

EPILOGUE: THE CHILD AND THE ENVIRONMENT

by Molly O'Shaughnessy

Molly wrote this article thirteen years ago. It is a fitting counterpart to the preface of this publication because it predicts the role of nature across the planes of education even before the Erdkinder was tested. The article combines contemporary environmentalists with Montessori's seminal insight into the developmental impact of nature on the child's personality.

Once upon a time, there was a young child who spent every summer of life in a magical land. To her it was a land of infinite beauty and mystery. She was cooled by the water, her hair brushed by the wind—gray and pink granite decorated the land, lily pads revealed their single, most precious blossoms. Her companions were the skunks, raccoons, chipmunks, turtles, frogs, and numerous insects. All kinds of pathways led to basements transformed into dungeons, haunted houses, barns with haystacks, dark passages, and musty smells. Ponds were identified as the home of frogs or the home of the turtles. A massive solitary rock on the edge of a garden was a source of fantasy—princes and princesses, people in captivity, natives lurking, a place to be alone, completely alone. Sitting on a small ledge of that rock, there she became attentive to the lessons of silence, of beauty, of imagination. To embrace the rock was to feel connected to everything, Oh what peace, what serenity, what celebration, always another way to imagine a fairy in a fairyland.

And then there was the family she loved so dearly, ensured of everyday playmates and fellow explorers, active by day, and settling in by night to stories read out loud—*The Lion, the Witch, and the Wardrobe* and *Alice in Wonderland*.

But summers are never forever, except in my memory's eye, and I yearn for that summer place, which is now sold and barely accessible. Faded away is that contact with the Earth and its capricious lessons. Faded away is that glistening of the natural world, enhanced by the prisms of wonder and affection for the out-of-doors. Faded away, giving in to business, to comfort, to inside workspace,

worrying and scurrying through the day, with cell phones, laptops, e-mails. And stop. Where is that child's space in the natural world, so connected and fulfilled? How can we once more learn to live in the moment, with the senses near to the ground, wondering what to make, wondering what about the next surprise, wondering about more to come, or, better still, more to do. What happened to "the power of perceptual participation in the known and unknown" (Cobb 28) all at once? As Dr. Montessori wrote, "only poets and little children *feel the fascination* of a tiny rivulet flowing over pebbles" (*The Discovery of the Child* 86). The great question before us is can we who are in a void of wonder and connectedness "feel the fascination" once again or even lead young children to do the same?

In *The Secret of Childhood*, Dr. Montessori said, "The adult's environment is not a life-giving environment for the child" (107). Our frenzied pace of life, our insatiable need for making money, and our economic exploitation of cheap labor and energy consumption have changed the culture of our lives, rich and poor. Additionally, family life has changed dramatically. In the United States, nearly seventy percent of mothers work outside the home, the number of children under six living in poverty has risen to one in five, and violence in the home and schools is on the rise. Inner-city life for many children is stripped of life-enhancing stimuli. Studies show that 57 percent of all children born this decade in developing countries grow up in urban slums. A quarter of the children born in the United States in this next generation will start their lives in such slums, and it is predicted that most of these will never experience the lands upon which their food is grown, let alone

terrain dominated by species other than our own.... And should they have contact with other creatures, it will most likely be with dogs, cats, cockroaches, and trees that have had much of the wilderness drained of them as they have adapted to human habitations. (Nabhan & Trimble 11)

Children are placed in day care centers for longer hours, sometimes up to twelve hours a day, starting as early as six weeks old. In winter, there are children who enter and leave the center in the dark, spending only a limited amount of time outdoors throughout the day in storefronts, asphalt jungles, without trees, without grass, without fresh air to breathe either inside or out.

Moving into the twenty-first century, environmental issues are paramount. The damage and threat to the viability of our natural world is of grave concern to educators as well as philosophers. In the preface of his book *Growing up Green*, David Hutchison says,

The twentieth century has been one of strange contrasts. We have learned a great deal about the universe, yet we have also lost our intimacy with it. The skills we have invented for our grand space adventures are the same ones that enable us to despoil the air, soil, and waters of their life-giving powers. As our artificial transformation of nature advances, our presence to nature declines. We live in a plundering industrial world of wires, wheels, and machines, of steel and plastics, of paved-over land and poisoned seas. (xiii)

We have moved from the industrial age to the "information age" or the "age of technology." The entire span of the world is at our fingertips. On a moment's notice we can communicate through fax or e-mail with the most remote parts of the world. The computer revolution has begun to shape much of the current educational curriculum. Cultural psychologists point out that "as a culture we increasingly esteem technological intelligence and devalue the social and emotional" (Healy 28). Once again, the adult environment becomes detrimental to child development, as we now impose computers on children as young as eighteen months. Schools are advised not to consider submitting a proposal for funding without a computer component in it. Anxious parents, fearing their children may fall behind, demand computers at all educational levels, and many children have access to computers in the home from the moment they can manipulate a mouse.

The rush to "jump start" children's cognitive development by hooking them up to computers at a very early age can rob them of the necessary sensorial interaction with the physical environment leading to a fully developed and integrated person. Jane Healy writes in her new book *Failure to Connect*, "Time spent with computers in the early years not only subtracts from important developmental tasks but may also entrench bad learning habits, leading to poor motivation and even symptoms of learning disability" (205). Computer use in the early years disconnects the child from vital emotional and linguistic interactions with primary caregivers, as well as interfering with the child's human tendency to explore the natural world. A young child of nine, when asked whether he liked to play indoors or outdoors, said indoors because "that's where the electrical outlets are" (Sobel 3). Sobel explains, "What's emerging is a strange kind of schizophrenia. Children are disconnected from the world outside their doors and connected with endangered animals and ecosystems around the globe through electronic media" (3). But the remoteness of the natural world is not limited to children.

Consider our present scene. We sit in a hotel, with four walls, air conditioning, listening to the clanging of coffee cups and the shuffling of papers. For many people, the confines of rooms such as these are familiar and commonplace. We move from our homes to our workplace, often into underground garages, walking through buildings connected by skyways, to office buildings and shopping malls. The average American walks only 1.4 miles a week, just 350 yards a day (Bryson 128).

David Orr remarks, "the civilization we have built causes us to spend ninety-five percent of our lives indoors, isolated from nature.... We live lives full of traffic jams, noise, artificiality, and substitutes for the real thing" (204). We have created a bubble-like environment for our children and us.

And like the childhood recollection of a full summer vacation in the lake country of western Wisconsin, the natural world has become far, far away, long, long ago.

In an attempt to address the environmental crisis, teachers implement "politically correct" ecological curricula in classrooms across the nation. Children do projects on the rainforest in Brazil, study the ef-

fects of ozone depletion, celebrate Earth Week, see videos about various forms of environmental abuse, and so forth. Studies have shown that this approach to the problem can be counterproductive, causing students to feel “hopeless and disempowered” (Sobel 9). The environmental crisis appears to be so overwhelming that children feel powerless in seeking solutions. David Sobel, in an attempt to understand why this kind of curriculum does not help in solving the Earth’s problems, asked environmentalists what most influenced their strong commitment to ecological values. The response was indeed telling. They stated two main reasons: “many hours spent outdoors in a keenly remembered wild or semi-wild place in childhood or adolescence, and an adult who taught respect for nature” (10).

Teachers need to recognize and help parents recognize that love of the environment cannot happen in the abstract. Empathy for the environment cannot be taught simply through words. Sobel states, “What’s important is that children have an opportunity to bond with the natural world, to learn to love it, before being asked to heal its wounds” (9). We must help forge a bond between the child and nature by starting in the child’s immediate environment. Young children feel a natural empathy and affinity with all aspects of the natural world. Children love to touch and care for animals, to smell and pick flowers, to listen to the sounds of birds and ducks, to take refuge in small places such as trees and snow forts. Stephen Trimble states, “By forging connections with plants, animals, and land, by finding ways to experience some relationship to the earth, individuals can gain a sense of worth” (Nabhan & Trimble 22). Early contact with the natural world is irreplaceable.

A kind of “ecophobia” or fear of the natural world can develop if a child is deprived of first-hand experience and interaction with the environment. I can relay a story to illustrate this point. In the late 1960s, a group of teenaged boys from the inner city in Chicago were sent to a wilderness expedition experience called “Outward Bound” in northern Minnesota. None of them had ever experienced the wilds before. As part of the program, after being trained in survival techniques, each boy was left alone on an island for three days with just the basic survival supplies. One of the boys, who desperately wanted to successfully complete this part of the program, screamed for three solid days. Each day,

when the leaders came to see what the problem was, he stated he was afraid that bears would harm him and was screaming to ward them off. The natural world had been so removed from his own reality that it produced in him an acute anxiety. He at first experienced the wilderness as the enemy, something to fear, something apart from himself.

The lack of encounter with the natural world has implications for the way Montessorians implement Montessori as well. Many Montessori teachers, at some emotional level, feel the confusion and estrangement about their own environments. They find it difficult to balance the indoor and outdoor environments, to let the child explore the natural environment, to experience a real leaf before offering the nomenclature for it, to offer substantial outdoor practical life activities, to provide sufficient “going out” expeditions. In many instances, there remains a separation of the indoor and outdoor environments, if not a complete isolation. The architecture and structure of many environments does not permit a natural flow between the inside and outside. Children are often required to wear beads around their necks in order to leave the work space—one at a time. Activities in the natural environment are viewed as outside the work cycle, something to be done after the “real” work has been completed. “Playtime” is different than “work time.”

Playgrounds still more often than not have “adventure” structures with ropes, bridges, swings, and climbing apparatus, with minimal green space and artificial surfaces, void of diversity of vegetation and wildlife. This happens to all schools, but given Dr. Montessori’s view of the indoors and outdoors, it is surprising that Montessori children are sometimes restricted so completely in their access to the out-of-doors. There are many reasons for this. Children need supervision. They will get dirty. They will make a mess. They will get a chill. Adult caregivers do not like to be out-of-doors. Liability, liability, liability. What then provides a model for our schools to get beyond the classroom’s four walls, to make a prepared space for children in the out-of-doors, and, in Montessori’s words, “to set the children free, let them have fair play, let them run out when it is raining, take off their shoes when they find pools of water, and when the grass of the meadows is damp with dew let them run about with bare feet and trample on it” (*The Discovery of the Child* 83). We need to reconnect to Dr. Montessori’s



Courtesy of Cornerstone Montessori School and Cornerstone Montessori Elementary School, St. Paul, Minnesota

vision of the integrated indoor / outdoor experience. We must re-examine the significance of the natural environment in education across the planes. All will answer to the environment in the twenty-first century. To provide these answers, we must begin with the child. As Dr. Montessori states, “Infancy is a period of true importance, because, when we want to infuse new ideas, to modify or better the habits and customs of a people, to breathe new vigor into its national traits, we must use the child as our vehicle” (*The Absorbent Mind* 82).

The child by nature loves the environment. By helping the child forge an emotional bond with nature, we help guarantee survival of the species as well as renewed health for our planet. We will not fight to save something we do not love. Dr. Montessori’s vision of the child included a blueprint that would help forge this bond between the developing being and natural environment—a plan that ultimately empowers the child to find his place in society and nurtures his innate love of the environment. The environments that we prepare for the developing child must correspond to the needs and capabilities across the planes. The formative years of bonding with the environment express themselves in various ways, and the tenor and style of each period must correspond to development across the continuum.

We speak of the need for education to be holistic—to consider in balance all aspects of the human being—physical, cognitive, affective, and spiritual—and to seek to build connections between them. The spiritual aspects are often misunderstood or ignored. The spiritual must always be present.

Spirituality—the human quest for connectedness—must be at the heart of everything we offer the child. The essence of holistic learning is a deep connection with the environment so that learning is deeply integrated—a connection among subjects, among people, to the Earth, and to the universe. The image of interconnectedness surfaces in a scene from Thornton Wilder’s *Our Town* as Rebecca explains to George: “I never told you about that letter that Jane Crofut got from her minister when she was sick. The address was like this. It said: Jane Crofut, The Crofut farm. Grover’s Corners, Second County, New Hampshire, United States of America.” George interrupts: “What’s so funny about that?” Rebecca continues: “But listen, it’s not finished: The United States of America, Continent of North America, Western Hemisphere, the Earth, the Solar System, the Universe, the Mind of God—that’s what it said on the envelope” (46).

From a Montessori perspective, we see a similar organic relationship in the interconnected parts and systems of the universe. But the initial connection must take its rise at birth. As Dr. Montessori said, “The greatness of the human personality begins at the hour of birth. From this almost mystic affirmation there comes what may seem a strange conclusion: that education must start from birth” (*The Absorbent Mind* 2).

Our first task is to nourish the natural urge within the child to connect to her environment—to develop a reverence for it. A deep reverence for all of life may be the salvation of civilization. There are cultures in which “each person is accompanied through life by a totem animal, whose name a child

might be given along with other names, and whose function is to embody the child's link with the natural world" (Roszak, Gomes, & Kanner 102). In the Western world our ties to the Earth are not so strong. It requires a conscious commitment and a belief in the connection between heart and mind to help the child establish her cosmic task and become a productive and contributing member of society—to continue the work of creation, in a *constructive*, rather than a *destructive* manner. In order to pave the way for Cosmic Education and the later work of the adolescent, the rudimentary emotional attachment to the environment and the *feeling* of being one with all must be in place.

THE CHILD'S FIRST ENVIRONMENT

The child's first sensorial experience of the world is through the human body—its mother. From its beginning, the human being is designed and motivated to connect to the world, to feel as if she belongs and is part of the world. The fetus experiences the sensorial sensations of the beating of the mother's heart, the taste of the amniotic fluids, the vibrations of the mother's voice, the temperature of the fluid surrounding her. She feels the movement of the mother. The mother's voice and communication with the unborn child is an important step in the bonding process. Memory and the absorbent mind are already at work. The unborn child feels a deep security, and life is bliss. The genesis of the child's love for the environment begins even before birth.

Dr. Montessori states, "The newborn child comes into the world as a 'spiritual embryo'—a spirit enclosed in flesh" (*The Child in the Family* 10). The manner in which we receive this magnificent spirit can help establish a natural transition from one environment to the next. Our contemporary hospital birthing scenes do not often accommodate the needs of the newborn babe. Joseph Chilton Pearce, in *Evolution's End*, says, "Our mothers are conditioned to believe that birth is an unbearably painful and dangerous ordeal needing maximum professional assistance" (119). Efforts by people such as Frederick Leboyer have brought to our consciousness the need for "birth without violence."

The mother is the child's first contact with the environment—a sacred bond is created, allowing the child to trust that the world is a safe and interesting place. The bedrock of security is formed in

these earliest years of life. At this earliest moment, there is not "environment without the mother." The mother is the child's first environment (Kahn, "Of Roots and Wings" 2). The newborn is open to experiencing the totality and fullness of what the world has to offer, but in a very protected way.

The world of the newborn consists primarily of his immediate surroundings, beginning with his mother and father. The child experiences a very sensorial connection to his mother. A deep attachment occurs through feeding, holding, singing, rocking, and so forth. The inner creation of the child is blossoming through this vital contact with the environment.

Once the child feels secure with the immediate environment of the mother, she feels safe to turn outward to other family members and the prepared environment of the home. The eyes, hands, mouth, ears continue to be the instruments for exploration. There is a tremendous attraction to the environment. We clearly see the sense of wonder and awe within the child. For the young child "the world of nature is not a 'scene,' or even a landscape. Nature for the child is sheer sensory experience" (Cobb 29).

The child becomes transfixed on objects and people in the environment, and we can clearly identify deep concentration in the child. She becomes



Courtesy of Liz Ammond, The Children's House, Traverse City, Michigan

attracted and curious about all the objects in the environment and explores them with her mouth. A process of identification begins. Development of the human personality is dependent upon both environmental and social dimensions. Edith Cobb explains: “the adaptive give and take between living organisms and their environment, represents the ecology of the individual organism. In this sense, life is a matter of mutual, functional interaction or intercourse with the environment. This mutuality is equally nourishing and productive of life and form to the mind and to the body” (29).

With the beginnings of purposeful movement, the child’s environment begins to expand. The child begins to actively seek out the environment. The environment becomes a means of development for the child. Children use the environment *to improve and create themselves*, whereas adults use *themselves to improve the environment*.

The human tendencies and sensitive periods guide and motivate the child. The tendencies have aided human adaptation to the environment from the beginning of time. They have supported human beings as a change agent—a creative, imaginative being who modifies, improves, or, unfortunately, even destroys his environment. Consider the tendency to explore for a moment. Through the natural inclination or urge to explore, human beings have progressed from simple discoveries about which foods are safe to eat and which are not, to sophisticated knowledge about outer space and the ocean floors.

In light of Dr. Montessori’s work, it is interesting to note that studies suggests that “we have map-making genes strung along the DNA, promoting our ability to integrate and organize our experiences of geographic space. Such mental map-making skills clearly gave our hunter-gatherer ancestors an evolutionary advantage” (Nabhan & Trimble 19). Exploration leads to an orientation, ordering, and classifying of the world, helping the child develop roots and a sense of place, both critical to human development. According to the National Geography Standards, to know where you are in the world, you must see meaning in the arrangement of things in space, see relationships between people, places, and environments, use geographic skills, and apply spatial and ecological perspectives to life situations (*Geography for Life*). The tendency and sensitive period for order helps the child establish these relationships.



Courtesy of Mrs. Risa Kazama, Japan, submitted by Takako Fukatsu

Additionally, the absorbent mind assists the child in taking in all aspects of the world and incarnating them, making it part of him. The child’s experience of the world is very different than the adult’s. Walt Whitman expresses this through his poetry—showing the interplay between the child and the world:

There was a child went forth every day,
and the first object he looked upon, that object
he became,
And that object became part of him for the
day or a certain part
Of the day,
Or for many years or stretching cycles of
years.

Consider the young toddler—this “spiritual embryo,” compelled to seek out and connect to his world: an impassioned explorer, senses alive, face close to the ground to inspect the small and inconspicuous. The active senses continually store up memories and impressions to weave the web of the mind. The child builds his mind connected to his heart. The very young child does not differentiate between himself and others. He demonstrates a natural empathy and is implicitly drawn to the natural world—every puddle is exhilarating, every flower glorious, every baby animal a friend. Providing for the child’s innate sense of wonder and sense of connectedness at this stage is paramount. It helps lay the emotional foundation for more abstract learning in later stages.

The greatest gift we can give this spontaneous explorer is time and opportunity—time to create intimacy with the world, time for free play, time to wonder, time to arouse the emotions, and time with us as her loyal companion to share in the discoveries and mysteries of the world. At this stage it is more important to feel than to know. In her book *The Sense of Wonder*, Rachel Carson explains:

If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow. The years of childhood are the time to prepare the soil. Once the emotions have been aroused—a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration or love—then



Sèvres, France, around 1935, courtesy of Margot Waltuch collection

we wish for knowledge about the object of our emotional response. Once found, it has lasting meaning. It is more important to pave the way for the child to want to know than to put him on a diet of facts he is not ready to assimilate. (56)

Infants and very young children should have ample time to just “be” outside—to explore with parents, grandparents, and older siblings. They need to experience organisms in their immediate surroundings—to cultivate a relationship with all the elements of the natural world. Judi Orion says that trees were the first mobiles.

NATURE AND THE TODDLER COMMUNITY

The Montessori toddler community also helps prepare the soil in a protected space. The young child, barely out of its cocoon, with emotions still worn on its sleeve, takes the first steps toward self-sufficiency and independent activity. Very low windows allow the young child to view the out-of-doors. A nearby reading area can promote a peaceful respite for the young child, looking at a book with plants surrounding him and the outside vista in close proximity. By caring for plants and animals, the child readily comes to understand that other living things depend on him to sustain life.

The outdoor environment is also small and protected. Many things are seen or heard for the first time! Imagine the delight and wonder of seeing a worm or chipmunk or snow for the first time. The most minute details are of the greatest fascination to the child.

NATURE AND THE CASA

As the child moves into the *Casa dei Bambini*, the environment must continue to represent a living, organic environment, not simply become Montessori materials arranged neatly on the shelves. The materials as “keys to the world” come fully alive only if the child is able to relate them to real-life experiences—to use them as tools for exploration, rather than in isolation. The sensorial materials act as spotlights on reality. Each piece of apparatus reveals some particular aspect of the world to the child.

The child needs to continue experiencing the living environment—the wilds, plants, animals, rocks, various kinds of terrain—and to be offered the opportunity for contemplation and solitude. The need to strengthen the muscles and coordinate movement is prominent. The child continues to possess a natural

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affinity for growing things. Nature must continue to be a constant in the child's life—not be treated as a distant abstraction to be learned about from books.

In looking back to the earlier Children's Houses, we see that Dr. Montessori provides for this in her vision of the prepared environment—terraces, gardens, elder gardeners, easy access to the out-of-doors. Many of our modern environments have lost much of the intimacy with the natural world. Many children have very limited access to the outdoors. There is much we can learn about beauty, simplicity, and interconnectedness from these earlier environments, and from environments in other parts of the world, such as Africa, India, and Japan, to mention just a few.

Hopefully, by the time the child enters the *Casa dei Bambini*, she has experienced the world as a friendly place, with luxurious sensory offerings, a place for great adventure, discovery, and joy. Ideally, she has had active participation with caring adults who, like the artist or poet, have retained their own sense of wonder and remain open to the sensory offerings of the world. This is the time to further ground the roots, to follow the child in her intuitive wisdom that we are all part of the natural world. This is the time to keep the body and hand in motion, to offer purposeful work, to foster functional independence, and to label prior experiences and impressions with precise language, enabling the child to communicate with others in social partnership. This is the time we offer the world and all its trappings to the child—setting the foundation for culture. We lay the seeds for Cosmic Education by offering the concrete world as the springboard for the imagination.



Outdoor work is not limited to what is deemed “appropriate outdoor work” as evidenced in this photo of a young boy playing the bells with great concentration. Courtesy of Margot Waltuch collection

Many Montessori environments today face the challenge of having children stay in the environment all day. There is great debate on how to best serve children who stay for extended hours. In the earlier part of this century, many of the children stayed in the Children's Houses for the entire day. There are many lessons to be learned from those days. The physical and psychological design of the environment must offer the full components of life and allow the child to live her life in the most natural way. To force the child to live in a predominately artificial world is an act of cruelty toward her humanity. As Dr. Montessori says, “The child, who is the greatest observer of nature undoubtedly needs to have placed at his disposal material on which to work” (*The Discovery of the Child* 85).

The physical structure of the prepared environment should provide easy access to the outdoors. Once outside, there should be adequate space for working, planting and harvesting, movement activities, free play, walks, rest, and solitude. Inside, the environment should have low ceilings, windows scaled to the child's dimensions, and steps half height to accommodate the youngest children. Plots of soil for planting can be directly outside the indoor space. An ideal floor plan includes various areas that provide fully for the children's needs, including indoor work spaces, terraces, trees, bushes, and other plantings, quiet corners, dressing rooms, gym equipment, balancing beams, a tool and animal shed, a quiet shady corner with table and benches, wading pool and shower, sundial, and area for children's plantings. Various activities can take place on the terrace and in the gardens. The diversity of work and social interaction should depict the natural order of human life.

With the Exercises of Practical Life, the emphasis should be on the word *practical*—relating to real-life work, not something contrived and artificial. Freely participating in the art of daily living allows the child to become functionally and socially independent. These activities must not remain isolated exercises on shelves only to be used during the morning work cycle, but must be the heart and soul of community life.

Gardening, planting, harvesting, preparing, and serving food all help the children feel part of the cycle of life. It truly becomes a labor of love, and

the children feel a sense of pride and accomplishment. Dr. Montessori said, “The truth is that when a free spirit exists, it has to materialize itself in some form of work, and for this the hands are needed. It is thanks to the hand, the companion of the mind, that civilization has arisen” (cited in *Winter Count*).

The silence activity done out-of-doors opens up a different kind of sensory experience for the children. The sounds of nature are often not noticed without muffling extraneous noises. Rachel Carson proclaims,

hearing can be a source of exquisite pleasure but it requires conscious cultivation. Take time to listen to the voices of the earth and what they mean—the majestic voice of thunder, the winds, the sound of surf or flowing streams. And the voices of living things. No child should grow up unaware of the dawn chorus of the birds in spring. (82)

NATURE AND THE ELEMENTARY

The power of the elementary-aged child is the ability to explore through the energy of the imagination coupled with a highly intellectual and reasoning mind. The boundaries for exploration expand tremendously. The smaller protective environment of the younger child no longer suffices. The sensorial learner of the first plane becomes the abstract learner of the second plane. The brain is fully developed and the child is capable of more sophisticated learning. In *The Geography of Childhood*, Trimble states:

In other primates, this shift leads right into puberty. Humans, however, have postponed the hormonal rush until the teenage years, opening up a six year interval when childhood brains receive and learn in a uniquely fresh, receptive, and playful way... This is the time the children are in love with the universe and poised halfway between inner and outer worlds. Here lie latent power and purpose, the seeds of the writer’s art, the painter’s vision, the explorer’s passions.... [It is the time when] he wants to possess the world as his theater of perception. (Nabhan & Trimble 28)

Paul Shepard speaks of this time as “the ark of the mind.... A decade, from the beginnings of speech to the onset of puberty, is all we have to load the ark with animals, with plants, with place, with sunrises and moonsets. With wildness” (cited in Nabhan & Trimble 28).

This is the period of “acquisition of culture,” whereas the first period was the absorption of the environment. The child explores the whole universe



Sèvres, France, around 1935, courtesy of Margot Waltuch collection

and is interested in its inner workings. This is not something the child can see directly. Giving the child the framework through the whole and then moving to the parts is the approach at this moment. We present the whole vision of the universe—both past and present. Dr. Montessori said, “the universe is an imposing reality and an answer to all questions” (*To Educate the Human Potential* 8). The child explores the universe aided by the imagination.

We assist the imagination by offering imaginative stories about the origins of the universe, how the Earth began, how humans came to be. Dr. Montessori recognized that “the narrative model is built on a philosophical premise that questions deal not only with facts, but with origins, with issues of life and death, and, most importantly, that questions relate to the emotional needs of children to understand and explore their biological and psychological connection to the natural world and their cultures. (Kahn, “The Montessori Contribution” 6)

At this time, we expose the child to the cosmic task of creation. The concept is that all parts of the universe are related—it leads from the whole to the parts and back to the whole again. Within this cosmic task, we find, human beings have a part to play. Through the great stories we help the child realize that all created things are one with us and to be loved.

The motive running through Cosmic Education is service. Everything that exists has a service to perform, from the plants to the animals to human beings. Everyone and everything that exists has a contribution to make. We have to help the child become grateful to our ancestors, who have performed

significant services for us, such as inventing the wheel, discovering fire, and so forth. Studying the universe in all its glory keeps alive the child's sense of wonder and helps her approach life with reverence.

We also give the child illustrated maps, photographs, symbolic pictures, charts, and graphs to help the child understand creation and as follow up to the stories. All of this helps fire the now precocious intellect and helps the child think for herself. The child begins to understand the interdependency of things; is able to see the invisible; can imagine such things as the components of the food chain—how energy is transmitted, the complexities of the solar system, the evolution of humanity.

But even during this most intellectually powerful period of life, the child must continue to experience and have contact with nature—the charts, stories, and indoor scientific experiments are not sufficient. It is not enough to see the nomenclature for taproots—children should be able to pull up roots, examine, and discuss them. In a 1979 interview with



Courtesy of Cornerstone Montessori School and Cornerstone Montessori Elementary School, St. Paul, Minnesota

David Kahn, Mario Montessori lamented, “If 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” (cited in Kahn, “The Kodaikanal Experience” 57).

We run the risk of damaging the sense of wonder if we reduce learning to abstractions divorced from lived experiences. Ralph Waldo Emerson said, “We are shut up in schools and college recitation rooms for ten or fifteen years, and come out at least with a bellyful of words and do not know a thing. We cannot use our hands, or our legs, or our eyes or arms. We do not know an edible root in the woods, we cannot tell our course by the stars, nor the hour of the day by the sun” (cited in Orr 18).

The “going out” program, which unfortunately is severely under-utilized in many schools, provides ample opportunity for firsthand experience of what is studied in class. If the children study herbs and their classification, they should be able to visit a real herb farm. When studying basic food items, they should visit farms as well as planting and harvesting their own food. When studying the works of rivers and streams, real field experience helps internalize the process as well as providing an emotional attachment. Children begin to see the relationship between organisms and the environment—they become “aware of the factors of life and the factors of Earth and their interrelatedness” (Travis).

These kinds of experiences can also be related to the developing moral sense in the child. Children of this age are keenly interested in exploring what is right and wrong, what is just and unjust. Upon witnessing pollution of the waters, destruction of property, and poor waste management, the children can debate and discuss the ethical issues surrounding these matters. If, from birth, children have been taught and have been shown respect for nature, they will respond with indignation at such abuses. It will provide opportunity for them to take action, to come up with practical solutions—to be in service—which is the heart of Cosmic Education. I remember while vacationing in Arizona with my two sons, aged eleven and thirteen, the absolute disbelief and shock they felt upon discovering that there was no recycling in that part of the country. It was painful for them to have to throw cans and bottles into the regular trash.



Courtesy of Pacific Crest Montessori School, Seattle, Washington

Once again, the bedding of empathy and knowledge grows stronger roots and helps keep the *sense of wonder* alive. To be able to sift through a handful of dirt and see how decayed leaves become nutrients to feed plants, which in turn feed animals, leads to the beginnings of understanding of the food chain. Or telling the great stories out in nature, as often done by Mario Montessori—would that not add to the power and relevance of the message?

We must not insulate the child from the out-of-doors. The child of this age is physically strong, agile, and wants to move into the outside world. The child's home becomes less significant and the landscape looms large. Dr. Montessori says:

The child of seven has strong legs and seeks to escape from the closed circle. Instead of hemming him in, let us facilitate his mobility.... when the child shows us his desire to escape from the house, let us attract his attention somewhat solemnly to his feet.... The foot is noble. To walk is noble. Thanks to our feet, the child who already walks can expect of the outdoors certain

answers to his secret questions. (*From Childhood to Adolescence* 25)

She added that the child "ought to develop the habit of observing all in his universe" (29) as well as learning "how to orient himself in the field" (28). There remains a strong affinity and need to interact in the natural world, but with the emergence of the social being, we see a preference for working and exploring in groups.

There remains a need for reflection and solitude. Time for rest and time for "just being" with nature has become the antithesis of the cultural values in most parts of the western world. Throughout Dr. Montessori's work, she speaks of the need for rest as part of the learning process.

NATURE AND THE ADOLESCENT

Adolescence marks the end of childhood; it is a time of great transformation and instability. The transition is a fragile one, often misunderstood and mishandled by much of society. The adolescent may be alienated from society instead of embraced and

nurtured through a dramatic passage from one realm of existence to another. Instead of bestowing trust and granting real responsibilities, we lock adolescents away in classrooms, saying we must first prepare them for future adult life. Believing intellectual capacity grows with age, we tend to pile on the work. Subjects are taught in isolation without logical continuity. Unaware of their vulnerable physical constitution, we interfere with sleep cycles and dietary needs. Many view adolescence as an awkward stage, characterized by rebellious, destructive behavior, outrageous clothes, and equally ridiculous ideas.

What is most needed during this delicate transition is an orientation toward service. We witness the birth of the social being—a socially conscious person with a strong desire to contribute to society. Renilde Montessori says, “The adolescent is a social embryo, so your prepared environment must be what society is all about, in the context of the natural world. Human society cannot be divorced from the natural world” (cited in Ewert-Krocker & Kahn 170). The child began his exploration of society during the second plane, but now the adolescent puts himself at the service of society—the service of humanity. This is the age of realization of a vocation and service. The adolescent explores what his life’s work might be. He is sensitive to the facts and experiences of social life. The tendency is toward creative work such as the arts—drama, art, music, and dance. This is the time for acting out the cosmic mission. Everything that was learned at the second plane should now be worked with and experienced at the third plane—in a very real sense.

Dr. Montessori says that “since there is a radical change in the person, there must be a radical change in his education” (*From Childhood to Adolescence* 102). Dr. Montessori’s vision was to provide an alternative prepared environment, away from the city and the pressures of city life. She said it is “desirable to have the child live outside his habitual surroundings, outside the family, in the country, in a peaceful place, in the bosom of nature.... the calm environment, the silence, the marvels of nature satisfy the mind and are conducive to its functions of reflection and meditation” (*From Childhood to Adolescence* 105-106).

The environment is Erdkinder, or “children of the soil,” and must not be mistaken for a *school* in any traditional sense (Ewert-Krocker & Kahn 169).

It is a place where children live their lives. In the second plane, the children intellectually explored civilization and how it came about; now the children actually change the face of the Earth with their own hands. They are “penetrating civilization from its origins” (Montessori, *From Childhood to Adolescence* 107). It is the time to go back to the physical environment—to the water, soil, pond, and forest.

The setting is a farm. The work is the land. All components from the farm should be available, allowing the adolescents to grow and sell their products. Montessori said all civilizations depend on the products of the Earth. Work in the Erdkinder takes two directions—manual and intellectual, both of which are necessary for civilized society. Dr. Montessori said, “The men with hands and no heads and the men with head and no hands are equally out of place in the modern community” (*From Childhood*



Courtesy of Sara Guren © MDP, Hershey Montessori School, Huntsburg, Ohio

to *Adolescence* 98). Here the children are allowed to explore economic independence.

There are many parallels to the first plane. The Exercises of Practical Life once again play an important role in the education of the adolescent. The children are responsible for the maintenance and domestic needs of the hostel, doing laundry, making meals, maintaining order, and so forth.

Montessori also envisioned a shop that would sell the products and crafts of the children. The children would be responsible for all that it entailed, such as bringing in and selling their wares, managing the store, and all the economics pertaining to it. This helps the children understand the law of supply and demand, essentially beginning the study of economics.

In the Erdkinder environment, the children study the arts by performing, architecture by building things, botany by growing things, history by studying inventions, and chemistry by laboratory experiments. They can sew, cook, make arts and crafts, and learn political structure by managing their own community.

In such an environment, we are able to avoid the separation of abstract learning from practical intelligence—both necessary to the integrated being. If the educational process from birth through adolescence truly integrates all elements of the world, allowing full and active participation on the part of children and adults alike, we can expect a very different result than is common today.

CONCLUSION

At a gathering of ecopsychologists it was concluded, “if the self is expanded to include the natural world, behavior leading to destruction of this world will be experienced as self-destruction” (Roszak, Gomes, & Kanner 12). The patterns that we unconsciously and consciously establish with nature throughout childhood will continue to influence us throughout life.

An understanding of ecosystems, in the heart and in the mind, will safeguard the innate *love of the environment* that Dr. Montessori so eloquently speaks of in her writings. Ecologist Paul Ehrlich says, “Familiarity with basic ecology will perma-

nently change your world view. You will never again regard plants, microorganisms, and animals (including people) as isolated entities. Instead you will see them—more accurately—as parts of a vast complex natural machinery—as related elements in a system that operates in a definable manner” (cited in Suzuki & Knudtson 91).

Moving into the twenty-first century, we are faced with an ecological crisis calling for nothing less than an “environmental revolution.” We have before us a challenge that requires us to keep an open heart. The question posed at the beginning of this talk remains to be answered—can we who are in a void of wonder and connectedness feel the fascination once again or even lead young children to do the same? Perhaps it is the child that can lead the way. I believe she can. The capacity for love is abundant in the child. The child is capable of embracing life in its totality. As we journey on in life, we tend to dissect life, to compartmentalize it—to separate heart and mind, thinking and feeling. We all possess a heart that longs to be connected to the largeness of life. We must reestablish an integrated self to truly serve the child—to be able to nourish what is most noble in the human spirit.

Return to the basics—focus on what is ultimately important in life. We must learn to use our senses again. Reclaim the gifts from the Earth we received in childhood. And as David Orr reminds us:

We are of the earth; our flesh is grass. We live in the cycle of birth and death, growth and decay. Our bodies respond to daily rhythms of lightness and darkness, to the tug of the moon, and the change of the seasons. The salt content of our blood, our genetic similarity to other life forms, and our behavior at every turn gives us away. We are shot through with wildness.... the earth is inscribed in us, we are of the earth. (204)

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