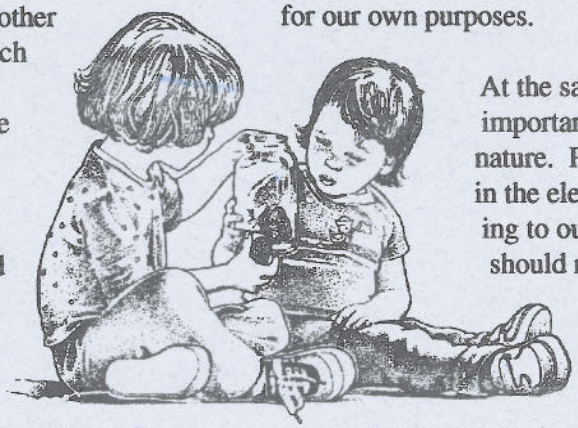
BIOLOGY IN THE ELEMENTARY ENVIRONMENT

by Gary and Ruth Casebeer

Maria Montessori's plan for the Cosmic Education of the second plane child included presentations in the field of biology. It is not our task as guides to ensure that our children study "biology." Rather, children explore the universe through the environment that we have prepared. Biology is just one facet of this universe, and the children come to see that it is related to all other areas of knowledge. We introduce children to the world of biology by presenting carefully selected aspects of the living world. These provide the child with an opportunity to begin exploration.

The study of biology in the elementary relies upon a dual environment. One component of this dual environment is the classroom, and the other is the world outside the classroom. Each should compliment and reinforce the other. In the classroom the children are introduced to a particular aspect of the biological world. Then they move outside the classroom to find out more. When something is encountered in the world outside the classroom, this is studied further in the classroom. In either case the interaction of the adult is an important part of the children's overall experience. We have worked at the Earth school for many years because as Montessorians, both of us feel the Earth should be a main element in the education of the child.



Biology is derived from two Greek words: *bios* (life) and *logos* (word). It is the study of life on the Earth. Bacteria and fungi, plants and animals--these are all to be found in the field of biology. There is a relationship between the Earth and its covering of life that can be compared to the human body and its skin. Life forms on the earth take their life from the minerals and water to be found there. In return, they protect the earth. Plants, for example, prevent the soil from being washed away. The skin takes its life from the body, and in turn helps to keep the body protected and balanced. Montessori would say that plants and animals have a cosmic task. They take life from the water and minerals that the earth provides, and they give back, by keeping the water clean and by protecting the soil. As animals living on the Earth, should we do any less?

As we present biology to elementary children, it is important to remember that they still learn sensorially. Presentations should incorporate real specimens rather than pictures wherever possible. Nature provides an abundance of seeds, for example. Their seeds, and the plants that develop from them, are used for simple experiments. These experiments teach things such as roots grow down, stems grow toward the light, roots grow around obstacles and search for water. It does not affect the balance of nature if we use some of these seeds for our own purposes.

At the same time, however, it is important to maintain a respect for nature. Plants are not wantonly cut up in the elementary classroom. According to our training, animal experiments should not be a part of the children's experiences there. We have, however, realized that in the 9-12 environment you might have children that are ready to look at behavior and learning possibilities of some animals. The interest in morality that is characteristic of the second plane child may lead to consideration of the rightness or wrongness of, for example, keeping a caged bird, or temporarily depriving a plant of water or light. Is it right to dissect a flower or a fish?

In our elementary classroom, biology is examined in two major sections. The first of these is "Botany"--the study and science of plants. The second section is "Zoology"--the study and science of animals. Plants are the "producers" in the living world: they are able to manufacture their own food. Animals are "consumers": they eat other life forms in order to survive. This is a simple idea which many children find very interesting, given the different plants and animals we can show them. This is another way to use the animal cards with some children.

We add these three points of focus as examples of ways to further add fuel to the child's fire.

1. **Plant and Animal Physiology**, which introduces the children to the functions and processes of life. For example, this area illustrates the food-making function of the leaf and the digestive function of the animal stomach. Physiology is first encountered as the child considers the fact that organisms have certain needs. A need for nourishment has resulted in the development of a stomach, able to process food and to pass nutrients into the blood, which then nourishes the cells of the body.

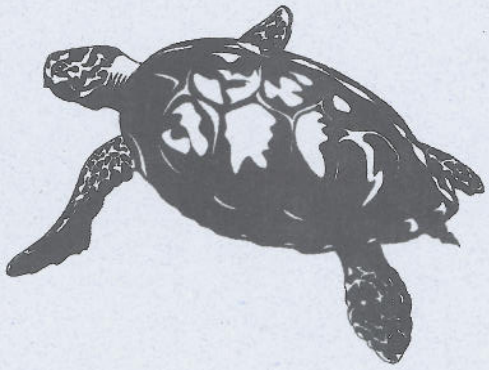
2. **Plant and Animal Structure**, which studies the arrangements of parts of the whole organism. The various types of beaks that are to be found in bird species, or the variety of flower structures--these are instances of plant/animal structure studies. A study of structure enables the children to begin to comprehend the diverse ways in which life on Earth satisfies its needs.

3. **Classification** responds to the child's power of observation, and the drive to order and classify. From observation of needs and the various manners in which these are satisfied, and from the studies of the myriad structures to be found in the plant and animal kingdoms, comes a mass of information that invites some form of organizing. The child's work with nomenclature in this also yields a great deal of information. In response to this drive to classify comes the classification presentations of the elementary classroom, which are presented later in the child's time in the elementary once a base of knowledge has been established.

Before entering a Children's House classroom, a child may have a pet dog or cat, and will have seen birds and insects. All of these young children will have encountered plants. Hopefully, an attitude of respect, contemplation and curiosity will have been fostered by their families. The attitudes of the adult are of paramount importance here. The elementary child enters carrying these ideas with him/her, and they are in many cases the starting place for the discovery of different attitudes and ideas about GOOD and BAD plants. It is always interesting to me to see the reaction when we make dandelion tea out of a weed that Mom or Dad hates in the lawn.

Adult reactions of fear or disgust when animals are encountered are absorbed by young children. So is the tendency of some adults to destroy less 'appealing' creatures. It should be the aim of the adult who is interacting with children of the first plane to teach observation, and to highlight the various contributions that each creature makes to the world around it. Children of the first plane should observe that the adults around them have a deep respect for life in the classroom and outside it.

In the Children's House, the children care for the plants living in the environment. Many classrooms provide "Leaf Washing" as a Practical Life activity. The children may also be responsible for feeding the class pet, when the state allows them in the room. Luckily, Oregon is still pretty open to animals in the class. We have found that in several states where we have visited Montessori schools, they were not permitted any animals or animal parts in the classroom including bones, or even a wing of a bird.



In the Primary classroom the children also have the opportunity to learn biology nomenclature. Geography picture envelopes, the Botany Cabinet and the classified cards all provide the child with sensorial experiences to which language is attached. Beautiful names are attached to beautiful shapes, and stories, poems and songs further enrich the child's experiences. We elementary guides should always thank our Children's House guides for the excellent preparation given to children before we get them in our classrooms.

It is often the case that some children entering the elementary classroom have not attended a Children's House. Some may not have had positive experiences in the field of biology. In such circumstances it is best to return to the beginning. Introduce a plant and teach the names of its parts. Convey a respect for this life form to the nature of second plane children, beginning with a sensorial introduction, but moving rather quickly to exploration via the imagination and reason. As an example, *"The leaf makes the plant's dinner!"* is an impressionistic chart and story that gives children suffi-

cient fuel to construct an image that enables them to begin to understand what is going on.

Second plane children typically want to know 'why,' and so move to a study of the function of a plant's various parts. The plant has needs that need to be satisfied, and its different structures work together to satisfy these needs. This is something with which the children can identify. They know what it is to be cold or hungry, and these personal experiences give opportunity for them to better comprehend what is going on. I have used the fundamental needs charts time and again, to illustrate this relationship of other things to us.

Part of the difficulty we have is that in America (stereotypically) we are told by TV, advertisements and the like that we are separate or even above the other living things that share this planet with us. We should

combat this concept by showing the children the interconnectedness of all living things. We all depend on each other to survive and we all have very much the same needs. But in a society where not even dust is allowed in the house, how does the child begin to feel part of the earth? This is one of the questions we take to the children, and because of their answers, we camp out several times during a child's elementary years.

The campout experience is new to more and more of our children and to the parents in the classroom as well. While it can be wet, cold, and messy, it can also be beautiful, sunny and warm. Each child should really experience all of the above. How better to look at the basic needs, than get out where the basic needs are staring them in the face! If any reader of this article wants information on how to do a group campout, please feel free to contact us, as we have written a basic how-to guide that can be shared with others.

The guide is the major factor in generating interest in biology. Enthusiasm is infectious, and the guide should develop lively and enthusiastic presentations. Should this field be one in which you have little interest, you should **study** it as presentations are prepared, or bring someone in that is enthusiastic. From this contact, genuine interest may develop. A guide might consider subscribing to a popular science or biology magazine. In our opinion, "Ranger Rick" or "World" are two good magazines. Ideas and new information will flow from such resources, and if the guide reads them first, will provide many new ideas about presentations.

Remember also that the experiments and impressionistic charts that are presented to the child in the elementary classroom are a **beginning.** They should lead to work outside the classroom and beyond the presentations. Our libraries are full of wonderful resources and the children really enjoy a trip to the library every few weeks.

A selection of books should be available to the children in the classroom. These should range in difficulty from very simple (presenting the 'whole') to those that are detailed. This collection should be rotated in and out of the classroom. We use Peterson and Audubon books as well as library books for this purpose. We always study the plants and animals of the area we are going to camp in before we get there, so the children are ready and looking for things. Some of the new CD ROMs by Eye-Witness are great, too.

Experiments, demonstrations, and presentations, when linked with imagery and analogy, enable the child to explore the greater environment outside the classroom. The child's learning expands with on-going presentations, and by working with such things as the nomenclature material, body function material, building a mural in the classroom, or doing classification. We are creating a cycle that hopefully will last for a lifetime. ■

Gary and Ruth Casebeer are experienced Elementary Guides at the Franciscan Montessori Earth School.

Enticement—Extending Writing in the Children's House

by Anne Blickenstaff

Enticing the children to be inspired to write was a goal during my years as a primary guide. It required a concentrated effort as I had never felt confident in my own ability to express myself via writing. But, through focusing on developing a rich classroom environment, presenting an abundance of oral language experiences and providing exposure to quality and diverse literature, I found myself building the foundation that both the children and I needed to find confidence and joy in the process of writing.

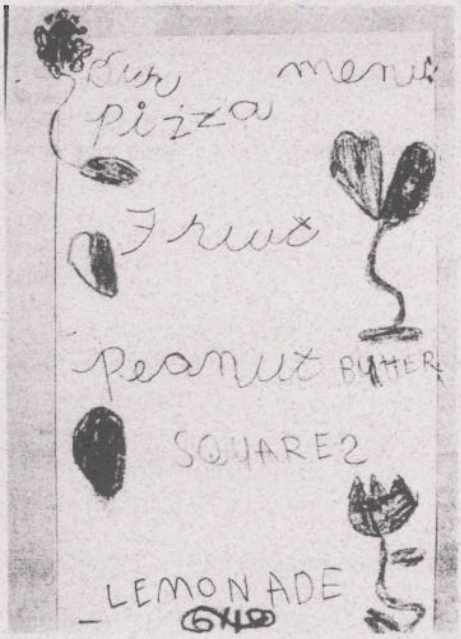
Once the children had gained the mechanics of composing phonetic words, they were prepared to move away from dictation to begin writing what they wanted to express. This article shares writing experiences that inspired the children to want to write!

Writing Lists

Children often see their parents and other adults writing lists: gift lists, grocery lists, things-to-do-today lists, etc. Lists address the child's need to classify, categorize and group. Lists provide the child a forum to show what they know. There are endless possibilities for writing lists. They include:

-words that begin with the sound ___
-people you like
-favorite animals
-songs
-sports
-types of trucks
-favorite foods
-which foods you would like to have packed in your lunchbox
-presentations you would like to have
-members of your family
-where you have traveled
-favorite Practical Life exercises
-countries in North America
-names of the polygons in the Geometry Cabinet
-your dinner menu

By simply asking the child what she/he would like to write about, you have opened the door for them to express their knowledge and interests. Many of the children enjoy collecting their lists and compiling them together into a book of lists.



True Stories

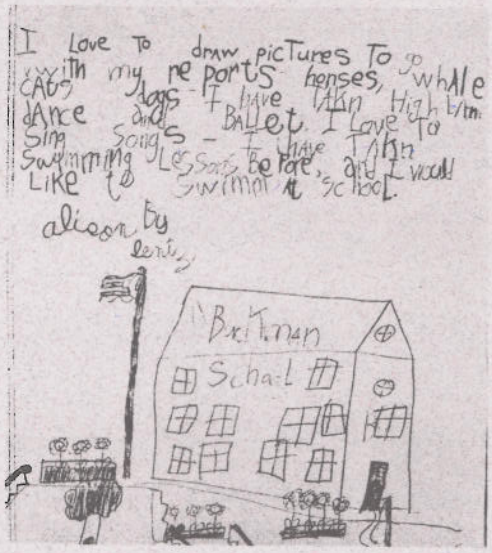
Stories based on personal experience provide a natural starting point for children's writing. All children have experiences and most are motivated to share them. Stories about themselves give children a sense of confidence and ownership. Our young writers can use their oral language and expression abilities as a basis for their stories.

Stories have a specific structure; in the most simple terms, they have a beginning, a middle, and an end. Typically, the story moves from a given set of circumstances through to a resolution. Our Question Game has helped prepare the children to think about and expand their ideas around a topic of interest to them. We can use the Question Game to help develop the child's ability to write and structure simple stories.

When a child wanted to write a story, I would ask a series of questions:

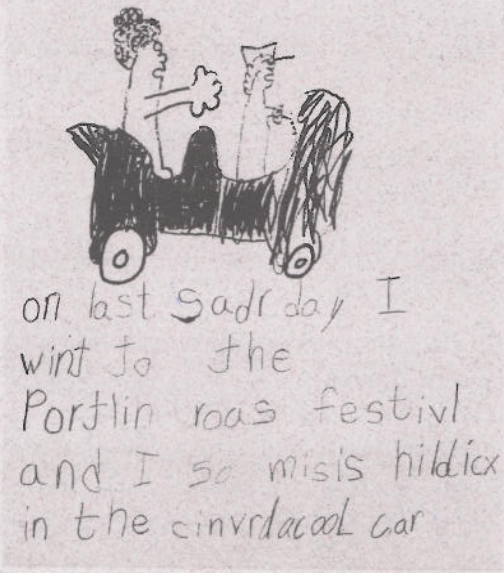
-What do you want to call your story?
-Who (or what) is this story about?
-What can you tell me about the main character?

-When did this happen?
-Where did this happen?
-How did this happen?
-With whom did this happen?
-What happened?
-How did it make you feel?



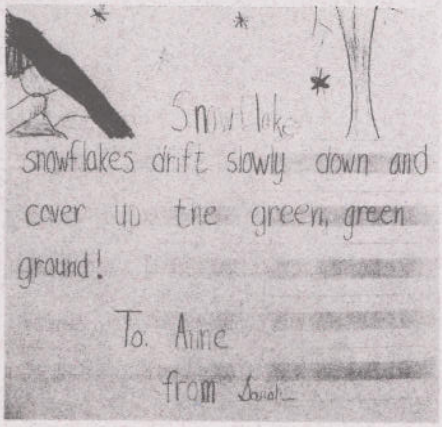
The Second Reading Analysis Chart is useful as a reference to enrich your questions. It is important to help the child establish a sequence and to guide the child in drawing out the details. By gathering this raw data for the story, the child has been assisted in understanding the structure to the story. The children were aware that when they wrote a story they did not need to include everything, but just what suited them best.

The children took pleasure in illustrating their stories, giving their composition a meaningful title, numbering the pages, designing a cover and having it bound. Often, the children would request to read their stories at group gatherings. They would also leave their handmade books available for their peers to read.

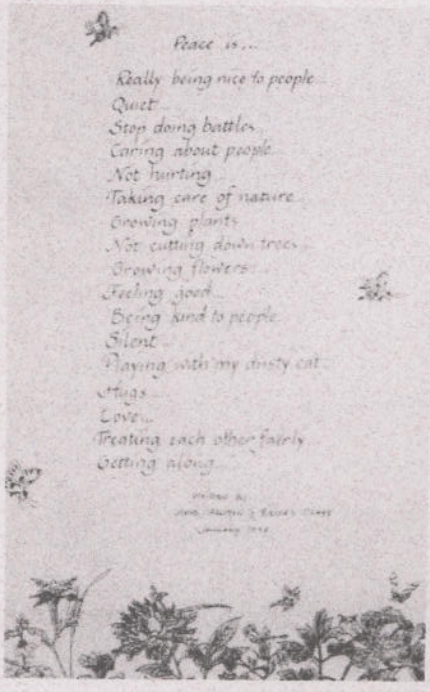


Writing Poetry

Writing poetry can be a tremendous aid to children in developing their language and thinking skills. Poetry writing requires focus and a considered use of language. The process encourages the children to think about feeling and meaning and to articulate their ideas. It guides children to listen to the language and choose words and phrasing with care.



Writing a collaborative poem was the first step into poetry writing in my classroom. After reading poems related to a theme (e.g. spring season) over the course of several days, the group wrote a collaborative poem. I began by asking the questions: "How shall we start this poem?" and "Let's begin with what you see outdoors in the spring." Sometimes, I would prompt them to keep thinking by giving a direction like, "Think of a color or a sound or a motion word." Then, I wrote



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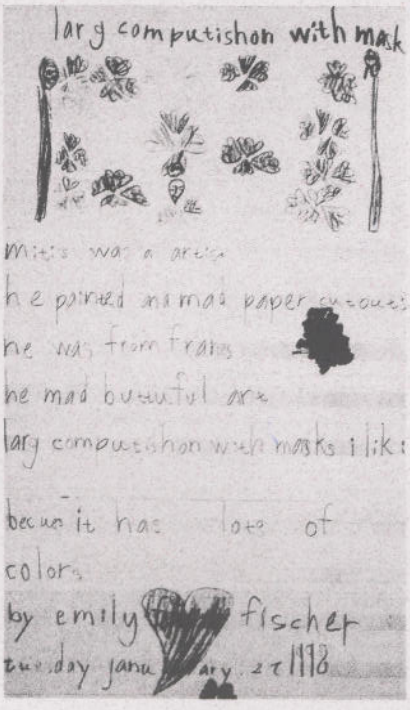
down verbatim what they said. As we proceeded, I read back their responses and, sometimes as a group, we would revise the order or wording of the lines to make them sound more pleasing. When the poem was complete, I read it through and asked the child what they might like to change. Sometimes, the children would make up hand movements to accompany the poem or would request to act it out. Each poem was calligraphed and posted in the environment for the children to read. At the end of each school year, I would compile the year's collaborative poetry into individual booklets for each family to enjoy!

The collaborative class work stimulated poetry writing among the children with their Movable Alphabet work. It became a natural extension for even the beginning writers to compose their word lists in a poetic fashion. The older children would often request to share their poems with the other children at group gatherings.

In the Extended Day, we would symbolize some of our favorite poems using the grammar symbols. The children were fascinated to see the patterns used by different poets. But the true excitement happened when the children began to symbolize their own poetry and discovered their own writing style.

Writing Reports

Children are eager and excited to learn and talk about things that interest them. By introducing the children to simple research reports, we help them write about the topics that interest them, as well. The benefits that the children experience include: addressing interests and validating their existing knowledge base, learning more about their special interest subjects and sharing their knowledge with others.

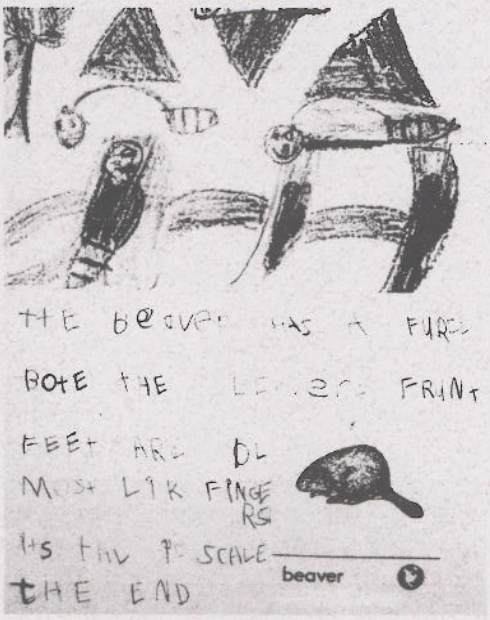


Our classrooms are endless sources of inspiration for the children to write simple reports. For example:

-The Geography materials. After reviewing the pictures in a geography folder, children would often share a photograph (i.e., Mt. Kilimanjaro in Japan) that was of particular interest to them. After discussing the photograph, I would share with the child research materials (books, encyclopedias, magazines, etc.) to deepen their understanding. To write their reports, I guided the children through the following sequence:

*Planning — learning and listing important facts is the first step in writing a report.
*Children choose the key facts that interest them to write sentences.
*Children have the opportunity to read and revise their report to change anything.
*Children can "publish" their reports if they wish and include illustrations, titles, chapters, page numbers, credits, etc.

Science, Cultural and Geography presentations can present topics that are exciting for beginning writers. As it is our role as guides to "follow the child," you want to keep your eyes and ears open for the children's current interests.



For those six-year-old children who are moving into the second plane of development, working with a partner on a research report can be a fulfilling experience. In addition to learning the skill of researching and writing a simple report, the ability to work cooperatively with a peer is developed and the need for social contact is addressed.

This Month's Focus

BALANCING PERSONAL AND PROFESSIONAL LIFE

by Ginni Sackett

There is no easy formula for balancing one's personal and professional lives, but there is a general approach possible. It begins with a definition of terms (what is personal? what is professional?) and an individual exploration of their interrelationships.

In the most general terms, the professional life is lived in the public sector and the personal life in the private sector. This can, however, be a simplistic distinction. We might long, at times, for work which is totally separate from our personal lives, but the stronger urge seems to be toward integration, with each part of our lives connecting meaningfully with the others.

Our personal lives all differ. Some of us might think of them as "extra-curricular", others as something made possible by our jobs. When this topic was proposed for the Menucha Retreat, one joking response was "What personal life?" We each can only answer for ourselves what defines our private lives, what choices have informed our personal style. But as Montessorians we all share the category of our professional life, so that is where we can begin our exploration together.

As Montessori educators, we have a structural overlap of the personal and professional due to the nature and philosophy of the work. Our jobs fill the full definition of Profession: we profess a certain set of beliefs based on science and learning; we are advocates; we witness to the philosophical foundations of our very practical activity. And from the moment we began to consider this particular work, we have been engaged in a personal journey as well as a professional advance. Our professional success is thoroughly connected to nothing less than a personal transformation.

The positive aspects of this overlap are probably among the reasons why we chose this work. The negative aspects are what wear us down. It is our privilege that the human tendency toward self-perfection is so intimately connected to our professional activity. On the other hand, it is our challenge that our work will expand to fill the available time — never done, always something to be improved, expanded, changed, enhanced. It is exhausting just to read our job descriptions, which can and often do contain the clause "...and anything else necessary to fulfill the duties..."

There are numerous cultural and historical associations which muddy our professional self-concept. Some relate to our particular Montessori tradition or that of education in general, some to our work: the education of the young child. There are issues of economic compensation, social prestige, and universal certification which place at times impossible strains on our capacity to work.

Our privacy is under assault by our work, our profession expands beyond job descriptions, and neither accepts compartmentalization. Since the sets of categories are endless, the picture is blurred and we lose sight of what we are trying to balance.

The first step toward balance, then, is recognition that when the personal goals and professional requirements are limitless, the situation is out of control. When we see a child in our environment who is out of control, we provide the gift of limits. Likewise for us, the next step after recognition is to provide this gift for ourselves. We establish the limits which allow our freedom to choose appropriate responses to our strained circumstances.

Potential responses begin as images. We form images as to our personal style and we also accumulate many images of "Montessori Professionalism". We derive these images from many sources: from the educational profession in general, from our own trainings, from historical literature and from other Montessorians. We absorb these images both consciously and unconsciously and then we struggle to live them perfectly. Yet many of these images may in fact be in conflict with each other or with our own needs or personal style.

For example, in The Absorbent Mind, Chapter 27, we are offered three models for our work: the wife, the saint and the gentleman's valet. We are then told that our transformation as teachers will take us beyond such mundane concerns as salary or working conditions. Without denying the truth they are meant to convey, these images can be seen as archaic, unhealthy or even offensive to those of us struggling to construct a professional identity

or a healthy personal life.

So we must uncover and sort out our images and then choose to cultivate those which truly represent the interior reality of who we are and what we believe. By these choices we bring our professional life within manageable limits, and thus intensify our ability to live it.

The next step is to act on what we have chosen. Action takes place on two levels: individual and communal. We start on the individual level because on that level we can have immediate control. I think of this as "how we treat ourselves". Professionalism, however, being in the public sector, can only flourish at the communal level: "how we are treated and how we respond to that treatment".

On the individual level, we assert our chosen professional image. We prioritize that endless job description and establish long range goals with incremental stages. We recognize when we enter a new plane of professional development and needs just as we watch for a child's movement into a new plane. We assess our use of work hours and work place and establish dependable breaks.

We also clarify the level of involvement necessary to assert our professional identity productively. For instance, perhaps there is a sense in the parent community that we are glorified day care providers. Diplomas displayed prominently in the environment, using an educator's vocabulary, publicizing professional development (previous experience, workshops,etc.), and even our manner of dress can all bolster our professional self-esteem while simultaneously creating a clear distinction of our role.

This also helps relieve the pressure caused by our overlapping personal and professional selves. Putting on our "work clothes" and walking through the door to our environment help to separate our personal situation from the focus needed to work with children in the present. Likewise, coming home and changing clothes signals that the day is over.

Another limit might be to do as much work as possible "at work". Voluntarily extending on site hours (when logistically possible) might be preferable to spending time at home on record keeping or material making. Such small actions can take on large symbolic meaning. We each of us develop our own repertoire and allow it to evolve with our experience and expertise.

Limits can also mean at times admitting that this is a job, thereby preserving some emotional distance from our very personal involvement with the children and their families. Limits might also mean carving out time for reading and reflection to reinforce our participation in a larger endeavor. By setting effective limits, we create an environment in which to be professional.

At the communal level, we extend our sphere of action into our own institutional setting, into the larger Montessori community, and into the range of public perception. We search out and reinforce those areas that support our stability and analyze those that present obstacles to it. It is at the communal level that we are the weakest but it is here that the most effective long term contribution to our professional lives must occur. This arena includes everything from pay scales, benefit packages and supportive administration to public recognition of the Montessori alternative and public commitment to Early Childhood Education.

If we are to effect the personal transformation which Dr. Montessori described as essential to our professional success, we need the protection of our community. If we are to raise our status in the eyes of society, we must establish our professional standing creatively and irrefutably.

With our professional life intensified within clearly delineated limits, our personal life is now protected against the daily intrusions of public life. Thus we move toward balance. A protected, nurtured personal life refreshes and fuels us, while an enriched, limited professional life validates us as competent, effective and successful individuals making a particular contribution to the life of humanity. Neither aspect exists in isolation. We construct the links between the two which are acceptable to our own personalities and live in the harmony created by the shifting balances between them.

Ginni Sackett

Ginni Sackett gave a presentation on this topic to those gathered for MECO's first annual Summer Retreat last August and the response was so enthusiastic that we asked her to distill her presentation into an article .

(Note: This topic will be addressed again this summer at the MEC/O-AMI Retreat. See 'From the Training Center .

Ginny received her AMI Primary diploma here in Oregon in 1982. She currently directs a Primary class at Whole Child Montessori Center in Portland, serves as a Course Assistant at the Montessori Education Center of Oregon and balances this with a full family and personal life.