feeding upon the nectar), but not of performing a larger function, the *cosmic task*, which is to fertilise the flowers and thus propagate the plants. The plants have no consciousness. Yet they seem to act intelligently, for it looks as though they have made detailed plans to provide the means of satisfying the needs of the insects in order to ensure their own fertilisation.



Similarly to ensure the dispersal of their progeny, the seeds make use of the wind, the water and the animals. If the plants had a conscious intelligence they would perhaps be aware of their own needs for survival and reproduction. But, like the insects, they would not be aware of the vaster task, the *cosmic task*, of eliminating carbon dioxide from the atmosphere, of draining the land that would otherwise become a morass, and of producing the oxygen, which is necessary for all the living beings and making the innumerable oxides, with which the Earth is covered.

And not only the living beings, but if one considers the matter in this light that even inanimate elements and even stars are involved in this. To give an illustration: As the rays of the sun hit the earth it becomes hot. But the temperature is not uniform, because of the earth's travelling around the sun and the angle of its axis, this gives rise to the seasons. And as the rocks become more warm at certain places than at others the winds are produced and the water joining the air through evaporation, is transported over the lands where it precipitates and thus provides for the needs of all living beings for whom water is as essential as oxygen. So it is the cosmos, which is involved and not only the earth. Hence the name *cosmic*.

Everything which contributes to the harmony and the development of the cosmic order Dr. Montessori called *cosmic tasks* and the education, which illustrates this to the children, which enabled the children to absorb this, is known as *Cosmic Education*.

God without Hands / Aids to the Imagination

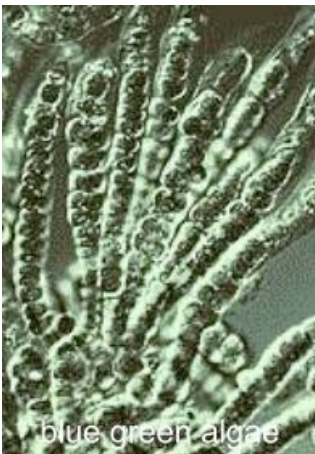
Also the history of man has to be seen in this context in order to be understood. Guided by the curiosity of the children Dr. Montessori realised two things:

- History cannot be taught as an isolated subject, but needs to be integrated with other subjects.
- The History of Man must be fitted into the whole context of the History of Earth, beginning from its formation.

Therefore to make the Formation of the Earth more interesting, she invented stories in which the different elements were given human reasons and human sentiments, which I later wrote down as the story of *God without Hands*.

For instance in the explanation of the formation of the earth, she compared mixtures in which the different elements retained their individuality such as in a mixture of sulphur and iron filings, with children playing in a crowded play ground with their friends, who would separate at a certain moment as mother called them to dinner as was shown by the experiment that the iron filings could be retrieved with a magnet or crystals in water could be retrieved through evaporation. And she compared the compounds, where two elements by joining together produced something new and lost their own properties, such as is seen in the compound of sugar and sulphuric acids, with marriages where two people are in love with each other and join together to form a new family. All these comparisons, which made it easier for the children to visualize the Formation of the Earth, which was not accessible to them sensorial, she called *Aids to the Imagination*.

The Evolution



In the Study of Life on Earth she led the children to several realisations. One of which was that in the succession of geological eras the living beings became more and more efficient by producing different species. To illustrate each advancement she represented it with human sentiment and reason. For instance the unicellular algae at a certain moment appeared to have said: “Let’s join together and we shall be stronger.” So they created masses in which each had the same behaviour and before when they were not united. Later on they said: “What’s the use of us all doing the same work? Why not specialise and divide the work?” So that organs were created. And so on.

In the background of it all was illustrated what was the *cosmic task* they accomplished. That is that while creating better conditions for life

itself and providing what was necessary for a more evolved form of life, they did more efficiently what was cosmically needed. An illustration of this is found in the different types of life, which succeed one another on a barren rock. There is one type of vegetable life, which can do it and that is a special kind of lichen, which feeds on the rock and dies there. On the remains of this dead lichen another type of life can feed and eventually through the succession of the lichens the ground is prepared on which mosses can live and then grasses, which in their turn, through their existence, produce further elements, which make it possible for small plants and bushes to live and finally conditions are created for larger trees to exist.

The Evolution of Sentiment

Another realisation was the *Evolution of Sentiment*.

Reproduction was first a matter of *division of cells*. Then both in plants and animals came the actual reproduction. And with this, in animals, came a form of primitive life. But, as it is still nowadays for most *fishes and amphibians*, the eggs came to be abandoned in the water, unprotected. The *reptiles* said: “We must protect our progeny and provide them with food and make them independent of having to be born in water.” So there came eggs protected by a shell, which were hidden in the ground so that the enemies couldn’t see them. But they also were abandoned. Next came the *birds*, that didn’t abandon their eggs, but attended to them until they were hatched and the young ones were fed and educated until they had become capable of taking care of themselves. Then came the *mammals*, who said: “Well the eggs are exposed. I will keep the young ones inside my own body, so that to get at them they’ll have to kill me first.” And there the love extended throughout the period of childhood after which the grown up children were chased away. The love was always limited to their own progeny. Finally, with the appearance of *man* love lasted as long as life itself and extended to include also those in the past who no longer existed (like the deceased parents) or even strangers who were not related to the family.



Still another fact that was shown is that in the geological eras, which preceded the appearance of human life would have been impossible. The environment had to be prepared for it and all the preceding eras contributed in this preparation. That is why in the beginning we have said that in order to understand the history of man, it has to be fitted in the context of the history of the earth itself.

The Needs of Man

With regard to Man himself what was illustrated was the fact of *human intelligence*, his *gregariousness*, his ability to *live in any environment* and his creativity to *satisfy the needs of his life* and the fact that he was *never satisfied*. Always aspiring for better conditions. For the *History of Man* was, and still is, attached in the *Needs of Man*, it is a consequence of how these needs were satisfied. Living in different environments he discovered different means to provide for his various needs. To provide for his *shelter*, for his *food*, his *cloths*, *transport* and so on. So that gradually there came separate groups, characterised by their own behaviour,

who had found out their own solutions of their various needs according to their own environment. As these groups came in contact with each other, either peacefully as through trade and commerce, or violently as through wars and invasions, larger groups were formed and an interchange of ideas and inventions took place, some of which (like the invention of the alphabet) can be traced back, but many of these can not (like the invention of the wheel or the use of fire). But all of these have contributed in what civilisation is today. If one studies



Noach's Ark



Oseberg viking ship

any detail/item of things that are in use today, food, shelter, houses, modes of transport, music, painting etc. one sees that it is the result of the work of not only one nation, but of many. There are no superior or inferior races but humanity is one. If opportunity and conditions arise, people of any race produce something,

which is accepted practically as a great contribution to the whole of humanity.



Marseille 1615



Modern cruise ship

Supra Natura

As for the *Cosmic Task of Man* Dr. Montessori used to say that in the *Bible* it says that God made the creation in six days and on the seventh day He rested. He did so because *Man* had taken over to create "*Supra Natura*" For instance through cultivation and cross breeding man creates in a few years what in the natural process of *Evolution* would perhaps take thousands or millions of years. Man transformed the surface of the Earth. He makes use of what is buried in the Earth, of what is available in the atmosphere and creates new metals, new substances and so forth, which in nature would also take millions of years.

The way Subject Matter is presented

The way this was presented to children went along with active research by them in every field. They were not only given a history book, but a whole collection of books, a library with encyclopaedias, books on lives of people, on botany, zoology etc. There were visits paid to historical places, to museums and so forth. Then the history of a nation was treated not only the events but also the people they met either through trade or through wars. For instance were they came from and what were their habits, what were the conditions of the women,

what degree of development their culture had reached materially i.e. with regard to instruments, clothes, shelter, and spiritually as expressed through art, religion and the morals. Materials to study this have been beautifully worked out by Mrs. Prins in the Netherlands. Besides dates and bare events the background was also given, from which events could be explained.

As for the practical side of learning the events placed in the right historical sequence and the various dates, there are the *Time Lines*. Some basic ones made by the teacher and others, which are made by the children. There is also the material, which illustrates the *Evolution* of some of the items of our present day civilisation, like the means of illumination and the modes of transport through the ages. This needs an additional lesson from the teacher, which arouses an interest and enthusiasm in the children and from that the desire to investigate further. And for that further investigation the school should provide the *keys* so that the children can go on by themselves and not just listen to further lessons until it becomes necessary.