

## A Critical Consideration of the New Pedagogy in its Relation to Modern Science

*Maria Montessori*

It is not my intention to present a treatise on Scientific Pedagogy. The modest design of these incomplete notes is to give the results of an experiment that apparently opens the way for putting into practice those new principles of science which in these last years are tending to revolutionise the work of education.

Much has been said in the past decade concerning the tendency of pedagogy, following in the footsteps of medicine, to pass beyond the purely speculative stage and base its conclusions on the positive results of experimentation. Physiological or experimental psychology which, from Weber and Fechner to Wundt, has become organised into a new science, seems destined to furnish to the new pedagogy that fundamental preparation which the old-time metaphysical psychology furnished to philosophical pedagogy. Morphological anthropology, applied to the physical study of children, is also a strong element in the growth of the new pedagogy.

But in spite of all these tendencies, Scientific Pedagogy has never yet been definitely constructed nor defined. It is something vague of which we speak, but which does not, in reality, exist. We might say that it has been, up to the present time, the mere intuition or suggestion of a science which, by the aid of the positive and experimental sciences that have renewed the thought of the nineteenth century, must emerge from the mist and clouds that have surrounded it. For man, who has formed a new world through scientific progress, must himself be prepared and developed through a new pedagogy. But I will not attempt to speak of this more fully here.

Several years ago, a well-known physician established in Italy a *School of Scientific Pedagogy*, the object of which was to prepare teachers to follow the new movement which had begun to be felt in the pedagogical world. This school had, for two or three years, a great success, so great, indeed, that teachers from all over Italy flocked to it, and it was endowed by the City of Milan with a splendid equipment of scientific material. Indeed, its beginnings were most propitious, and liberal help was afforded it in the hope that it might be possible to establish, through the experiments carried on there, "the science of forming man."

The enthusiasm which welcomed this school was, in a large measure, due to the warm support given it by the distinguished anthropologist, Giuseppe Sergi, who for more than thirty years had earnestly laboured to spread among the teachers of Italy the principles of a new civilisation based upon education. "To-day in the social world," said Sergi, "an imperative need makes itself felt—the reconstruction of educational methods; and he who fights for this cause, fights for human regeneration." In his pedagogical writings collected in a volume under the title of "*Educazione ed Istruzione*" (*Pensieri*),<sup>1</sup>

he gives a résumé of the lectures in which he encouraged this new movement, and says that he believes the way to this desired regeneration lies in a methodical study of the one to be educated, carried on under the guidance of pedagogical anthropology and of experimental psychology.

“For several years I have done battle for an idea concerning the instruction and education of man, which appeared the more just and useful the more deeply I thought upon it. My idea was that in order to establish natural, rational methods, it was essential that we make numerous, exact, and rational observations of man as an individual, principally during infancy, which is the age at which the foundations of education and culture must be laid.

“To measure the head, the height, etc., does not indeed mean that we are establishing a system of pedagogy, but it indicates the road which we may follow to arrive at such a system, since if we are to educate an individual, we must have a definite and direct knowledge of him.”

The authority of Sergi was enough to convince many that, given such a knowledge of the individual, the art of educating him would develop naturally. This, as often happens, led to a confusion of ideas among his followers, arising now from a too literal interpretation, now from an exaggeration, of the master's ideas. The chief trouble lay in confusing the experimental study of the pupil, with his education. And since the one was the road leading to the other, which should have grown from it naturally and rationally, they straightway gave the name of Scientific Pedagogy to what was in truth pedagogical anthropology. These new converts carried as their banner, the “Biographical Chart,” believing that once this ensign was firmly planted upon the battlefield of the school, the victory would be won.

The so-called School of Scientific Pedagogy, therefore, instructed the teachers in the taking of anthropometric measurements, in the use of esthesiometric instruments, in the gathering of Psychological Data—and the army of new scientific teachers was formed.

It should be said that in this movement Italy showed herself to be abreast of the times. In France, in England, and especially in America, experiments have been made in the elementary schools, based upon a study of anthropology and psychological pedagogy, in the hope of finding in anthropometry and psychometry, the regeneration of the school. In these attempts it has rarely been the *teachers* who have carried on the research; the experiments have been, in most cases, in the hands of physicians who have taken more interest in their especial science than in education. They have usually sought to get from their experiments some contribution to psychology, or anthropology, rather than to attempt to organise their work and their results toward the formation of the long-sought Scientific Pedagogy. To sum up the situation briefly, anthropology and psychology have never devoted themselves to the question of educating children in the schools, nor have the scientifically trained teachers ever measured up to the standards of genuine scientists.

The truth is that the practical progress of the school demands a genuine *fusion* of these modern tendencies, in practice and thought; such a fusion as shall bring scientists directly into the important field of the school and at the same time raise teachers from the inferior intellectual level to which they are limited today. Toward this eminently practical ideal the University School of Pedagogy, founded in Italy by Credaro, is definitely working. It is the intention of this school to raise Pedagogy from the inferior position it has occupied as a secondary branch of philosophy, to the dignity of a definite

science, which shall, as does Medicine, cover a broad and varied field of comparative study.

And among the branches affiliated with it will most certainly be found Pedagogical Hygiene, Pedagogical Anthropology, and Experimental Psychology.

Truly, Italy, the country of Lombroso, of De-Giovanni, and of Sergi, may claim the honour of being pre-eminent in the organisation of such a movement. In fact, these three scientists may be called the founders of the new tendency in Anthropology: the first leading the way in criminal anthropology, the second in medical anthropology, and the third in pedagogical anthropology. For the good fortune of science, all three of them have been the recognised leaders of their special lines of thought, and have been so prominent in the scientific world that they have not only made courageous and valuable disciples, but have also prepared the minds of the masses to receive the scientific regeneration which they have encouraged. (For reference, see my treatise "Pedagogical Anthropology.")<sup>2</sup>

Surely all this is something of which our country may be justly proud.

Today, however, those things which occupy us in the field of education are the interests of humanity at large, and of civilisation, and before such great forces we can recognise only one country—the entire world. And in a cause of such great importance, all those who have given any contribution, even though it be only an attempt not crowned with success, are worthy of the respect of humanity throughout the civilised world. So, in Italy, the schools of Scientific Pedagogy and the Anthropological Laboratories, which have sprung up in the various cities through the efforts of elementary teachers and scholarly inspectors, and which have been abandoned almost before they became definitely organised, have nevertheless a great value by reason of the faith which inspired them, and because of the doors they have opened to thinking people.

It is needless to say that such attempts were premature and sprang from too slight a comprehension of new sciences still in the process of development. Every great cause is born from repeated failures and from imperfect achievements. When St. Francis of Assisi saw his Lord in a vision, and received from the Divine lips the command—"Francis, rebuild my Church!"—he believed that the Master spoke of the little church within which he knelt at that moment. And he immediately set about the task, carrying upon his shoulders the stones with which he meant to rebuild the fallen walls. It was not until later that he became aware of the fact that his mission was to renew the Catholic Church through the spirit of poverty. But the St. Francis who so ingenuously carried the stones, and the great reformer who so miraculously led the people to a triumph of the spirit, are one and the same person in different stages of development. So we, who work toward one great end, are members of one and the same body; and those who come after us will reach the goal only because there were those who believed and laboured before them. And, like St. Francis, we have believed that by carrying the hard and barren stones of the experimental laboratory to the old and crumbling walls of the school, we might rebuild it. We have looked upon the aids offered by the materialistic and mechanical sciences with the same hopefulness with which St. Francis looked upon the squares of granite, which he must carry upon his shoulders.

Thus we have been drawn into a false and narrow way, from which we must free ourselves, if we are to establish true and living methods for the training of future generations.

To prepare teachers in the method of the experimental sciences is not an easy matter. When we shall have instructed them in anthropometry and psychometry in the most minute manner possible, we shall have only created machines, whose usefulness will be most doubtful. Indeed, if it is after this fashion that we are to initiate our teachers into experiment, we shall remain forever in the field of theory. The teachers of the old school, prepared according to the principles of metaphysical philosophy, understood the ideas of certain men regarded as authorities, and moved the muscles of speech in talking of them, and the muscles of the eye in reading their theories. Our scientific teachers, instead, are familiar with certain instruments and know how to move the muscles of the hand and arm in order to use these instruments; besides this, they have an intellectual preparation which consists of a series of typical tests, which they have, in a barren and mechanical way, learned how to apply.

The difference is not substantial, for profound differences cannot exist in exterior technique alone, but lie rather within the inner man. Not with all our initiation into scientific experiment have we prepared *new masters*, for, after all, we have left them standing without the door of real experimental science; we have not admitted them to the noblest and most profound phase of such study,—to that experience which makes real scientists.

And, indeed, what is a scientist? Not, certainly, he who knows how to manipulate all the instruments in the physical laboratory, or who in the laboratory of the chemist handles the various reactivities with deftness and security, or who in biology knows how to make ready the specimens for the microscope. Indeed, it is often the case that an assistant has a greater dexterity in experimental technique than the master scientist himself. We give the name scientist to the type of man who has felt experiment to be a means guiding him to search out the deep truth of life, to lift a veil from its fascinating secrets, and who, in this pursuit, has felt arising within him a love for the mysteries of nature, so passionate as to annihilate the thought of himself. The scientist is not the clever manipulator of instruments, he is the worshipper of nature and he bears the external symbols of his passion as does the follower of some religious order. To this body of real scientists belong those who, forgetting, like the Trappists of the Middle Ages, the world about them, live only in the laboratory, careless often in matters of food and dress because they no longer think of themselves; those who, through years of unwearied use of the microscope, become blind; those who in their scientific ardour inoculate themselves with tuberculosis germs; those who handle the excrement of cholera patients in their eagerness to learn the vehicle through which the diseases are transmitted; and those who, knowing that a certain chemical preparation may be an explosive, still persist in testing their theories at the risk of their lives. This is the spirit of the men of science, to whom nature freely reveals her secrets, crowning their labours with the glory of discovery.

There exists, then, the “spirit” of the scientist, a thing far above his mere “mechanical skill,” and the scientist is at the height of his achievement when the spirit has triumphed over the mechanism. When he has reached this point, science will receive from him not only new revelations of nature, but philosophic syntheses of pure thought.

It is my belief that the thing which we should cultivate in our teachers is more the *spirit* than the mechanical skill of the scientist; that is, the *direction* of the *preparation* should be toward the spirit rather than toward the mechanism. For example, when we considered the scientific preparation of teachers to be simply the acquiring of the technique of science, we did not attempt to make these elementary teachers perfect

anthropologists, expert experimental psychologists, or masters of infant hygiene; we wished only to *direct them* toward the field of experimental science, teaching them to manage the various instruments with a certain degree of skill. So now, we wish to *direct* the teacher, trying to awaken in him, in connection with his own particular field, the school, that scientific *spirit* which opens the door for him to broader and bigger possibilities. In other words, we wish to awaken in the mind and heart of the educator an *interest in natural phenomena* to such an extent that, loving nature, he shall understand the anxious and expectant attitude of one who has prepared an experiment and who awaits a revelation from it.<sup>3</sup>

The instruments are like the alphabet, and we must know how to manage them if we are to read nature; but as the book, which contains the revelation of the greatest thoughts of an author, uses in the alphabet the means of composing the external symbols or words, so nature, through the mechanism of the experiment, gives us an infinite series of revelations, unfolding for us her secrets.

Now one who has learned to spell mechanically all the words in his spelling-book, would be able to read in the same mechanical way the words in one of Shakespeare's plays, provided the print were sufficiently clear. He who is initiated solely into the making of the bare experiment, is like one who spells out the literal sense of the words in the spelling-book; it is on such a level that we leave the teachers if we limit their preparation to technique alone.

We must, instead, make of them worshippers and interpreters of the spirit of nature. They must be like him who, having learned to spell, finds himself, one day, able to read behind the written symbols the *thought* of Shakespeare, or Goethe, or Dante. As may be seen, the difference is great, and the road long. Our first error was, however, a natural one. The child who has mastered the spelling-book gives the impression of knowing how to read. Indeed, he does read the signs over the shop doors, the names of newspapers, and every word that comes under his eyes. It would be very natural if, entering a library, this child should be deluded into thinking that he knew how to read the *sense* of all the books he saw there. But attempting to do this, he would soon feel that "to know how to read mechanically" is nothing, and that he needs to go back to school. So it is with the teachers whom we have thought to prepare for scientific pedagogy by teaching them anthropometry and psychometry.

But let us put aside the difficulty of preparing scientific masters in the accepted sense of the word. We will not even attempt to outline a programme of such preparation, since this would lead us into a discussion which has no place here. Let us suppose, instead, that we have already prepared teachers through long and patient exercises for the *observation of nature*, and that we have led them, for example, to the point attained by those students of natural sciences who rise at night and go into the woods and fields that they may surprise the awakening and the early activities of some family of insects in which they are interested. Here we have the scientist who, though he may be sleepy and tired with walking, is full of watchfulness, who is not aware that he is muddy or dusty, that the mist wets him, or the sun burns him; but is intent only upon not revealing in the least degree his presence, in order that the insects may, hour after hour, carry on peacefully those natural functions which he wishes to observe. Let us suppose these teachers to have reached the standpoint of the scientist who, half blind, still watches through his microscope the spontaneous movements of some particular infusory animalcule. These creatures seem to this scientific watcher, in their manner of avoiding

each other and in their way of selecting their food, to possess a dim intelligence. He then disturbs this sluggish life by an electric stimulus, observing how some group themselves about the positive pole, and others about the negative. Experimenting further, with a luminous stimulus, he notices how some run toward the light, while others fly from it. He investigates these and like phenomena; having always in mind this question: whether the fleeing from or running to the stimulus be of the same character as the avoidance of one another or the selection of food—that is, whether such differences are the result of choice and are due to that dim consciousness, rather than to physical attraction or repulsion similar to that of the magnet. And let us suppose that this scientist, finding it to be four o'clock in the afternoon, and that he has not yet lunched, is conscious, with a feeling of pleasure, of the fact that he has been at work in his laboratory instead of in his own home, where they would have called him hours ago, interrupting his interesting observation, in order that he might eat.

Let us imagine, I say, that the teacher has arrived, independently of his scientific training, at such an attitude of interest in the observation of natural phenomena. Very well, but such a preparation is not enough. The master, indeed, is destined in his particular mission not to the observation of insects or of bacteria, but of man. He is not to make a study of man in the manifestations of his daily physical habits as one studies some family of insects, following their movements from the hour of their morning awakening. The master is to study man in the awakening of his intellectual life.

The interest in humanity to which we wish to educate the teacher must be characterised by the intimate relationship between the observer and the individual to be observed; a relationship which does not exist between the student of zoology or botany and that form of nature which he studies. Man cannot love the insect or the chemical reaction which he studies, without sacrificing a part of himself. This self-sacrifice seems to one who looks at it from the standpoint of the world, a veritable renunciation of life itself, almost a martyrdom.

But the love of man for man is a far more tender thing, and so simple that it is universal. To love in this way is not the privilege of any especially prepared intellectual class, but lies within the reach of all men.

To give an idea of this second form of preparation, that of the spirit, let us try to enter into the minds and hearts of those first followers of Christ Jesus as they heard Him speak of a Kingdom not of this world, greater far than any earthly kingdom, no matter how royally conceived. In their simplicity they asked of Him, "Master, tell us who shall be greatest in the Kingdom of Heaven?" To which Christ, caressing the head of a little child who, with reverent, wondering eyes, looked into His face, replied, "Whosoever shall become as one of these little ones, he shall be greatest in the Kingdom of Heaven." Now let us picture among those to whom these words were spoken, an ardent, worshipping soul, who takes them into his heart. With a mixture of respect and love, of sacred curiosity and of a desire to achieve this spiritual greatness, he sets himself to observe every manifestation of this little child. Even such an observer placed in a classroom filled with little children will not be the new educator whom we wish to form. But let us seek to implant in the soul the self-sacrificing spirit of the scientist with the reverent love of the disciple of Christ, and we shall have prepared the *spirit* of the teacher. From the child itself he will learn how to perfect himself as an educator.

Let us consider the attitude of the teacher in the light of another example. Picture to yourself one of our botanists or zoologists experienced in the technique of

observation and experimentation; one who has travelled in order to study "certain fungi" in their native environment. This scientist has made his observations in open country and, then, by the aid of his microscope and of all his laboratory appliances, has carried on the later research work in the most minute way possible. He is, in fact, a scientist who understands what it is to study nature, and who is conversant with all the means which modern experimental science offers for this study.

Now let us imagine such a man appointed, by reason of the original work he has done, to a chair of science in some university, with the task before him of doing further original research work with hymenoptera. Let us suppose that, arrived at his post, he is shown a glass-covered case containing a number of beautiful butterflies, mounted by means of pins, their outspread wings motionless. The student will say that this is some child's play, not material for scientific study, that these specimens in the box are more fitly a part of the game which the little boys play, chasing butterflies and catching them in a net. With such material as this the experimental scientist can do nothing.

The situation would be very much the same if we should place a teacher who, according to our conception of the term, is scientifically prepared, in one of the public schools where the children are repressed in the spontaneous expression of their personality till they are almost like dead beings. In such a school the children, like butterflies mounted on pins, are fastened each to his place, the desk, spreading the useless wings of barren and meaningless knowledge which they have acquired.

It is not enough, then, to prepare in our Masters the scientific spirit. We must also make ready the *school* for their observation. The school must permit the *free, natural manifestations* of the *child* if in the school scientific pedagogy is to be born. This is the essential reform.

No one may affirm that such a principle already exists in pedagogy and in the school. It is true that some pedagogues, led by Rousseau, have given voice to impracticable principles and vague aspirations for the liberty of the child, but the true concept of liberty is practically unknown to educators. They often have the same concept of liberty which animates a people in the hour of rebellion from slavery, or perhaps, the conception of *social liberty*, which although it is a more elevated idea is still invariably restricted. "Social liberty" signifies always one more round of Jacob's ladder. In other words it signifies a partial liberation, the liberation of a country, of a class, or of thought.

That concept of liberty which must inspire pedagogy is, instead, universal. The biological sciences of the nineteenth century have shown it to us when they have offered us the means for studying life. If, therefore, the old-time pedagogy foresaw or vaguely expressed the principle of studying the pupil before educating him, and of leaving him free in his spontaneous manifestations, such an intuition, indefinite and barely expressed, was made possible of practical attainment only after the contribution of the experimental sciences during the last century. This is not a case for sophistry or discussion, it is enough that we state our point. He who would say that the principle of liberty informs the pedagogy of today, would make us smile as at a child who, before the box of mounted butterflies, should insist that they were alive and could fly. The principle of slavery still pervades pedagogy, and, therefore, the same principle pervades the school. I need only give one proof—the stationary desks and chairs. Here we have, for example, a striking evidence of the errors of the early materialistic scientific pedagogy which, with mistaken zeal and energy, carried the barren stones of science to the rebuilding of the crumbling walls of

the school. The schools were at first furnished with the long, narrow benches upon which the children were crowded together. Then came science and perfected the bench. In this work much attention was paid to the recent contributions of anthropology. The age of the child and the length of his limbs were considered in placing the seat at the right height. The distance between the seat and the desk was calculated with infinite care, in order that the child's back should not become deformed, and, finally, the seats were separated and the width so closely calculated that the child could barely seat himself upon it, while to stretch himself by making any lateral movements was impossible. This was done in order that he might be separated from his neighbour. These desks are constructed in such a way as to render the child visible in all his immobility. One of the ends sought through this separation is the prevention of immoral acts in the schoolroom. What shall we say of such prudence in a state of society where it would be considered scandalous to give voice to principles of sex morality in education, for fear we might thus contaminate innocence? And, yet, here we have science lending itself to this hypocrisy, fabricating machines! Not only this; obliging science goes farther still, perfecting the benches in such a way as to permit to the greatest possible extent the immobility of the child, or, if you wish, to repress every movement of the child.

It is all so arranged that, when the child is well-fitted into his place, the desk and chair themselves force him to assume the position considered to be hygienically comfortable. The seat, the foot-rest, the desks are arranged in such a way that the child can never stand at his work. He is allotted only sufficient space for sitting in an erect position. It is in such ways that schoolroom desks and benches have advanced toward perfection. Every cult of the so-called scientific pedagogy has designed a model scientific desk. Not a few nations have become proud of their "national desk,"—and in the struggle of competition these various machines have been patented.

Undoubtedly there is much that is scientific underlying the construction of these benches. Anthropology has been drawn upon in the measuring of the body and the diagnosis of the age; physiology, in the study of muscular movements; psychology, in regard to perversion of instincts; and, above all, hygiene, in the effort to prevent curvature of the spine. These desks were indeed scientific, following in their construction the anthropological study of the child. We have here, as I have said, an example of the literal application of science to the schools.

I believe that before very long we shall all be struck with great surprise by this attitude. It will seem incomprehensible that the fundamental error of the desk should not have been revealed earlier through the attention given to the study of infant hygiene, anthropology, and sociology, and through the general progress of thought. The marvel is greater when we consider that during the past years there has been stirring in almost every nation a movement toward the protection of the child.

I believe that it will not be many years before the public, scarcely believing the descriptions of these scientific benches, will come to touch with wondering hands the amazing seats that were constructed for the purpose of preventing among our school children curvature of the spine!

The development of these scientific benches means that the pupils were subjected to a régime, which, even though they were born strong and straight, made it possible for them to become humpbacked! The vertebral column, biologically the most primitive, fundamental, and oldest part of the skeleton, the most fixed portion of our body, since the skeleton is the most solid portion of the organism—the vertebral column, which resisted and was strong through the desperate struggles of primitive man when he fought against

the desert-lion, when he conquered the mammoth, when he quarried the solid rock and shaped the iron to his uses, bends, and cannot resist, under the yoke of the school.

It is incomprehensible that so-called *science* should have worked to perfect an instrument of slavery in the school without being enlightened by one ray from the movement of social liberation, growing and developing throughout the world. For the age of scientific benches was also the age of the redemption of the working classes from the yoke of unjust labour.

The tendency toward social liberty is most evident, and manifests itself on every hand. The leaders of the people make it their slogan, the labouring masses repeat the cry, scientific and socialistic publications voice the same movement, our journals are full of it. The underfed workman does not ask for a tonic, but for better economic conditions which shall prevent malnutrition. The miner who, through the stooping position maintained during many hours of the day, is subject to inguinal rupture, does not ask for an abdominal support, but demands shorter hours and better working conditions, in order that he may be able to lead a healthy life like other men.

And when, during this same social epoch, we find that the children in our school-rooms are working amid unhygienic conditions, so poorly adapted to normal development that even the skeleton becomes deformed, our response to this terrible revelation is an orthopedic bench. It is much as if we offered to the miner the abdominal brace, or arsenic to the underfed workman.

Some time ago a woman, believing me to be in sympathy with all scientific innovations concerning the school, showed me with evident satisfaction *a corset or brace for pupils*. She had invented this and felt that it would complete the work of the bench.

Surgery has still other means for the treatment of spinal curvature. I might mention orthopedic instruments, braces, and a method of periodically suspending the child, by the head or shoulders, in such a fashion that the weight of the body stretches and thus straightens the vertebral column. In the school, the orthopedic instrument in the shape of the desk is in great favour today; someone proposes the brace—one step farther and it will be suggested that we give the scholars a systematic course in the suspension method!

All this is the logical consequence of a material application of the methods of science to the decadent school. Evidently the rational method of combating spinal curvature in the pupils is to change the form of their work—so that they shall no longer be obliged to remain for so many hours a day in a harmful position. It is a conquest of liberty which the school needs, not the mechanism of a bench.

Even were the stationary seat helpful to the child's body, it would still be a dangerous and unhygienic feature of the environment, through the difficulty of cleaning the room perfectly when the furniture cannot be moved. The foot-rests, which cannot be removed, accumulate the dirt carried in daily from the street by the many little feet. Today there is a general transformation in the matter of house furnishings. They are made lighter and simpler so that they may be easily moved, dusted, and even washed. But the school seems blind to the transformation of the social environment.

It behooves us to think of what may happen to the *spirit* of the child who is condemned to grow in conditions so artificial that his very bones may become deformed. When we speak of the redemption of the working man, it is always understood that beneath the most apparent form of suffering, such as poverty of the blood, or ruptures, there exists that other wound from which the soul of the man who is subjected to any form of slavery must suffer. It is at this deeper wrong that we aim when we say that the

workman must be redeemed through liberty. We know only too well that when a man's very blood has been consumed or his intestines wasted away through his work, his soul must have lain oppressed in darkness, rendered insensible, or, it may be, killed within him. The *moral* degradation of the slave is, above all things, the weight that opposes the progress of humanity—humanity striving to rise and held back by this great burden. The cry of redemption speaks far more clearly for the souls of men than for their bodies.

What shall we say then, when the question before us is that of *educating children*?

We know only too well the sorry spectacle of the teacher who, in the ordinary school-room, must pour certain cut and dried facts into the heads of the scholars. In order to succeed in this barren task, she finds it necessary to discipline her pupils into immobility and to force their attention. Prizes and punishments are ever-ready and efficient aids to the master who must force into a given attitude of mind and body those who are condemned to be his listeners.

It is true that today it is deemed expedient to abolish official whippings and habitual blows, just as the awarding of prizes has become less ceremonious. These partial reforms are another prop approved of by science, and offered to the support of the decadent school. Such prizes and punishments are, if I may be allowed the expression, the *bench* of the soul, the instrument of slavery for the spirit. Here, however, these are not applied to lessen deformities, but to provoke them. The prize and the punishment are incentives toward unnatural or forced effort, and, therefore we certainly cannot speak of the natural development of the child in connection with them. The jockey offers a piece of sugar to his horse before jumping into the saddle, the coachman beats his horse that he may respond to the signs given by the reins; and, yet, neither of these runs so superbly as the free horse of the plains.

And here, in the case of education, shall man place the yoke upon man?

True, we say that social man is natural man yoked to society. But if we give a comprehensive glance to the moral progress of society, we shall see that little by little, the yoke is being made easier, in other words, we shall see that nature, or life, moves gradually toward triumph. The yoke of the slave yields to that of the servant, and the yoke of the servant to that of the workman.

All forms of slavery tend little by little to weaken and disappear, even the sexual slavery of woman. The history of civilisation is a history of conquest and of liberation. We should ask in what stage of civilisation we find ourselves and if, in truth, the good of prizes and of punishments be necessary to our advancement. If we have indeed gone beyond this point, then to apply such a form of education would be to draw the new generation back to a lower level, not to lead them into their true heritage of progress.

Something very like this condition of the school exists in society, in the relation between the government and the great numbers of the men employed in its administrative departments. These clerks work day after day for the general national good, yet they do not feel or see the advantage of their work in any immediate reward. That is, they do not realise that the state carries on its great business through their daily tasks, and that the whole nation is benefited by their work. For them the immediate good is promotion, as passing to a higher class is for the child in school. The man who loses sight of the really big aim of his work is like a child who has been placed in a class below his real standing: like a slave, he is cheated of something which is his right. His dignity as a man is reduced to the limits of the dignity of a machine which must be oiled if it is to be kept going, because it does not have within itself the impulse of life. All those petty

things such as the desire for decorations or medals, are but artificial stimuli, lightening for the moment the dark, barren path in which he treads.

In the same way we give prizes to school children. And the fear of not achieving promotion, withholds the clerk from running away, and binds him to his monotonous work, even as the fear of not passing into the next class drives the pupil to his book. The reproof of the superior is in every way similar to the scolding of the teacher. The correction of badly executed clerical work is equivalent to the bad mark placed by the teacher upon the scholar's poor composition. The parallel is almost perfect.

But if the administrative departments are not carried on in a way which would seem suitable to a nation's greatness; if corruption too easily finds a place; it is the result of having extinguished the true greatness of man in the mind of the employee, and of having restricted his vision to those petty, immediate facts, which he has come to look upon as prizes and punishments. The country stands, because the rectitude of the greater number of its employees is such that they resist the corruption of the prizes and punishments, and follow an irresistible current of honesty. Even as life in the social environment triumphs against every cause of poverty and death, and proceeds to new conquests, so the instinct of liberty conquers all obstacles, going from victory to victory.

It is this personal and yet universal force of life, a force often latent within the soul, that sends the world forward.

But he who accomplishes a truly human work, he who does something really great and victorious, is never spurred to his task by those trifling attractions called by the name of "prizes," nor by the fear of those petty ills which we call "punishments." If in a war a great army of giants should fight with no inspiration beyond the desire to win promotion, epaulets, or medals, or through fear of being shot, if these men were to oppose a handful of pygmies who were inflamed by love of country, the victory would go to the latter. When real heroism has died within an army, prizes and punishments cannot do more than finish the work of deterioration, bringing in corruption and cowardice.

All human victories, all human progress, stand upon the inner force.

Thus a young student may become a great doctor if he is spurred to his study by an interest which makes medicine his real vocation. But if he works in the hope of an inheritance, or of making a desirable marriage, or if indeed he is inspired by any material advantage, he will never become a true master or a great doctor, and the world will never make one step forward because of his work. He to whom such stimuli are necessary, had far better never become a physician. Everyone has a special tendency, a special vocation, modest, perhaps, but certainly useful. The system of prizes may turn an individual aside from this vocation, may make him choose a false road, for him a vain one, and forced to follow it, the natural activity of a human being may be warped, lessened, even annihilated.

We repeat always that the world *progresses* and that we must urge men forward to obtain progress. But progress comes from the *new things that are born*, and these, not being foreseen, are not rewarded with prizes: rather, they often carry the leader to martyrdom. God forbid that poems should ever be born of the desire to be crowned in the Capitol! Such a vision need only come into the heart of the poet and the muse will vanish. The poem must spring from the soul of the poet, when he thinks neither of himself nor of the prize. And if he does win the laurel, he will feel the vanity of such a prize. The true reward lies in the revelation through the poem of his own triumphant inner force.

There does exist, however, an external prize for man; when, for example, the orator sees the faces of his listeners change with the emotions he has awakened, he experiences something so great that it can only be likened to the intense joy with which one discovers that he is loved. Our joy is to touch, and conquer souls, and this is the one prize which can bring us a true compensation.

Sometimes there is given to us a moment when we fancy ourselves to be among the great ones of the world. These are moments of happiness given to man that he may continue his existence in peace. It may be through love attained or because of the gift of a son, through a glorious discovery or the publication of a book; in some such moment we feel that there exists no man who is above us. If, in such a moment, someone vested with authority comes forward to offer us a medal or a prize, he is the important destroyer of our real reward—"And who are you?" our vanished illusion shall cry, "Who are you that recalls me to the fact that I am not the first among men? Who stands so far above me that he may give me a prize?" The prize of such a man in such a moment can only be Divine.

As for punishments, the soul of the normal man grows perfect through expanding, and punishment as commonly understood is always a form of *repression*. It may bring results with those inferior natures who grow in evil, but these are very few, and social progress is not affected by them. The penal code threatens us with punishment if we are dishonest within the limits indicated by the laws. But we are not honest through fear of the laws; if we do not rob, if we do not kill, it is because we love peace, because the natural trend of our lives leads us forward, leading us ever farther and more definitely away from the peril of low and evil acts.

Without going into the ethical or metaphysical aspects of the question, we may safely affirm that the delinquent before he transgresses the law, has, *if he knows of the existence of a punishment*, felt the threatening weight of the criminal code upon him. He has defined it, or he has been lured into the crime, deluding himself with the idea that he would be able to avoid the punishment of the law. But there has occurred within his mind, a *struggle between the crime and the punishment*. Whether it be efficacious in hindering crime or not, this penal code is undoubtedly made for a very limited class of individuals; namely, criminals. The enormous majority of citizens are honest without any regard whatever to the threats of the law.

The real punishment of normal man is the loss of the consciousness of that individual power and greatness which are the sources of his inner life. Such a punishment often falls upon men in the fullness of success. A man whom we would consider crowned by happiness and fortune may be suffering from this form of punishment. Far too often man does not see the real punishment which threatens him.

And it is just here that education may help.

Today we hold the pupils in school, restricted by those instruments so degrading to body and spirit, the desk—and material prizes and punishments. Our aim in all this is to reduce them to the discipline of immobility and silence,—to lead them,—where? Far too often toward no definite end.

Often the education of children consists in pouring into their intelligence the intellectual contents of school programmes. And often these programmes have been compiled in the official department of education, and their use is imposed by law upon the teacher and the child.

Ah, before such dense and wilful disregard of the life which is growing within these children, we should hide our heads in shame and cover our guilty faces with our hands!

Sergi says truly: "Today an urgent need imposes itself upon society: the reconstruction of methods in education and instruction, and he who fights for this cause, fights for human regeneration."

Notes

1. Trevisini, 1892.
2. Montessori: "L'Antropologia Pedagogica." Vallardi.
3. See in my treatise on Pedagogical Anthropology the chapter on "The Method Used in Experimental Sciences."