

# Kosmische Opvoeding

*In de pedagogiek van Dr. Montessori neemt het begrip kosmische opvoeding een belangrijke plaats in. In "Opvoeding en het Menselijk Potentieel" en "From Childhood to Adolescence" heeft Dr. Montessori, in nauwe samenwerking met haar zoon Mario Montessori, uiteengezet wat zij onder kosmische opvoeding verstaat en hoe daar in de didactiek van het Montessori onderwijs vorm aan gegeven dient te worden.*

*In de Nederlandse Montessori wereld wordt Kosmische Opvoeding op heel verschillende manieren geduid en je vindt dan ook opvattingen geëtaleerd, die op het eerste oog weinig binding hebben met wat de Montessori's zelf vonden dat Kosmische Opvoeding is of zou moeten zijn. Als voorbeeld daarvan kan het werk van Da Vinci uit Hengelo dienen, dat eerder een methode voor kosmisch onderwijs genoemd moet worden, dan een werkwijze om kinderen zelfstandig exploratief bezig te laten zijn.*

*In mijn werkzaamheden in het verleden als Montessorileider en Montessoriopleider heb ik geprobeerd om met wat de Montessori's zelf vonden dat Kosmische Opvoeding moest zijn als uitgangspunt, een geheel te creëren dat werkbaar is in de Nederlandse onderwijssituatie. Terugkijkend op deze activiteiten heb ik niet het idee hier helemaal in geslaagd te zijn. De implementatie van dit geheel in de Nederlandse Montessori scholen is eigenlijk niet helemaal van de grond gekomen. En daarom heb ik besloten om, vanaf de zijlijn, op deze homepage en aantal artikelen te publiceren, die ik destijds gebruikte. Zodat iemand die dat wil er ook nu nog gebruik van kan maken bij het nadenken over wat Kosmische Opvoeding is of zou moeten zijn in de optiek van de Montessori's zelf.*

- Notes on Cosmic Education
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## Notes on Cosmic Education

### Mario Montessori

Amsterdam, 28 januari 1968

*In 1968 organiseerde de Stichting Montessori Centrum een studieconferentie in Wijk aan Zee over het Nederlandse Montessori onderwijs. Drs. Mario Montessori jr. was in die tijd secretaris van de door hem opgerichte SMC (Stichting Montessori Centrum). Hij vroeg zijn vader om een notitie, waarin de essentie van Kosmische opvoeding uiteen gezet zou worden. De notitie diende Drs. Montessori als*



Mario Montessori in 1973

*achtergrondinformatie bij de voorbereiding van de conferentie.*

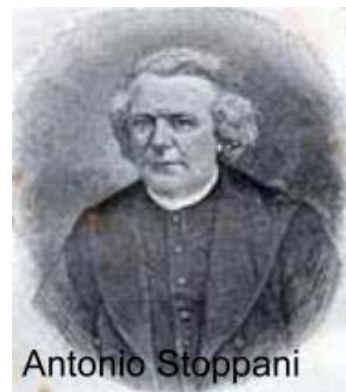
*Toen de Heer Montessori zich van deze taak kweet, was ik toevallig op het hoofdkantoor van de AMI in Amsterdam aanwezig. Hij gaf me een doorslag van zijn 'notes' voor eigen gebruik. Ik publiceer die nu op deze homepage in de taal waarin ze gedictieerd*

## **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 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, who was a geologist (and an uncle of Dr. Montessori's mother), 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, 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:

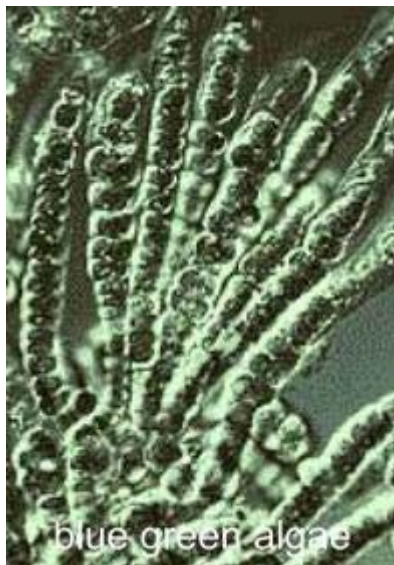
- History cannot be taught as an isolated subject, but needs to be integrated with other subjects.

- 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 *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 sensorial, she called *Aids to the Imagination*.

## The Evolution



In the Study 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 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.

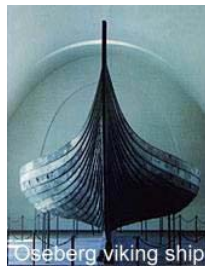
## The Evolution of Sentiment

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 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 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 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.



Evolution in transport.

## 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 has 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 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.

*All pictures for this article were found on the internet with Altavista*

## The Kodaikanal Experience

### The origins of Cosmic Education

*Ruim tien jaar nadat Mario Montessori zijn 'Notes on Cosmic Education' dicteerde in Amsterdam werd hij in dezelfde stad geïnterviewd door David Kahn voor 'The NAMTA Quarterly'. Samen met Miss Lena, met wie hij een schooltje leidde in Kodaikanal (India). De AMI organiseerde een congres in Amsterdam, in het Tropen Instituut, waaraan ik zelf ook meewerkte. In beide interviews wordt de nadruk gelegd op de beleving in de werkelijkheid, het 'going out', die het uitgangspunt is van kosmische opvoeding. David Kahn gaf mij toestemming voor publicatie van deze artikelen in de reeks over kosmische opvoeding op deze homepage. De NAMTA is een Amerikaanse organisatie voor Montessorileraren. <http://www.montessori-namta.org>*

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Miss Lena Wikramaratne - © photo AMI

The Kodaikanal years were from late 1942 to March 1944, a period of internment for Maria Montessori against her will in India. Yet in these remote hills a fanfare and training course emerged, and so did the inspiration for an in depth unification principle for the elementary program which we now loosely call 'cosmic education.' Here is the story.

*"Yes it is wrong the way the natural sciences are given in training ... Because what the trainees are getting is how to present classified nomenclature ... Rather they should go out into the natural world - that's where it all begins."*

### Lena Wikramaratne

Amsterdam, 1979

Lena Wikramaratne is lecturer and Director of teacher training programs for the Association Montessori Internationale and Director of the AMI Montessori Education Center in Palo Alto, California and the AMI Teacher Training program at Avila College Kansas City, Missouri. (Ms Wikramaratne has died)

## The Kodaikanal Experience - Chapter I

Kahn-Wikramaratne Interview

**David Kahn:** The Kodaikanal experience was instrumental to the completion of the "Cosmic Education" ideal. Miss Lena, you worked closely with Dr. Montessori and these children in the realization of this integrated, cultural approach. Can you begin with a little history about Montessori in India?



**Lena Wikramaratne:** Yes, you see, I had searched for Maria Montessori once before and wrote to all the embassies of the world. None of the embassies knew where she was at that time. The war was on. A friend told me that they had seen a piece in the paper saying something about Dr. Maria Montessori visiting the Theosophical headquarters at Madras. I wrote. I received a letter saying yes, she was there with her son. The letter said that no courses would be given that year because unfortunately, something had happened. Mario, her son, was put into an Italian detention camp because of the Italians coming into the war.

That was 1940. Then I received a second letter stating Mario was returned but she had to recuperate and she didn't know when the next course would be given. Then I received a third letter by the end of the year saying the next year they would be having the course. So I went. In the first three lectures, she gave this wonderful cosmic view of the child, showing how the child is more than just something that plays or something you just enjoy. She saw things differently. The child had a real mission to perform which was the making of the human personality, and that there were great depths in spite of what we see as dependency and simplicity. Montessori saw a great potential in the child. The first three lectures were beautiful. I had been working with two educators from the West, from London University and from the University of Chicago who had been giving us some lectures on preschool education and Montessori was so much better.

**Kahn:** What were these Western educators saying?

**Wikramaratne:** The professor from England had been sent through some kind of exchange for University people. Another was a woman from Wheaton Illinois, who had been sent on an exchange fellowship. The two got together and were giving a survey of modern trends in education, which I began to follow at the University because I had been doing some teaching at the time. I disagreed with them because they felt that the child between two and seven years needed only fantasy and play. The English professor was saying we should have sand boxes and water play and stories and whatever; rolling toys, gross muscular movement; old tires to roll, etc. And I would think of our children running up and down hills, climbing trees; why should I have to put them in these sand boxes? The American professor was telling us that John Dewey developed preschool education with a singular environment of toys and home artefacts, such as Mommy's hat, clothes, for dressing up fantasies. They also had toy utensils for simulating housework because their whole idea was that the child imitates everything that the adult does.



**Kahn:** This was the Dewey environment.

**Wikramaratne:** Yes. One day, I made my fellow teachers furious. I challenged the idea of just keeping children happy in school. The child didn't come to the world just to be happy. My father and my mother brought me up exposing me to everything about the world. I am still eager to learn because of that interest that had been imparted to me. And I said where in your program do you communicate interest in the environment around you? I didn't know very much about the potential of the child except what I remembered from childhood. My parents were full of interest and they gave me interests in everything when I was very young and taught me many things. My father was an agriculturist. He was interested in industry, economics and history; he gave us all of that when we were very young. So I thought then that children were eager to learn. Why can't children have the same interest in learning as adults have? What has gone wrong? I asked one professor and she said she did not know. So these two people, great educationalists and philosophers from the West couldn't tell me anything. I was so happy I found Maria Montessori.

**Kahn:** You found Montessori in 1941; did you get to meet her personally?<

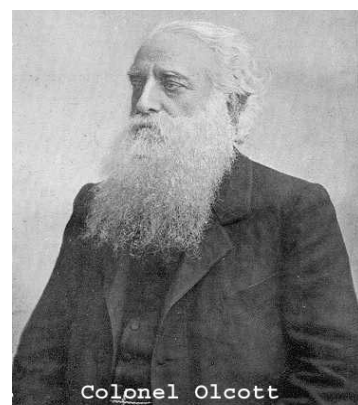
**Wikramaratne:** Yes. When they wrote me that letter I immediately gave my resignation from my teaching contract. Everyone thought I was crazy.

**Kahn:** Was this an unconventional thing to be doing, taking this Montessori training?

**Wikramaratne** Yes, but when I heard from them, they said that the Indian government had sent many, many teachers to listen because she was giving this marvellous psychology of the child. I went on my own, of course, from Sri Lanka, through to Madras then met the two of them. I still remember the first day I saw her. The Theosophical Headquarters had cement floors, woven bamboo walls and roofs for big conventions. Three hundred students had arrived for that course; and we lived in little rooms like this (office size) two in each.

**Kahn:** How did she achieve this stature in India so quickly?

**Wikramaratne:** That is a long story. You see, she was lecturing in England and this was after the Civil War in Spain. She had come in touch with the Theosophical Society in England. It was founded by Annie Besant in collaboration with a Colonel Olcott. They felt that if they could bring all religions under one common roof, then people would not have the antagonisms and tensions. They also felt why wait until adulthood to transmit these ideals. She and Dr. Montessori were hoping to communicate peace through the child. Dr. Montessori was saying that peace



can only come through the child. Then after establishing this contact with the Theosophical Society in London, later on George Arundale who had operated the Theosophical school in London, invited Montessori to India, when he became president of the organisation.

**Kahn:** So this was the root of the Montessori following in India. Montessori really stemmed from the Theosophical Society and was not promoted by any educational movement.

**Wikramaratne** That is correct.

**Kahn:** What was your training like with Maria Montessori?

**Wikramaratne** Oh. the delight, the pleasure, the joy. The wonderful vision that I was able to get from the first three lectures. I kept on each week saying, I have to stay with you, I have to stay with you. This course of four and one half months is not enough for me. And of all the 350 people who took the course, I was the only one who told her that. They gave us the diplomas after the course and I I didn't want it; I have to come back to Maria Montessori. I was able to learn so much. Maria Montessori was speaking Italian and I had studied Latin and I could follow the gist of what she was saying, and Mario, of course, in stumbling English, usually translated. So I would write every word she said and I used to write every word Mario said. I would go over notes all the night long and write my own lecture, which we had to turn in. I used to watch the presentations carefully. All the students used to go away after the lecture; I would run up there and work with my notes and that was the only practice I did. We had only three sets of material for 350 people. If I didn't do that, I would never have gotten my hands on those materials. And then I would sit on my own little cot and pore over the psychology and philosophy and write my exercises. That is the way I did it.

At the end of the course we received phone calls and letters from the civic authorities saying that all foreigners had to leave Madras within 48 hours because the Japanese had bombed us. This was the beginning of 1942. Immediately the Theosophical Society took responsibility for looking after Maria. With the British Government's help, they planned to send her up to Kodaikanal which was in the hills. I had to go. I found the city on the map, and wired my father. He came. I told him I had to be with those people. This was what I wanted. My father stayed and listened to the lectures. He was a man who loved children, not only his; he was interested in all children. He said with the war and with the Japanese bombing he wouldn't take me there. I told him I didn't want to lose them. I won't be able to learn what I want to learn now. I was just infused with this whole thing. And I said I am not taking my degree; I don't want it. I must go to Kodaikanal. That week, I received a letter from a cousin of mine whom I thought was in North India in Simla. But he had been sent to a new University which was three miles away from Kodaikanal down the mountainside. He said "I am here now for my Philosophy course. Before you go back to Sri Lanka, come and see me."

**Kahn:** That was lucky.

**Wikramaratne:** It was a God send. So I showed the letter to Papa and he said we would take the train and go around and then we would fly back to Sri Lanka. We took the train to Kodaikanal. And upon arriving, there was the seminary director, a Frenchman called Father Guthier. I am mentioning him because he is a famous historian and an anthropologist. Papa and he just got on beautifully. When Papa told him about me, he said why do you have to worry. You can leave her with me; I will look after her. That is how I came back to Dr. Montessori. The priest found me a home in a cottage close by to where they were, by the lake, which was beautiful. Often I used to run down the hill to their house which the Theosophical Society had given them. And she asked me, What can I do here? I can't give a course; all I can do if you come to me in the evenings is talk and show you some material.

**Kahn:** You worked alone?

**Wikramaratne** No, Dr. Montessori asked me to bring another woman and her two children who had come from Calcutta. Also a European woman arrived with two of her children. And with those four children I started a little school in the tiny cottage.

**Kahn:** So your cottage, Maria Montessori and her family, yourself and these four children - this is how it all started?

**Wikramaratne:** That is right. Dr. Montessori showed me all this elementary material. She talked about her vision. But I wanted to try things out. I've got to work with children, to see this actually happening. I wanted to see the spontaneous activity. I wanted to see it happening.

**Kahn:** How old were these children?

**Wikramaratne** There was a girl who was four. Another girl 4½. The boys were three and two and one half. I loved that. I was the first to work with two year olds. Many European schools were not taking children until they were four.

**Kahn:** Did the school expand?



Hill station Kodaikanal

**Wikramaratne** Yes. Kodaikanal was a place where English, American, Swedish and Dutch had their own schools for their older children; but the babies were not in school. So when they saw me starting this little place with four children, within a week I had fifteen. They brought their babies to me. Gradually, Dr. Montessori gave me guidance in the evenings which kept her busy, for she had been quite depressed being forced to live on this mountaintop. The Theosophical Society had given her a marvellous American girl, Norma Makey to help Montessori write her books. She was

revising old material resulting in two new publications, the Absorbent Mind and the Discovery of the Child. Norma Makey was the editor and translator. We all kept Dr. Montessori busy those years from 1942- 1944.

**Kahn:** So now you had fifteen children, and you supervised them all.

**Wikramaratne** Yes, and every night I would go to Montessori and tell her what happened that day with the children. Little by little, the parents who were sending those babies saw what a great thing it was. We used to go out for rambles, or walks, every day. At noontime, Mario joined us and showed them leaves and flowers and we would go fishing in the pond and bring the pond animals home. Mario made aquariums and terrariums, even for the little ones. So parents said, "If you can do so much for the little ones, can you take my older child? This child is not good in mathematics; this child is bad in spelling; this child is having trouble in reading."

**Kahn:** Now you had very few materials, as I recall.

**Wikramaratne** Yes, Dr. Montessori had one set of materials and my father ordered one set for me from Adyar. The rest of the card materials, we made each day. When material making became so profuse, I called another girl in from Sri Lanka who could draw for me. I also took on a male artist from Kodaikanal and a carpenter to make the materials.

**Kahn:** Impressive. I'm told that the Kodaikanal experience generated the botany materials, the story of the universe, geography charts, that sort of thing. Is that right? How did it happen?

**Wikramaratne:** When people saw how those children who first came for some tutoring began to work, and how they blossomed, they wished to remove them from the schools. They came to me and asked, "Can you take them on for higher work, totally? So I went to Dr. Montessori - What do we do with these older children? I won't have books to teach them. She said, "You have the best book, the book of the world, which is the book of nature. Don't worry; take them. You can find English material. English is fine for doing reading, writing and all kinds of literature. Father Guthier said we could have his books from his seminary." The American school had a marvelous library and because there were lots of American children in my school, they said we could use their library books. So by the end of the year, we had 60 children.

Amazing, isn't it? And of course, my father thought I was crazy, all these children in a little cottage. So he leased the adjoining building.

**Kahn:** Were these tuition-paying children

**Wikramaratne:** Yes, they paid us a little. They were all wealthy. We had Americans, Swedes, French, and English children.

**Kahn:** How did you deal with the language situation?

**Wikramaratne:** Most of them knew English. Some Indian children didn't, but they picked it up very quickly, so it grew. Anyway, toward the end of the year, we were able to advertise a course. So Indians came to take the course, in which I assisted. Some of them brought their own children, so we had lots of Indian children too.

**Kahn:** Did Mario take on teaching responsibility every day?

**Wikramaratne:** Yes, every day he would come to the school. We used to go together and pick the moss and marsh plants and come back and make the terrariums and the aquariums. We used to bring samples from nature and keep them to let the children see the different ways of life.

**Kahn:** Part of cosmic education is the Story of the Universe. Where do you think that originated? Did that come from the Kodaikanal experience too?

**Wikramaratne** No, that idea Dr. Montessori had before, but she had never been able to put it together and give it as a course, until what happened at Kodaikanal. During the first two years with the children, we had made so much material for geography, for botany, for biology, exploring scientific nomenclature. We planted the beds according to the natural order of plants, out in the garden. For the geography, Mr. Montessori built whole structures with rock, clay and wood to show the formation of mountains and what happens to clay soil and sandy soil in the sun.

**Kahn:** So you were making real materials and creating real experiences in nature. This is somewhat of a contrast to the approach to cosmic education in our present training. We were not trained in this manner.

**Wikramaratne** Yes, it is wrong the way the natural sciences are given in training now. I have to say it. Because what trainees are getting is how to present classified terms to the child. But they themselves do not know that much about nature. They must go out into the natural world or else they won't be able to show anything to the child. And that's where it begins.

**Kahn:** Then they really don't have enough experience. So the children learn the classifications before they learn the lore and the common names.

**Wikramaratne:** This is unfortunate. The orientation of the world must come first, before you begin to classify. So what is going to happen, unfortunately, will be that the elementary classes will be limited to the knowledge that they have gained in the junior course and that knowledge will be like textbooks.

**Kahn:** Well now, the training courses argue that they have developed key materials which isolate universal facts of nature.

**Wikramaratne:** We had developed them in Kodaikanal; there was nothing more to develop. That's why she said, after two years of developing, "Lena, we made all this. Why don't we give the junior course?"

**Kahn:** What relation to elementary materials had been there before Kodaikanal? What was the real contribution of Kodaikanal? Wasn't there already a Junior curriculum derived from Mrs. Joosten's work in Holland?

**Wikramaratna:** Dr. Montessori had ideas as to how to develop the curriculum for the older child. They had done some experimentation in Laren, Holland where they had done some of the biology material. We had that. Some of the mathematics had been done in Spain. That is where she wrote Psychoarithmetic. They had some of the key materials already made. But when coming to Kodaikanal a whole new world opened up for Mario. He was mostly experimenting and seeing how it was classified. So we started from scratch in every subject.



**Kahn:** Using these key materials you made in Kodaikanal aren't they the same key materials that are being presented now?

**Wikramaratne** Yes.

**Kahn:** However, those were spontaneously evolved with the children. Now the materials that we are working with are fixed materials that are in fact taught to the children.

**Wikramaratne** That's what I was objecting to. Because they are teaching nowadays. They are not exploring. They are not discovering.

**Kahn:** So your ideal situation would be for the teachers to be trained with key materials but they should evolve their own materials out of their own experiences?

**Wikramaratne** No, not evolve. Know how to discern the world of nature with those classifications that she gives you. We didn't go to teach the child the parts of the flower. We collected flowers and brought them. I still do that with my own trainees in Kansas City and San Francisco. I go out and collect the leaves. Then we say, what shape is this or that. Then we refer to the cabinet of leaves. What is happening now is they are learning a linear leaf from the leaf cabinet and then looking to see if it exists in the world of nature. The vision, the preparation, must be there before you begin to classify.

**Kahn:** You have the total picture first and then classify. We do that to some degree but not enough. If you were to design a training program based on Kodaikanal, what would be your approach?

**Wikramaratne** I'm trying to do it in a little way by giving special study courses on geography, geology, botany, zoology and astronomy. So I am doing it during the summer weeks. After a series of eight lectures, I'll get the trainees in and I tell them. let's go for a ramble first and bring back all kinds of plants. I tell them what are the differences you see in the stems and leaves, etc. I do as much as I can on an observation basis. And then I tell them to look at the textbooks. What are the classifications in the book. That classification you must put in the materials. Make them yourself; don't only buy it from Nienhuis.

**Kahn:** In other words, you evolve the materials yourself, based on what the kids find. You make a classification key, of plants in the area and that is the real experience.

**Wikramaratne:** What I was able to discover with the children after we had done that, these nature activities with both the eleven and twelve-year olds in Kodaikanal and in Sri Lanka was that they were much better than the trainees I had. I got University lecturers to give key lectures; I gave them my whole scheme of cosmic botany. I asked them to come and give this overall knowledge of botany from this angle of mine - this cosmic view. They were able to lecture the same lecture that they gave my trainees to the children. These lecturers told me, that my children were better than the adults, because the adults were trying to remember the classifications whereas the children knew them. And then my eleven and twelve-year-olds made their own books of Botany. They didn't make it in cards; they made them in albums, like you make your own albums. They began with kinds of trees. You can't show the parts of a flower before you have seen many of the kinds of flowers there can be in the world. Then you see all those flowers have the same parts, just like all mankind has a head, shoulders, a neck, two arms, two legs.

**Kahn:** So you look for a variety to begin with then you go on from the particulars.

**Wikramaratne:** Yes, that is the exact preparation. So the children saw the differences before we showed them how culture has classified them. You see, we couldn't have classified them before we became oriented.

**Kahn:** In other words, they would say in their own common language what the differences were.

**Wikramaratne** They hadn't book knowledge only.

**Kahn:** Now my training tells me that teaching the key allows them to see more differences. In other words, what they would get from the idea of the petiole would be that there are different kinds of petioles. They may not ever have noticed a petiole before until they were given the key.

**Wikramaratne:** Yes, but if you give them a whole host of flowers and tell them now what does each one have. Oh, it has this coloured, it has a stem that you can hold. Then you can give them the name petiole. That is the sensorial preparation before giving names.

**Kahn:** Oh, then you work from that experience. You have the real specimen first. That's what they say in my training too.

**Wikramaratne:** Yes, but I wouldn't do the specimen like many do at the workshops where they had ordered a hundred tulips from a florist shop.

**Kahn:** In other words, go into nature.

**Wikramaratne:** Yes; every flower will have those parts. So why order a hundred tulips, or whatever?

**Kahn:** It should come from an organic experience that is in the child's life.

**Wikramaratne:** Of course, because that is where we begin from the very first - from birth to three. The child has oriented himself in the world. What does Montessori say? All those impressions are taken in - so now help them to classify. Mr. Montessori took us out at least once a week and showed us things. It was beautiful.- His goal was to widen interest, to give us preparation for the work of seeing and observing nature, and learning how to discern differences before you give the classification of things. So then we came home in the night and talked things out. That was the direction Dr. Montessori gave us - how to put them in different classifications and how to draw them. Mind you, that is why I took on an artist - to do all the cards - the parts of a flower and then the parts of a stem, parts of a pistil. And on and on until we came to the natural orders.

**Kahn:** And then this work was since taken by Mario and then institutionalised later on through the Bergamo training. However, you yourself haven't taught much of the junior curriculum since that experience, have you?

**Wikramaratne:** I did it with my own children in Sri Lanka up to the 15 year-olds.

**Kahn:** Did you have to make materials all over again?

**Wikramaratne:** Not all, I took some of the material from Kodaikanal and then did some more back in Sri Lanka for the local plants and geography and history. I worked hard on materials. For instance, the History of Life and the World Chart that we show now, we made that from scratch. We bought, or Father Guthier gave us blank news print for material making. And We used lamp-black and dyed it black to show the world before man came. For that scroll chart to show world evolution we took poster paint and painted on the newsprint. That's the way we did it.

**Kahn:** That's interesting. I guess a new teacher goes through this experience. With your first group of children you can be spontaneous and develop with the children. Then as you get seasoned, in the classroom, some of that is lost. Anyway, the flaws you might be ready to perceive in new training for cosmic education is related to the fact that it's not a first generation discovery and it's got to be transmitted and can't be transmitted except in a fixed manner. Isn't that the way it goes



**Wikramaratne:** Yes, but what I would say is, I have been begging that they make it in a two-year course, bring back the teachers so they can come to study the subjects from that cosmic angle by themselves - the geography, the geology. We would set foundations of giving the cosmic view. Let them study their own subjects for one year and find out facts to support the cosmic view.

**Kahn:** Speaking of the cosmic view, which is related to the past geological eras, where do you think that idea came from in Montessori?

**Wikramaratne:** From Dr. Montessori. From the very beginning when she saw the normalization of those children in her first experiment, which was the time that she really began to see that those children had something bigger to contribute to the life from that cosmic point of view. So having been a biologist a scientist and a mathematician, she began to relate it then to the natural law of order. Then she and Mario came to view it when she saw the children of all nationalities in Kodaikanal actually giving response to this natural world, in the same way. That's the time she said, lets do this advanced course.

**Kahn:** In cosmic education, like everything that's inspirational, runs the risk of being packaged and a cliché.

**Wikramaratne:** It should n't be packaged. We have to create people with interest. If you just learn the charts and dump those on the children, what is the interest you have gained? You have to go out. I am writing a little book called Child Nature and Nurture and it's a place for re-establishing relationships between parents, the children, the home, the community and the whole earth. Children must go out and explore nature. And every Montessori school should be able to do that.

**Kahn:** Why did Kodaikanal end?

**Wikramaratne:** In March of 1944 the war was over and the British government said Montessori could move around.

**Kahn:** Do you think she was anxious to leave at that point?

**Wikramaratne** I think she was tired of being confined. I wanted to stay. But she was interested in visiting my homeland - Sri Lanka. She told me she always wanted to visit the land of Sinbad the Sailor. She had read about the island as a child. So we set off together to find a new work - to collaborate with the child once again - the child in nature, in Sri Lanka, and we found that success repeated itself, and our discovery at Kodaikanal was confirmed.

"You take all the charts and timelines and call it cosmic education, that is ridiculous. It goes much further than that. . . We tried then to work with the child in nature - we would try to help the imagination of the child with real experiences."

## Mario Montessori

Amsterdam, 1979

Dr. Mario Montessori. Son of Maria Montessori. Dedicated his life to the preservation and application of Montessori 's work. He has directed training programs all over the world and is the Director General of the Association Montessori Internationale. The NAMTA Quarterly acknowledges Dr. Montessori's kindness and generosity in sharing his formative thinking on Cosmic Education at Kodaikanal. (Mr. Montessori died in 1982.

### The Kodaikanal Experience - Chapter II

Kahn - Montessori Interview



**David Kahn:** You once alluded to Kodaikanal as a community in the hills. Can you begin by describing what kind of conditions you had there?

**Mario Montessori:** We were supposed to be interned in Madras. And then we did stay there. But people realized that my mother's health would be damaged and they allowed us to go to a higher place where there was a better climate. The road to safety and salvation was Kodaikanal. We found a house which met our needs, with a minimum of stairs, a fireplace, a garden in the front and a garden in back. The garden in the front was on the same level as the house. The garden in back was

my escape route which was on a downhill plane.

**Kahn:** Escape from what?

**Montessori:** Night and day I was with the community of people, who were preparing for the course lectures, and working with the materials. I did the usual observation of practical. But then after I was able to go into the woods out the back way to meditate and be alone a little bit. You must remember that during that time there was much destruction going on in Europe. The only time I could think about my children who were back in Europe was in this time alone away from the people.

**Kahn:** You were separated from your children then?

**Montessori:** Yes, they stayed here in Holland. I knew my son was involved in a dangerous situation. He was with the underground; he was taking the RAF-pilots through enemy territory to a place near Belgium where they could cross to go back home. And my two other children were under the care of Ada who was later on to become my second wife. They were safe - but the place was full of bombing and so on. And I was really worried.

But that is the personal aspect. Now I will tell you another point of view. There were people who came to stay and share our solitude in Kodaikanal. There was one young lady who came there and took a house just a few steps up on the hill. She started a Montessori class which I could observe every day. That was Miss Lena Wikramaratne. We had an excellent communication.

**Kahn:** So at least in your grief there was one consoling fact that you had a Montessori class there. In that first session you had only four children - then your number mushroomed overnight. What did you do with these children?

**Montessori:** I did a bit of everything. I went outside to visit them, to interest them in nature. How did the trees grow. We had a little garden that was worked by the children. They took care of the flowers. They cultivated the plants. We had every variety of species to enhance classification. We went to the garden to observe - many times just to see.

**Kahn:** Any particular activities?

**Montessori:** In particular, they observed and detected different aspects of the plants.

**Kahn:** How did you work it? Would they see a model plant?

**Montessori:** That's right. Each species has its respective parts that conform to the composite. They could see that plants were really different yet still belonged to a universal plan. That was really a surprise to the children.

**Kahn:** You made terrariums. What inspired terrariums?

**Montessori:** Biology includes not only plants, it includes animals. It involves relationships. I wanted to show the children the possibilities of survival within a reconstructed environment. So we created these terrariums to show the collaboration between plants and animals. We would catch one animal at a time, observe them in our constructed surroundings and then return them to nature after a while. When the curiosity of the children seemed satisfied, we would move on to a different animal and a different concept

**Kahn:** How did you illustrate principles of survival?

**Montessori:** You had to construct the environment in order for the animal to live. For each animal there was a special environment suitable for its survival. I would do much of the preparation. I had to. The work would involve a great deal of thought and application. In order to make the animals eat, I used to catch them by the neck and they opened their mouth. And then I would put meat inside the mouth. That was the funny part; these animals don't eat while imprisoned in conditions that are not natural. They would starve to death. We tried everything to get the animals to eat by themselves. Finally we realized that we had to feed them forcibly.

**Kahn:** Did your mother have a direct role in these activities?

**Montessori:** No. She was a great scientist; she actually took a degree in biology after she finished her study of medicine. She was very interested. She would think the profound thoughts working by herself in the house. I was busy with the animals. Why didn't they eat? I was still pre-occupied. One frog simply wouldn't touch her food. She was becoming thinner and thinner - just a skeleton. Then one day, I got so mad I threw a pebble at her and she pounced on it, and took the pebble in her mouth. I realized then that some animals were possessed with the instinct of eating only animals that move. This was a great cosmic mechanism, because their eating would consume the living surplus. Eating only that which moved meant that the consumers would eliminate the living overpopulation.

That began to give us an idea. Dr. Montessori and I would talk. For everything that exists, there must be some force to calibrate the surplus. This seems to be the underlying characteristic: to render service without being conscious of doing so. The carnivores which feed on other animals help to keep fit the kind of animals upon which they feed. They eliminate the weak and the unhealthy and keep the rest alert, so that the ones which survive are the best of the race. The service they render is shown by what happens when they, as eliminating agents, have limited the species. Dr. Montessori used to say - God knows if the fish eggs all hatched and survived, the sea would become crowded. It is all very simple. If every fish survived, there would be no water and we would all drink the fishes.

**Kahn:** So the realization of the cosmic education ideal worked something like this. You and Miss Lena would work in nature and with the children. And then you would come back each day and talk to your mother and then she would make comments.

**Montessori:** Yes, the idea would grow. Animals and plants were attached to nature in all sorts of ways. The animals depend on water, on plants and also nowadays, they depend on man, who creates possibilities for certain types of animals to develop and evolve. Plants depend on sunshine, water, earth, men and animals. This is a real aspect of the world's functioning. We saw purpose in everything that existed; nature's equilibrium would be maintained. The mountains, the rain, why didn't it rain here, and why did it rain there - the atmosphere, the sun - each had its role to play.

**Kahn:** The interdependency of life and the network of ecology is hardly a new insight. What was really special was its relevancy to the education of children. What kind of developmental effects did it have on children? How did you make the connection that cosmic history would be an aid to the development of elementary children?

**Montessori:** We wanted to give reality to the children - and to show the principles of reality.

**Kahn:** Some would argue that purpose in nature is strictly hypothetical.

**Montessori:** Exactly, everybody has their way of seeing things. I merely wanted to show them the facts so the children themselves would realize what exists and draw their own conclusions.

**Kahn:** But Montessori and yourself have derived from this experience not only a factual picture of nature, but a vision of appreciation and love.

**Montessori:** Yes, we had many occasions to make moral lessons with the children regarding facts in nature. In Madras for example, the local people are afraid of crows - they view them as a horror. It is a part of the local culture to fear these crows. There was a hill for all to view where the people used outhouses - and the crows very often would immediately descend to get at the faeces while these people were using the toilets. It was quite an inconvenience.

These people were near a village of fishermen, and they had no facilities. We saw this type of thing. Over the years, these birds were considered unclean. But we tried to communicate that every creature had its cosmic task. And some of these tasks were not pleasant for human beings. The children might consider the task horrible. We changed their impression. To think how marvellous that everything has its task. We should be happy that crows clean up this mess. And then the children would give other examples coming from their experiences. Dr. Montessori meant for us to bring God into the life of the children. The reality and wonder of creation should be dealt with in such a fashion that the children cannot only see it but absorb it into their sentiment. They will feel that our world is a good place to live in. And a place where generosity is expressed with the very breath of life.



**Kahn:** Another part of cosmic education are the charts and the timelines. Doesn't your original work in Kodaikanal run the risk of banalization of cosmic education in the packaging of these charts and timelines? What do you think?

**Montessori:** We tried then to work with the child in nature, to show the erosion of land, the sedimentary formation - we would try to help the imagination of the child with real experiences. If you take all the charts and timelines and call it cosmic education, that is ridiculous. It goes much further than that.

**Kahn:** How do we deal with teachers in training who do not have the knowledge and appreciation of nature that you have? Where do they get the feeling for nature?

**Montessori:** Well, they do get an illustration of the facts, and if they don't have this kind of sentiment, they should develop them with the children and through the children, using real natural materials. People always say that nature education is too expensive or that it would frighten the children. But when we worked with the children, we simply showed them what's there. You could always demonstrate and give proof to the children as to what's happening. For instance, I would build a sandbox. If you wet sand, it stands up. If it is contained by a cylinder, it pushes

together. When you take the sides of the cylinder off, it pushes together. Then you sprinkle the sand with water, and the sand crumbles. All that took place on the earth, in the oceans. There are certain things that stay up for a long time - those are the mountains. Their material is hardened. Even then some mountains were washed away. I used to build extensive models outdoors, using natural materials.

**Kahn:** One of the ingenious aspects of Cosmic Education is the Story of the Universe in that it introduces an overview which initiates the first principles of all the sciences. When did you conceive of telling children the story of creation as a means of introducing scientific principles?

**Montessori:** I would discuss these things with my mother. Of course, we were in a country where the Christian belief was not in the majority. I would argue with my mother that every religion has its version of creation - that it was not fact. But as we studied we saw that there was a connection between the evolution of life and the Book of Genesis. We saw a reconciliation. We saw that everything has its cosmic past. Who does it. And everyone says, "God does it." And we used to say, well, God has no hands; we haven't seen God do anything. So that is why we believe that the hands of God were put in this world in the creation, in each substance, in each being. There is a sentiment, or perhaps a thought that keeps all things working together through a cohesion of some sort, through existence, through accommodation. The child can experience in nature that there is something eternal, present everywhere and always, which seems to have organized the whole universe in such a way that everything in it merely by existing, is of service to the whole.

**Kahn:** So the beginning of the elementary education that we know today really came from Kodaikanal. Although you had elementary classes before, this was the first exploration of the sciences that was uniquely a Montessori development.

**Montessori:** Yes. In the olden times, Dr. Montessori had the children up to six, and then from time to time would keep children whose parents were enthusiastic and who would request more. We had included some advance technique in previous courses. But it was at Kodaikanal where Dr. Montessori developed certain visions and through these visions applied and planned classes for children..

When we came back from India, we came to Holland, and the big surprise was that they said they knew everything already about elementary school, and we had a tremendous difference of opinion. We had made a new discovery which was special and long-lasting - and it all came about in the hills, at Kodaikanal where practice and ideals met - and a better vision emerged.



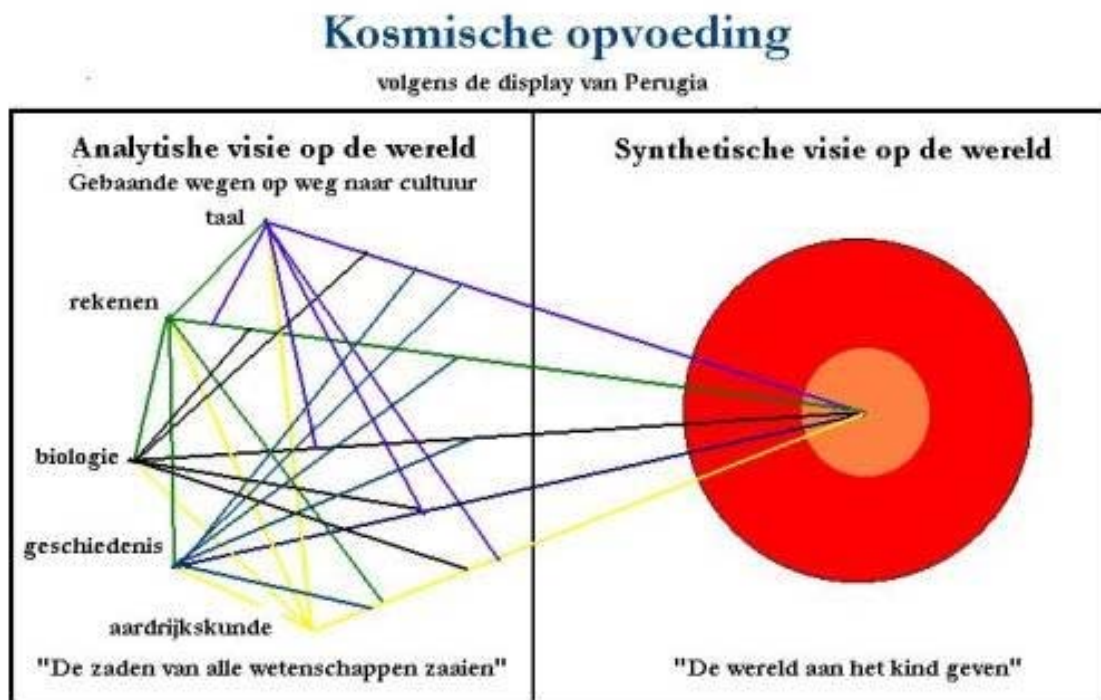
**Mario Montessori en Lena Wikramaratne**

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## Kosmische Opvoeding; analyse en synthese

### De Display van Perugia

In 1956 werd in het internationale trainingscentrum voor Montessori-leraren in Perugia (Italië) een cursus georganiseerd voor Montessori-leidsters en -leiders die werkzaam waren in het 'lager onderwijs'. De cursus had tot doel dit onderwijs te verbeteren. De cursus stond onder leiding van Mevrouw Paolini, eertijds leidster van Montessori's eigen Montessorischool in Laren. Mario Montessori trad op als consultant en Mevrouw Paolini werd bijgestaan door F. Guidi



Het citaat *'De zaden van alle wetenschappen zaaien'* staat volgens Guidi voor een analytische visie op de wereld. Deze visie staat voor een aantal *'gebaande wegen op weg naar cultuur'* die we het best kunnen omschrijven met leerlijnen voor afzonderlijke vakken zoals taal, rekenen, aardrijkskunde, geschiedenis, biologie enz. De in een bepaalde volgorde aangeboden materialen vormen het gebaande pad. Uit de afbeelding blijkt dat al deze paden met elkaar verbonden zijn en uitkomen in een cirkel.

Deze cirkel staat voor de synthetische visie op de wereld, gekenmerkt door het citaat *'De wereld aan het kind geven'*. Van de lezing van Guidi werd verslag gedaan in het blad *'Vita dell'Infanzia'* van 28 februari 1957 onder de titel *'De wereld aan het kind geven'*. Enige citaten uit dit artikel:

...

De grote cirkel in het midden stelt de wereld voor. De cirkel heeft een doorsnede van een meter en de kleur -die donkerder wordt naar het midden toe- is helderrood op de drie cirkels om de omtrek heen na.

...

De cirkel wil de essentie van de wereld voorstellen, waarvan energie en leven ontspringt. Dit is de synthetische visie op de wereld.

...

De rest van de zaal was verdeeld in hoeken. In elk der hoeken stond het materiaal dat hoort bij een tak van de wetenschap: aardrijkskunde, geschiedenis, natuurkunde, scheikunde, biologie, rekenen, muziek, taal etc. De wereld doet deze takken van wetenschap ontstaan en ze onthullen de wereld in zijn veelheid van aspecten. Dit is de analytische visie op de wereld.

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In de *Display van Perugia* lijken deze twee visie elkaar te weerspiegelen. Ze waren met elkaar verbonden door een aantal verschillend gekleurde linten die van de cirkel naar de takken van wetenschap liepen. Voor elke tak van wetenschap was er een lint. Dit stelde hun fysieke verbondenheid voor.

Voorts waren, om een indruk te geven van de eenheid die de verschillende wetenschappen vormen, en om duidelijk te maken dat er strikte relaties bestaan tussen wetenschappen die het onmogelijk maken dat ze onafhankelijk van elkaar bestaan, linten langs de vloer gespannen van de ene hoek naar de andere die zo een gesloten netwerk vormden, zo compact dat het oog de relaties niet meer kon volgen. Het was of ze tezamen de wereld opnieuw bouwden.

Op deze manier werden de citaten *'De wereld aan het kind geven'* en *'de zaden van alle wetenschappen zaaien'* geconcretiseerd. De studie van de details in relatie tot de



wereld, of anders gezegd de wereld geanalyseerd met behulp van de wetenschap en veroverd door de cultuur.

Uit: "De Kosmische Opvoeding en het Kosmisch Onderwijs in de Pedagogiek van Dr. Maria Montessori"

Fred Kelpin

Maastricht, 1997-5

Uitgegeven door de schrijver.

'Vita dell'Infanzia' van 28 februari 1957

'From Childhood to Adolescence'

Including "Erdkinder" and "The Functions of the University" Maria Montessori

New York 1976-2

De Notes van Mario Montessori gaan over het synthetische deel van de Kosmische Opvoeding. De cirkel in het schema. Het geven van de wereld aan het kind. In de middenbouw moet het kind de feiten leren kennen over de wereld. In de bovenbouw moet het op basis van die feiten de kosmische taak leren kennen en die tenslotte tot zijn taak maken.

In het interview met David Kahn benadrukken Mario Montessori en Lena Wikramaratne dat alleen werken met de materialen waarmee de wereld aan het kind gegeven wordt niet voldoende is. Ze wijzen op de concrete ervaringen die als het ware de basis leggen voor het werken met deze materialen. In het vijfde hoofdstuk van "From Childhood to Adolescence" heeft Dr. Montessori hierover geschreven als 'Going Out'. Niet de werkelijkheid naar het kind brengen, maar het kind naar de werkelijkheid. Mario en Miss Lena bedoelen niet dat je de tijdlijnen, die we hierna zullen beschrijven, niet moet gebruiken. Je moet ze gebruiken in een context van kinderlijke ervaringen in de werkelijkheid, die door middel van de materialen geordend, geclassificeerd worden. Deze ervaringen berusten op wat Guidi de *analytische visie op de wereld* noemt.

Omdat het kind vanaf zijn zesde jaar bekend gemaakt wordt met:

- het ontstaan van de aarde
- het ontstaan van het leven op de aarde
- het ontstaan van het menselijke leven op de aarde
- het ontstaan van de culturen van de mensen op de aarde

moet dit op een aangepaste manier gebeuren.

In het tweede hoofdstuk van "Onderwijs en het Menselijk Potentieel" waarin ze het juiste gebruik van de verbeeldingskracht beschrijft, gaat Dr. Montessori hierop in. De school lepelt droge feiten op over de werkelijkheid en voedt de verbeelding met verhalen over dwergen en monsters. Ze stelt dan voor:

"Als wij daarentegen het kind het verhaal van het universum aanbieden, dan geven wij hem iets dat duizend maal oneindiger en geheimzinniger is om met zijn verbeelding te reconstrueren, een drama dat geen fabel bieden kan..."

De wereld wordt het kind dus aangeboden als een sprookje dat over de werkelijkheid gaat.

## De Wereld aan het Kind geven

In 1974 maakten Drs. E.M Schoo, Ans Heyenk en ik een studiereis van enkele dagen naar het opleidingsinstituut in voor 'lager' Montessori onderwijs in Bergamo (Italië) om de kosmische opvoeding te bestuderen. Hierna volgt een gedeelte uit het reisverslag, waarin beschreven wordt hoe de wereld aan het kind gegeven moet worden.

### HET ZWARTE TIJDLINT



Dr. Montessori gebruikte in India een zwart lint van 300 meter lengte, met aan het uiteinde een wit vierkantje. Het lint geeft de verhouding aan van de leeftijd die de aarde heeft en de tijd die de mens als bewoner op de aarde leeft. (3000.000 : 1000.000) Van

het aangegeven miljoen jaar kunnen slechts 10.000 jaar tot de geschiedenis van de menselijke beschaving gerekend worden. In India legden jongen op fietsen het lint uit. In Bergamo zag ik een verkleinde versie van het lint, waarbij de lengte was teruggebracht tot 30 meter. Dat maakt het mogelijk om ermee op de speelplaats van de school te werken. Hans Elsner deed tijdens een 'Tagung' over kosmische opvoeding in Duitsland de suggestie om hiervoor een rol toiletpapier te gebruiken. In de showroom van Nienhuis zag ik in januari 2007 dat er een zwart tijdslint te koop is.

### 'GOD ZONDER HANDEN' EN DE KLOK VAN DE TIJDPERKEN

#### God zonder handen



Dit is een bewerking van het verhaal " God without Hands" van Mario Montessori Sr In het verhaal, een kosmische fabel, wordt verteld hoe de aarde is ontstaan. Het verhaal wordt door Mario Montessori genoemd in de 'Notes on Cosmic Education'.

#### De vertelplaten

Dit zijn een zestal platen, die als illustraties bij het verhaal gebruikt worden. In de literatuur worden de vertelplaten doorgaans aangeduid met de term

Impressionistic Charts. Ze verbinden iets dat het kind al kent met een nieuw begrip dat in de kosmische fabel aan de orde komt. Het bekende verschijnsel wordt verbonden met een nieuw verschijnsel. Ook kunnen de vertelplaten de vertelling rechtstreeks ondersteunen. Zo is er een plaat waarop de omvang van de zon en de aarde in verhouding zijn afgebeeld en er is een plaat waarop alle planeten die tot ons zonnestelsel behoren staan afgebeeld. De plaat hiernaast geeft weer hoe de aarde in de formatie tijd van een gloeiende hete bol afkoelde tot een van binnen nog zeer hete bol waaromheen een korst van gestold gesteente is ontstaan.

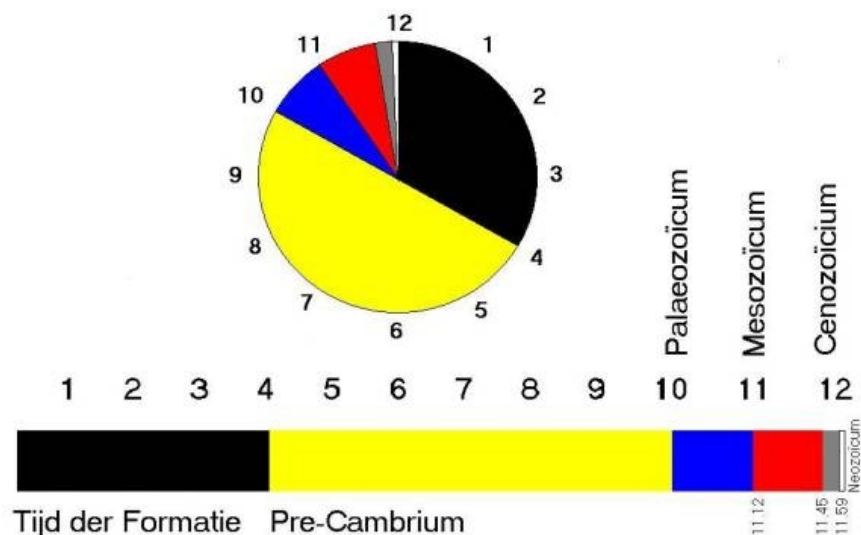
## De proeven

Een aantal eenvoudige proeven illustreren het verhaal van het ontstaan van de aarde. De versie van Mario Montessori werd door mij vrij ingrijpend bewerkt toen ik ermee werkte in de Nederlandse Montessorischool. Slechts de proeven, die kinderen zonder gevaar kunnen herhalen werden gehandhaafd en het gebruik van milieuschadelijke stoffen werd vermeden. De proeven verduidelijken, net als de vertelplaten, aspecten van het verhaal. Zo is er een bij de kinderen erg geliefde proef, waarbij in een geboetseerd model van een vulkaan ammoniumdichromaat verbrand wordt om de uitbarsting van een vulkaan te demonstreren. Toegevoegde zwavel geeft de geur die tijdens de uitbarsting waarneembaar is aan. De gordijnen van het klaslokaal zijn gesloten om aan te geven dat wolken direct zonlicht op de aarde tegenhielden tijdens de veelvuldige erupties in de Formatie tijd.

## De Klok van de Tijdperken

De klok van de tijdperken is een leermiddel dat (aansluitend bij de klok met de uitneembare cijfers als bij het kind al bekend materiaal) duidelijk maakt hoe de aarde zich van 'oerknal' tot heden ontwikkelde.

De klok van de tijdperken is verdeeld in twaalf uur, zoals het kind al weet van de lesjes met de klok met de uitneembare cijfers. Elk 'uur' op de klok van de tijdperken stelt 250.000.000 jaar voor. Op deze wijze wordt in twaalf uur de leeftijd van de aarde -3 miljard jaar- verkregen.



Op de klok van de tijdperken vinden we de volgende indeling:

12 - 4 uur	Tijdperk van de Formatie
4 - 10 uur	Het Pre-Cambrium
10 - 11.12' uur	Het Palaeozoïcom
11.12 - 11.45'.36"uur	Het Mesozoïcum
11.45'.36" - 11.59'.45" uur	Het Cenozoïcum
11.59'.45" - 12 uur	Het Neozoïcum

Tijdperk van de Formatie.

Pre-Cambrium

Palaeozoïcum

Mesozoïcum

Cenozoïcum

Cenozoïcum

De aarde verandert van een ster in een planeet.

De tijd waarin het leven ontstaat.

Tijdperk der oudste dieren

Tijdperk der middelste dieren

Tijdperk der nieuwe dieren

Tijdperk der nieuwste dieren (de mensen)

## DE TIJDLIJN VAN HET LEVEN

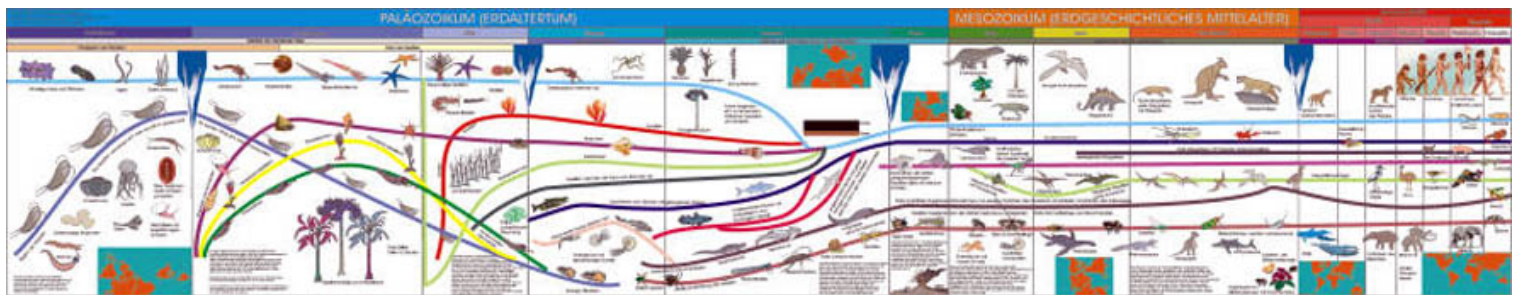


De laatste vier uren op de klok van de tijdperken omvatten de geschiedenis van het leven op de aarde. Het zijn de tijdvakken Palaeozoïcum, Mesozoïcum, Cenozoïcum, die zijn afgebeeld op de bovenste rij van de tijdlijn. Ze hebben dezelfde kleuren als op de Klok van de Tijdperken.

De tweede rij op de tijdlijn sluit aan bij wat de kinderen bij biologie geleerd hebben over de classificatie van het dierenrijk. We zien er de volgende tijdperken:

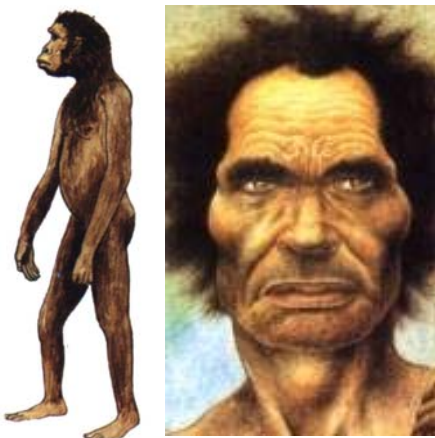
- De ongewervelde dieren
- De vissen (eerste gewervelde dieren)
- De amfibieën (kunnen in volwassen staat op het land leven)
- De reptielen (kunnen vanaf hun geboorte op het land leven)
- De vogels
- De zoogdieren

De derde rij toont de trilobieten, gevolgd door de zeelelies. Verder zien we aan ijspegels die van de tijdlijn naar beneden hangen, dat er vier ijstijden waren. De rode lijnen op de tijdlijn tonen het ontstaan, de ontwikkeling en in enkele gevallen het uitsterven van een bepaalde diersoort. Het onderste deel van de tijdlijn toont de veranderingen in aardkorst en klimaat. De globale presentatie in de middenbouw is de kosmische fabel van het ontstaan van het leven. In de bovenbouw wordt de aanbidding herhaald, maar nu met het oog op de kosmische taak van de mens.



Bron: <http://www.moka-verlag.com>

## DE TIJDLIJN VAN DE MENS



Het Quartair of Neozoïcum op de tijdlijn van het leven is de tijd waarin de mens de aarde bewoont. Deze tijd wordt uitgebeeld op de tijdlijn van de mens. De tijdlijn wordt voor het eerst aangeboden als het kind acht jaar is. De tijdlijn beslaat 500.000 jaar; de tweede helft van het Neozoïcum.

De kinderen beseffen, dat de evolutie is doorgestaan sinds de mens de aarde bewoont. Op de tijdlijn staat de menselijke ontwikkeling van Australopithecus tot Cro-Magnonmens afgebeeld.

Het midden van de tijdlijn geeft de temperatuurwisselingen aan, die hebben plaats gevonden; grote en kleinere ijspegels verwijzen naar de ijstijden Günz, Mindel, Ries en Würm

Het Neozoïcum wordt verdeeld in Pleistoceen en Holoceen. Deze tijdvakken zijn weer onderverdeeld in de drie steentijden, de ijzertijd en onze tijd, die de atoomtijd genoemd wordt.

De geschiedenis van de mens wordt gereconstrueerd aan de hand van gevonden werktuigen. Over de tijdlijn van de mens kan ongeveer een half jaar gepraat worden in de groep. Er moeten boeken zijn, die het mogelijk maken dat het kind zelfstandig zijn kennis verdiept als het daar behoefte aan heeft.

De bovenbouw aanbidding verschilt van die van de middenbouw doordat kinderen erop gewezen wordt dat dieren instinctief handelen, maar dat mensen zelf verantwoordelijkheid dragen voor hun handelen. Dieren leven soms in kuddes omdat dit voor hun de beste manier is om een aantal materiële behoeften te bevredigen; mensen leven samen om in hun geestelijke behoeften te voorzien.



Bron: <http://www.moka-verlag.com>

De hierbij afgebeelde Tijdlijn van de Mens is een voorbeeld. Er zijn andere lijnen waarop de IJstijden wel zijn aangegeven.

## HET OVERZICHT VAN DE CULTUREN

Aanvankelijk leidden de mensen een nomadenbestaan. Toen ze leerden om vee te houden en graan te verbouwen konden ze zich op een vaste plaats op de wereld gaan vestigen. Vanaf die tijd ontwikkelen zich de verschillende culturen op de wereld. Het overzicht van de culturen is een tijdlijn, die praktisch alle culturen die zich op de wereld gevormd hebben weergeeft, vanaf de tijd waarin ze ontstaan zijn tot op de dag van vandaag. Dit overzicht wordt de kinderen aangeboden, voordat wordt overgegaan tot het aanbieden van de Tijdlijn van de Culturen, die een overzicht geeft van de verspreiding van enkele Westerse culturen.

## DE TIJDLIJN VAN DE CULTUREN

Op de Tijdlijn van de Culturen vinden de kinderen een overzicht van de verspreiding van de cultuur in het gebied om de Middellandse Zee van 3500 voor Christus tot aan het jaar 0. De oudste cultuur op deze tijdlijn is die van de Soemeriërs en de jongste

die van het Romeinse keizerrijk. Alle culturen kunnen door de kinderen zelfstandig bestudeerd worden aan de hand van het vragenschema, dat Romein-Verschoor en Prins-Werker bij hun geschiedenismethode 'Nederlandse Geschiedenis in Perioden' ontwikkeld hebben. Maar in de middenbouw zal men als regel over een aantal culturen vertellen; het zelfstandig bestuderen uit boeken aan de hand van vragen is meer het werk voor de bovenbouw.



Alle tijdlijnen, die in de middenbouw werden aangeboden met oog op kennisverrijking komen in de bovenbouw opnieuw aan de orde met oog op de kosmische taak van de mensen op de aarde. Wat betreft de Tijdlijn van de Culturen, kan hier van het vragenschema gebruik gemaakt worden. De vragen werden oorspronkelijk door Mevrouw Prins bedacht voor de bestudering van de Nederlandse geschiedenis in de Germaanse tijd, de Middeleeuwen, de Gouden Eeuw en de Negentiende Eeuw. Dr. Romein-Verschoor maakte bij elke vraag een of meer kaartjes met 'antwoorden' op de gestelde vragen. Dit maakte het mogelijk om de hele geschiedenis 'horizontaal' (alles van de Middeleeuwen) of verticaal (de beschaving vanaf de Germanen tot en met de Negentiende Eeuw) te bestuderen.



De methode was uniek; het was daarom niet verwonderlijk dat wij in Bergamo constateerden dat het idee was overgenomen bij het bestuderen van de Culturen om de Middellandse Zee. In de Nederlandse scholen hebben twee factoren het gebruik van 'Nederlandse geschiedenis in Perioden' bemoeilijkt. De taal van de kaartjes was niet altijd even bevattelijk voor kinderen. Daardoor werd het zelfstandig werken ermee bemoeilijkt. Bovendien was er geen enkele illustratie. Die moest de leider er in de loop van de jaren zelf aan toevoegen. Dat was voor velen te veel gevraagd.

Bij de Tijdlijn van de Culturen worden de vragenkaarten anders gebruikt. De leider van de groep werkt zelf een van de Culturen uit door het maken van kaartjes bij de vragen. Bij voorbeeld van het Midden Egyptische Koninkrijk. Hij zorgt ook voor de bijpassende illustraties op kaartjes. Deze uitwerking dient als voorbeeld voor de kinderen, die zelf met behulp van boeken een andere cultuur kunnen uitwerken.

De vragen van Mevrouw Prins-Werker worden hieronder weergegeven:

1. Hoe was de natuur?
  - 1.1. Hoe was de bodem en het klimaat?
  - 1.2. Welke flora? Welke fauna?
  - 1.3. Welk volk leefde daar?

2. Welk werk werd gedaan?
  - 2.1. Welke arbeid en bezigheden?
  - 2.2. Wat bracht men voort?
  - 2.3. Welke werktuigen en techniek?
  - 2.4. Hoe maakte men het land meer bewoonbaar?
  - 2.5. Hoe gebruikte men de natuur?
3. De samenleving
  - 3.1. het gezin
    - 3.1.1. Kleding ? voeding ? gerei ?
    - 3.1.2. Huizen?
    - 3.1.3. Gezin? Gewoonten? Levenswijze?
    - 3.1.4. Kinderverzorging?
  - 3.2. het volk
    - 3.2.1. Bestuur?
    - 3.2.2. Bezit? Armeenzorg?
    - 3.2.3. Nederzetting?
    - 3.2.4. Groepen?
  - 3.3. uitwisseling met andere volken
    - 3.3.1. Reizen en trekken?
    - 3.3.2. Slavernij en onderwerping?
    - 3.3.3. Oorlog en verovering?
    - 3.3.4. Ruilhandel en verkeer?
4. De Beschaving
  - 4.1. Welke gedachten over leven en dood?
  - 4.2. Welke taal en overlevering?
  - 4.3. Welke versiering en kunst?
  - 4.4. Welke godsdienst of wijsheid?



- 4.5. Welke feesten en vermaak?
- 4.6. Hoe was het onderwijs en de wetenschap?
- 4.7. Wie waren de geestelijke leiders?
- 4.8. Hoe was het recht?

Uit:

“De Kosmische Opvoeding en het Kosmisch Onderwijs in de Pedagogiek van Dr. Maria Montessori”

Fred Kelpin

Maastricht, 1997-5

Uitgegeven door de schrijver.

De tekst in deze versie werd enigszins bewerkt, om een goede aansluiting bij de overige artikelen te verkrijgen.