July 2022

Box 07, Folder 32 - "The Gate Crashers" (E.M.S.)

Edwin Mortimer Standing

THE GATE CRASHERS.

The Montessori method was first applied to small children - the underfives , ~~but as time went on~~ it extended its sphere so that now there are Montessori schools up to ~~University entrance~~. ~~During a number of years Montessori,~~ with the help of her collaborators prepared a variety of new materials for teaching History, Geography, Biology, Religion and so forth in accordance with her principles. She introduced these materials to children in the older classes - aged about 6 - 8 years, thinking them suited to their more advanced capacity.

Thus - to take one example. She prepared a map of Europe .. divided into its several countries; but, instead of putting the names on them, she stuck on to each country a picture of its national flag. This was to act as the key map. In addition she prepared another similar map divided into countries, but they were left blank. She also provided a pincushion into which were stuck pins, each bearing the flag of one of the countries of Europe. The exercise consisted in affixing the pins, with the flags on them, into the corresponding countries on the blank map - helped, at first, with the control map. (Each country had a little hole for the pin to stick in).

Then a curious thing happened. The small children from the adjoining Babies' Room came in and watched with silent interest what was going on. Then, when the occasion offered, they quietly took away the material and did it themselves. I

saw one of these smaller omes - a boy of 4½ years putting the flags of Europe into their right countries and saying correct right names. He did it as easy as winking. "That's England" he said to me "where you come from! - "that's Holland where I live" (see illustration). The very same thing happened with the other materials Dr. Montessori made for teaching Geography, History and Nature-study, and so on.

THEY PREFER THE DIFFICULT TO THE EASY.

Thus Dr. Montessori made the discovery that small children prefer doing more difficult things to the easier ones. I saw, for instance, some children - about 5 years - enthusiastically studying the materials for teaching the various leaf-forms. which were originally later

The secret of their interest lay of course in the brilliant way that Dr. Montessori presents the subjects. Quite simple when you see how it is done, as simple as Columbus and the egg-

The game - if you can call it a game is like this. On a table in the garden diagrammatic representation of various leaf forms - all different. Each form is painted on a separate card. The children come up individually. Each chooses a card from the table; picks it up, and goes off with it into the garden to find a real live leaf of the same shape. So in this way what, under the old dry-as-dust system would have been bookish classification now is transformed into a series of thrilling voyages of discovery all on the garden. I saw one little fellow pick up a card with a round-shaped leaf on it; ~~and~~ then set

off briskly, making a bee line for a pond at the other end of the garden.

I followed him, and arrived ~~there~~ just in time to see him stretching out over the pond, at a most perilous angle, trying to pull out a leaf floating on the surface. To my relief he managed to do so without falling in, and I was able to snap him by the water edge, just before he rose to his feet to take back his prize and place it triumphantly on the table. This done he selected another leaf-form, and set off on his next trip.

~~Similarly~~ I followed in the wake of a little girl who was directed her steps to another part of the garden. I arrived just in time to see her picking a "needle" shaped leaf from a pine tree.

It was a charming sight to see these tiny mites, in their pretty coloured dresses, running to and fro from the table to the garden and back again, carrying their leaves, like bees going and ~~coming~~ round a hive. The whole ~~business~~ was incredibly simple, and natural; so that when - a week later in another part of Holland - a teacher said to me rather scornfully: "I don't approve of this new idea of Dr. Montessori's of teaching Botany to Babies, do you?", I simply smiled, and asked her if she had seen it herself. I knew before she spoke, her answer would be in the negative.

The little ones having in this way gradually appropriated for themselves much of the materials made for the older children, Dr. Montessori set herself the task of making some more materials for the latter. In doing so she argued thus: if the small

At this point

Fractions at Five

& will make things much easier
later on.

children prefer unexpectedly difficult things why shouldn't the same thing apply to the older ones too? She acted on this supposition; and the results were equally remarkable. Some of these results I was able to witness with my own eyes. Here is an example. In the room where the older children were working I saw a boy($8\frac{1}{2}$ years) down on his knees with a great quantity of different coloured bead-bars spread out on a rug on the floor. I asked the Directress what he was doing. He is working on "Positive and Negative numbers" she replied. Then she took a slip of paper and wrote on it 12, - 7, - 4, 3, - 5, -8, and gave it to the boy, who looked at it for a few seconds and promptly gave the answer - 9.

"Now you make one up, please" she said to him. The young fellow wrote down a similar sum, but I noticed he set himself a much harder one. It was:- - 38, - 60, 10, - 56, 39, — 76. While he was working it out in his head the Teacher did so also (I tried to, but mental arithmetic was never my strong point: I got muddled and gave it up!) The boy without any visible working simply wrote doen - 105. The Teacher meanwhile had produced a different answer; but, on doing it again, she found the boy was right and she was wrong.

Then she went across the room, took a bit of chalk, and wrote on the board $(7+3+5)^2$; and went to another boy of about the same age, and asked him if he would do it for her. He left his work and went straight to the board and wrote as follows:-

$7+3+5$

Begin here

$(49+21+35) + (21+9+15) + (35+15+35) =$

225

No fuss! no racking his brains to remember the formula; he just wrote the numbers quietly down, taking them all in his stride. "It seems to you rather wonderful" said the Directress smiling, "but really it is quite simple. You see we never begin with abstract numbers on paper, but always with a concrete material. In this case such sums are worked out first with the peg-board, and those different you see over there coloured pegs. Some of them stand for units, some for tens, some for thousands. After the children have worked a great many such sums with the concrete material, they come to understand the operation so clearly that the abstract idea - i.e. the algebraical formula - in this case $(a+b+c)^2 = a^2+ab+ac+ab+b^2+bc+ac+cb+c^2$ comes by itself. At a certain moment they simply "see it" with the intellect - 'the mind's eye' - and no longer just with the senses.

See over page

The next morning when I visited this same school I said to Signorina Paulini, the directress "I hear that some of your children know how to find the square root of a number: is it true? She smiled, and went and wrote on a black board 729 -

over

(X) These paragraphs to be inserted at X in the MS

At this point I might interpolate that I once had a rather similar experience, when I was teaching Arithmetic by means of the Montessori materials. One of the boys in my class - he was about 8years old - had been occupying himself for several days, at intervals, making a comparative study of the squares of numbers and their relationship. He made use of the very same peg board withdifferent coloured pegs as the boys mentioned above were working with.

For some time he had been particularly interesred in the differences between the squares of various nubmbers- ~~such as a~~ and had been working on the formula

(a - b) 2 ~~axxxxxx2abxxxx~~ = (a+b)(a-b)

One day he came up to me in a state of pleasurable excitement to acquaint me with a sort of mathematical law which he had just discovered quite independently, as he worked with the material. Expressed algebraically it was as follows

$(n+2)^2 - (n+1)^2 = (n+1)^2 - n^2 + 2$ — n being any number

Actually it was news to me !but as soon as he began to explain to me how he had come to discover it working with the materials - I saw immediately that he ~~was right.~~ must be right, and why it must be so.

Back again to
"The next morning — ~~etc~~
& so on."

Then she approached two boys ages about 8 and 9 years) who were doing a map together and said, "Would you like to show this gentleman how to do that sum"? They consented readily, put their maps aside, and began bustling about making preparations. One boy went and fetched a longer table, the other a big square board pitted with holes. Then, while the first went off and fetched three boxes with wooden pegs in them, (such as you would use in that game 'Peggoty') the other returned with three saucers, which he placed in a row along the end of the table. Then they got pencils and paper and settled down to work. It was going to be quite a formidable business, apparently - this quest of the square root - and they were leaving nothing to chance.

I could not help thinking that - judging by external appearances - it looked much more like as if they were preparing for some scientific experiment than a sum in Arithmetic. And indeed, in a way, I was right. For the whole point about all this paraphernalia was that they now set to work to find out the answer "experimentally," by means of a tangible manipulation of ~~visible~~ many symbolic objects. The whole process was fascinating to watch; and to a casual observer looked like a curious mixture of the games of Halma, and Peggoty, and the making of pretty patterns in geometric forms with the little coloured pegs.

It was certainly a fascinating operation, ~~too,~~ also for the two young fellows involved. They soon forgot all about me, and the circumstance that it was being done for my benefit. Even

Straight on

when I got a step ladder and climbed up on to it to take the illustration they gave me no more than a casual glance and went on with their calculations. After about fifteen minutes, and much discussion, a conclusion was come to and committed to paper. $\sqrt{729} = 27$. Then they asked the Teacher to give them more numbers to find the square root of ~~,~~ and "harder ones, please," ~~which~~ she did - half a dozen more - ~~and~~ they worked ~~them all~~ out, correctly, in the same manner, and with just the same sort of eager zest as the little ones had looked in the garden for the ~~leaves~~. The last number ~~given~~ them was 74,529. Their work with the symbolic pegs was based on the formula $(a+b)^2$ etc. and $(a+b+c)^2$ etc., being special cases where the ~~family~~ was $(t+u)^2$ etc. (~~being~~ for tens for the units.

Wandering to another table I found a boy not yet eight years of age, working out the following sum. He was finding the interest on a capital sum of 4300 guilders invested at 4% for two years. Here again the work was not done in the abstract, but by means of a visible concrete material, (The Golden Decimal System Beads) which help the juvenile intelligence to see, and comprehend the quantities involved.

FRACTIONS AT FIVE.

Even after these experiences I was still a bit surprised to find a little girl - of not more than 5 (see illustration) making a study of Vulgar Fractions. She was taking out little slips of paper and putting them out carefully on metal circles

which had been cut into regular segments. Each slip had ½, or ¼ or ⅛ up to tenths written on it; and the exercise consisted in putting each slip, as you found it, on the corresponding fraction in one of the individual circles. Here again action accompanies learning; and it is this activity which rivets the attention, and sustains the interest. How different from the old system where all the poor mites had to sit together, like herrings, immobile on a bench - doing nothing with their hands - and listening to the interminable droning of the Teacher. For young children there is no true development - intellectual as well as physical without movement.

go on here

SCIENCE AND ART SHAKE HANDS.

Another thing that struck me very forcibly, and very pleasantly, during my visit was the ~~curious~~ love of the beautiful; and how Art and mathematics seemed to go together, quite naturally, in their little souls. One child for instance (about four years) who had just finished a page of very simple sums - such as 9+1=10 - was busily making a decorated border round the same page. In a higher class, I noticed that one little girl (about 8) had made floral pattern round the edge of a large sheet of paper on which she had previously recorded the factors of all the numbers from 1 - 1000.

I was fortunate in being there on a day when Dr. Montessori herself was present at the school. Her main connexion with the school was to direct the Directress, rather than teaching

herself. It would not have been possible for her to do this on account of her many engagements elsewhere. In fact on the evening of that particular morning she was due to lecture to the students of her International Training Course in London at 6 p.m. It was 11 a.m. before she left Laren by car for Amsterdam where she took lunch, and then went on by air to keep her London appointment. Not bad going for a lady of 70 years.

There were many other items of interest I would like to have mentioned from that morning's visit - how the children sang in four languages (Dutch, French, Italian and English); the breathless excitement of a small boy who came bursting in with the news that a water-lily had opened in the pond; the follow-my-leader-game on bicycles in the garden during playtime, (every-one in Holland from the Queen-mother downwards has a bicycle or a scooter) the commotion when it was found that a salamander in the vivarium had caught a worm; the wonderful model of a river system (with five or six tributaries) that really worked - but space forbids. Stop here

CAUGHT BY THE SILENCE - AGAIN. one more episode

I cannot, however, resist a few words about the "silence game" - surely one of Dr. Montessori's most original master-pieces. It happened this way. I was sitting quietly in a corner of one of the rooms jotting down a few notes, when I became aware that something unusual was happening, though pre-cisely what I could not quite make out. One by one nearly

all the children had stopped working, and were sitting quite still, as though they had been turned into stone. But to judge by the expression on their faces, it was not fear which had petrified them, for their faces shone with eager anticipation. Then the Directress went softly, on tip-toe, to the windows and gently drew the curtains. This done, still on tip-toe, she glided silently as a shadow right out of the room into the hall, where she was no longer visible

For a few moments nothing happened. The tiny occupants of the room waited in a hushed, mysterious twilight. The silence deepened; and as it did so all sorts of little tiny noises came out ("the mice")- a clock ticking; a bird twithering, a distant motor-horn. It seemed almost as though these little noises accentuated the silence - it was "silence implying sound." The hushed air seemed vibrant with expectation as though something important was about to happen. And then something <u>did</u> happen but I don't think you would have guessed what.

A child had risen to its feet, <u>very</u> quietly and then <u>very</u> carefully, and without a sound placed his empty chair against his table, and began making his way - still on tip-toe - in and out amongst the other tables towards the door. Then another child arose and did the same thing; then another. At first I wondered why just those children had risen and not the others; but gradually I became aware that a mysterious voice was calling from somewhere through the silence. Indeed it was hardly a voice, more like the shadow of a voice, the ghost of a whisper.

Its accents were so soft - that they did not break the stillness. They seemed almost as if it was the expression of the silence. The syllables were so long drawn-out that they flowed through the silence almost as silently as a long wisp of smoke. After a few moments I realized that the sound was coming from the hall. It seemed like the voice of a spirit calling from another world; and it called each child in turn by name. One by one as they heard this mysterious summons they rose and glided silently out of the room into the hall.

At last I was left ~~all alone~~ by myself in that empty silence. I felt alone - and abandoned. It was as if all the others had been called to some inner shrine, to partake in some great initiation, and I had been left as one unworthy in the 'outer court'. (No wonder Dr. Montessori insists that when this game is played the directress must be careful to call <u>all</u> the little ones - not one must be left out). And then, - with a thrill that I confess quite surprised myself - I heard my own name come floating through the empty room in a long-drawn whisper (and a very foreign accent!)...M....ee...ee....s...t...er Sss...t..a..nd.. eeing! Silently, I arose from my seat; noiselessly I placed my chair in its place, and made my way carefully and on tip-toe amongst the tiny tables and chairs out into the hall. And there, all ~~round~~ along the wall - like a row of flowers - stood the children silently waiting. They did not seem to think it the least odd that I should have been summoned too.

And then (you might ask) what happened next? Nothing! that was all 'it was over! And, rightly understood, it was enough too. For silence itself is a wonderful thing, and is its own reward - although in these hustling times few people realise it, nor give themselves the chance to do so. To these small children the silence game is a unique and wonderful experience. Indeed it often brings to their sensitive souls, presentiments of still higher and deeper mysteries to come,and "thoughts beyond the reaches of their souls" (Hamlet)

At a sign from the Directress the spell was broken and we all went quietly back into the schoolroom. Very pretty it was to see these little ones, each going back to get on with the work he or she had chosen, some to make plasticene mountains in the Dutch East Indies Colonies; some to their Singulars and Plurals (Grammar); some to the Multiplication Tables; some to make coloured patterns; some to make music with the bells:- all to something useful and interesting. It reminded me, for all the world of that passage in Midsummer Nights Dream, where Titania disperses the fairies to their various tasks - except that in this case these fairies were real - and could concentrate on their tasks for very much longer than "the third part of a minute" which Titania allotted them.

Enough has been said, surely, to convince any reader that

~~But~~