Lecture 11

Some More Suggestions and Remarks

by Maria Montessori

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Observation requires careful and individual preparation on the part of the observer. Preparation is necessary in order to render him capable of observing and of understanding that which he observes. It is also necessary to follow certain rules during the observation in order that the object which is being observed—in this case, the child—will be free to manifest the phenomena which we wish to observe.…

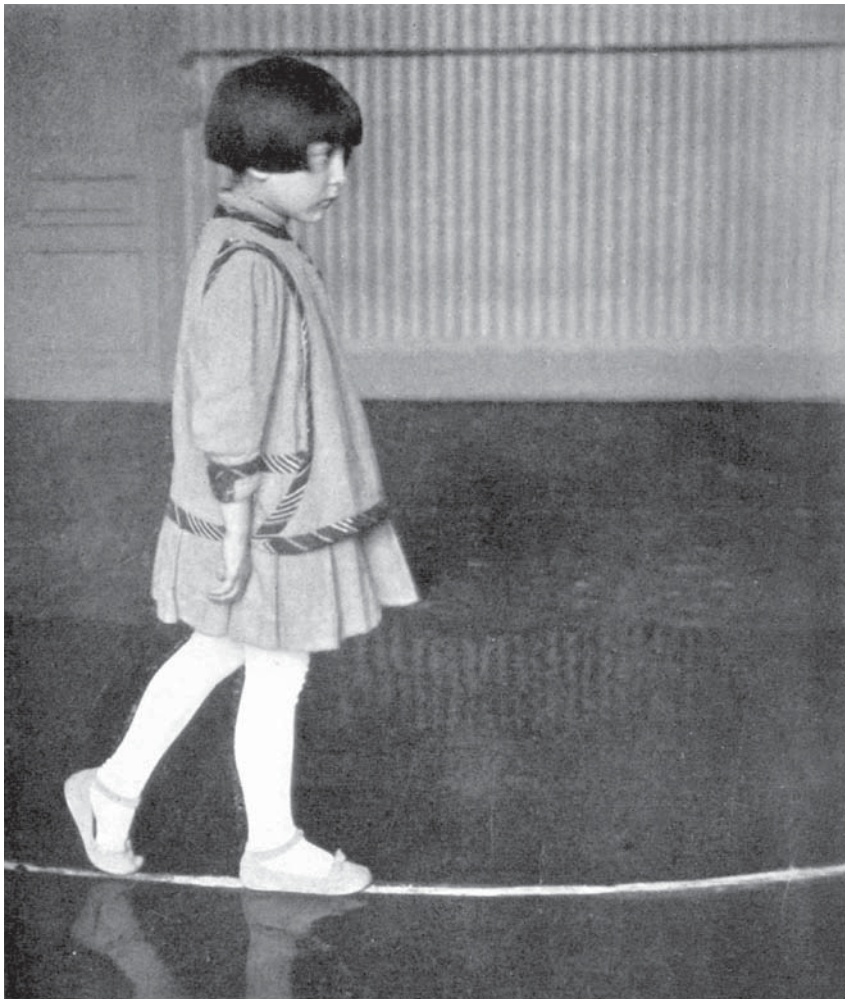
In order that the children may manifest their actions freely, they must be in such a condition as to be practically unconscious of the fact that they are being watched. For this reason the observer must be able to maintain absolute immobility. From [this] immobility comes the silence which we have practiced collectively. During the period devoted to observation the observer finds a splendid opportunity to practise this immobility and silence. It is also to the advantage of those who are observing, because if this were not carried out, in a very short time there would be nothing worth observing.

…I impress upon you to remember this, to maintain perfect immobility during the observation. The observer should maintain perfect immobility of the soul, so as not to take part in any manifestations of feeling in the actions of the children. There must be no manifestations of enthusiasm, pleasure, or joy on the part of the observer.

Concentrated Attention

You will remember that mention has been made of that particular phenomenon which is characteristic of the normal child, which consists in the repetition of the same exercise many times together with a strong concentrating of his attention upon the exercise. We

also note the fact that during this period of fixed attention, even very potent stimuli occurring in the immediate environment are unable to attract the attention of the child from his exercise. This phenomenon in general is not found as easily as other phenomena of which we have been speaking. It may be that in the schools, where observations are being made as also in many other schools, there is not yet developed the phenomenon of strong attention; but as a high state of order has already been reached in the observation class, you will probably have an opportunity of seeing this phenomenon of



A Montessori school in Italy, circa 1915

concentrated attention develop. I wish to repeat, for the last time, that it also depends very largely upon the observer as to whether this phenomenon will be able to develop; because, although it is true that when this phenomenon has been established, a hundred people entering the room will not disturb the children; yet, when the phenomenon is not yet developed, it is possible that the presence of many people may prevent it.

Repetition of Movement

The most evident difference between this type of movement and those other consecutive movements that have been discussed lies in a repetition of the same exercise or movement. This movement, as I have already said, is not in relationship to the outside world, as were those other actions. It is in relation to an inner impulse, which manifests itself and exhausts itself spontaneously. Here, too, in order that this phenomenon may manifest itself, it is necessary to have precision in the use of the material because it is this use which primarily attracts and fixes the attention.

It is not the object itself that attracts as a beam of light attracts the eye. It does not resemble a chemical reaction brought about by the proximity of the two bodies, nor is it like the apparition of an angel which appears to the soul of the child. It is the exact use which brings about the effect. Therefore the teacher must know this precise use. Not only must it be known, but the teacher must also believe and be convinced that it is the exact use which will produce the effect.

The Exact Use of a Cylinder Block

The exact use of this object is as follows: remove the cylinders and when removed be sure that they are mixed. Now I will do it in two ways. The first is the way in which it should *not* be done. This mode of presentation suffices to remove all interest. It is true that in this case there is no possibility of making an error, but there is also no possibility of perfecting oneself. It *should* be done in this way, mixing the cylinders as they are removed. If we were to do it in a third way, as I am now showing you, you would be adding a useless movement which would soon be forgotten so that the child would soon return to the first way I showed you.

Another detail to be observed is the particular way in which to hold these objects. Another detail of the objects themselves is that all the cylinders must have the same sized knobs. As these little knobs are made for the purpose of holding the cylinders, we will hold them by the knobs. The simplest way of doing so is with the thumb and two or three fingers, and so we will take them in that way.

Naturally, as these exercises are repeated many times, little by little the children will notice more rapidly the correspondence between the cylinder and the place into which it fits. In this way, this exercise increases and refines the capacity of the eye to distinguish the differing dimensions of these objects. It also requires of the hand a certain movement, which is the movement of moving things from one place to another. It also accustoms these three fingers to holding an object of the same dimension. It really represents a systematic exercise of coordination and prehension.

After the exercise has been repeated many times, the position of the fingers in holding an object of that size becomes, as it were, fixed in the muscular memory. Many of you may be surprised to learn that such exactness is necessary. This exactness is necessary for two purposes. The first is to give interest and fix the attention. The second is to develop these various qualities.

Misuse of the Material

One may often see children roll a cylinder on its side. Because of the ideas which we have regarding the importance of free play, etc., many may think that in this action there is something of value to develop. We may think that in preventing this action we are preventing the real spontaneous development of the child. Let us suppose that this movement is not to be excluded. It can be performed with some other object. It will be understood how neither the eye nor the muscles can acquire great development through rolling this cylinder backwards and forwards in this way. Free movement, as it is generally understood, such as rolling on the grass, etc. is quite different from the definite use of these objects. When used as they are intended to be used, they serve for the coordination of that which is not yet coordinated. Now if the purpose is to effect this coordination, it is clear that the object must be used in such a way

that the purpose is reached. These objects have been chosen and established for the education of the child, because while using them in that prescribed way the child will manifest the phenomenon of fixed attention during the repetition of the exercise.

Think of any instrument of precision, such as a microscope, used in order to study the amoeba or cells fixed in the slide. If it is your purpose to study these specimens, you must put your little glass slide precisely under the centre of the lens. You must fix the reflector which is underneath so that it will concentrate the ray of light upon that which you wish to observe and you must move the focusing screws until the lens is perfectly focused upon that which you wish to study. If you wish to study these cells, you must do all these things precisely in this way. If you do not wish to see with the microscope, if you wish to use it for some other purpose, such as putting the tube in your mouth, you may do so, but you will not see that which you wish to see, and you will not train the eye to observe that which you wish to observe. It would be more logical to put a pipe in your mouth, because you would then have the purpose of smoking. But admitting that a pipe is not absolutely necessary for the health or the guidance of man, one could imagine him without either a pipe or a microscope. Perhaps with regard to the child there are movements which are not really necessary for his development.

Useless Actions Cease when Inner Organization Develops

When you have experimented with little children in this way, you will see that when their inner organization begins to develop, those useless actions will cease. I rather insist upon this point because I know that there is a strong conviction that children need these useless disorderly movements. We believe that the free life of the child is necessarily a disorderly life, but it is our experience of the child that has shown us that this is not true. In almost all schools the teachers will experience this themselves.

I would like to cite an example which is rather convincing. It is a case of three children who ran away from a school which was carried on in this way, with a great deal of precision and exactness. They stayed away for three days, playing in the streets. The teacher left the children alone, and after three days, they came back to school. When they were asked why they had returned, they said they had

come back because all the things they had done in the streets were useless. They manifested this sensitiveness, which all children have, to the fact that they were wasting time. You will often find, if you ask a child, that he will object to something "Because it wastes time." This response of the fixed attention to an exercise is in connection with this manifestation.

Without doubt the strongest latent need of the child is to grow and to develop. When he finds a means which is systematically prepared in order to help him to develop, he responds to it in this way. It seems so marvelous because it responds to that need. Thus when we give objects, we are giving him objects which are the means by which he perfects himself. We are giving him help as we give him nutriment when he is in need of bodily nourishment. If we have within ourselves the potentiality to perfect ourselves, and if we need exercise in order to perfect ourselves, it is obvious that we must give objects in the environment which perfect by means of exercise. Thus our choice of objects was guided by the fact that those objects are first of all able to hold strongly the child's attention.

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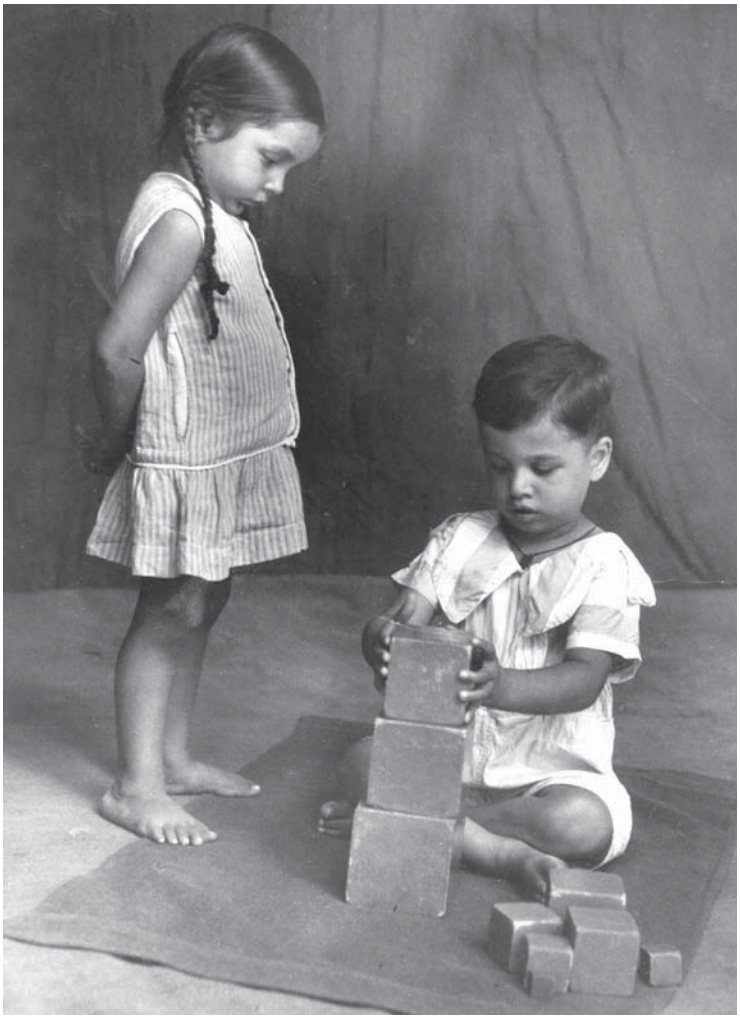
Remarks on the Pink Tower and Voluntary Movement

These objects, which you have seen so many times, are also a very evident means of refining the capacity of the child's eye with regard to the appreciation of the distinction of different dimensions. They also are for developing coordination of certain movements. When the little child of three years of age takes up this cube, stretching his little hand as far as possible, he is doing an exercise, because it is also a considerable weight for a small child to lift. It demands an exercise of the prehensile muscles. With the second block, it is a little less difficult because the weight is not so great. Thus it becomes easier each time as the object gets smaller and lighter. Each time the hand is less extended.

Without doubt, we have a series of gradual sensations. They consist in extending the hand to its fullest extent and then gradually closing it. These movements, like those made with the cylinders, will become fixed in the muscular memory. The difficulty lies in repeating the exercise a sufficient number of times in order that this muscular memory may be fixed, and here lies the secret.

We cannot by command bring about this repetition. It is the object itself which is capable of bringing it about at that particular



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age. There is here, in addition, the fact that one of the most difficult coordinated movements in this exercise lies in the accomplishment of the exercise itself, viz. to put this cube precisely in the centre of the one below. To do this with precision is not easy. One may liken it to the precision of the eye on the bull's eye of the target. One must be very sure and able to control the hand very successfully in order to put this cube precisely in the centre of the one below. Then there is the weight which helps the exercise, because it is almost as though gravity pulled the object to its place. Little by little, as the cube becomes lighter the hand becomes less steady.

Guide to Psychical Observation

by Maria Montessori

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Work

Note when a child begins to occupy himself for any length of time upon a task.

What the task is and how long he continues working at it (slowness in completing it and repetition of the same exercise).

His individual peculiarities in applying himself to particular tasks.

To what tasks he applies himself during the same day, and with how much perseverance.

If he has periods of spontaneous industry, and for how many days these periods continue.

How he manifests a desire to progress.

What tasks he chooses in their sequence, working at them steadily.

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Persistence in a task in spite of stimuli in his environment which would tend to distract his attention.

If after deliberate interruption he resumes the task from which his attention was distracted.

Conduct

Note the state of order or disorder in the acts of the child.

His disorderly actions.

Note if changes of behaviour take place during the development of the phenomena of work.

Note whether during the establishment of ordered actions there are:

- cries of joy;
- intervals of serenity;
- manifestations of affection.

The part the child takes in the development of his companions.

Obedience

Note if the child responds to the summons when he is called.

Note if and when the child begins to take part in the work of others with an intelligent effort.

If you try to do this exercise when you are at all excited, you will find it very difficult to guide the cubes into their places. This exercise would serve perfectly for a test for those who are suffering from alcoholism or the beginning of nervous trouble. The first thing one loses in cases like that is the power of guiding one's hand perfectly. In pathology it is called the "intentional tremor," because it is the trembling of the hand which comes when we try intentionally to guide it in a certain way. For instance, in the case of a person who is beginning to develop nervous trouble, it is the intention of drinking which makes the hand tremble when car-

rying a glass of water to the mouth. The child, who has not yet coordinated his movements, also finds a difficulty in performing these actions. That is why you will see a small child trying to feed himself and putting the soup or porridge on his cheek instead of in his mouth.

Thus one can understand that when the child feels this passionate interest in the object and the desire to exercise himself by its use, it is because he unconsciously feels that it helps him in his progress with the difficult steps in life.

Comparison between the Movements in Building the Pink Tower and the Brown Stair

I wish now to show you the relative difference between these objects, the prisms and the cubes. They have one measurement in common. We can see how the precision in the construction or placing of these objects is necessary in order that they may have a purpose. The stretch of the hand necessary in order to take up this cube is the same as that which is necessary in order to take up the largest prism. Except that here the weight to be lifted is greater. Therefore the effort required is much greater. The same position of the hand, the same stretch which is necessary for the second cube, is necessary for the second prism. Thus in repeating the exercise with the prisms there is this continual change in the position of the hand from a reach of ten centimetres to one centimetre. These positions are strongly fixed in the muscular memory.

Thus it is not only the eye which develops the power to recognize the gradation in these different dimensions, but also the muscular sensibility is exercised. This muscular sensibility is exercised to such a fine degree that perhaps it would be difficult to bring the muscular sense to such a fine point of appreciation in any other way. Who could possibly order a little child of three years of age to repeat fifty times a day a movement of the hand where it would make a grasping movement varying from ten centimetres to nine, eight, and so forth? And these exercises which bring muscular refinement interest the child precisely at that age when he is acquiring his muscular coordination. It is being fixed in his organization.

The Importance of Precision

Now you can understand the importance of the precision, because if we were to allow the children to take the objects in any other way, instead of in the hand, a great part of the value of the exercise would be lost. If the exercise were repeated fifty times, first taking them in one way and then in another way, one would not make these acquisitions so rapidly. You will understand that the child will not repeat the exercise so many times if it is not given with that exactness and precision. It may seem as though holding or placing them in any other way would multiply the number of times the exercise would be repeated, but this does not happen in practice. However, we can understand this if we realize that when the means of perfecting himself are not there, each variation represents the child's curiosity, which is far more limited than his need for self-development or perfection.

An analogous exercise is that of putting these long rods (red rods) in gradation. You will notice that in taking these up the same precision of the fingers is required for each rod every time the child uses one. However, it is very difficult to recognize the different lengths of these rods. Then there is the little exercise in adjusting all the rods so that they are perfectly even at the end, because if this is not done—if the rods are not all placed precisely level at one end—one cannot see the difference in their lengths. This is quite an obvious reason for the starting point of all the different lengths. So these prisms (brown stairs), which are of the same length, must be made even at the two sides by the same exercise. It serves to help the children to understand that they all have the same length.

With the cubes there is no exercise of the same kind which can be used to put them in order, because none of the ten cubes have any dimension in common. Here with the prisms and rods there is this purpose to guide the hand. There is no difficulty in putting the objects straight, because they all have this large base and are all on the same plane. But with the cubes we must go higher each time. The movement becomes more complex. There is no common dimension which allows us to adjust them. What is interesting is the fact that they have no common dimension. If you were to do this, which I have so often seen done, it would serve to verify whether the cubes

had been placed correctly, but this way of verifying is different from that which we have shown up to the present.

First let the children verify by their eyes, and let us allow the effort of coordination to follow the verification* which is made solely by sight. So this way of taking down the cubes and placing them one on top of the other is the first way that attracts and interests the little child.

* Note. We think that the verification that Dr Montessori is referring to is the one we know that shows the unit of measure. To find the unit of measure, two sides of the cubes are aligned in building the tower so that the smallest cube will slide along two sides of each of the cubes.