

SCHOOLS OF TO-MORROW

BY
JOHN DEWEY
AND
EVELYN DEWEY



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PREFACE

There has been no attempt in this book to develop a complete theory of education nor yet review any "systems" or discuss the views of prominent educators. This is not a text book of education, nor yet an exposition of a new method of school teaching, aimed to show the weary teacher or the discontented parent how education should be carried on. We have tried to show what actually happens when schools start out to put into practice, each in its own way, some of the theories that have been pointed to as the soundest and best ever since Plato, to be then laid politely away as precious portions of our "intellectual heritage." Certain views are well known to every teacher who has studied pedagogy, and portions of them form an accepted part of every theory of education. Yet when they are applied in a classroom the public in general and other teachers in particular cry out against that classroom as a place of fads and caprices; a place lacking in any far reaching aim or guiding principle. We have hoped

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to suggest to the reader the practical meaning of some of the more widely recognized and accepted views of educational reformers by showing what happens when a teacher applies these views.

The schools we have used for purposes of illustration are all of them directed by sincere teachers trying earnestly to give their children the best they have by working out concretely what they consider the fundamental principles of education. More and more schools are growing up all over the country that are trying to work out definite educational ideas. It is the function of this book to point out how the applications arise from their theories and the direction that education in this country seems to be taking at the present time. We hope that through the description of classroom work we may help to make some theories living realities to the reader. On the other hand, we have dwelt on theoretical aspects in order to point out some of the needs of modern education and the way in which they are being met.

The schools that are used for illustration were chosen more or less at random; because we already knew of them or because they were conveniently located. They do not begin to represent all that is being done to-day to vitalize

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the school life of children. Schools with like traits may be found in every part of the country. Space has forced us to omit a very important movement—the reorganization of the rural school and the utilization of agriculture in education. But this movement shows the tendencies that mark the schools we have described; tendencies towards greater freedom and an identification of the child's school life with his environment and outlook; and, even more important, the recognition of the rôle education must play in a democracy. These tendencies seem truly symptoms of the times, and with a single exception proved to be the most marked characteristics of all the schools visited.

Without the very material help and interest of the teachers and principals of the schools visited this book would not have been possible. We thank them most sincerely for the unfailing courtesy they have shown in placing their time and the material of their classrooms at our disposal. Our thanks are especially due to Mrs. Johnson of Fairhope and to Miss Georgia Alexander of Indianapolis for information and suggestions. The visiting of the schools with one exception was done by Miss Dewey, who is also responsible for the descriptive chapters of the book.

J. D.

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SCHOOLS OF TO-MORROW

CHAPTER I

EDUCATION AS NATURAL DEVELOPMENT

“WE know nothing of childhood, and with our mistaken notions of it the further we go in education the more we go astray. The wisest writers devote themselves to what a man ought to know without asking what a child is capable of learning.” These sentences are typical of the “*Émile*” of Rousseau. He insists that existing education is bad because parents and teachers are always thinking of the accomplishments of adults, and that all reform depends upon centering attention upon the powers and weaknesses of children. Rousseau said, as well as did, many foolish things. But his insistence that education be based upon the native capacities of those to be taught and upon the need of studying children in order to discover what these native powers are, sounded the key-note of all modern efforts for educa-

tional progress. It meant that education is not something to be forced upon children and youth from without, but is the growth of capacities with which human beings are endowed at birth. From this conception flow the various considerations which educational reformers since his day have most emphasized.

It calls attention, in the first place, to a fact which professional educators are always forgetting: What is learned in school is at the best only a small part of education, a relatively superficial part; and yet what is learned in school makes artificial distinctions in society and marks persons off from one another. Consequently we exaggerate school learning compared with what is gained in the ordinary course of living. We are, however, to correct this exaggeration, not by despising school learning, but by looking into that extensive and more efficient training given by the ordinary course of events for light upon the best ways of teaching within school walls. The first years of learning proceed rapidly and securely before children go to school, because that learning is so closely related with the motives that are furnished by their own powers and the needs that are dictated by their own conditions. Rousseau was almost the first to see that learn-

ing is a matter of necessity; it is a part of the process of self-preservation and of growth. If we want, then, to find out how education takes place most successfully, let us go to the experiences of children where learning is a necessity, and not to the practices of the schools where it is largely an adornment, a superfluity and even an unwelcome imposition.

But schools are always proceeding in a direction opposed to this principle. They take the accumulated learning of adults, material that is quite unrelated to the exigencies of growth, and try to force it upon children, instead of finding out what these children need as they go along. "A man must indeed know many things which seem useless to a child. Must the child learn, can he learn, all that the man must know? Try to teach a child what is of use to him as a child, and you will find that it takes all his time. Why urge him to the studies of an age he may never reach, to the neglect of those studies which meet his present needs? But, you ask, will it not be too late to learn what he ought to know when the time comes to use it? I cannot tell. But this I know; it is impossible to teach it sooner, for our real teachers are experience and emotion, and adult man will never learn what befits *him* except

under his own conditions. A child knows he must become a man; all the ideas he may have as to man's estate are so many opportunities for his instruction, but he should remain in complete ignorance of those ideas that are beyond his grasp. My whole book is one continued argument in support of this fundamental principle of education."

Probably the greatest and commonest mistake that we all make is to forget that learning is a necessary incident of dealing with real situations. We even go so far as to assume that the mind is naturally averse to learning—which is like assuming that the digestive organs are averse to food and have either to be coaxed or bullied into having anything to do with it. Existing methods of instruction give plenty of evidence in support of a belief that minds are opposed to learning—to their own exercise. We fail to see that such aversion is in reality a condemnation of our methods; a sign that we are presenting material for which the mind in its existing state of growth has no need, or else presenting it in such ways as to cover up the real need. Let us go further. We say only an adult can really learn the things needed by the adult. Surely the adult is much more likely to learn the things befitting him when his hunger

for learning has been kept alive continuously than after a premature diet of adult nutriment has deadened desire to know. We are of little faith and slow to believe. We are continually uneasy about the things we adults know, and are afraid the child will never learn them unless they are drilled into him by instruction before he has any intellectual or practical use for them. If we could really believe that attending to the needs of present growth would keep the child and teacher alike busy, and would also provide the best possible guarantee of the learning needed in the future, transformation of educational ideals might soon be accomplished, and other desirable changes would largely take care of themselves.

It is no wonder, then, that Rousseau preaches the necessity of being willing to lose time. "The greatest, the most important, the most useful rule of education is: Do not save time, but lose it. If the infant sprang at one bound from its mother's breast to the age of reason, the present education would be quite suitable; but its natural growth calls for quite a different training." And he says, again, "The whole of our present method is cruel, for it consists in sacrificing the present to the remote and uncertain future. I hear from afar the shouts of

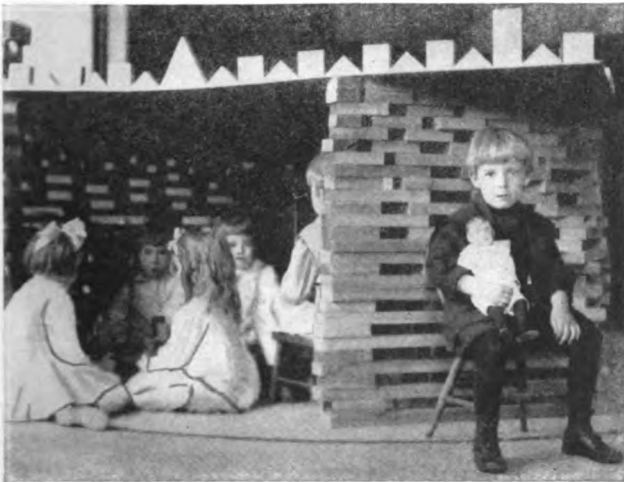
the false wisdom that is ever dragging us on, counting the present as nothing, and breathlessly pursuing a future that flies as we pursue; a false wisdom that takes us away from the only place we ever have and never takes us anywhere else."

In short, if education is the proper growth of tendencies and powers, attention to the process of *growing in the particular form in which it goes on from day to day* is the only way of making secure the accomplishments of adult life. Maturity is the result of the slow growth of powers. Ripening takes time; it cannot be hurried without harm. The very meaning of childhood is that it is the time of growth, of developing. To despise the powers and needs of childhood, in behalf of the attainments of adult life, is therefore suicidal. Hence "Hold childhood in reverence, and do not be in any hurry to judge it for good or ill. Give nature time to work before you take upon yourself her business, lest you interfere with her dealings. You assert that you know the value of time and are afraid to waste it. You fail to perceive that it is a greater waste of time to use it ill than to do nothing, and that a child ill taught is further from excellence than a child who has learned nothing at all. You are afraid to see

him spending his early years doing nothing. What! Is it nothing to be happy, nothing to jump and run all day? He will never be so busy again all his life long. . . . What would you think of a man who refused to sleep lest he should waste part of his life?" Reverence for childhood is identical with reverence for the needs and opportunities of growth. Our tragic error is that we are so anxious for the results of growth that we neglect the process of growing. "Nature would have children be children before they are men. If we try to invert this order we shall produce a forced fruit, immature and flavorless, fruit that rots before it can ripen. . . . Childhood has its own ways of thinking, seeing, and feeling."

Physical growth is not identical with mental growth but the two coincide in time, and normally the latter is impossible without the former. If we have reverence for childhood, our first specific rule is to make sure of a healthy bodily development. Even apart from its intrinsic value as a source of efficient action and of happiness, the proper development of the mind directly depends upon the proper use of the muscles and the senses. The organs of action and of reception are indispensable for getting into relation with the materials of

knowledge. The child's first business is self-preservation. This does not mean barely keeping himself alive, but preservation of himself as a growing, developing being. Consequently, the activities of a child are not so aimless as they seem to adults, but are the means by which he becomes acquainted with his world and by which he also learns the use and limits of his own powers. The constant restless activities of children seem senseless to grown-up people, simply because grown-up people have got used to the world around them and hence do not feel the need of continual experimentation. But when they are irritated by the ceaseless movements of a child and try to reduce him to a state of quiescence, they both interfere with the child's happiness and health, and cut him off from his chief means of real knowledge. Many investigators have seen how a sound bodily state is a *negative* condition of normal mental development; but Rousseau anticipated our present psychology as to the extent in which the action of the organs of sense and movement is a positive cause of the unfolding of intelligence. "If you follow rules that are the opposite of the established practice and instead of taking your pupil far afield, wandering to distant places, far-off lands, remote centuries, the ends of the



(1) **Nature would have children be children before they are men.**

(2) **Teach the child what is of use to him as a child.**
(Teachers College, N. Y. City.)

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world and to heavens themselves, you keep him to himself, to his own concerns, he will be able to perceive, to remember, and to reason in nature's order of development. As the sentient infant grows into an active being, his discernment keeps pace with his increase in strength. Not till strength is developed beyond the needs of self-preservation is the faculty of speculation manifested, for this is the faculty of employing superfluous strength for other than necessary purposes. Hence, if you would cultivate your pupil's intelligence, *cultivate the strength it is meant to control*. Give his body constant exercise, make it strong and healthy in order to make him good and wise; let him work, let him do things; let him run and shout; let him be on the go. . . . It is a lamentable mistake to imagine that bodily activity hinders the working of the mind, as if the two kinds of activity ought not to advance hand in hand, and as if the one were not *intended to act as guide to the other*."

In the following passage Rousseau is more specific as to the way in which the physical activities which conduce to health and the growth of mind reënforce each other. "Physical exercise teaches us to use our strength, to perceive the relation between our own and

neighboring bodies, to use natural tools which are within our reach and adapted to our senses. . . . At eighteen we are taught in our schools the use of the lever; every village boy of twelve knows how to use a lever better than the cleverest mechanic in the academy. The lessons the scholars give one another on the playground are worth a hundredfold more than what they learn in the classroom. Watch a cat when she first comes into a room. She goes from place to place; she sniffs about and examines everything. She is not still for a moment. It is the same with a child when he begins to walk and enters, as it were, the room of the world about him. Both use sight, and the child uses his hands as the cat her nose."

"As man's first natural impulse is to measure himself upon his environment, to find in every object he sees the qualities that may concern himself, so his first study is a kind of experimental physics for his own preservation. He is turned away from this, and sent to speculative studies before he has found his own place in the world. While his delicate and flexible limbs and keen senses can adjust themselves to the bodies upon which they intended to act is the time to exercise senses and limbs in their proper business—the time to learn the relation

between themselves and things. Our first teachers in natural philosophy are our feet, hands, and eyes. To substitute books for them does not teach us to reason; it teaches us to use the reason of others rather than our own; it teaches us to believe much and to know little.”

“Before you can get an art, you must first get your tools; and if you are to make good use of your tools, they must be fashioned sufficiently strong to stand use. To learn to think, we must accordingly exercise our limbs, our senses, and our bodily organs, for these are the tools of intellect. To get the best use of these tools, the body that supplies us with these tools must be kept strong and healthy. Not only is it a mistake that true reason is developed apart from the body, but it is a good bodily constitution that makes the workings of the mind easy and correct.”

The passage shows how far Rousseau was from considering bodily development as a complete end in itself. It also indicates how far ahead he was of the psychology of his own day in his conception of the relation of the senses to knowledge. The current idea (and one that prevails too much even in our own time) was that the senses were a sort of gateway and avenue through which impressions traveled and

then built up knowledge pictures of the world. Rousseau saw that they are a part of the apparatus of action by which we adjust ourselves to our environment, and that instead of being passive receptacles they are directly connected with motor activities—with the use of hands and legs. In this respect he was more advanced than some of his successors who emphasized the importance of sense contact with objects, for the latter thought of the senses simply as purveyors of information about objects instead of instruments of the necessary adjustments of human beings to the world around them.

Consequently, while he makes much of the senses and suggests many games for cultivating them, he never makes the mere training of the senses an object on its own account. "It is not enough," he says, "to use the senses in order to train them; we must learn to judge by their means—we cannot really see, hear, or touch except as we have learned. A merely mechanical use of the senses may strengthen the body without improving the judgment. It is all very well to swim, run, jump, whip a top, throw stones. But we have eyes and ears as well as arms and legs, and these organs are necessary for learning the use of the rest. Do not, then, merely exercise strength, but exercise the senses as the

powers by which strength is guided. Make the best use of every one of them, and check the results of one by another. Measure, count, weigh, compare. Do not use force till you have estimated the resistance; let estimation of the effect always precede application of the means. Get the child interested in avoiding superfluous and insufficient efforts. If you train him to calculate the consequences of what he does and then to correct the errors of his prevision by experience, the more he does, the wiser he will become."

One more contrast between teaching which guides natural growth and teaching which imposes adult accomplishments should be noticed. The latter method puts a premium upon accumulating information in the form of symbols. Quantity rather than quality of knowledge is emphasized; results that may be exhibited when asked for rather than personal attitude and method are demanded. Development emphasizes the need of intimate and extensive personal acquaintance with a small number of typical situations with a view to mastering the way of dealing with the problems of experience, not the piling up of information. As Rousseau points out, the facility with which children lend themselves to our false methods is a constant

source of deception to us. We know—or fancy we know—what statements mean, and so when the child uses the proper form of words, we attribute the same understanding to him. “The apparent ease with which children learn is their ruin. We fail to see that this very ease proves that they are not learning. Their shining, polished brain merely reflects, as in a mirror, the things we show them.” Rousseau describes in a phrase the defect of teaching *about* things instead of bringing to pass an acquaintance with the relations of the things themselves. “You think you are teaching him what the world is like; he is only learning the map.” Extend the illustration from geography to the whole wide realm of knowledge, and you have the gist of much of our teaching from the elementary school through the college.

Rousseau has the opposite method in mind when he says, “Among the many short cuts to science we badly need one to teach us the art of learning with difficulty.” Of course his idea is not to make things difficult for the sake of having them difficult, but to avoid the simulation of learning found in repeating the formulæ of learning, and to substitute for it the slow and sure process of personal discovery. Text-books and lectures give the results of other

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To learn to think, we must exercise our limbs. (Francis Parker School, Chicago.)

men's discoveries, and thus seem to provide a short cut to knowledge; but the outcome is just a meaningless reflecting back of symbols with no understanding of the facts themselves. The further result is mental confusion; the pupil loses his original mental sure-footedness; his sense of reality is undermined. "The first meaningless phrase, the first thing taken for granted on the authority of another without the pupil's seeing its meaning for himself, is the beginning of the ruin of judgment." And again: "What would you have him think about, when you do all the thinking for him?" (And we must not forget that the organized material of our texts and set lessons represents the thinking of others.) "You then complete the task of discrediting reason in his mind by making him use such reason as he has upon the things which seem of the least use to him."

If it was true in Rousseau's day that information, knowledge, as an end in itself, is an "unfathomable and shoreless ocean," it is much more certain that the increase of science since his day has made absurd the identification of education with the mere accumulation of knowledge. The frequent criticism of existing education on the ground that it gives a smattering and superficial impression of a large and mis-

cellaneous number of subjects, is just. But the desired remedy will not be found in a return to mechanical and meager teaching of the three R's, but rather in a surrender of our feverish desire to lay out the whole field of knowledge into various studies, in order to "cover the ground." We must substitute for this futile and harmful aim the better ideal of dealing thoroughly with a small number of typical experiences in such a way as to master the tools of learning, and present situations that make pupils hungry to acquire additional knowledge. By the conventional method of teaching, the pupil learns maps instead of the world—the symbol instead of the fact. What the pupil really needs is not exact information about topography, but how to find out for himself. "See what a difference there is between the knowledge of your pupils and the ignorance of mine. They learn maps; he makes them." *To find out how to make knowledge when it is needed* is the true end of the acquisition of information in school, not the information itself.

CHAPTER VI

FREEDOM AND INDIVIDUALITY

THE reader has undoubtedly been struck by the fact that in all of the work described, pupils must have been allowed a greater amount of freedom than is usually thought compatible with the necessary discipline of a schoolroom. To the great majority of teachers and parents the very word school is synonymous with "discipline," with quiet, with rows of children sitting still at desks and listening to the teacher, speaking only when they are spoken to. Therefore a school where these fundamental characteristics are lacking must of necessity be a poor school; one where pupils do not learn anything, where they do just as they please, quite regardless of what they please, even though it be harmful to the child himself or disagreeable to his classmates and the teacher.

There is a certain accumulation of facts that every child must acquire or else grow up to be illiterate. These facts relate principally to adult life; therefore it is not surprising that the

pupil is not interested in them, while it is the duty of the school to see that he knows them nevertheless. How is this to be done? Obviously by seating the children in rows, far enough apart so that they cannot easily talk to each other, and hiring the most efficient person available to teach the facts; to tell them to the child, and have him repeat them often enough so that he can reasonably be expected to remember them, at least until after he is "promoted."

Again, children should be taught to obey; efficiency in doing as one is told is a useful accomplishment, just as the doing of distasteful and uninteresting tasks is a character builder. The pupil should be taught to "respect" his teacher and learning in general; and how can he be taught this lesson if he does not sit quietly and receptively in the face of both? But if he will not be receptive, he must at least be quiet, so that the teacher can teach him anyway. The very fact that the pupil so often is lawless, destructive, rude and noisy as soon as restraint is removed proves, according to the advocates of "discipline" by authority, that this is the only way of dealing with the child, since without such restraint the child would behave all day long as he does when it is removed for a few uncertain minutes.

If this statement of the disciplinarian's case sounds harsh and unadorned, think for a moment of the things that visitors to "queer schools" say after the visit is over; and consider whether they do not force the unprejudiced observer to the conclusion that their idea of schools and schooling is just such a harsh and unadorned affair. The discussion of freedom versus authoritative discipline in schools resolves itself after all into a question of the conception of education which is entertained. Are we to believe, with the strict disciplinarian, that education is the process of making a little savage into a little man, that there are many virtues as well as facts that have to be taught to all children so that they may as nearly as possible approach the adult standard? Or are we to believe, with Rousseau, that education is the process of making up the discrepancy between the child at his birth and the man as he will need to be, "that childhood has its own ways of seeing, thinking, and feeling," and that the method of training these ways to what a man will need is to let the child test them upon the world about him?

The phrase, "authoritative discipline," is used purposely, for discipline and freedom are not contradictory ideas. The following quota-

tion from Rousseau shows very plainly what a heavy taskmaster even his freedom was, a freedom so often taken to mean mere lawlessness and license. "Give him [the pupil] no orders at all, absolutely none. Do not even let him think that you claim any authority over him. Let him know only that he is weak and you are strong, that his condition and yours puts him at your mercy; let this be perceived, learned and felt. Let him early find upon his proud neck the heavy yoke which nature has imposed upon us, the heavy yoke of necessity, under which every finite being must bow. Let him find the necessity in things, not in the caprices of man; let the curb be the force of conditions, not authority."

Surely no discipline could be more severe, more apt to develop character and reasonableness, nor less apt to develop disorder and laziness. In fact the real reason for the feeling against freedom in schools seems to come from a misunderstanding. The critic confuses physical liberty with moral and intellectual liberty. Because the pupils are moving about, or sitting on the floor, or have their chairs scattered about instead of in a straight line, because they are using their hands and tongues, the visitor thinks that their minds must be relaxed as well; that

they must be simply fooling, with no more restraint for their minds and morals than appears for their bodies. Learning in school has been so long associated with a docile or passive mind that because that useful organ does not squirm or talk in its operations, observers have come to think that none of the child should do so, or it will interfere with learning.

Assuming that educational reformers are right in supposing that the function of education is to help the growing of a helpless young animal into a happy, moral, and efficient human being, a consistent plan of education must allow enough liberty to promote that growth. The child's body must have room to move and stretch itself, to exercise the muscles and to rest when tired. Every one agrees that swaddling clothes are a bad thing for the baby, cramping and interfering with bodily functions. The swaddling clothes of the straight-backed desk, head to the front and hands folded, are just as cramping and even more nerve racking to the school child. It is no wonder that pupils who have to sit in this way for several hours a day break out in bursts of immoderate noise and fooling as soon as restraining influences are removed. Since they do not have a normal outlet for their physical energy to spend itself, it is stored up, and

when opportunity offers it breaks forth all the more impetuously because of the nervous irritation previously suffered in repressing the action of an imperfectly trained body. Give a child liberty to move and stretch when he needs it, with opportunities for real exercise all through the day and he will not become so nervously overwrought that he is irritable or aimlessly boisterous when left to himself. Trained in *doing* things, he will be able to keep at work and to think of other people when he is not under restraining supervision.

A truly scientific education can never develop so long as children are treated in the lump, merely as a class. Each child has a strong individuality, and any science must take stock of all the facts in its material. Every pupil must have a chance to show what he truly is, so that the teacher can find out what he needs to make him a complete human being. Only as a teacher becomes acquainted with each one of her pupils can she hope to understand childhood, and it is only as she understands it that she can hope to evolve any scheme of education which shall approach either the scientific or the artistic standard. As long as educators do not know their individual facts they can never know whether their hypotheses are of value. But how

are they to know their material if they impose themselves upon it to such an extent that each portion is made to act just like every other portion? If the pupils are marched into line, information presented to them which they are then expected to give back in uniform fashion, nothing will ever be found out about any of them. But if every pupil has an opportunity to express himself, to show what are his particular qualities, the teacher will have material on which to base her plans of instruction.

Since a child lives in a social world, where even the simplest act or word is bound up with the words and acts of his neighbors, there is no danger that this liberty will sacrifice the interests of others to caprice. Liberty does not mean the removal of the checks which nature and man impose on the life of every individual in the community, so that one individual may indulge impulses which go against his own welfare as a member of society. But liberty for the child is the chance to test all impulses and tendencies on the world of things and people in which he finds himself, sufficiently to discover their character so that he may get rid of those which are harmful, and develop those which are useful to himself and others. Education which treats all children as if their impulses were

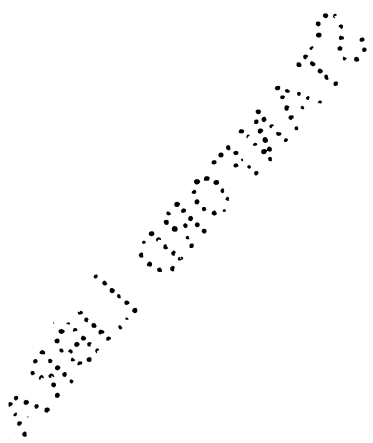
those of the average of an adult society (whose weaknesses and failures are moreover constantly deplored) is sure to go on reproducing that same average society without even finding out whether and how it might be better. Education which finds out what children really are may be able to shape itself by this knowledge so that the best can be kept and the bad eliminated. Meantime much is lost by a mere external suppression of the bad which equally prevents the expression of the better.

If education demands liberty before it can shape itself according to facts, how is it to use this liberty for the benefit of the child? Give a child freedom to find out what he can and can not do, both in the way of what is physically possible and what his neighbors will stand for, and he will not waste much time on impossibilities but will bend his energies to the possibilities. The physical energy and mental inquisitiveness of children can be turned into positive channels. The teacher will find the spontaneity, the liveliness, and initiative of the pupil aids in teaching, instead of being, as under the coercive system, nuisances to be repressed. The very things which are now interferences will become positive qualities that the teacher is cultivating. Besides preserving qualities which will be of

use to the man and developing habits of independence and industry, allowing the child this freedom is necessary if pupils are really to learn by doing. Most doing will lead only to superficial muscle training if it is dictated to the child and prescribed for him step by step. But when the child's natural curiosity and love of action are put to work on useful problems, on finding out for himself how to adjust his environment to his needs, the teacher finds that the pupils are not only doing their lessons as well as ever, but are also learning how to control and put to productive use those energies which are simply disturbing in the average classroom. Unless the pupil has some real work on which to exercise his mind by means of his senses and muscles, the teacher will not be able to do away with the ordinary disciplinary methods. For in a classroom where the teacher is doing all the work and the children are listening and answering questions, it would be absurd to allow the children to place themselves where they please, to move about, or to talk. Where the teacher's rôle has changed to that of helper and observer, where the development of every child is the goal, such freedom becomes as much a necessity of the work as is quiet where the children are simply reciting.



Learning to live through situations that are typical of social life. (Teachers College, N. Y. City.)



At present, the most talked of schools in which freedom and liberty are necessary for the children's work are the schools of Madame Maria Montessori in Italy and those of her pupils in this country. Madame Montessori believes, with many educators in this country, that liberty is necessary in the classroom if the teacher is to know the needs and capabilities of each pupil, if the child is to receive in school a well-rounded training making for the best development of his mind, character, and physique. In general, her reasons for insisting upon this liberty, which is the basis of her method, correspond with those outlined above, with one exception. She holds that liberty is necessary for the child if a scientific education is to be created, because without it data on which to base principles can not be collected; also that it is necessary for the physical welfare of the pupils and for the best development of their characters in training them to be independent. The point of difference between the Italian educator and most reformers in this country lies in their respective views of the value of liberty in the use of material, and this point will be taken up later.

Madame Montessori believes that repressing children physically while they are in school and teaching them habits of mental passivity and

docility is mistaking the function of the school and doing the children real harm. Scientific education not only needs freedom for the child in order to collect data, but liberty is its very basis; "liberty is activity," says Madame Montessori in her book called "The Montessori Method." Activity is the basis of life, consequently training children to move and act is training them for life, which is the proper office of the schoolroom. The object of liberty is the best interests of the whole group; this becomes the end of the liberty allowed the children. Everything which does not contribute to it must be suppressed, while the greatest care is taken to foster every action with a useful scope. In order to give the pupils the largest possible scope for such useful activity, they are allowed a very large amount of freedom in the classroom. They may move about, talk to each other, place their tables and chairs where they please, and, what is of more significance, each pupil may choose what work he will do, and may work at one thing as long or as short a time as he wishes. She says, "A room in which all the children move about usefully, intelligently, and voluntarily, without committing any rough or rude act, would seem to me a classroom very well disciplined indeed." Disci-

pline, in short, is ability to do things independently, not submission under restraint.

In order to bring about this active discipline, which allows free scope for any useful work, and at the same time does not stifle the spontaneous impulses of the child, the ordinary methods of discipline are done away with, and a technique is developed to emphasize the positive, not the negative, side of discipline. Montessori has described it in this way: "As to punishments, we have many times come in contact with children who disturbed the others, without paying any attention to our corrections. Such children were at once examined by the physician. When the case proved to be that of a normal child, we placed one of the little tables in a corner of the room, and in this way isolated the child, having him sit in a comfortable little armchair, so placed that he might see his companions at work, and giving him those games and toys to which he was most attracted. This isolation almost always succeeded in calming the child; from his position he could see the entire assembly of his companions, and the way in which they carried on their work was an object-lesson much more efficacious than any words of the teacher could possibly have been. Little by little he would come to see the advan-

tages of being one of the company working so busily before his eyes, and he would really wish to go back and do as the others did." The corrections which the teachers first offer never take the form of scoldings; the child is quietly told that what he is doing is not polite or disturbs the other children. Then he is told how he ought to behave to be a pleasant companion, or his attention is diverted to a piece of work. Because children are working on something of their own choice, and when they want to, and because they may move and talk enough so that they do not get nervously tired, there is very little need for any "punishment." Except for an isolated case of real lawlessness, such as Montessori refers to in the quotation just cited, the visitor to one of her schools sees very little need of negative discipline. The teachers' corrections are practically all for small breaches of manners or for carelessness.

✓ Activity founded on liberty being the guiding principle of the Montessori schools, activity is expended by the child on two sorts of material. Montessori believes that the child needs practice in the actions of daily life; that, for example, he should be taught how to take care of and wait on himself. Part of the work is accordingly directed to this end. She also be-

lieves that the child possesses innate faculties which should be allowed to develop to their fullest; consequently part of the work is designed to give adequate expression to these faculties. These exercises for the culture of the inner potentialities of the child she considers the more important of the two. The child needs to know how to adjust himself to his environment in order to be independent and happy; but an imperfect development of the child's faculties is an imperfect development of life itself; so the real object of education consists in furnishing active help to the normal expansion of the life of the child. These two lines of development Madame Montessori considers to be so distinct one from the other that the exercises of practical life cannot perform the function of the exercises arranged to train the faculties and senses of the child.

The exercises of practical life are designed to teach the child to be independent, to supply his own wants, and to perform the actions of daily life with skill and grace. The pupils keep the schoolroom in order, dusting and arranging the furniture, and putting away each piece of material as soon as they are through with it. They wait on themselves while they are working, getting out the things they want, finding a con-

venient place to work, and then taking care of the apparatus when they have worked with it as long as they like. In schools where the children do not live in the building, a midday lunch is served for the pupils; and, except for the cooking, the children do all the work connected with the meal, setting tables, serving food, and then clearing away and washing the dishes. All the pupils share alike in this work, regardless of their age; children of three and four soon learn to handle the plates and glasses, and to pass the food. Wherever possible the schools have gardens, which the children care for, and animal pets of a useful sort—hens and chickens or pigeons. Even the youngest children put on their own wraps, button and unbutton their aprons and slippers, and when they can not do it for themselves, they help each other. The necessity of the pupils' learning to take care of themselves as early as possible is so much insisted upon that in order to help the youngest in learning this lesson, Montessori has designed several appliances to give them practice before they begin to wait upon themselves. These are wooden frames, fitted with cloth which is opened down the center. Then the edges are joined either with buttons, hooks and eyes, or ribbons, and practice consists in opening and closing

these edges by buttoning, hooking, or tying as the case may be.

These appliances may be taken as a bridge between the two sorts of exercises in use in the Montessori schools. They mark a transition from the principles which are common to most educational reformers to those associated particularly with the method worked out by Madame Montessori. Another quotation from her first book gives the clew to an understanding of this method: "In a pedagogical method which is experimental the education of the senses must undoubtedly assume the greatest importance. . . . The method used by me is that of making a pedagogical experiment with a didactic object and awaiting the spontaneous reaction of the child. . . . With little children, we must proceed to the making of trials, and must select the didactic materials in which they show themselves to be interested. . . . I believe, however, that I have arrived at a selection of objects representing the minimum necessary to a practical sense education."

Madame Montessori started her career as a teacher among deficient children in the hospitals where Seguin had worked. Naturally she experimented with the material used with her sub-normal pupils when she began working with

normal children. It is equally natural that many of the objects which had proved useful with the former were also usable with the average school child. Ordinary school methods succeed with deficient children when used more slowly and with more patience; and in the same way Madame Montessori found that many of the appliances which had before been used only for deficient children produced remarkably successful results with ordinary children, when used with more rapidity and liberty. Therefore her "didactic material" includes many things that are used generally to develop sensory consciousness among deficient children. But instead of using the material in a fixed order and under the guidance of a teacher, the normal child is allowed complete liberty in its use; for the object is no longer to awaken powers that are nearly lacking, but to exercise powers that the child is using constantly in all his daily actions, so that he may have a more and more accurate and skillful control over them.

The exercises to develop the faculties of the child are especially so arranged as to train the power to discriminate and to compare. His sensory organs are nearly all exercised with apparatus designed, like the button frames, to allow the child to do one thing for one purpose.

The pupil does not have to use these objects in any fixed order or work for any length of time on one thing. Except for the very youngest children, who do only the very simplest exercises, pupils are at liberty to work at any one they wish and for as long as they wish. Montessori believes that the child will turn naturally to the exercise he is ready for. The materials to develop the sense of touch are among the simplest. There are small boards with strips of sandpaper running from the roughest to the smoothest, and pieces of different kinds of cloth; these the child rubs his hands over while his eyes are blindfolded, distinguishing the differences. The appliances designed to teach the child to distinguish differences of form and size use the sense of touch as a strong aid to sight. There are blocks of wood with holes of different diameters and depths, and cylinders to fit each hole. The child takes all the cylinders out, rubs his fingers around their edge and then around the rim of the holes and puts them back in the proper hole. The ability to judge of size is also exercised by giving the child a set of graduated wooden blocks with which he builds a tower, and another set which he may use to make a stair. The power to distinguish form is developed by wooden insets of all shapes which fit into holes

in a thin board. The child takes out the insets, feels of them and then replaces them. Later the teacher tells him the geometrical name of each form while he is touching it, and then has him distinguish them by name.

There are sets of cardboard forms to correspond to the wooden ones, and metal plaques where the form appears as a hole in the center of the plaque. These are used in games which consist in matching the same form in the different materials, and for drawing the form in outline on paper to be filled in with colored pencils.

The method of teaching reading and writing uses the sense of touch to reënforce the lesson the pupil gets through the eye and ear. Sand-paper alphabets with each letter pasted on a square of cardboard are given a child. He rubs his finger over these as if he were writing and makes the sound of the letter as he rubs. Movable letters are used only after the child is familiar with the letters by touch, and with them he makes words. Writing usually precedes reading when children learn in this way; when they take pencil or chalk, they are able to trace the letters with very little difficulty because the muscles as well as the eye are familiar with the forms.

The sense of hearing is exercised by means of two sets of bells, one fixed to give the scale, the other movable, so that the child can make his own scale by comparing with the fixed scale. The children play a number of games where they are as quiet as possible, acting out simple, whispered directions from the teacher. There is as well a series of rattles filled with sand, gravel, and grains, and the game is to guess which rattle is being shaken. The sense of color is developed in the same way by means of specially arranged apparatus. This consists of small tablets wound with colored silks in all colors and shades, which are used in many different ways, according to the age and skill of the pupil. The youngest learn to distinguish two or three colors and to tell dark from light shades. The older pupils who are familiar with the colors acquire enough skill in their manipulation to be able to glance at one tablet and then go to the other side of the room and bring either an exact match or the next shade lighter or darker, according to what the teacher has asked for.

Muscular development is provided for by giving the children plenty of time during the school day to run and play, and by means of apparatus for free gymnastics, while the finer

coördinating muscles are being constantly exercised while the child is manipulating the appliances for sense training. The faculty of speech is trained by having the children practice the pronunciation of words and syllables. The fundamental conceptions of number are taught much as are reading and writing. Besides the sandpaper numbers and the plain cardboard ones, there is a series of wooden bars varying in length from one to ten meters, which the children use in connection with numbers in learning the combinations up to ten.

The foregoing description of the didactic material is very brief and general and omits many of the uses of the appliances as well as reference to some of the less used material, but it serves to illustrate the nature and purpose of the work done by the children. Pupils acquire a marked skill in the handling of the material which appeals especially to them, and children of four and five learn to write with very little effort. In fact, Madame Montessori believes that the average child is ready for many of the ideas which he usually does not get until his sixth year at an earlier age, when they can be acquired more easily; and that a system such as hers which allows the child to perform one set of acts at the time when he is ready for it saves him

a great deal of time later on, besides giving a more perfect result than could then be achieved.

Each piece of material is designed to train singly one specific sense through the performance of one set of fixed acts. Consequently if liberty is confounded with doing as one pleases, this method must appear very strict. Liberty is found in the use the children make of the material. The amount of freedom the pupils are allowed in the classroom has already been described, and the rôle of the teacher is made to correspond with this liberty. She is trained not to interfere with any spontaneous activity of the child and never to force his attention where it is not given naturally. When a child has turned of his own accord to a certain apparatus the teacher may show him the proper use of it; or in rare cases she may try to direct the child's attention to a different type of work if he seems inclined to concentrate to excess on one thing, but if she fails she never insists. In fact nothing is done by the teacher to call the child's attention to his weaknesses and failures, or to arouse any negative associations in his mind. Madame Montessori says, "If he [the child] makes a mistake, the teacher must not correct him, but must suspend her lesson to take it up again another day. Indeed, why cor-

rect him? If the child has not succeeded in associating the name with the object, the only way in which to succeed would be to repeat both the action of the sense stimuli and the name; in others words, to repeat the lesson. But when the child has failed, we should know that he was not at that instant ready for the physic associations which we wished to provoke in him, and we must therefore choose another moment. If we should say, in correcting the child, 'No, you have made a mistake,' all these words, which, being in the form of a reproof, would strike him more forcibly than others, would remain in the mind of the child, retarding the learning of the names. On the contrary, the silence which follows the error leaves the field of consciousness clear, and the next lesson may successfully follow the first."

The simplicity and passivity of the teachers' rôle are increased by the nature of the didactic material. Once the child has been taught the nomenclature connected with the apparatus, the teacher ceases to teach. She becomes merely an observer as far as that pupil is concerned until he is ready to move on to another appliance. This is possible because of what Montessori calls the "self-corrective" nature of her material. That is, each thing is arranged so that

the child can do but one complete thing with it, so that if he makes a mistake the apparatus does not work. Thus a child working with any one thing does not have to be told when he makes a mistake how to correct it. He is confronted with an obvious problem, which is solved by his own handling of the material. The child is educating himself in that he sees his own mistakes and corrects them, and the finished result is perfect; partial success or failure is not possible.

Take the simplest piece of material, the block of wood in which solid cylinders are set. There are ten of these cylinders, each varying, say, in length about a quarter of an inch from the one next it. The child takes all these cylinders from their proper holes and mixes them up; then he puts them back in their right places again. If he puts a cylinder in a hole too deep for it, it disappears; if the hole is too shallow it sticks up too far, while if every cylinder is put in its proper hole, the child has a solid block of wood again. All the geometrical insets are self-corrective in exactly the same way. Even the youngest child would know whether he had succeeded with the button and lacing frames. The tower blocks will not pile up into a tower unless the child piles them one on top

of the other in decreasing sizes, nor will the stair blocks make a stair unless they are laid side by side according to the same principle. In using the color tablets the child needs rather more preparation; but when he has learned to distinguish the eight different shades of one of the eight colors, he is ready to arrange them so that they blend from dark to light, and if he makes a mistake the tablet placed in wrong sequence will appear to him as an inharmonious blot. Once the pupil gets the idea with one color he is able to work it out for himself for the other seven. Since the pupils are never allowed merely to play with an apparatus, it becomes associated in his mind with performing the right set of actions, so a misstep appears to him as something to be undone, something calling for another trial. The educational purpose Montessori aims to serve in making her material self-corrective, is that of leading the child to concentrate upon the differences in the parts of the appliances he is working with; that is, in trying for the fixed end he has to compare and discriminate between two colors, two sounds, two dimensions, etc. It is in making these comparisons that the intellectual value of training the senses lies. The particular faculty or sense that the child is exercising in using any

one apparatus is sharpened by concentration upon the *relations* between the things. Sense-development of an intellectual character comes from the growth of this power of the sense organ to compare and discriminate, not from teaching the child to recognize dimensions, sounds, colors, etc., nor yet from simply going through certain motions without making a mistake. Montessori claims that intellectual result differentiates her work from the appliances of the kindergarten.

As we said above, the difference between the Montessori method and the views of American reformers lies not in a difference of opinion as to the value of liberty, but rather in a different conception of the best use to be made of it. Physically the pupils of a Montessori class are freer than they are in the classes of most American educators with whose views this book has been dealing; intellectually they are not so free. They can come and go, work and be idle, talk and move about quite voluntarily; getting information about things and acquiring skill in movement are the ends secured. Each pupil works independently on material that is self-corrective. But there is no freedom allowed the child to create. He is free to choose which apparatus he will use, but never to choose his

own ends, never to bend a material to his own plans. For the material is limited to a fixed number of things which must be handled in a certain way. Most American educators think that the training of the pupil to habits of right thinking and judgment is best accomplished by means of material which presents to him real problems, and they think that the measure of reality is found in connection with the experiences of life out of school. The big thing that children have to learn is twofold; for their adjustment to the world in which they find themselves involves relations to people and to things. Adjustment means not simply the ability to control their bodies, but an intellectual adjustment as well, an ability to see the relations between things, to look behind their surface and perceive their meaning not alone to the individual, but to the community as well. "The best way of making sure that children learn this double adjustment is," says the American school-teacher, "to give them work which represents truly the conditions they have to deal with out of school."

Outside the classroom the child is constantly having to bend material things to his own needs, and to satisfy the demands that are made upon him because he lives with other people. If he is to accomplish this successfully for himself

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**Solving problems in school as they would have to be met out of school.
(Francis Parker School, Chicago.)**

and others it is important that he learn to see things as they are; that he be able to use his senses accurately to understand the meaning that things and people have to and for him as a member of society. Hence the need of freedom to meet and solve these problems in school, much as one has to do out of school. Madame Montessori, on the other hand, believes that the technique of living can best be learned by the child through situations that are not typical of social life, but which have been arranged in order to exercise some special sense so as to develop the faculties of discrimination and comparison.

The difference of opinion resolves itself into the acceptance of different views of the nature of the human intelligence. Montessori, in common with the older psychologists, believes that people have ready-made faculties which can be trained and developed for general purposes, regardless of whether the acts by which they are exercised have any meaning other than the training they afford. The child is born with undeveloped faculties which can be made to blossom by suitable appliances, and then devoted at will to other uses. Most educators in this country agree with the newer psychological theories that skill can not be achieved independently of

the tools used and the object fashioned in the accomplishment of a special end. Exercises which distinguish for the child the abstract qualities like length and color, regardless of the things of which they are qualities, may give the child great skill in performing the special exercise, but will not necessarily result in making him more successful in dealing with these qualities as they appear as factors in the situations of life. Much less will they train powers of comparing and discriminating at large so that they may be transferred to any use. A child is not born with faculties to be unfolded, but with special impulses of action to be developed through their use in preserving and perfecting life in the social and physical conditions under which it goes on.

If, accordingly, the child in an American progressive school does not usually have as much freedom of moving about and of choice of his time for doing work, the explanation does not consist in a less degree of belief in the value of liberty. The emphasis falls on the larger freedom of using and testing senses and judgment in situations typical of life. Because these situations are social, they require that children work more together in common pursuits; because they are social they permit and often

require the teacher's aid, just as one gains assistance from others in the ordinary affairs of life. Help from others is not to be feared as an encroachment upon liberty, but that kind of help which restricts the use of the children's own intelligence in forming ends and using ingenuity, initiative and inventiveness in the selection and adaption of materials. The limitation of material to performing exercises calculated to train an isolated sense—a situation that never presents itself in life—seems to the American teacher a greater limitation of freedom than that which arises from the need of coöperation with others in the performance of common activities. It is desirable not merely that the child should learn not to interfere with others as they execute their own ends, but also that he should learn to work with them in an intelligent way. Hence the scope of the material should not be limited to training the discriminations and comparisons of a single sense (however valuable this may be with very young children who are incapable of coöperative activity and whose main business is to master the use of their organs),* but should be varied enough to offer typical problems call-

* It is significant that many who have experimented with the apparatus hold that its value is greatest with quite young children—three and four years old.

ing for the kind of comparison and discrimination used in ordinary life-situations. And when pupils are making real things for real uses, or finding out about the activities and materials of out-of-school life, several children need to work at the same thing and keep at one thing with some consecutiveness.

But if the educators of this country differ with Montessori as to the existence of innate faculties which can be trained for general application by special exercises designed only for training and not for the accomplishment of results in which training is incidental, they welcome her efforts to secure that degree of freedom in the schoolroom which will enable teachers to become acquainted with the real powers and interests of the child and thus secure the data for a scientific method in education. They appreciate the force of her point that artificial conditions of restraint prevent teachers from getting true knowledge of the material with which they are dealing, so that instruction is limited to repetition of traditional processes. They perceive that her insistence upon touch associated with muscular movement as a factor in learning to write and read, is a real contribution to the technique of elementary instruction. She has become a most important

factor in the popularizing of the gospel of liberty as indispensable to any true education.

With a wider understanding of the meaning of intellectual and moral freedom, and the accompanying breakdown of the negative and coercive ideas of discipline, the chief obstacle to the use of the teacher's own powers of observation and experimentation will disappear. The scientific interest which requires personal observation, reflection, and experimental activity, will be added to the teacher's sympathetic interest in the welfare of children. Education that associates learning with doing will replace the passive education of imparting the learning of others. However well the latter is adapted to feudal societies, in which most individuals are expected to submit constantly and docilely to the authority of superiors, an education which proceeds on this basis is inconsistent with a democratic society where initiative and independence are the rule and where every citizen is supposed to take part in the conduct of affairs of common interest. It is significant of the wide-reaching development of the democratic spirit that the voice most influentially identified at the present time with the ideal of liberty in education should sound forth from Italy.