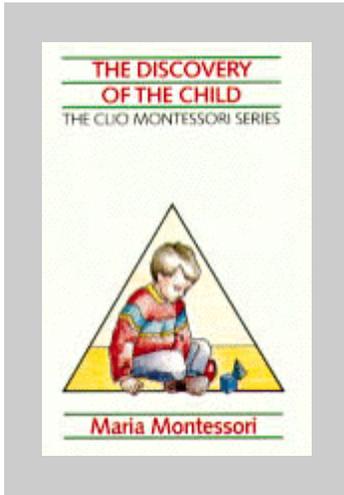




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"In [The Discovery of the Child](#) Maria Montessori describes the nature of the child and her method. She believes that once the general principles have been grasped, the parts dealing with the material application are extremely simple. Gone are teachers who wear out their lungs maintaining discipline, and verbal instruction is replaced by 'material for development', which affords children the opportunity of teaching themselves by their own efforts. The teacher thus becomes a director of the children's own spontaneous work."

The Discovery of the Child

THE CLIO MONTESSORI SERIES

Maria Montessori

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"We have clearly shown that a child has a need to observe, to reflect, to learn, to concentrate, to isolate himself, and also from time to time to suspend his activities in silence. And we have done this so clearly that we can say with all confidence that the idea that a small child is in a state of rest when he is outside a place suited for his education is erroneous. Rather, it is our duty to direct a child's activities, sparing him useless efforts which would dissipate his energies, divert his instinctive search for knowledge, and be a frequent cause of nervous disorders and hindrance to his growth. The education of even a small child, therefore, does not aim at preparing him for school but for life."

--Maria Montessori

1. On the Application of Science to the School

I do not intend to elaborate a treatise on the science of education: these preliminary notes have the modest end of setting forth the rather interesting results of a teaching experience which would seem to open up a way for the practical application of new methods tending to make greater use of scientific experiments in education without removing its natural foundations in speculative principles. For many years it has been maintained, with some exaggeration, that education should tend to forsake the purely speculative fields, as already had been done by medicine, in order to establish it self on foundations that are the result of experimentation. Physiological, or experimental, psychology which from Weber and Fechner to Wundt and Binet, has come to be organized into a new science, seems almost destined to furnish it with a substratum like that which the old psychology furnished to the philosophy of education. The application of morphological anthropology to the study of children seems also to be another cardinal factor in the new education.

But as a matter of fact, a system of "scientific pedagogy" has never been worked out or defined. It is something vague and frequently discussed, but also something which in reality does not exist.

Some year ago there arose in Italy the so-called "schools of scientific education." The object of these schools, which were sponsored by experienced physicians, was to train teachers in the new methods of education. They were a great success and won the approval of all the teachers of Italy. Even before these new theories had been introduced into Italy from Germany and France, Italian anthropologists had interested Italian teachers in making careful observations of children during their various stages of growth, and in the advantages of using precise instruments for measurements. Sergi, for example, had gone about for almost fifty years assiduously spreading the idea of seeking through scientific observations a means of renovating the educational system. "Today," Sergi used to say, "there is an urgent need of reform in the methods of education and instruction, and anyone who fights under this standard fights for the regeneration of man."

Sergi's writings have been collected in a single volume, *Educazione ed Istruzione*. In this he published the lectures and conferences which he had given to further this movement, and he stated that it was his conviction that the way to renewal was to be found in a methodical study of the one to be educated, carried out with the help of educational anthropology and experimental psychology:

For several years I have fought for an idea which, the more I reflect on it, the more convinced I am of its usefulness for the instruction and education of man: If we are to obtain our objectives by natural means, we must have at our disposal numerous precise observations on human conduct and especially that of children, upon whom we must base the foundations of education and culture.

Education, it is true, does not exist in measuring one's head, height, and so forth: but such means point the way to it, for we cannot educate anyone until we have firsthand knowledge of him.

Sergi's authority gave rise to the conviction that once an individual came to be known through experimentation, the art of educating him would naturally develop. But this, as so often happens, confused his followers, who failed to distinguish between the experimental study of a child and his education. Since the former was made to appear as the natural means to attain the latter, educational anthropology was called scientific education. Converts to the new system carried as their standard the "Biological Chart," convinced that once this flag was finally raised in a school the victory would be won.

The so-called "schools of scientific education" therefore instructed teachers in taking bodily measurements, in the use of instruments for the measurement of sense perceptions, and in drawing up case histories. In this way a body of scientific teachers was formed.

Actually, in other countries nothing more or better was being done.

In France, in England, and especially in America, studies were made in anthropology and educational psychology in the elementary schools under the illusion that a reform of the schools could be effected through the taking of physical and psychic measurements. The same tendency was followed in the later studies of the individual, beginning with the psychology of Wundt and continuing on to the tests of Binet, but the same ambiguity remained. Further, these investigations were almost never carried out by teachers but by physicians. As a rule, these men were more interested in their own particular field of study than in education. They sought to contribute to the advancement of experimental psychology and physical measurements rather than to organize their work and achievements in a way that would form the long awaited foundation for a scientific system of education. In brief, anthropology and psychology were never used as a means of education and, on the other hand, the teachers did not rise to the level of the physical scientists.

Nevertheless, progress in education demands a true cooperation of these two in thought and practice, a cooperation that would bring scientists directly into the noble field of teaching and which would raise the teachers from the lower cultural level which they occupy today. In order to implement this eminently practical ideal, a University School of Teaching was founded at Rome with the hope of raising education from its position as a secondary branch in the faculty of philosophy to an independent faculty which, like that of medicine, would include a wide area of teaching fields, among which would be educational anthropology, and experimental psychology.

Nevertheless these sciences continued to develop on their own, and education as such remained in the old philosophical rut where it had originated and where it remained, untouched, let alone transformed.

But today education is not so much interested in science as in humanity and civilization, which has only one fatherland, the world. And all those who have made some contributions to so great a cause, even if this was more of an attempt than a complete success, deserve to be respected by society.

And so it is that we, who work for a single goal, are as it were the members, or the different ages, of the same person, and those who come after us will attain the goal, because there were those who believed and worked before them.

Similarly, we believed that by carrying the hard and arid rocks of laboratory experimentation into old and crumbling schools we might be able to rebuild them. Many have looked upon materialistic and mechanistic science with excessive hopes. It is precisely because of this that we have entered upon a false and narrow way which must be surmounted if we are to revitalize the art of educating future generations.

It is not easy to train teachers in the methodology of the experimental sciences. After we have taught men and women how to make physical and psychic measurements as exactly as possible, we have only machines of doubtful value. By showing them how to make experiments we have certainly not formed new teachers. But what is even more significant, we have left the teachers on the threshold of

the experimental sciences but have not admitted them into the more profound and nobler areas where scientists are actually formed.

But what is a scientist?

A scientist is not simply one who can manipulate all the physical apparatus in a laboratory, or produce various chemical reactions, or prepares slides of organic tissues for examination under a microscope. Much more frequently it is the assistants or members of the laboratory's staff who are most skilled in the techniques of experimentation.

We may define a scientist as one who during the course of an experiment has perceived something that leads to a further investigation of the profound truths of life and has lifted the veil which hid its fascinating secrets, and who, in the pursuit of this knowledge, has felt so passionate a love for the mysteries of nature that he forgets himself. A scientist is not one who can make use of different instruments, but one who knows nature. This sublime lover displays the external signs of his calling like a monk. We may describe a scientist as one who lives in his laboratory forgetful of the outside world and who at times may act eccentrically, as when he is careless about his dress, because he no longer thinks about himself. He is one who looks so continuously through a microscope that he becomes blind, who deliberately contracts tuberculosis, or who infects himself with cholera in his eagerness to know the ways in which these diseases are spread. He is one who knows that a chemical mixture may be explosive but prepares it anyway, and is blown up.

This is the type of man to whom nature reveals her secrets and crowns with the glory of discovery.

A scientist thus possesses a "spirit" that surpasses any mechanical skill. And a scientist has reached the summit of his discipline when his mental attitude has triumphed over his mechanical abilities. Science itself will be enriched by him not only with new natural discoveries but with new philosophical syntheses.

I personally believe that we should give more attention to imparting a spirit to teachers than scientific techniques, that is, our aim should be towards what is intellectual rather than material.

Thus, for example, when the scientific training of teachers was thought to consist in a communication of certain mechanical skills, there was no intention of making an elementary teacher a perfect anthropologist, an expert experimental psychologist, or a master of child hygiene. He was only being guided towards the field of experimental science and being taught how to manipulate various instruments. In the same way, we must now inspire a teacher with a "scientific outlook," though one that is limited to a particular field, the school.

We must create in the soul of the teacher a general interest in the manifestation of natural phenomena until he comes to the point where he loves nature and experiences the anxiety of one who has prepared an experiment and is waiting for new data to appear.

Scientific instruments are like the alphabet, and one must know how to use them to be able to read the secrets of nature. Just as a book containing the highest thoughts of an author is dependent upon the alphabet for the composition of the individual words, so nature, through the techniques of experimentation, reveals her own countless secrets.

If the print is sufficiently clear, anyone who has learned how to spell from a simple reader can, in the same mechanical way, get through one of Shakespeare's plays.

One who has learned nothing more than how to make experiments is like one who spells out the literal sense of the words from a child's reader. And we shall have teachers on this same elementary level if we limit their training to the acquiring of techniques.

We must, therefore, make them interpreters of the spirit of nature, just as one who, after he has learned how to spell, one day finds himself able to comprehend the thoughts of Shakespeare, or Goethe, or Dante by the means of written symbols.

As is obvious there is a great difference between these two types of reading and the way is long. And yet it was only natural that we should have made the first error. A child who has gone through a speller has the illusion that he knows how to read, and, as a matter of fact, he can read the signs over shops, the headings of newspapers, or any word or phrase that actually meets his eyes. It would be very simple for him to imagine that, when he enters into a library, he knew how to appreciate the sense of all the books he was there. But if he would try to read them, he would soon realize that "to know how to read mechanically" is of little value and he would leave the library to return to school.

The same mistake is made when new teachers are simply taught how to take physical measurements and perform psychological experiments.

* * *

Let us set aside the difficulties of preparing teacher-scientists in the accepted sense of the word. Let us not even attempt to outline a program for such a preparation since this would take us too far afield. Let us suppose, instead, that through long and patient exercises we have already trained our teachers in the observation of nature, and that we have raised them, for example, to the level of those zoologists who go out into the woods and fields to witness the early activities of some family of insects in which they are interested. He may be weary from his walk, but he is still watchful. He is only intent in not revealing his presence in the least degree so that the insects may carry out peacefully hour after hour those natural operations which he is anxious to observe.

Let us imagine that these teachers have reached the stage of that scientist who patiently watches the spontaneous movements of protozoa under his microscope. It seems to him that these tiny creatures reveal a shadowy consciousness or instinct in the way they avoid each other or select their food. He then disturbs their tranquil life with an electric current and notices how some group themselves about the positive and others about the negative pole. He then exposes them to a strong light and sees how some hasten towards, while others flee from, it. In this way he studies their various reactions, trying to discover if the creature's attraction to, or rejection of, the stimuli is of the same character as that which makes it avoid others of its own kind or move towards food. In other words, the scientist wants to know if movements of this sort are prompted by a kind of consciousness or, better, by a natural instinct, rather than by some physical attraction or repulsion like that which exists between a magnet and iron. And we may also imagine that this scientist, finding that it is two o'clock in the afternoon, is delighted to realize that he has been working in his laboratory instead of at home, where he would have been called for dinner, thus interrupting both his interesting observation and his fast.

Let us imagine, I say, that a teacher, apart from his own special training, has reached the stage where he feels this same kind of interest, though to a lesser degree, in observing natural phenomena. But even then his preparation would not be adequate.

A teacher is destined by his own special work to observe not simply insects or protozoa, but man. And the man he is destined to observe is not one busy about his daily occupations, like those of insects when they wake up in the morning, but man when his intellectual life is awakening.

One who desires to be a teacher must have an interest in humanity that connects the observer with the observed more closely than that which joins the zoologist or biologist to nature; and since this union is more intimate, it is necessarily more delightful. A man cannot love an insect or a chemical reaction without giving up something of himself, and such a surrender seems to anyone who watches it dispassionately to be a kind of suffering, a distortion of one's own life, a martyrdom.

But the love of one man for another can be so pleasant and simple that not only privileged souls but even the ordinary run of men can attain it without effort. Teachers, when they have acquired

something of the "scientific spirit," should comfort themselves with the thought that they will soon experience this delight in their observations.

To gain some idea of this second kind of spiritual preparation, we must try to enter into the minds of Christ's first chosen followers as they heard him speak of a kingdom of God which was far greater than any they could see on earth. One of the disciples began to wonder who would ever be great in this kingdom, and he asked him with childish curiosity: "Master, who will be the greatest of all in the kingdom of heaven?: And Christ, caressing the head of a little child who was gazing rapturously up at him, replied: "Whoever can become like to this little child, he will be the greatest in the kingdom of heaven."

Now let us imagine an ardent mystic soul that observes all the revelations of a little child's mind, so that with mingled feelings of respect, love, holy curiosity, and longing for the very heights of heaven, he may learn the way of his own proper perfection and thus be able to bring it fairly into the midst of a classroom filled with little children.

And yet not even he would be the new educator whom we wish to form.

But let us strive to pour into a single soul the keen spirit of sacrifice of a scientist and the ineffable ecstasy of such a mystic, and we shall then have the perfect spirit of our "teacher."

Actually, he will learn from the child himself the ways and means to his own education, that is, he will learn from the child how to perfect himself as a teacher.

* * *

Let us imagine to ourselves one of our botanists or zoologists, skilled in the techniques of observation and experiment, who, for example, has made a field trip to study peronospera and has completed his observations in the field, and the, with the help of his microscope and laboratory equipment, carries out further research and experiments in growing the fungi and so forth. Let us imagine, then, that such a scholar has been chosen for his research to fill a scientific post in which he must carry out new studies on the hymenoptera. What would be his reactions if, when he arrived at his new post, he was placed in front of him a box covered with a clear glass, at the bottom of which were fastened with pins beautifully preserved butterflies with their wings outspread? The young scientist would say that this was a child's game and not an object of scientific study, that the objects in the box represented an exercise which boys carry out in the parks, catching butterflies in a net fastened to a stick. An experimental scientist confronted with such objects could do nothing.

A similar situation would occur if we were to place a teacher who was also a scientist such as we have described in one of our present day schools, where the spontaneous expression of a child's personality is so suppressed that he is almost like a corpse, and where he is so fixed to his place at a desk that he resembles a butterfly mounted on a pin. There he spreads out his wings for the acquirement of arid knowledge symbolized by the vanity of butterfly's wings.

It is therefore not enough to prepare a learned teacher; a school must also be prepared for him.

It is imperative that a school allow a child's activities to freely develop. For this is the essential change to be made if a scientific form of education is to come into being.

No one would dare to maintain that such a principle already exists in teaching and in the school. It is true that some teachers, led by Rousseau, have laid down fantastic principles with respect to a child's freedom and have expressed their confused desires for it, but the true concept of liberty, is practically unknown to professional educators. Their concept of liberty is frequently that which people form for themselves when they rebel against slavery; or, at a higher level, it is that of a liberty always

restricted because it is simply one more step up the ladder, the partial liberation of a whole, the liberation of a country, of a class, or of a mode of thought.

The concept of liberty which should inspire teaching is, on the other hand, universal: it is the liberation of a life repressed by an infinite number of obstacles which oppose its harmonious development, both physical and spiritual. This is a matter of the utmost importance, although up until now it has escaped the notice of most men!

It is not a problem to be neglected but rather one to be clearly stated. Anyone who would claim that the principle of liberty in education is active in schools today would make us smile as we would at a child who, gazing at a mounted butterfly, would insist that it was alive and ready to take wing.

A principle of repression that amounts at times almost to slavery has a firm grip on both schools and education.

A proof of this may be found in the use made of desks and seats to match. Here we may see a striking examples of the mistakes made by earlier materialistic educators who stumbled badly in their efforts who use the scattered stones of science to rebuilt the crumbling walls of the school. Children were formerly seated on long, dreary benches, then science came along and perfected the desk. All the discoveries of anthropology were drawn on for this task. The age of the child and the length of his legs were used to determine the right height for the seat. The distance between the seat and the desk itself was calculated with mathematical precision so that a child's back might not become curved. Then, finally, with a really profound insight, the desks were separated from each other and made so narrow that once a child sat down he could not stretch himself from side to side or move close to his neighbor; and the desk itself was so constructed that a child could be seen as far as possible in all his immobility. The hidden motive behind all this separation of the children was to prevent immoral actions in the classroom, even in kindergartens! What should one say of such excessive prudence in a society wherein it would be scandalous to teach principles of sexual morality for fear of corrupting the innocent? And yet we have science here lending its support to this hypocrisy by building machine-like desks. And this is not all. Complacency goes still further. Science has so perfected the desks that they guarantee a child's immobility, or, if one prefers, spare his every movement. Everything is so arranged that, when a child is firmly fixed at his desk, he is forced to assume a position thought to be conducive to his health. We find seat, footrest, and desk so arranged that a child cannot stand up. But then, when the seat is tilted, when the top of the desk is raised and the footrest turned up, he has just enough space to stand erect.

This is the way in which desks have gradually been perfected. All experts on the so-called "scientific system of education" have a model scientific desk. Not a few nations are proud of their own national desks, and their various refinements have won them patents and awards.

Many sciences have doubtlessly contributed to the construction of the desk. Anthropology has provided the measurements of a child's body and described the natural characteristics of his age. Physiology has explained the movements of a child's muscles. Psychology has described the precocity and perversion of instincts. And child hygiene, above all, has prevented curvature of the spine. The desk was, therefore, scientifically constructed according to the data furnished by anthropological studies made upon children and has thus furnished us with an example of a literal application of science to the school.

But it will not be long before there will be a change in this attitude in every country where there is a revival of interest in the welfare of children. In the face of so much progress made in the first decade of the twentieth century, it will seem to be incomprehensible that so many students of child hygiene, anthropology, and sociology did not bring to light the basic error of the desk.

It will not be long before people will run their hands in amazement over these model desks or look at pictures of them and read the reason given for their construction, hardly trusting their senses.

The desks were adopted to prevent pupils from getting curvature of the spine!

And yet these same children were subjected to such a regime that even if they had been born healthy their spinal columns could have become twisted and they themselves humpbacked! And this could have happened to the spinal column, which, biologically speaking, is the most primitive and essential part of the skeleton, the main support of the living organism! It was something that could stoutly endure the fierce struggles that engaged both primitive and civilized man when they fought lions in the desert or hunted mammoths or quarried stone and bent iron and extended their dominion over the earth. And yet this spinal column cannot stand up but bends under the yoke of the school!

It is incomprehensible that "science" should have perfected an instrument of slavery in the school without being in the least enlightened by the thought and efforts given to the creation of a free society.

Everyone knows the direction that has been taken by this reform. The poorly-fed workingman does not ask for tonics but for an improvement in his economic condition that will help him to heat better. The miner, who must work for many hours a day stretched out on his stomach, can easily rupture himself, but he does not ask for a truss. Instead, he looks for shorter hours and better working conditions so that he can lead an ordinary healthy life like other men.

And if during this same period of social reform we find that children are working in such an unhealthy environment in the classroom, and won so opposed to their normal development that their very bones become bent, we find an answer to this sad condition is an orthopedic desk.

Sometime ago a woman with obvious satisfaction, imagining that I approved of all of these scientific innovations in the schools, asked my opinion about a brace which she had invented for school children to complement the protective features of the desk. Physicians, as a matter of fact, have various means of treating curvature of the spine; orthopedic instruments, braces, and traction, that is, the periodic suspension of a child by the head or shoulders so that the weight of his body stretches and straightens the spinal column. And now that someone has suggested employing the brace, it will not be long before someone advises traction for the pupils!

All of this is a logical consequence of the material application of scientific methods to a decadent system of education. The same could be said of the use of anthropology and experimental psychology in contemporary schools.

The rational way to prevent scoliosis in children would be to change the type of work they do so that they would no longer be obliged to remain for many hours a day in a harmful position.

What the schools need is more liberty, not such a contraption as a desk.

Even if a desk were useful for a child's physique, it would still be an obstacle to a healthy environment because of the difficulty of moving it when the room is cleaned. Today there is a new trend for furniture in homes. It is being made lighter and simpler so that it can be easily moved about and dusted, if not actually washed, every day. But schools have remained blind to the transformations going on about them.

We must reflect on what will happen to the spirit of a child whose body is condemned to grow in such an artificial and vicious fashion that his bones become deformed. When we speak of rescuing workingmen, we understand that under the more apparent evils, such as anemia, hernia, and so forth, there lies an even more serious wound afflicting the human soul that has been reduced to slavery; and this is what we aim at alleviating when we say that the workingman must regain his liberty. We know only too well that when a man's blood becomes impoverished or his system disordered his mind is darkened and rendered insensible. Moral degradation, hanging like a weight about the neck, has been the chief obstacle to human progress, and men's souls cry out for

redemption far more than their bodies. And if this is so, what should we say about the education of children?

We know only too well this sorry spectacle. In a classroom a bustling teacher is busy pouring knowledge into the heads of his charges. To succeed in his task he must keep his pupils immobile and attentive even by force, making generous use of rewards and punishments in order to keep his condemned listeners in the proper frame of mind.

But rewards and punishments, to speak frankly, are the desk of the soul, that is a means of enslaving a child's spirit, and better suited to provoke than to prevent deformities.

Actually, rewards and punishments are employed to compel children to conform to the laws of the world rather than to those of God. And these laws are practically always laid down for them by an adult invested with unlimited authority.

Too often a teacher commands because he is strong and expects a child to obey because he is weak. Instead of acting in this way, an adult should show himself to a child as a loving and enlightened guide assisting him along the way leading to the kingdom of heaven. Anyone who uses his talents can be exalted, and everyone can receive a reward, whether he has many talents or only a poor single one.

But in school there is only one prize for all those "of good will" who enter the race, a fact which generates pride, envy, and rivalries instead of that thrill coming from effort, humility, and love which all can experience. In this way we create a conflict not simply between the school and social progress but also between the school and religion. One day a child will surely ask himself if the prizes won at school were not rather obstacles on the way to eternal life, or if the punishments with which he was humiliated when he was in no position to defend himself did not make him one of those "hungering and thirsting after justice" whom Christ defended in the Sermon on the Mount.

Social life, it is true, has rewards and punishments that differ from those of the spirit, and adults see to it that a child's mind soon enough adapts itself to, and keeps itself within, the conventions of this world. They make use of rewards and punishments to make a child submissive to their will.

But if we take a close look at society, we shall see that it is gradually improving, that a life ruled by thought and reason is emerging triumphant. The yoke of the slave yields to that of the servant, and this in turn yields to that of the workingman.

All forms of slavery have a tendency to disappear. The history of human progress represents a series of conquests and liberations, and any failures in this regard are looked upon as regressions.

In some ways schools resemble governmental bureaucracies. Employees in the various departments of government are busy securing some distant but great advantage, but their results are not immediately visible. It is through them that the state carries on its great undertakings and provides for the general welfare of the people. But they themselves are scarcely aware of the importance of their work. Their immediate interest is in a promotion, just as a student is anxious to pass on to a higher grade at the end of the school year. The employee who loses sight of his lofty goal is like a degraded child or a tricked slave. His intrinsic dignity as a man has been reduced to the level of a machine, which needs to be oiled if it to function properly since it does not have within itself a vital principle. He is urged on along his dry and disagreeable journey by such things as a desire for recognition. And the fear of not getting a promotion prevents him from leaving his job and ties him to his painstaking and monotonous labor just as the same fear keeps a student at his books. Corrections of a supervisor are exactly like the shouts of a teacher, and changes in poorly written letters are like marks made on a student's badly written exercise.

If the policies of an administration do not match up to the greatness of the country, if it is easily corrupted, it is because the mentality of a clerk has engulfed the magnanimity of the man who should be carrying out these functions. His vision has been restricted to a concern for trivialities, for rewards or punishments. It is not surprising then that power and favoritism have such a great influence on these servants of the state.

A country survives, however, since the integrity of most of its employees is strong enough to resist the corrupting influence of rewards and punishments. Honesty prevails somewhat in the same fashion as society itself triumphs over every form of poverty and death and marches on to new victories; and, like the instinct for freedom, it overcomes every obstacle as it goes on from victory to victory.

And it is this great inner drive that often lies hidden in the mind that makes the world progress.

No one who has ever done anything really great or successful has ever done it simply because he was attracted by what we call a "reward" or by the fear of what we call a "punishment." If an army of giants were to wage a war for no other reason than to win promotions, stripes, or medals, or simply to avoid being shot against a band of pygmies inflamed with a love for their country, the latter would certainly obtain the victory. When an army has lost the spirit of heroism, rewards and punishments can do no more than complete the work of its destruction by leading to its corruption. (1)

Every victory and every advance in human progress comes from some inner compulsion. A young student can become a great teacher or doctor if he is driven on by an interest in his vocation; but if he is motivated solely by the hope of a legacy or a good marriage or some other external advantage, he will never become a real teacher or doctor, and he will not make any great contribution to the world through his work. If a young man must be punished or rewarded by his school or family to make him study for his degree, it would be better for him not to receive it at all. Everyone has a special inclination or special secret, hidden vocation. It may be modest but it is certainly useful. An award can divert such a calling and turn one's head to the loss of his true vocation.

We keep repeating that the world is making progress and that men must constantly be urged to pursue it. But true progress consists in the discovery of something hidden. Frequently it may be something that simply needs to be improved or perfected. No reward is offered for the discovery of something not foreseen; and, in fact, one who tries to bring it to light is frequently persecuted. It would be a disaster if poems were written solely with the hope of winning a state award. It would be better for a poet's vision to remain concealed within him and for the poetic Muse to disappear. A poem should flow from a poet's mind when he is not thinking of a reward or of himself; and even if he wins a prize, it should never make him proud.

But there is also an external award worthy of a man. When an orator, for example, sees the faces of his listeners light up with emotion, he experiences a thrill that can only be compared with the intense joy of one who discovers that he is loved. It is in touching and conquering the minds of others that we enjoy the only reward worthy of our efforts.

This happens to us at certain joyous moments given to us so that we may continue to live in peace. It may happen when we fall in love, or when a child has been conceived, or a book published, or a great discovery has been made, and we deceive ourselves with the thought that we are the happiest person in the world. And yet, if at that moment someone who is in authority, or who is over us like a teacher should come up and offer us a medal or some other prize, he would rob us of our true reward. Disillusioned we would cry out: "Who are you to remind me of the fact that I am not supreme, that there is another so far above me that he can give me a reward?" Man's true reward can come from God alone.

As far as punishment is concerned, we do not mean to deny its social function and individual efficacy but merely its moral value and general necessity. It is most usefully employed with criminals, but these are relatively few, and social progress is not dependent on them. The penal code threatens us with punishment if we are dishonest within the limits fixed by the law. But we are not honest because

we fear the law; we refrain from theft and murder because we recognize the intrinsic evil of such acts. The penalty of the law simply makes us realize this more keenly, but the tenor of our lives should be such that it keeps us far from the possibility of committing evil acts.

Without going into the psychological aspects of the problem, we may still say that a delinquent, before he transgresses a law, is aware of its existence and of a penalty. In other words, he has felt the penal code bearing down on him but has defied it, or he has been enticed to commit a crime under the impression that he could avoid the punishment. Nevertheless he has experienced within his own mind a struggle between the crime and its punishment. Whether the penal code effectively reaches its goal of hindering crime or not, it has undoubtedly been drawn up for a very limited class of individuals. The vast majority of the citizens are honest even when they are unaware of the sanctions of the penal law.

The real punishment of a normal man is for him to lose consciousness of his own strength and greatness. Such a punishment often falls upon men enjoying an abundance of what are commonly known as "rewards." But men, unfortunately, often do not notice the real punishments which threaten to overwhelm them.

In everything that we say about rewards and punishments we do not intend to discount their basic, educational import, which is founded on human nature itself, but only to check their abuse and perversion so that instead of being means they become as it were an end. As a matter of fact, common sense tells us that rewards and punishments are a means for knowing practically, especially when minds are darkened by passion, that a work is good or evil, praiseworthy or reprehensible. Thus in a certain sense they are inseparable from work as effect is from cause, as moral beauty or foulness is from a human act.

Here education can be of help.

But instead, we keep children in a school restricted by objects that are degrading to both body and soul, the desk and material rewards and punishments. And why? To keep them silent and immobile. But where does this lead them?

Unfortunately, nowhere!

Their education consists in mechanically filling their minds with the contents of a syllabus which is frequently drawn up by departments of education and imposed by law.

Confronted by such a forgetfulness of the continuity of our own lives with that of our children and their descendants, we should hang our heads in shame and cover our faces with our hands!

Truly there is an urgent need today of reforming the methods of instruction and education, and he who aims at such a renewal is struggling for the regeneration of mankind.

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2. The History of Methods

If we wish to develop a scientific system of education, we must therefore strike out on a different road from that which has been followed so far.

Teachers must be trained and schools transformed at the same time. If we are to have teachers trained in observation and experimentation, it is necessary that they should be able to carry out these activities in the school.

A basic requirement for a scientific educational program must therefore be a school that will permit a child to freely develop his own personal life. If a system of education is to rise from a study of the individual student, it will have to come about in this way, that is, from the observation of free children who are watched and studied but not repressed.

It would be foolish to expect that a new type of education could arise merely from an examination of school children with the help of anthropology and experimental psychology.

Every branch of experimental science has developed from the use of its own peculiar method. The science of bacteriology has risen from the isolation and culture of microbes. Criminology, medicine, and education have had their origin in the application of anthropometric methods to individuals of various classes, such as criminals, the insane, the sick in clinics, and students. Experimental psychology needs as its starting point an exact description of the technique of performing an experiment.

In general, it is important to define the method and technique of experimentation and then, after making specific use of them, to wait for the results of the experiment. Investigations of this kind must be carried out without any preconceptions as to their final outcome. For example, if we wish to make a scientific study of a child's intelligence with relation to the development of his skull, we must take no account of the greater or less intelligence of the different students whose heads are measured. This precaution must be taken so that the results of our research are not unconsciously vitiated by the preconceived notion that more intelligent children have more perfectly developed heads.

When one is performing an experiment, he must for the time being rid himself of all his prejudices, even those that may be the product of his own particular culture and background.

Accordingly, if we wish to conduct educational experiments, we must not have recourse to kindred sciences but must free our minds so that they can proceed without hindrance in their search for the truths that belong properly and exclusively to teaching.

We must not therefore start from any fixed ideas about child psychology but with a program that will give a child his freedom so that we can deduce a truly scientific child psychology by observing his spontaneous reactions. It may well be that such a program holds great surprises in store for us.

Our problem then is to establish the method to experimental education. It cannot be that employed in other experimental sciences. If scientific education is to a certain extent connected with hygiene, anthropology, and psychology, and if it also to a certain extent adopts the technological methods used by all three, their actual use is limited to details in the study of the individual being educated. The methods of these sciences are analogous to, but quite different from, those of education and can therefore play only a subordinate part in teaching itself.

This particular study is concerned with the method used in experimental teaching and is the fruit of my own personal experiences in schools for very young children.

Actually, what I am presenting is only an introduction to a new system of education. It is one I have used with children between the ages of three and six, but I believe that the surprising results that have been obtained with them will be an incentive for further work along this line.

Although our system of education, which has had so much success, is not yet entirely complete, it already constitutes a sufficiently organic whole for it to be profitably adopted in schools for small children or for those in the first grade. (1)

In saying that the present work is the result of two years of experience, I am perhaps not quiet correct. I do not believe that I could have discovered everything that I am going to describe simply through my own recent efforts.

The educational system employed in the Children's Houses actually has more remote origins. If my experiences with normal children have been rather brief, they are based on previous teaching experiences with abnormal children and thus represent a considerably longer period of thought.

Some ten years ago, when I was an assistant instructor in the Psychiatric Clinic of the University of Rome, I had the opportunity of visiting the insane asylum to study the sick that were to be chosen as subjects for clinical instruction. It was in this way that I became interested in the mentally retarded children who were housed in the same asylum. At this time doctors were greatly interested in the treatment of thyroid glands, and this had led to a greater interest in mentally deficient children. I had completed my own internship as a physician and now turned my attention to the study of children's diseases.

It was thus through my concerns for mentally retarded children that I became acquainted with the special method for teaching such unfortunates devised by Edward Sequin and I became quite interested in an educational treatment of various abnormalities such as deafness, paralysis, idiocy, rickets, and so forth, which was becoming popular with physicians at this time. The practical outcome of reflection on these problems was a conviction that education must be united with medical treatment for a cure of these disorders, and special emphasis was placed upon the use of physical therapy.

I differed from my colleagues in that I instinctively felt that mental deficiency was more of an educational than medical problem. At various congresses much was said about the medico-pedagogical method for treating and educating feeble-minded children, but at the Educational Convention held at Turin in 1898 I raised the question of their moral education and I must have struck a sympathetic chord in my audience since the idea, passed on by the physicians to the teachers in elementary schools, spread like a flash and aroused a great deal of interest.

I was, in fact, given an appointment by my teacher Guido Pacceli, who was then Minister of Education, to conduct a series of lectures for the teachers of Rome on the education of feeble-minded children. These lectures gave rise to a state institution for training teachers of retarded children which I directed for more than two years.

Connected with this institution was a class for extern students who, because of their mental deficiencies, were thought to be uneducable in the elementary schools. Later on, through the help of a charitable organization, there was founded an educational institute where, in addition to extern students, there were brought together all the mentally deficient children who till then had been living in the insane asylum in Rome.

I thus spent two years with the help of my colleagues in preparing the teachers of Rome in a special method of observing and educating feeble-minded children. But this was not all. What was even more important was that after I had gone to London and to Paris to study at first hand the education of the mentally deficient, I undertook the task of personally teaching the children and directing the work of the other teachers in our institute.

I was more than an elementary teacher, I stayed with the children and taught them myself from eight in the morning to seven in the evening without interruption. These two years provided me with my first and indeed my only true title as a teacher.

From the very beginning of my work with mentally retarded children in the years 1898 to 1900 I felt that the method I was employing was not only a help to the mentally deficient but that they contained educational principles more rational than those in use, especially since they were able to help a weak mind to develop. After I had left the school for the deficient children, this idea became even more fixed in my mind. Gradually I became convinced that similar methods applied to normal children would lead to a surprising development of their personalities.

It was then that I made a thorough study of the so-called "remedial education" and decided to study the education of normal children and the principles upon which it is based. I therefore enrolled as a student of philosophy at the university. I was animated with a deep faith. Although I did not know if I would ever be able to test the truth of my conviction, I gave up every other occupation in order to deepen it. It was almost as if I was preparing myself for an unknown mission.

The methods used in the education of the feeble-minded had their origin at the time of the French Revolution in the work of a physician whose writing occupy a place in medical history, since he was the founder of that branch of medical science known today as "otology," which deals with diseases of the ear.

He was the first to attempt a methodical education of the sense of hearing. He carried on his work at the institute for the deaf-mutes founded by Pereire in Paris and succeeded in restoring hearing to those who were only partially deaf. Later on, having had in his charge for eight years an idiot boy known as the "Savage of Aveyron," he extended the educational methods which had already been employed with such success in treating deafness to all the senses. Itard, who had been a student of Pinel, was the first teacher to observe a pupil in the same way that the sick were observed in hospitals, especially those suffering from nervous disorders.

Itard's educational works are most interesting because of the minute descriptions which he gives of his educational efforts and experiences. Anyone who reads them today must admit that they were the first attempts at experimental teaching.