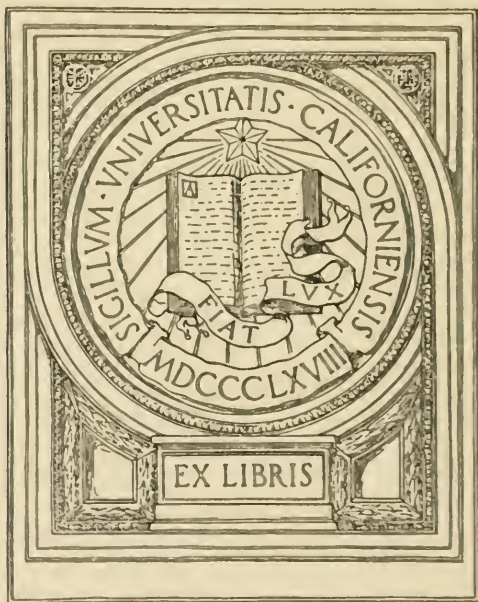


TEACHING  
IN THE HOME

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AT LOS ANGELES



GIFT OF  
Dr. ERNEST C. MOORE







TEACHING IN THE HOME



# TEACHING IN THE HOME

*A Handbook for Intensive Fertilization  
of the Child Mind*

*for*

*Instructors of Young Children*

By

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## CONTENTS

	PAGE
A LETTER TO TEACHING PARENTS . . .	ix <sup>1</sup>
I SOME FUNDAMENTAL PRINCIPLES . . .	1
II ENGLISH! ENGLISH! ENGLISH! . . .	37
III GRAMMAR . . . . .	65
IV LANGUAGES . . . . .	85
V GEOGRAPHY . . . . .	112
VI HISTORY . . . . .	142
VII SCIENCE IN GENERAL . . . . .	173
VIII PHYSIOLOGY . . . . .	196
IX BOTANY . . . . .	220
X ZOOLOGY . . . . .	241
XI GEOLOGY . . . . .	268
XII GEOMETRY . . . . .	294
XIII ETHICS . . . . .	313
XIV BIBLIOGRAPHY . . . . .	341





## A LETTER TO TEACHING PARENTS

My dear Friends:

This volume has come into being by your own request. In my "School in the Home" I was, perhaps unwisely, led to remark that some day I might write such a little book as this, for the guidance of parents who believed in the doctrines I taught in that book, with the result that many hundreds of letters were received urging that it should be written at once. For a long time I hesitated about acceding to these requests, because I feared that all I should do would be to add another to the already countless books on dealing with children, when I know that the results depend vastly more upon the consecration and ambition of the parents for their children, than upon any other single element of the problem. Indeed, I often wrote exactly this to the many inquiring parents. But I was met so often with the statement that it was merely guidance that was needed, and that while my book was stimulating and inspiring, on the whole what was

now needed was a handbook of some sort which should tell the parents "what to do."

After a good deal of travail of soul I have attempted to do just that; in fact, I have done more. I have tried to tell substantially what I did do and what I still do, whenever I have the opportunity to direct the instruction of little children. If it sometimes seems blind to you, or halting in meaning, you will understand that this arises from the necessary limitations of the case. We do many things without knowing that we are doing them, and convey a great deal by our attitudes and our inclinations, either for or against, any given subject. This of course cannot be conveyed in a book nor is it desirable that it should be. But in so far as I am able to tell what I have actually done with little children, this book tells the story. I have tried not to preach and when I seem to be preaching, you will understand that I am merely making a zealous effort to make you feel as I feel myself.

#### NEGOTIABLE KNOWLEDGE

The essence of this method of mine is, that it always deals with what I have called *negotiable knowledge*. It is one thing to know a thing practically, but it is quite another to know it in a form which makes it educationally

negotiable. Examinations are the test of negotiable knowledge. They aim to find out how much the student knows, in the form in which the world has decided that it must be, to be knowledge. This form I grant you, is often stupid, cumbersome and senseless from many points of view. But so long as the educational institutions, the scholars of the world, hold to their present ideas of what constitutes knowledge, and particularly since they will not recognize your possession of their particular kind of knowledge, unless you are able to patter it back to them in the agreed vocabulary of their science, it is useless to do anything other than master it in their way. You know how often your child will tell you that their teachers will not recognize the fact that they know all about a given thing, unless they can say it in the precise terms which the teachers lay down. It is stupid, foolish and irrational. But you and I must make up our minds to accept that fact as a fact, and deal with it as we do with a great many other foolish and stupid things in this world. That is the reason why in these chapters I am constantly urging you to use the terminology which the schoolmen themselves employ, since they will never know and will not even try to find out whether your child has the knowledge it is supposed to have, unless you

talk in the only tongue they understand. When you have knowledge in this form you have negotiable knowledge, educationally speaking. Without it you are helpless when you strike the educational machine. Even then you will have some very curious experiences. One of my children, while a freshman was taking the singular course of training in English in Harvard University which is called English A. It was devised because the young freshmen come to college not knowing anything about their mother tongue and by this means are hurriedly whipped into some sort of a working knowledge of educational English. Well, I sent up a boy whose English was highly developed and who wrote themes which were in the tongue of the schools. You would have supposed that his instructor would weep for joy at finding a boy who did not need the petty corrections in spelling and ordinary blunders which should be eliminated before the grades are left. But no, the academic mind, insane on the subject of correction, finding none of the petty things, found fault with what do you suppose? Why with the faultless English of course! This boy's freshman year came perilously near being upset nervously, and would have been had we not been on the ground, by the constant nagging

at the boy with this criticism, "This is not the language of a boy of fourteen. It is the language of a man. Write naturally!" In vain the youth protested that it *was* his natural tongue, that he did not know any other, asked if the words were misspelled or wrongly used and the like, no one of which corrections were needed. In vain! He was hammered right and left because his English was not the English of a boy of fourteen! All this meant was that the instructor was not used to that kind of boys. To do this particular gentleman justice, he came afterward to see his error. But he was the educational machine incarnate.

Now, it being the fact that the educational machine will recognize no other tongue than that of the schools, there is nothing to do but to master it. Hence you will speak to your little children about conduct but when you discuss the subject of conduct, you will say *ethics* because presently your boy or girl will have to deal with some half-baked young doctor of philosophy, who does not know any other word than *ethics* and if you don't say *ethics* he will assume that you don't know what you are talking about. So also when you build blocks with your children talk about squares, triangles and polygons because these are the words which will have to be used. Thus it is not so ridicu-

lous as it looks at the first glance to ask you to instruct your children in Geology, Botany, Physiology, and the rest. These are the standardized terms for that kind of knowledge. It is the ability to use them accurately and carefully which makes, what I have called, negotiable knowledge.

#### HELP, DON'T FIGHT, THE SCHOOL

For this very reason, too, you must help, not antagonize the schools, especially the elementary schools. They are held in the grip of this machine as tightly as your child will be when he gets to it. When they make their demand upon you for what you see clearly is foolish and irrational, I beseech you do not waste your strength in fighting them and make trouble for yourself, your child, and them, and most of it to no purpose. Always remember that the public school represents the lowest possible attainment for the groups with which they work. It cannot be otherwise and a superior child is penalized by being in them. Every teacher will tell you that, and she cannot help herself. It is her business to bring her class at the end of the year to a certain point. If your child can do that work in six months, she has no other resource than to neglect your child and give his time to the lazy, the careless and



the undisciplined. Your business then, is to study the school to which your child is to go and understand its plan and working and fit for that. You must know their method and their aim and give them what they want in their own tongue, because they won't understand any other. I know this, too, to my cost. I tried to send my own children to a High School which had not altered some of its terms of admission since 1853! But fortunately there was another near, where there was a sane enlightened principal in charge, and in this household, the name of Benjamin Sumner Hurd, of the Beverly, Mass., High School is enrolled upon our calendar of educational saints. Just remember that the more unusually capable your child is, the harder it will be for the ordinary public school to know what to do with him. Don't blame them for this but help them. And do not expect that they can make unusual conditions for your child. Just *fit* him for the place to which his attainments entitle him and then place him there. Ask no concessions. And that you may not need to ask concessions, learn their tongue!

Along the pathway you will occasionally find sympathetic souls among the teachers, who are groaning under the standardization lunacy quite as much as you are. But in any case

remember that your travail will not be without results. Your child, trained by superior home care and nurture, will soon excite the envy of other parents, and that will make them ask what there is about your children that is better than their own. And when the inquiry begins to be general, the methods will begin to mend. It only needs enough *intelligent* discontent to get changes made; but it must be backed by understanding and sympathy. So I advise you not to fight with the schools, their officers and teachers; just try to understand them, pity them a little, if you can, and help them to a more excellent way.

#### THE LAUGHTER OF FOOLS

You will, unless your experience differs from that of most pioneers, or in fact any people who want something finer and better than the average, have to encounter a good deal of ridicule, from mild amusement to jeering words, because of your attempt to make a superior person out of your child. Indeed many letters which have come to me have indicated that this is a not uncommon experience and it sometimes gives great pain to timid persons. But do not be discouraged and above all do not be pained by the laughter of fools. There are people still who think the use of a toothbrush



foolishness and you cannot ride for any length of time in an ordinary railway train without becoming aware that there are scores of people, too, who do not believe in bathing. Well, you do not on that account abandon your bath, I hope! So in like manner do not yield your ambition for your child to the senseless comments of people who have neither your character nor your ambition, to surrender many of the absurd social diversions for the intellectual welfare of their children. Just keep it clearly before you that the future struggles of the world are going to be won by brain power! And if your neighbors think you rather foolish for giving up their tiresome entertainment for your child's well being and mental growth, just let them think what they please. You have a serious purpose in life and you want your child to have the equipment for capable and effective living. That is all you need to think about and what light-minded social butterflies think about anything is not worth considering in any case. This applies particularly to those people who are climbing socially and who darken the air with crazy counsels about social advancement! Be not like unto them and remember that there always comes a time for everybody in this world when they have to live with themselves. Give your child the opportunity, that when he

has to be alone he is in good company, because he has with him the resources for finding the best in any situation.

#### THE FUND OF SYMPATHY

You all have, as your letters show, an overflowing fund of sympathy and love for your children. Nothing in these many letters has given me more satisfaction and joy than has been shown in the unbounded willingness on the part of parents to sacrifice for their children. The note of overflowing love has been everywhere full and wonderful in what reserves of emotion it revealed. Now this fund of sympathy with your child is your alabaster box. Keep it for the Highest. Sacrifice when you must but never for anything but the best. Do not make sacrifice for the child, the support of laziness, self-indulgence or deceit. Don't sacrifice for the joy of sacrificing. Hold your precious ointment for the highest purposes and only for these. Everything your child can do himself not only let him do, but make him do. There will be occasions enough for sacrifice under the very best conditions. But do not pour out your costly emotions over trifles and let them become your own undoing. One of my professors in the theological seminary, a wise and devoted man, himself a pastor of many years'

experience and a sympathetic soul if ever one breathed, once delivered a lecture upon the ministry to the afflicted in which he dealt with a class of people who "hug their grief." I did not then know what I now know about such things. But there are people who simply luxuriate in their grief. In the same way many parents, notably mothers, luxuriate in their sacrifices for their children to the extent of robbing them of honor, self-reliance, truthfulness and capability in many directions. They call it being a "good" mother. Sometimes it is a "good" father. As a matter of fact it is often a form of self-indulgence. Now I believe in good mothers. In fact much of the credit given to me, in this matter of child training, belongs to such a mother and while I have thundered more in the index, she has been a silent effective ally in everything that I did, when I was not merely the ally myself. But sympathy is a powerful stimulant. Used rightly it does wonders in the way of recuperation, uplifting and pacifying life. But because it is so powerful it must be used with great discretion. Always keep in mind that when your boy gets out into the world, he won't get any kind of "sympathy" for anything. He will be judged by the merciless standard (the only one possible) of whether he is what

he purports to be, can do what he is set to do, do it wisely, honorably and effectively, and be a livable human being at the same time. Nobody ordinarily speaking will take the trouble to "understand" him. For this reason he must understand himself and be able to lean on his own understanding, always, of course, remembering that man proposes but God disposes. Do not risk his ultimate success by providing a fountain of sympathy which he can turn on at will, whether there be adequate cause or not. Costly things should be sparingly used. You know of course what I mean.

#### FINALLY

I would not be true to myself or to you, if I did not add one little word on the spiritual greatness of this task of yours. You are rearing a child, who is not only yours, but also a child of God. Make it worthy of the God whose child it is and who gave it. That will often mean for you much thinking in the still silent hours of the night, when your heart is thumping with anxiety or expectation, and then you will know whether or not you have done your work in the love of God and whether in dealing with this little soul entrusted to you, you have been faithful in that which is least, that you might be entrusted with the greater

glory of seeing the matured, glorified results of your work. When any child of mine or one entrusted to me went up for examinations, I always felt that it was not they, but I, who was on trial. It was the judgment upon my own fidelity and obedience to my task as a father or teacher. What travail those hours contained! How anxiously I waited for them to emerge from their examination rooms and eagerly looked into their faces, to find out whether they bore the joy of triumph or the fear of defeat! Your letters, many of them, show me that you have the same anxieties. Keep the big fund of your heart's love for these times and then let yourself and your child know that love is the greatest thing in the world and that when love has done her best, there can be only joy in what comes, be it success or be it failure. But you will not fail! You are doing God's work and taking up a God-appointed task. In His cause there is no defeat.

For the numberless kind words directed to me personally, I can only return sincere and cordial thanks. Somehow, through space, there has been established between you and me, a bond of affection because of our common love for little children. Let us together be always mindful that the Great Teacher showed the

world, the value and importance of the child. We shall know the child best, viewing it through His eyes, and loving it with His spirit.

Faithfully yours,

A. A. BERLE.

CAMBRIDGE, MASS.,

June 1, 1915.

# TEACHING IN THE HOME

## CHAPTER I

### SOME FUNDAMENTAL PRINCIPLES

To set out upon the business of training a parent teacher is not as simple a task as it often appears. That must be evident to all from the results which we get in the training of our public school teachers who are held to regular hours, regular studies, and regular discipline. The result even under these conditions to which may be added authority and other forms of direct control, is not always good or even creditable. In trying to discuss this matter with parents there are many difficulties which are not present in the situation just mentioned. Most parents are persons mature enough to know their own minds, especially with reference to their own children. That often means that they are not teachable though they would be the last to admit it. Then again, they love their children often unreasonably and irration-



ally, and when they are very young, harmfully mistake their affectionate indulgence of the children for love of the children, when, in fact, it is nothing but laziness or self-indulgence. It is very much easier to admire your children than to train them! It is very much simpler to think of their present guileless and attractive youth than their incapable and undisciplined maturity. The parent as a subject of instruction is a very distinct problem, because the parent must operate from force of character not by reason of compulsion or external authority. There is nobody to call him or her to account and inflict a penalty if the duty to the child is not done. Superior authority yields but hardly to other authority. Army officers will tell you that a general officer is the hardest man in the army to command. He is used to giving not receiving commands. That is the reason. It is just so with parents. They are accustomed to give orders not to receiving them. Hence they find it hard to do what they are told, even though they recognize what is told them as desirable and just. The wise and ambitious parent will keep this constantly in mind. With your own child you are liable to be warped in judgment, make excuses where none are possible, and invent reasons where none exist, for not doing what reason



and conscience command should be done. Children come out of the exercise of the highest and dearest affections and emotions of which mankind is capable. For this reason they need to be carefully guarded from the unwise influence of those emotions.

Then again, the parents, being subject to no rule but their own disposition, are constantly in danger of altering their plans for the children and their programs with them, to meet the changing conditions from day to day. They are aided in this, by the fact that the children are unable to make any effective protest. Thus a mother may plan to teach her child a given lesson at a given hour. Something occurs to her as desirable perhaps even necessary, in a qualified way, which conflicts with this arrangement. Nobody but her own conscience—that is, herself—can hold her to her task. Now, of course, this does not refer to emergencies which cannot be denied, but mere conflicts which could be met and provided for or if not provided for, could be resisted. What usually happens—I think I may say usually—is that the child is neglected on the subconscious theory that there is plenty of time. But what has taken place is the surrender of the program itself, the child as the major interest, and in time, this sort of thing will break up the

program entirely. Nobody can teach, least of all a parent, in a desultory way.

In a similar manner, the child often breaks up the arrangement by what seems like indisposition or ill health, which in the parental mind is instantly exaggerated into a danger and the program abandoned. Real things, of course, must be heeded. But it is in times like these that the real battle is being fought. The child very soon learns whether the parent takes the duty seriously or lightly, yields it readily or otherwise and adapts itself accordingly, especially if there is any natural disposition to resist specific and direct control. That of course is fatal to any effective work. Parents may be sure that nine out of ten such instances when they arise, come out of their needless fears. Stick to the program until the signs of trouble are tangible enough to be diagnosed. That is what your doctor would do. That is all he could do. Just see the program when you make it through, until something very decisive intervenes. The number of such things is very small. Practice makes perfect in this as in most things.

The routine of the child training should be incorporated in the general routine of the home, precisely as every other thing is provided for, meals, recreation, sleep and the like. Not so

to incorporate it is to leave it to caprice, accident or inclination, any one of which is fatal to successful home training. Routine is not everything but it is the base upon which successful work is built. Regularity as to time, is as important as to mental training, as it is in diet and the care of the body. It is even more important, because the steady impact of the parent mind with the child mind makes for understanding and settles the preliminary matters of disposition, ability to persist, skill in exposition and reveals not only the defects of the child, but what is quite as essential to be known and understood, the defects of the parent. The mother needs to know her own strong points and her own weak ones as well as those of the child. Only regularity can discover these and upon this discovery rests very considerably all efficiency.

Steadiness and regularity moreover are absolutely necessary if the teaching parent is to know what measure of progress is made. For this purpose, a record of each day's experiences should be kept at least for a year. The last thing of each day, should be a careful reflective summing up of what the day has brought forth. If this can be done by both parents together, it will be more than doubled in value. Comparison of ideas and observations by both

parents, brings both into the task and makes each the corrective of the other. It will be found also to make each parent more observing, and in general, the father who will generally be out of the home a good portion of each day, will be able at meals to test and compare results at given periods from his own standpoint. The mother can by daily comparison, direct this observation by the father, and often find the reason for things which elude her because she is constantly with her child. It will be seen at once that this is quite as needful for the parents as for the children, though the benefits accrue to all.

Wherever it is possible to alternate the parents in teaching this should be done. The reasons for this have already been suggested. But there is the special reason that it makes for unity of purpose and tends to organize the home for the intensive development of the child. It tends to prevent the development from becoming one-sided. It affords the child an opportunity for comparing, without knowing how or why, the differences of attitude and approach between the father and the mother. It softens the mental attitude of a child naturally tending to resistance, and strengthens that of a child which naturally yields. A "mother's boy" should have a good deal of con-

tact with his father. A "father's boy" should have a good deal to do with his mother. Any one-sided development should instantly be attacked by emphasis on the other. Wisely done this yields unity of family life and this atmosphere is the one in which the greatest development is secured.

## I

Coming now more directly to the principles governing the parent teacher, the first is, *do not underestimate the capacity of the child*. You will never accomplish anything in which you do not heartily believe. Take it as an axiom, that most children can do many times more of serious mental work than most people and especially their parents, give them credit for. Never permit yourself to doubt this. Most of the talk about overwork has to do, not with productive work of the child, but with the things which have nothing whatever to do with the growth and expansion of the child's mind. Many adult persons are tired out with meetings, social engagements and other worthless things, which sap their strength and leave no increment of knowledge, experience or personal quality. It is just so with the child. Do not let its energies be sapped by worthless things. Its play can be made just as produc-



tive as anything else. Its social companionship should be looked to, not merely with reference to relaxation. You know the story of the man who boasted that he had not drawn a pail of water for thirty years? The simple explanation was, that he attached his well-sweep to his front gate and every person who came in and every one who went out had to draw a pail of water by that act. Make every act tell toward your main end! Nor does this mean that you are making a machine of your child, though that is exactly what you do with reference to its muscular development. But you get the steady gains, small gains often, but always something gained. All this rests upon an unshakable belief that your child has large possibilities. Believe that with all your heart. Assume that no prodigy ever discovered is superior to your own child, except in the degree of attention which it received or the opportunities with which it was surrounded.

Whatever skepticism there has been in educational and other interested circles on this matter of child capacity, is rapidly being dispelled. But you can readily convince yourself, by simply comparing the work which is being done in the high schools to-day with that which was done twenty years ago. This is especially true when you examine the text-

books on science. But it is hardly less true about everything else. That must mean simply that children to-day have shared in the general advance in knowledge to such a degree that much higher work can be attempted to-day than was possible twenty years ago. But always keep in mind that the public school represents the lowest rate of advance. It has to provide for the lazy, the indolent, the incapable, the vicious, and defective. That, you must understand, means a rate of growth which is necessarily very much lower than is possible to a normal, healthy child, reared in a home where the parents take an active, vigorous part in the home education. Dismiss, therefore, any doubt on this point. Of course, if your child is sick or defective or otherwise maimed, that is another question. I am now speaking of healthy, normal children. Assume that the capacity of that child should be a generation greater than your own. Assume that whether it gets that heritage depends upon you and you alone!

For this reason you should never see "How much better our Willie gets along than the Jones's Willie." Compare, if you must compare, with the superior children of your acquaintances, those commonly supposed to be specially highly endowed, and find out

whether this is true or whether there is something at work for this superior child which is not at work for yours. In fact, never think about the inferiors in anything. Keep your mind steadily on the fact that not one person in ten thousand ever develops to his full capability, by reason of the lack of careful oversight and correction. Your faith in your child's capacity in this matter will very quickly communicate itself to any healthy, normal child. But it must not be simply foolish pride! It must be linked with steady and often rigorous discipline. The communication of faith in himself to the young child is a great step toward the achievement of almost anything he undertakes. Therefore you should cultivate it and keep the ideals you have formed for the child steadily before him. If, for example, you are planning to send this boy or girl to college, let that be assumed from the beginning. Never argue it, just take it for granted, as "When you get to college," or "When you are in college," or the like, never opening the question as being a matter of doubt. Even stupid persons, very many of them, stumble through on this basis, because they never think of the possibility of doing anything else. The value and necessity of study as a part of youth should be assumed in



just this way. Do not now imagine that this is a suggestion toward playing with this matter. You must believe it yourself, because there is sound reason for it. Faith does all sorts of wonderful things, not only in religion, but in life. But here we are on the sound ground of experience. It will not do to start in "to see if this can be accomplished"! You must start in to train your child in certain things definitely, clearly, and effectively. You must keep these things steadily in mind. You must repeat them to yourself till you cannot think of anything else in that connection, and automatically set about it. This is exactly what you do in everything else. Do it here.

President Eliot has stated with exactness what the elementary training should do. He says, "These, then, are the four things in which the individual youth should be thoroughly trained, if his judgment and reasoning power are to be systematically developed: *observing accurately; recording correctly; comparing, grouping and inferring justly; and expressing cogently the results of these mental operations.*"<sup>1</sup> Get those four things firmly fixed in your own mind and see what kind of a grip they have on your own mental operations. How accurately can you observe

<sup>1</sup> *American Contributions to Civilization*, p. 219.

things about you? How correctly can you record those observations? How justly can you compare, group, or infer, from these observations? How cogently can you express the results of these mental operations? To ask yourself these things is the quickest way to understand what you must do for your child. And you will be astonished to find how speedily these processes can be developed and with what wonderful results. But you cannot begin all this by saying either actually, or subconsciously to yourself, "Well, he could not be expected to see that," or "He could not be expected to do that," and the like. You must expect him to begin right and steadily help him till he habitually gets on the right track. When he gets on the right track, things will go swiftly enough. The hardest part of this work is patience and faith in the beginning. Over and over again, you will say to yourself, "It can't be done," and then you must simply recover by answering, "It can and it has been done," and begin again. Your belief in the child's capacity for knowledge will grow by leaps and bounds, when you have once established in your own mind that you have it and have communicated it to your child. According to your faith, so be it unto you, is a sound maxim in this as in other things.

*Sustained ability is often developed by constant trying.* Mere failure at any given time means nothing. The ultimate development of anything is what shows the real result. But you will not fail, because here is your highest task in the world placed entirely in your care and keeping, with you in supreme command, to make it or mar it.

“Whatever success I have had in life,” wrote Lord Westbury, Lord High Chancellor of England, “is due to the care and skill with which my father formed and disciplined my mind.”<sup>1</sup> Lord Westbury was the son of a poor physician, in debt much of the time, with an invalid wife, who could give him little or no help, who, at six years of age was so sick that he was not expected to live! Yet he was matriculated at Wadham College, Oxford, at fourteen, and graduated with distinction at eighteen, never having had the so-called “public school” education. It was the father’s faith and pride which made this possible. “On seeing the small, eager-faced lad in his round jacket and frilled collar, the warden of Wadham, Dr. Tourney, turned to the father and remarked that children were not admitted to the college. “You will not find my son a child, sir, when he is examined; moreover, he has de-

<sup>1</sup> *Life of Lord Westbury*, Vol. I, p. 11.

terminated to win a scholarship for himself," was the reply. "What," exclaimed the astonished warden, "you will allow him to try for a scholarship at his age? Do you know that he will have to compete with young men of seventeen and eighteen? You must indeed think your son a prodigy." "Sir, I do think him a prodigy," was the proud rejoinder.<sup>1</sup>

That is the spirit which must inaugurate the work of the parent as teacher. Here was a case where there were few of the supposed conditions out of which "prodigies" come. Yet the father's persistence and oversight never flagging, gave to his son the care and the attention which produced one of the most remarkable lawyers of England. Nor is this an isolated case. Many such, of course, to a lesser degree, have come to my own knowledge, where the deep and abiding faith of the parent reacted as a most powerful stimulant upon the child, and this created power, where none existed before. The parental faith is not faith alone for the parent. It is mental capital for the child, which breathes in, daily, the unshaken belief of the parent in its powers, and consciously and subconsciously organizes its little life to meet those expectations. Out of the effort come quick powers of comprehen-

<sup>1</sup> *Life of Lord Westbury*, Vol. I, p. 13.

sion and observation of the parental requirement and thought which are both stimulant and fertilizer.

## II

A second principle of utmost importance, is one which has to do with a careful and systematic record of the child. No amount of devotion can take the place of the matter of writing daily, or at least weekly, a record of what the day or week has brought forth. The last thing each day after the conversation already hinted at, is that the teaching parent shall make a careful and accurate record of what has happened of importance in the mental life or exhibit of the child. Things that seem trivial enough as they occur, assume a vast importance when they are repeated many times. Nobody has the memory to recall all the interesting things that appear as lessons are given, or habits formed. Some of the most striking will linger in the mind, of course. But, even so, they will hardly be remembered exactly, and will form the basis, unless carefully written down, of legendary tales. "Writing," says Lord Bacon, "maketh an exact man." You will remember, perhaps, that at the head of every patient's bed in a well ordered hospital, there is a chart which records temperature, pulse, diet



and various other things, so that the examining physician on his rounds can know exactly what has occurred in the previous twenty-four hours, and be governed accordingly. You will observe, too, that these things are connected by a line which, at a glance, shows whether the temperature went up or down, or remained stationary. Something of the same kind should be done by the parent-teacher, especially as regards certain things which will be mentioned hereafter. With a little child, the first use of new words should thus be recorded. The unusual happenings of speech, singular questions, moments of quickness or moments of dulness, and the subjects in which they occur, should be thus recorded. The things that enlist interest most quickly should be set down, and the things where most effort is required should be similarly noted. These are but a few. But in any case there should be a record of observation. This is not only interesting in itself, but may, as it grows, indicate with almost absolute precision how further progress is to be made. It may show, for example, what subjects require the least attention, and those which require most, and thus simplify the matter of expenditure of time. It may indicate, as it grows, with precision the line of further development. It may re-

veal special aptitudes and inclinations. It may show recurrence of moods. It may show subjects around which habits of resistance most readily form, and all this is most valuable, not merely for saving time, but for getting results.

How important this is may be judged from another illustration from the field of medicine. Formerly, when an operation was performed, it was thought needful merely to supply good conditions, and careful provision for the performance of the operation itself. Now it is the rule in well-appointed hospitals, before any operation is performed, to make a careful and complete inventory of everything in the room and check up after the operation everything that is left! Why was this necessary? Simply because even skilled men, actuated by the very best intentions possible, were not able to remember everything, and often sponges, sometimes instruments, and sometimes still other things, were left in the wounds, and infinite damage done to the patient. Wise doctors do not take these risks any longer. Hence a careful and complete record! Precisely the same principle applies here. Write what you find from day to day. Defects of enunciation or vocalization are most important to be noted, and corrected. The progress of their elimina-

tion can be noted only by going back over the record, to find out what has been the experience of the past. It must not be supposed, let me say in passing, that this is a hardship. It will, in fact, be found a genuine pleasure as it grows, because the parent will often find it as true an index of herself, as of the child. She has thus an absolutely true transcript of her own fidelity and devotion, and to a certain degree, of her own efficiency. She will be able to note whether certain efforts of hers have been successful or not. She will be able to see results which will encourage and cheer, to say nothing of making a personal study which may be of high value to others when it is complete. Besides it may be a family possession which may become priceless.

Write then, and write freely. Do not be afraid of recording trivial things, because many things seem trivial and unimportant which are not so at all. Just consider how they do these things in a psychological laboratory. Here they will take a worm, for example, and carefully try out all sorts of experiments with it, watch every movement, and make an accurate and detailed record of it. How long it took to find the hole out of the little box where there was a light, how long it took to find out that it must not go to a hole



where there was a little electric wire which gave it a slight shock, how long it took to develop this habit, or that habit, and the like. Now, if it is worth while to do that for the sake of human knowledge with a worm, what ought a parent to be willing to do for a child? Similarly, think how laboriously investigators have to watch, day after day, plants, animals, and other natural phenomena, many days, with no result at all, apparently, except the lapse of time. Surely the parent ought to be willing to give a fraction of such attention to the child! Or, think how laboriously animal trainers take time and effort to train horses, dogs, and even fleas, to get a certain result. Now, if it is worth while to write down daily all these things for a horse or a dog, it ought to be possible to get a parent to write down every day what is of highest interest in the life of a child.

*Keeping a record develops habits of observation* in the parent which will become more valuable the more they are exercised. These habits will appear in other things besides the child training, and will influence, and often revolutionize, the household life. "You see that young woman over there," said an attractive young mother to me some time ago. "I grew up with her, and I don't think I ever heard a serious bit of conversation from her in

my life, until she began to take up the intensive training of her baby. From a mere butterfly, she has become one of the superior women of this town." That was interesting enough, but by and by, I drifted around to the "transformed butterfly" in question, and in a confidential moment she turned to me and said, pointing out the recent commentator upon her own habits, "You see that young woman over there? I grew up with her. She never had any serious aims in life, but since she took up the careful training of her little boy, she has been made over." Comment is needless. Here were two people who recognized the transformation in others, but were not conscious of their own. The interesting thing to me was that they were developing remarkable powers in connection with the training of their babies. I had laid down certain rules for them, a year or two before, and they had been faithfully following them. They got quite as much out of it as their children!

It is important to write all these things down, because that fixes them in a form which can readily be consulted. It makes the work of comparison very much easier. In fact, trusting to memory in these matters is entirely futile. Most men do not even know with ex-

actness the ages of their children, and have to think about their birthdays and the like. It is even less probable that they could recall other things in connection with their mental development. Such a record, kept over a period of two years, will yield invaluable material for extending the area of knowledge both about the parent and the child. Much of the so-called "advanced work" in universities is, in fact, nothing more than this, except that the observer is a trained observer. The difference between a good physician and a poor one usually follows this line of their training, other things being equal. Leave nothing to accident or chance. Don't trust that the interesting character of any occurrence will bring back the circumstances surrounding it. Write, and write often, and fully, and write everything you can think of about the subject matter. Some of it may be worthless, of course. But much of it will be valuable and you will soon distinguish between what is worth recording and what has no value. But in any case write! There are also many incidental benefits from this process. Your own memory will be strengthened by it, and you will find your own growth in clear and cogent expression showing itself. All this will reflect itself in your dealings with

the child. You will learn to be precise, clear and brief. Words will mean more to you, because you will choose them more carefully.

## III

*Discipline and interest* come next in the matter of subjects of fundamental importance. The subject of discipline is a very large one and it is not the intention to take it up fully here. But one general rule may be laid down which should be very deeply considered. Conflict which leads to or requires physical correction should be avoided if it possibly can. But if the question of ultimate authority is raised, there is but one thing to do, and that is, to put it plainly, *win*. But the main use of the superior mental power of the parent teacher is to prevent such a conflict from arising. This does not mean cajolery or coaxing or bribing or any other expedient that is really nothing more or less than yielding to the child, but the careful foreseeing of such possible troubles and preventing them from coming to a head, by creating interest in the subject in hand, or changing the subject, or avoiding the final issue. But keep in mind that this does not mean that authority is to be sacrificed or steady pressure relaxed! In Germany, the pressure is too strong, in America it is too lax. Here we have

yielded so much to children that we have substantially lost all real authority and control in many cases. This is the source of so much juvenile delinquency. The Commissioner of Police in Boston, to meet these cases when they come to police attention, has proposed the perfectly sensible remedy that instead of arresting and punishing children for breaking windows, destroying property and the like, that the parents should be arrested and fined! That he thinks will settle the matter. This is my own opinion and gives the point to what has just been said. But in the case of little children, the first great instrument of power is the recognition of obedience. Here, again, there is no disposition to destroy the child's personality, or prevent its full and free development. Quite the contrary. Nobody will ever know what freedom is who has not been taught absolute obedience. But this kind of obedience, that it may not become something worse, is not to be secured by brute force, though it may require severe physical discipline at some point along the line. My own opinion is that most healthy children need a thorough spanking occasionally to remind them that there is a higher power than individual inclination or caprice. But be that as it may, the important thing is to keep the authority unimpaired.



Discipline is itself a part of teaching. Patience, self-control and especially the use of superior knowledge, and the understanding of the child better than it understands itself, will usually supply the means and the method by which the ultimate appeal may be avoided. It should be avoided at all hazards if it can be. The best way to set about this is good humor and especially the use of other interests. The natural curiosity of any child is readily excited, and when the tension grows hard, then the test of devotion and skill comes for the teacher. Then is the time to bring up your reserves. Bring out the interesting things you know, weave your own experiences into the subject, call to your aid something that demands action on the part of the child, give it something to do with its hands, and deflect the course of things away from what is making the tension. That is what a superior mind is for chiefly in this world, anyway. Only the weakest and least disciplined minds are always facing eventualities. Larger minds know that there is nothing really final in this world, and keep the question open. Time settles many things and in the matter of the relation of the teaching parent to the child, many things must be taken into account. Often seeming resistance merely means that the diet is bad or that some

other untoward circumstance is upsetting things. But even at such times be very careful that your authority is not being lost. Most children take from their parents severe discipline, with the feeling that the very relation makes it probably right. The natural love between the parent and child makes it possible for the parent to do what nobody else in the world can do. Decisive measures leave least pain. Don't spin out punishment. In fact, don't spin out anything. Sharp, short and decisive is a good rule here as in other matters. But in the main the principle is that the greater knowledge of life, the greater knowledge of the child itself which is possessed by the parent, should so shape up the relations that the conflict is avoided in any acute way.

This result can generally be attained best by holding in reserve the things known to be specially interesting to the child. When a matter begins to go hard, especially with a little child, it may be a sign of weariness and there should be no heavy pressure in that case. If it is merely wandering in mind, showing that the subject has lost interest and something else is appealing and creating resistance, then the case becomes one where it is a question whether the parent can interest the child more than it can interest itself. Of course the main object in

teaching at all is to interest the child in what you want him to know and do. That is your problem. If he can get more interest in something he himself devises or while you are talking, forget you and your matters to watch or attend to something else, it is still your problem, because you ought to be able to think more quickly than he and keep a considerable distance ahead of him. Every teacher in school knows this. But you have a better opportunity than the school teacher, because you are at home and have one, and she has little or no authority over her pupils, and has forty!

*Then, study up interesting things.* This means fertilizing your own mind and storing up interesting things. You are reading a newspaper and read something that you thought of interest. Clip it and put it by. Have it at hand for any emergency. The European War, the Italian earthquake, the innumerable stories of the habits, manners, customs, dress of the many lands now in turmoil, or hereafter trying to get settled again, will all furnish abundant material. Our own land has thousands of "thrillers" in its history and development. Learn some of them if you don't know them, but in any case have them at hand. A young assistant in Radcliffe College recently an-



nounced to the freshman class that the instructor "felt no obligation to make the course interesting." No mature person needs to be told that he is very young and that everybody is finding that course extremely stupid and will be glad when it is over! But whether a course in college should be interesting or not there is no doubt that with the balance so vastly in your favor there is no excuse if you do not make your instruction interesting to your little child. You have many years the start and with your superiority in mind and maturity, there is not a shred of reason why you should have any difficulty, provided always there is the will to do the work. There is nothing that so instantly commands a child's attention as when the father begins, "When I was a boy," because this is personal, concrete and has all the elements of interest ready made. What would you not give if somebody had made such a record as I have suggested about you? Children love these things and the personal element is the most attractive to them. If they relate to books, travel, to observations and other materials of knowledge, they can all be used to interest the child, not only for the knowledge, but even more for maintaining, without weariness, a steady pressure which is making slowly

but surely the one instrument by which the whole problem will presently swing along by itself almost. That instrument is habit.

## IV

“*Habit*,” says Professor James, “*is the enormous flywheel of society, its most precious conservative agent*. It alone is what keeps us within the bounds of ordinance, and saves the children of fortune from the envious uprisings of the poor. It alone prevents the hardest and most repulsive walks of life from being deserted by those brought up to tread therein.”<sup>1</sup> If you have not already his little book on this subject get it and ponder it well. Professor James told me that many thousands of letters had come to him, of appreciation for this chapter from his “*Psychology*.” Every parent will be benefited by reading it. Now, the main importance of habit for the purpose which we are discussing, is that whatever becomes habitual releases the attention for new things. This is why you don’t have to think about numberless things about dressing or eating or going about your daily tasks. They have become matters of habit and you do them without having to think about them. But there was a time when you did not walk to your dress-

<sup>1</sup> *Psychology*. William James, Vol. I, p. 121.

ing table in the dark, as you do now unerringly! There was a time when you did not know exactly how your hat was going to look when set on at a certain angle, or in a certain way! Frequency in doing it has made it possible for you to do it at the theatre, without a glass and to do it exactly right, too! The same rule applies to the mind. The habit of expecting to do certain things, at a certain time, to submit to instruction and to make certain efforts, begins very early in life. Much earlier than most persons yet believe! The value of habit lies, for this purpose, *that it releases the mind for attention to other things*, saves time and strength and friction and a great variety of other things. I need not say how important it is in the matter of behavior and conduct. Therefore make the habits of the child its friends, not its enemies, as I suppose you have made your own habits your friends and not your enemies!

You have doubtless observed the close resemblance in manners, often, between some parents and their children. The imitative faculties of little children are very strong. Give them something worth imitating and make that desire to imitate a habit. This done in the matter of speech, for example, is all the difference between clean, careful and precise utterance

and slovenly, clumsy and unattractive vocalization. And here I venture a suggestion that nothing will so make for the kind of mental habits, and aid gaining the knowledge and the development of intelligence which we want, as the systematic effort to win the admiration of the child not only for the matter, but the manner of your instruction. Though it may not know the reason, the child knows when a matter comes with all the force and skill of the personality behind it. You yourself know it, and cannot help conveying that knowledge if you have made special preparation for the event. Was any woman ever well-dressed without being conscious of it? Did she ever have to appear not at her best without being conscious of that? And did she not know that every other woman present knew exactly how she felt? Was there not a deft and penetrating truth in the witty saying of the Cambridge woman who said that there was "a consciousness of repose in the knowledge of being well-dressed which even religion could not bestow"? I have often seen children stand off in a corner and admire their parents in a detached kind of a way which was very suggestive. But conversely, I have also seen children cringe and blush for their parents, which was also very suggestive! *Be very sure that the contrasts be-*

*tween yourself and some other parent are not lost upon your children.* Therefore be worthy of their admiration, even though they may not know upon what it is based. The emotions have an office here, which is not very clearly understood yet, I think. We all like to see those we love appear well and are grieved if they do not. A normal child has much this same feeling about its home, its parents and everything pertaining to both. Now if the child sees your own mind working smoothly and beautifully, if it sees you pouring out of a full mind interesting things and showing how much you have profited by being in the world, the very first sensation is, "I'd like to be like that," and your office is to take that desire, elementary though it be, and organize it into a purpose of the will, and hold it down long enough to become a habit.

This leads me to speak of the thousands of letters I received after the publication of "The School in the Home," in which parents urged me to write this little book and pleaded their own incompetence for the task. They all wanted some fixed rule to follow. They all craved a guide. This very fact made me hesitate about writing one for the reason that many such persons now having this one will simply do what it says instead of doing the



more important thing of fertilizing their own minds and being themselves the greatest incentive to their children to become what they wish them to become. But that will be a great mistake. *The greatest single influence is going to be yourself, your patience, your industry, your habits, and your attractiveness.* Most people, even parents, think they can let down in these things in the presence of children. If you must let down, choose any other society, because older people can make excuses and qualifications which children cannot and should not. Give your best and grow from that onward. You will find the world taking on new interest to you, because you will be seeing it all over again with the child's eyes. But all this must be reduced to system. You cannot keep on furnishing beauty pictures of animated, well-informed mentality forever. There is a limit for even the most capable. But you can do it long enough to make the habits you want established and then you may do something else. Very probably, by that time, you will have become so habituated to the practise yourself that you cannot stop and will go on for the rest of your life adding to your knowledge, and filling your mind, and so will insure for yourself what you never dreamed of when you started, a beautiful happy old age

with a well-stored mind, acquired and developed under the happiest conditions possible.

“A new cask,” says the poet Horace, “will long preserve the tincture of the liquor with which it is first impregnated.” A young mind, similarly, will get its first notions of mental habit from *the mind which it sees oftenest at work*. That is the reason why the parent should be the first teacher. The parent, whether father or mother, has the largest number of reasons, to say nothing whatever of the affections, for impregnating the young mind with the tinctures which are to give taste to its subsequent life. And let no such person be discouraged by want of what is called “equipment.” If half the pedagogy were thrown into Boston harbor, nobody would be the worse for it and many thousands of persons would be better off. I have nothing whatever to say against pedagogy, but I insist that, like all the sciences, if it is a science, and like all the arts, if it is an art, it was made for man and not man for it. Most of the early years of life are experimentation by the child, by the parent, and by everybody else, that has anything to do with it. All that I am urging is that your experiments shall be educational experiments and that you shall bring your maturity and your experience and your failures as resources for

this little one. The moral elements of this matter I shall discuss a little later on in the chapter on ethics. But for the present may I say that, in the last analysis, this matter turns on the moral quality of the parent, of ability to subject himself or herself to the self-imposed duties of child training. How *much* it shall be may depend upon circumstances; of what *quality* it shall be does not. Whether you have many or few accessories to your work, likewise, may depend upon your station or wealth. But whether you shall bring to this work fidelity and devotion, and prepare yourself for it with diligence, depends only on yourself. But even the accessories are easily obtainable. Books are numerous and not costly. The average household will supply most of the materials for the handicraft and there is no need for expensive materials from elsewhere. As I have advised you not to underestimate the powers and capabilities of the child, so I now advise you not to underestimate your own. Consecrated parenthood brings with it a kind of pedagogy of its own. Think what the mothers of the pioneers did and what they had to find out, without our costly and innumerable accessories of to-day! And think what men and women they reared! Of course their method will not do to-day, but their spirit will do in any home



what they did in the wilderness! There is hardly a community that has not a library, however small. Good books and great books are within the reach of almost every one. Read them, study them and make their contents your own for your sake and the child's. Nobody can do it so well as you. And after all, whatever you get from other sources must be assimilated by you and made your own, just as what you bring to the child must be made its own, not by being pushed in by force, but planted to grow in its own natural way. I can close this chapter with nothing better than by the following quotation from the great Pestalozzi:

“In the new-born child are hidden those faculties which are to unfold during life. The individual and separate organs of his being form themselves gradually into unison, and build up humanity in the image of God. The education of man is a purely moral result. It is not the educator who puts new powers and faculties into man and imparts to him breath and life. He only takes care that no untoward influence shall disturb nature's march of development. The moral, intellectual and practical powers of man must be nurtured within himself and not from artificial substitutes. Thus faith must be cultivated by our own act of believing, not by reasoning about faith; love, by our own act

of loving, not by fine words about love; thought, by our own act of thinking, not by merely appropriating the thoughts of other men; and knowledge by our own investigation, not by endless talk about the results of art and science."

Thus it may be seen that the training of the child is not a process but a growth, and the relation of the parent to the child, being an organic, not an artificial relation, affords the natural means for the symmetrical growth of the stem from the parent tree. What the branch shall be depends wholly upon the nature and nurture which it receives from the source from which it sprang.

## CHAPTER II

### ENGLISH! ENGLISH! ENGLISH!

“It is instructive,” says a footnote in a very useful and inspiring book,<sup>1</sup> “to study one’s own vocabulary, making a list of (1) those words which we feel sure we learned in childhood, (2) those which we have learned in later life but not from books, (3) those which have entered our vocabulary from books. We shall also find it useful to consider the difference between our reading vocabulary and our speaking vocabulary.” Here we have several very important things indicated, which the parent teacher will do well to observe at the outset of the task. This classification is suggestive because it indicates how we shall secure the greatest measure of progress for the child and we can readily see the process by comparing our own experience. That there is a decided difference between the speaking and the reading vocabulary will be readily perceived by everybody. But why should that be, unless it is that the things we read about we do

<sup>1</sup> *Words and Their Ways in English Speech*, Greenough and Kittredge, p. 21.

not talk about? When a lawyer is speaking in a court room his speaking vocabulary is the vocabulary of the text-books or the law reports which he reads; both vocabularies are the same. When a doctor is writing a medical report or addressing a medical society, his speaking vocabulary and his reading vocabulary coalesce in exactly the same way. What makes the great chasm which most people feel to exist between the words they use when they talk and the words they use when they read? Simply that they do not talk about the things they read or they do not read about the things they talk about or the latter are not written about and have no reading equivalent. Now as a matter of fact, it is just here that the business of the parent teacher begins. The reason why it begins here is that the distance between the reading vocabulary and the speaking vocabulary is usually the distance that has to be travelled before knowledge becomes organized and ceases to be mere miscellaneous information, having no relation or significance with reference to anything else.

I have already discussed the matter of language<sup>1</sup> as such, but I am now dealing with English as *the special instrument of intensive training*. It is probable that few people asso-

<sup>1</sup> *School in the Home*, Chapter I.

ciate the vocabulary of their maturity with their childhood unless as, in some cases to which I have referred, the professional pursuits of the father, for instance, were such as afforded peculiar opportunity to the child to master a special or technical group of words. But many more people do not associate their reading vocabulary with their childhood. And yet why should this be the case? What is there about pure and clear English that it should not be spoken by children? What is there about the vast majority of even so-called "learned" words that children should not know them and understand them? Nothing except that they are withheld from the child! But that withholding is a costly process for the child, because organized knowledge, by which I mean the knowledge that is prepared for transmission in text-books and the like, is for the most part in this reading vocabulary. The longer the child is kept a stranger to it, the harder it will be to acquire in the end and the greater the time lost. Therefore the beginning of English training in the home should start with the deliberate choice of the learned or reading word, well knowing that speech in general will supply the popular word when it is needed. This whole subject is very fully discussed in the volume referred to, which I advise every parent to read. For ex-

ample take the choice involved between words like the following *conflagration* and *fire*, *select* and *choose*, *building* and *edifice*, *annihilate* and *destroy*, *stiff* and *rigid*, *try* and *endeavor*, *piece* and *fragment*, *teacher* and *instructor*, *air* and *atmosphere*, and many others which are given. Now in comparing these synonyms nobody will be at a loss to select the words which are "popular" and those which are "learned," if we may say so. The ordinary child will be very sure to come in contact with the popular ones, but when he reads he will as surely strike the learned ones. There is nothing about the learned ones which is difficult of understanding and the child that masters them first will have a great advantage over the child that comes to them later.

Now it must be reasonably clear that if books are to be used in the later education, the first thing to do is to get the ability to read them. Therefore the child trainer will see to it that wherever a choice is possible, the choice will fall upon the word which will be used in books, rather than in colloquial assemblies. I think I have said elsewhere that half the children in our high schools cannot read their textbooks, and this is undoubtedly true. Through our entire grade system we stick to the colloquial habit when we should be making the



book habit. But it should be made even before that, namely in the home. At first sight, this seems like making the home conversation stiff, and void of the vivacity which is said to be the chief charm of non-bookish talk. But my observation and experience lead me to think that exactly the reverse is true. No conversation is so bright, so sparkling, or so enjoyable, as that which uses words with precision and enables the thought to play swiftly and with discrimination upon the fine shades of meaning. Nothing enables one to use quotations with such telling effect. Nothing moves the mind to greater expertness or appreciation. One reason why an older generation had so much purer speech than ours seems to have been because the fine old habit of reading aloud prevailed then, which introduced the reading vocabulary into the area of common conversation. Children heard their elders use not only pure speech but the dialect of knowledge. They gained from hearing poetry and fiction and sermons and classic literature, read at the family fireside, a great instrument of comparison which was a thought-builder, second to nothing.

Obviously then intensive training must think first and foremost and all the time of English, and that not merely the pure English of pop-

ular speech but *the English of books*. Yes, books, but what books? Certainly not the "best sellers" and the cheap fiction, but the English of the classical English authors, of the statesmen and publicists, of the scientists and the discoverers, of the public speakers of repute and the like. Who these are does not need much exposition here. How shall this process begin?

## I

It is one of the happiest accidents for the English speaking nations that their greatest classic is also a book that has had the widest daily and almost hourly use. "We Americans," says Professor Barrett Wendell, "are English speaking and English speaking we must always remain. An accident of language and nothing more, this fact may seem to many. To those who think more deeply it can hardly fail to mean that for better or worse the ideals which underlie our blundering conscious life must always be the ideals which underlie the conscious life of the mother country and which for centuries have rectified and purified her blunders. *Morally and religiously these ideals are immortally consecrated in King James's version of the Bible.*"<sup>1</sup> Nor is this all. "As

<sup>1</sup>*A Literary History of America.* Barrett Wendell, p. 8.



English literature has grown to maturity the working of this law (the law of creative impulse) throughout its course has become evident. The first impulse, we have seen, gave us the work of Chaucer; the second, which came only after generations, gave us the Elizabethan lyrics and dramas, Spencer and Shakspeare and the final form of the English Bible. This last is probably the greatest masterpiece of translation in the world; it has exercised on the thought and language of English speaking people an influence which cannot be over-estimated.”<sup>1</sup>

Here is the beginning point, therefore, for the mastery of English. What has been true of the influence of the Bible over English speaking people as a whole, is even more true of the individuals who have steeped themselves in its thought and language and have therefore become masters of its superb diction and shared in the endeavor of the translators to dip into the literatures of the whole world and incorporate into it the best that they could gather, for this is exactly what the impulse that gave us the English Bible did. It is therefore the best and will remain for generations the best text-book of English that can be found. That it is so linked with the literary as well as the

<sup>1</sup> *Ibid.*, p. 5.

moral and spiritual ideals of the English speaking race not only doubles its value as a text-book but gives it an inestimable creative power.

Now before books became as numerous and as cheap as they now are, the only way families could share a book was by hearing it read aloud just as to-day in the trenches a single soldier will read to his companions the newspaper that comes rarely to them at the front. No one who has not camped out in the woods and listened to a good reader bringing the message of some classic, as the listeners sat around the campfire, will ever know the wonders that are embodied in reading aloud, unless it is they who have had the same experience at home, sitting at the knee of father or mother and had a similar sense of pleasure and satisfaction. *The intensive training in English for which I am now pleading begins with reading aloud* by the parent teacher, first and foremost, the Bible and always the Bible. And I mean of course the King James version, which is the one not only best known but the one which is embalmed in and irrevocably linked with the greatest epoch of English literature and which lives in every English masterpiece of any kind in existence. Begin then by reading the Bible out loud. Take the parts which you know best and get some analysis of its contents which will tell you,

if you do not already know, what kind of material may be found in its various books. Here you will find matter for every mood; you will find poetry and prose, history, tragedy, comedy, drama and allegory, things joyful and things sad, things for inspiration and things for instruction, but all of them classic and builders of thought and together forming the substratum for a full round reading and classic vocabulary. There is no one thing that will educate so much and educate so variously and educate so soundly a little child *as hearing daily read the English of the English Bible*. I am not trying to direct your religion or make your theology! I am speaking now to the parent who wants to give her child the best training for the intellectual life. I know no way in which so many things may be done simultaneously for the intellectual development of children as reading to them the Bible. Of course the reader must read well and understandingly; she must not blunder along not knowing what is coming next and wondering herself what the words mean. But having chosen her material, and linking it consciously with what she knows to be the interests of the child, she has made for her the best instrument that could possibly be devised.

The words which find a place in books are

usually those of the class called "learned words," and the Bible is full of these. These same words are generally of foreign origin and the translators of the King James version consciously chose words of classical significance and for this reason every other language from which the learned words in the Bible come will be made easier by familiarity with its English derivatives. Hearing these words read will naturalize them in the ear and will instantly create an affinity in the mind of the child between the word heard at the mother's knee and the Latin or Greek stem from which it comes when it meets that stem later on. This is, in fact, the simplest gate to Latin. Acquaintance through the English derivatives of a considerable number of Latin stems, will immensely simplify the study of Latin, and make it interesting where now it is stupid. But this process can be only made interesting by familiarity with the English, and this is the earliest and best way to secure it. Read aloud, then, constantly, and enunciate carefully, using the lips rather than the throat, and making the distinctions of sound clear and precise. *This reading, for little children, should be slowly done,* and when explanations are needed, freely given. The reading of some of the Old Testament stories are thus made the

medium for telling all sorts of things, beside teaching English. They open the way to the largest capabilities of the parent. Personally, I should leave out the "moral" teaching in the reading hour, simply letting the story teach its own moral. You are thus freed from the everlasting dread of the hour as one of moral exhortation, which has killed so much natural interest in the Bible. The stories in Genesis, or even the sensational stories in the Book of Judges, may be permitted to stand simply by themselves. Of course, they may need a little preliminary explanation. Dramatize while reading aloud, and let the climax come just as you would wish it to come in a play. But regard it as literature read for that reason only. The rest will take care of itself.

It will be most excellent practise in this connection *to have the child repeat the story itself* before taking up the next one. Notice how it will repeat it in the words in which it was heard, and thus gain the use of the words. Try in this manner the interesting stories in the Book of Daniel, picturesque and thrilling tales, which offer infinite pleasure not only in reading, but in listening to, when repeated. Be sure to make your notations in your record as to what happens when the child tells the story back to you. When such a story has



been read, try to use some of the interesting words in conversation at meal times, and see if they awaken remembrance, and if they arouse thought. Here you will have much interest in noting what words linger, and which are forgotten, and also when mistakes are made, what the nature of the mistakes is. Not infrequently you will find the mistake due to your own intonation, or lack of clear enunciation, and that will help you to avoid those things in the future. But you will have pleasure in this work possibly above anything else that you do.

Next to the Bible there are many other standard English classics which may be read. *Read poetry as much as possible*, especially poetry that lends itself to rhythmic utterance; standard passages from Shakspeare lend themselves readily to this work. They can readily be memorized also both by yourself and by the child. Select for young children passages that are picturesque, that convey something that can easily be imagined. *Always tell its connection, if you read an isolated passage.* It is good practice, both for the parent and the child, to tell the plot or sub-plot of a Shakspeare play as nearly as possible, by means of passages from the play from which the story is drawn. Don't simplify but amplify!

That is, don't bring the thing down to the puerilities which are commonplace, but give explanations which will move the child to wish to acquire the ability and dignity of doing the things as it actually is. You will be surprised to find out how often this can be accomplished in matters that at first seem unlikely.

*Repetitio est mater studiorum.* Repeat these things many times by reading them frequently, for this is the key to the development of the memory. Apart from this, you will acquire facility and comprehension in reading them, and you will read them better every time, with more feeling, with more discrimination, and with better expression. All this is so much clear gain for the little listener. Not infrequently you will have a demand for an encore. Give it promptly, but never carelessly, because that is the best evidence you could possibly desire that you are getting what you desire. Often it will be found interesting and satisfactory to ask the child to tell the story, as it usually will, in the terms in which it has been heard. Cultivate this disposition, because a good memory is not a matter of natural endowment, as many people suppose, but a matter of habit and practise. *Cultivate exact memory.* Do not let yourself say, "Well, he has the substance of it," because the sub-



stance of it, at this stage, won't do. What you want is exact memory, because exactness in memory will be found of very great use later on, in things which depend almost solely on exact memory, like the multiplication table and mathematics, generally, which have very little to do with education as such. But repeat and repeat again. But let it not be vain repetition, but each time more intelligent, more discriminating, and more reflective. Often the child itself will note the changed emphasis, and ask the reason why. Be ready to give it.

There are many kinds of memory which it is worth while to know something about. There is *visual memory*, which comes from seeing things repeatedly, and remembering how they look. Many persons commit pages to memory by their appearance, recalling how the words look, and about where they ought to come. For little children, of course, who cannot read, this is not usable at the first stages. When children can read, it should be cultivated. *But the earliest form is that acquired through hearing.* Before written language came into existence, this is the manner in which history, literature, and folk-lore were transmitted, one generation repeating to another what it had heard. In the Bible, the Israel-

ites are often enjoined to remember things, that "ye may tell it to the generation following." The Homeric poems are said to have been preserved in this way before they were committed to writing. Certain it is, that much of our knowledge of the ancient and primitive world has come down to us simply through the memory wrought by the hearing of the ear. Some teachers employ this method in teaching modern languages by having correct speakers make records for graphophones, that there may be no mistakes of pronunciation made. These can be repeated over and over again, and thus the ear trained to recognize the correct forms. The parent-teacher gets the same result by reading out loud, but with the human interest and the opportunity for interrogation and explanation added.

The *aural memory* is more potent than any other in childhood, because it brings to its assistance all the natural interest of the child in the parent. The reading mother conveys not only what she reads, but what she *is*, to the child. She unconsciously betrays in her voice and manner and emotions, to the child, what affects her, and what interests her, and what has significance to her. As a good reader, she cannot help doing this, and as a good mother,

she does not want to help it. She knows that this is the way she is building up the closest possible bond between herself and her child. If she can memorize some of the things she wants the child to hear, and recite them, so much the better, at times, because then she visualizes to the child what a gift good memory is, and the pleasure her listener experiences in seeing the mother do these things creates a desire to do them also. Sometimes words sound their meaning. For instance, you cannot say "whistle" without making a sound which resembles the thing. Wherever you meet a word which has the capacity for this use, link the thing and the word together. Sound and meaning going together fix the word, but do more; they cause the child to be on the watch for other words whose sound and meaning are linked together.

In discussing the subject of memory, Professor James says: "The first point to be noticed is that *for a state of mind to survive in memory, it must have endured for a certain length of time.*" And again, "all the intellectual value for us of a state of mind depends on our after-memory of it. Only then is it combined in a system, and knowingly made to contribute to a result."<sup>1</sup> What this means for

<sup>1</sup> *Psychology*, Vol. I, pp. 643-644.

our purpose is, that you must not expect that mere "touch and go" with anything will leave any impression on the child's permanent intellectual strength. That anything may be memorized and leave a result, it has to be conveyed clearly, slowly, and definitely. A certain measure of time has to be allowed for it to sink into the mind. Repetition does this, but it should not be neglected on this account to read slowly, and with precision, at the beginning. The real value, as Professor James says, lies in the after-memory, which merely means that part, which remains after the conditions which have produced it, or in which it arose, have passed away.

This is the explanation why so many things are so absolutely and easily forgotten. They were told all right, but told too quickly, and not allowed to have their proper right of way in the matter of time allowance, and so soon passed out of the mind, just as they came into it. It is the time element which makes suffering, for example. Pain for an instant is not recognized as pain. A mere momentary shock is never called pain. But when it has time to make itself perfectly clear, though the time required for this is not long, its nature is clearly recognized. We never think of a brief, unpleasant sensation as pain. In a similar way,

we never think of a mere instant of pleasant sensation, as pleasure. The time element makes them both. It is the same, though the medium is somewhat different, with ideas. If you want a thing remembered, say it slowly, say it clearly, say it distinctly, and say it often! Rapid speakers thrill the imagination and stir the emotions, but slow speakers, other things being equal, convey ideas, and influence opinions. The simple reason is that one gives a momentary sensation of pleasantness, the other impresses the message.

## II

This whole process is made interesting by the careful study of the growth and variation of words from particular stems. A more detailed explanation of this matter is given under the chapter dealing with the teaching of language. For the present purpose, it is important to note that *words have a history, just like human beings*. If they come from a foreign language, they have what is called a stem, and from this stem many other words are formed, and this is due to the fact that every such change indicates the need for a new differentiation of meaning. All our prefixes and suffixes are due to this need. Every such variation shows that something has been



added, or subtracted, or altered, in the root meaning of the word. Take for example such a word as *position*. Now just work out from *position* how and why you get *com-position*, *dis-position*, *ap-position*, and then compare these with such words as *pose*, *suppose*, *dispose*, *repose*, and the like. Now, all these come from a common stem. Then add comparison of such words as *positive*, *suppositive*, *appositive*, and the like. From these many more can be worked out. Almost any Latin grammar will give the number of the principal stems, and the reading of almost any book will furnish the laboratory for the working out of many such analyses. The intelligent guide of young children, when one such word is met the first time, will immediately use all her own knowledge to bring to the attention and suggest for reflection, many similar words and derivatives from the same stem, and thus build up the habit of observing words in their *similarities* and *dissimilarities*. This can be made the most interesting practise for the child, and makes a dictionary one of the most fascinating of books. While this is being done, the difference between nouns, verbs, adjectives, adverbs, and other parts of speech, can be taught, which will presently show to the teacher and the child alike, that grammar, so

far from being a dull, uninteresting study, is one of the most rewarding, as well as one of the most alluring.

It does not take long for children to become interested in this process, which is really a kind of elementary philology. Then again, almost any dictionary will give the origin of words, and this will give the material for many an interesting discussion and exposition as to how any word reached its present form. But there are not only words of this kind, but there are words that have lost, or changed their meaning, that is, changed their character. Some words which once had a perfectly good meaning, have now come to mean something bad or of sinister intent. Similarly other words have come up in the social scale, and now have good standing, where once they had no character. There are *degraded* words and there are *rescued* words, and there are *fossil* words, all of which are to be met with constantly in books, and the study of English in this manner brings this out, to the constant delight of the child. But you will have quite as much pleasure and satisfaction yourself, if you take the trouble to do this a few times, and the chief result is, that the habit is formed of looking at the form of the word, and finding out what the original part of it was, and how much has been added,



either in front or behind. It does not need any argument to convince the reader that, in this way, the science of grammar is made interesting, and for the most part, without the child's consciousness that it is studying grammar, and the immense value of this later on can hardly be overestimated. When the study of syntax is formally taken up, this preparation is most valuable, because it is really the beginning of syntax. *It would be a good plan for the teacher to take half a dozen such words daily*—though this is a large number at first—and go through this process, and it will be found that the child's vocabulary in this fashion grows by leaps and bounds. It may be made almost a kind of play, but the important thing is that it is playing with real knowledge, and building up the one instrument by which knowledge is most effectively approached.

The building up of the English base here suggested, should be carried on with every other study. If you are teaching history, let every history lesson be also a lesson in English. If you are teaching science, let every science lesson be also a lesson in English. If you are teaching geography, let it also be a lesson in English. Keep this constantly in the foreground of all your teaching. By this

persistent emphasis on the nature, origin, composition and character of words, you are making a tool which will enrich every other study, because in studying that particular branch, the interest is increased by the observing watchfulness of the medium by which it is conveyed. In this way the child will gradually, without knowing why, notice how words of general meaning come to have a special sense, and are used in that special sense quite as often as they are used in the general sense. How slang words become words of good usage in this manner is a very interesting study, likewise. Use the dictionary a great deal, because this is the beginning of the habit of consulting authorities. As a writer in *Blackwoods Magazine* remarks: "A dictionary is not bad reading on the whole. It is much more endurable than a good many of what are called lighter books, and not much more unconnected. In the hands of a patient reader, it would form almost a course of study in itself, and very far from a dry one; he would make the acquaintance in its pages with a good many English authors to whom no one else is likely to introduce him; and though this acquaintance would certainly, in one sense, be very superficial, it would not in that respect differ from popular knowledge in general,

and would at least have the advantage of being accurate and critical, so far as it went in point of style."

This is nothing more than the literal truth. Anyone who will read the preface to Johnson's Dictionary of 1755 will have a fresh and inspiring renewal of respect for dictionaries and dictionary makers, especially if he will turn to "Grub Street," pathetically connected with Johnson himself, and find, as one writer has said, "The personal element verging on the side of pathos," as where *Grub Street* is defined as "a street much inhabited by writers of small histories, dictionaries, and temporary poems; whence any mean production is called Grub Street," and *lexicographer*, as a "writer of dictionaries, a harmless drudge."<sup>1</sup> By all means use and teach the use of dictionaries.

### III

But in this process of mastering English, and getting the feeling for English words, there must be great care taken to avoid its becoming mere verbal mechanics. The imitative faculties in children are very strong, and soon awaken a more positive force, called desire; therefore, it must be kept in mind, that, unless you want to train a little prig who will

<sup>1</sup> Tucker, *Our Common Speech*, p. 114.

simply bewilder people and make himself unlivable, all these acquisitions must be made really his own; that is, he must be given a chance to exercise himself in them, blunder, if necessary, in them, but use them, and make them a real and genuine part of himself. "I would not only have him (the teacher) demand an account of the words contained in his lesson," says Montaigne, in his great essay on *The Education of Children*, "but of the sense and substance thereof, and judge of the profit he hath made of it, not by the testimony of his memory, but by the witness of his life. That what he lately learned, he causes him to set forth and portray the same into sundry shapes, and then to accommodate it to as many different and several subjects, whereby he shall perceive whether he have yet apprehended the same, and therein enfeoffed himself." What this means is, that as soon as the child begins to have any verbal treasures he shall use them in general conversation, and shall be made to apply the skill he has acquired in one direction in as many others as possible. "I would have the scholar narrowly sift all things," he adds, "with discretion and harbor nothing in his head by mere authority or upon trust." For this purpose, practice is very essential. Table talk is the very best time and

place for this sort of thing. You can play back and forth with language as you can with tennis balls, and can have all kinds of enjoyment and profit in the exercise with language, which will quickly incorporate what is learned into common and general use.

Cultivate in this manner, *the spirit and habit of inquiry and reasoning*. What I have said in my previous volume on the subject of questions and answers, may be here used with telling effect. Even a little child will quickly discern the different uses of the same word. Let it work out how the difference arose, and make occasions for the inquiry. This is what the Greeks did with their children, and we should do it especially with the mother tongue. Whether you have been teaching grammar, or geography, or history, cultivate the habit of having the child tell the result of its studies to the family, perhaps to the other parent, and let the child thus have the pleasure and the exercise of being teacher of the things he has been taught. This will bring fluency in use, as well as clearness of ideas, and will furnish the best manner conceivable, for observing what the tendencies of the child are, and what to emphasize, and what to avoid.

One of the commonest defects in this connection with young people is that they are per-



mitted in replying to questions, or giving information, to use ejaculations, or disconnected words. The corrective for all this is to require and have *all information spoken in complete sentences*. That calls for a recapitulation in thought of what has gone before, clarifies the mind, and helps to clearness and precision in speech. It makes for reasoning power, too, because it calls for logical sequence. Do not permit your questions to be answered in a single word. Require them to be answered in a form which may be committed to writing, showing what the question was. In fact, it is evidence of a good answer to anything, that it indicates with reasonable clearness what induced it. Many letters, for example, are utterly unintelligible, because they are disjointed replies to something contained in a previous letter, which has either been forgotten or is remembered so vaguely, that the ground has to be gone over again if the matter is at all worth while. It would be interesting, if it were possible, to find out how many needless business letters are written, because of just this failure to make clear in replies, what the subject matter or the particular phase of the subject matter, the reply has reference to. In family conversation, where children are present, it is a good habit, when

any subject is discussed, to pause when the material becomes too mature or complex, and explain what is being discussed. By this, I do not mean that the conversation shall be interrupted or made infantile, but when an unusual idea or word appears, explain it as you go along. It is then seen in actual use, and probably more surely fixed in the memory for that reason.

*With all these exercises and habits, taste develops, and on this point too much emphasis cannot be laid.* The habitual use and hearing of good English not only makes good taste to develop naturally, but does more; it soon creates impatience, with bad taste, and makes children notice false English usage and bad forms of speaking. Hearing good selections read to them regularly, and having these discussed in good English, and then having the verbal sense steadily developed, there is formed insensibly a standard of language and reading which soon requires sufficient momentum to take care of itself. Good matter will commend itself, and the matter that is not good will lead to its own rejection. But here, as in other things, there should be persistence in getting rid of false conceptions of language and of words, and the models chosen should be of a kind which recommend themselves.



Dwell on beautiful images in any work you happen to be reading, an apt illustration, a fine figure of speech, something that lends itself readily to repetition and memorizing, and make all these practices work together. The results will be astonishing, even after a little faithful work, but it will be an increasing delight to see the unfolding of the child mind as the linguistic sense grows, and the pleasure with which its exercise is extended. Even the blunders made will be interesting, and often illuminating and instructive. But at each and every turn, whatever the subject, whatever the occasion, whatever the object, whether it be formal study, informal speech, or play, keep it in the region where it admits of noble, pure, and clean English expression.

## CHAPTER III

### GRAMMAR

“PRECISION,” says Professor Austin Phelps, “especially, is one of those products of scholarly taste which is not apt to attract a man for the first time in middle life or old age. *Youth must plant it, or it will not flourish in mature age.*” In opening the subject of grammar for young children, I suppose there is no doubt that this is the one which has gathered around it most traditions of dislike, unless it be the barren and worthless study of arithmetic and its adjunct senseless problems. But grammar, so far from being an uninteresting study, is really a very interesting affair, especially if it be begun in the right way. And even more so, when it is allied with etymology, and the uses of words, and the form and derivation of words, long before formal composition is begun.

*Grammar is language conscious of itself.* Usage, of course, makes for correct and grammatical speech more than all other things combined, but attention directed to form and ar-

rangement and structure of speech, at an early age, makes for the kind of precision which makes the study of grammar interesting in itself, and takes off the edge of the dreariness of the necessary preparation for the study of foreign languages later on in the course. The reason why the classics have dropped out so extensively, is, that young people who were brought to them had no linguistic preparation, knew no English to speak of, had no feeling for the use of words, had no appreciation of when a thing was well-said or ill-said, and that made all attention to such matters stupid and apparently useless. It was not strange, and it will not be changed until we come to the matter from a different road.

What has just been said indicates where the study of grammar should really begin. It begins in the appreciation of style. I see people smile when I talk of appreciation of style in little children. But you can readily prove the truth of the possibility of such appreciation, by taking pages from various authors and reading them to children, and see what they like, and what they dislike, and then asking the reason why. You will find, generally speaking, that a clear, lucid style which conveys its ideas with the least confusion of thought, which says what it means, and says

it with clearness and force, holds the attention, and causes reflection about the matter of the composition, while a style that is involved and confused, does not produce this result. You will find, for example, that in compositions that are specially intended for young children, the *use of adjectives* tends to make for attention and interest, while the use of successive clauses tends to destroy it. The newspapers have found this out long ago, and have worked it to the detriment of their readers. They make their reporters write crisp, direct sentences. They make them deal with concrete things. They enforce the use of names. They write around personalities. They use adjectives often innumerable. That makes a paper "readable" for many persons who otherwise would never read at all.

Now this style culture comes from reading steadily, often a single author whose style is good. Franklin is said to have formed his style from the study and influence of Defoe. Professor Phelps quotes Max Muller as saying, "That a well educated person who has been at a public school in England, and at an English university, who reads his Bible and Shakspeare, and all the books in Mudie's library, that is, nineteen-twentieths of all the books published in England, seldom uses more

than three or four thousand words in actual conversation." That is interesting as showing how easily the vocabulary may be acquired, which will meet all the exigencies of contact with persons like those described, and the standard in America is probably much lower. It has recently been shown that children can readily acquire the requisite number of words, and if they are interested in the words themselves, their arrangement and use through the medium of grammar is a very interesting process. What has made it uninteresting in the past, is, that children and young people have known nothing about words! The very vocabulary of the grammars they were studying was unknown to them! This is true about most of the textbooks children study at this moment. Once interest them in the units of language as objects themselves worthy of study, the rest follows naturally.

The infallible test of style is, that one does not need to read a sentence twice. Of course, this rule may be pushed too far, and there are some sentences which must be read many times, whose style is good and whose wealth of meaning requires such intensive study. But, roughly speaking, clearness is tested by the fact that it requires no repetition. Every

time you have to ask yourself, "Now, what does that mean?" you prove conclusively one of two things, either your own defect of English or the author's want of precision and clearness. You will find this defect many times illustrated in this book, and the reason is, that I am dealing with so illusory a problem, as trying to tell in words, what so often in teaching children I did with no conscious intellectual effort. I know exactly what moved me in doing the particular things I did. How to make that clear, so that others may be similarly moved, is not so easy as it appears, because so many elements were combined in the process.

In cultivating and teaching the grammatical sense, you must keep in mind not only that you are to use language intelligible to the child, but at the same time convey *what you finally want to be mastered*, which is something more than can be put into words. It must be assumed, therefore, for the purposes here in mind, that there is *habitual reading aloud*, and habitual effort to interest *both the parent and child* in words for their own sake, and the making of frequent experiments in such words, usage, entirely apart from the purpose of teaching grammar. Now, the only reason for teaching grammar is, that it will prove a tool for further linguistic study, and



linking it to the process of formal education, and make the linguistic knowledge acquired, current coin of intellectual interchange. It is important not only to know it, but know it in such a way that it may be applied to the larger uses of education. Knowledge comes in this way only. Behind all real knowledge there is form and classification, and conscious choice of one thing, rather than another. Grammar is that conscious choice, applied to words, their arrangement in groups called sentences, clauses, paragraphs, and the like. It is both dissection and construction of spoken and written speech.

## I

Grammar with young children should begin with a careful, though simple, definition of words, as parts of speech. It may seem curious, but on this simple classification many children of ten or twelve are very much in the dark, though there is not the slightest reason why they should not, long before that time have thoroughly mastered the rudiments of grammar. Now, the definition of the parts of speech has, itself, been made irritating and complex. *Nouns* may simply be called *name-words*, though when it has been made perfectly clear that nouns are name-words, the word

*nouns* should be constantly employed. A noun, I used to say to my own children, is a name, or something that stands for a name. Here you begin with all kinds of illustrations, perhaps calling for all kinds of objects, and having them named, and then having it understood that when such words are referred to in grammar they are nouns. You can do that easily with children of three, as I did. Having thus made it clear that a *noun* is a *name-word*, you can gather all kinds of nouns, and classify them, in turn, as having one or another kind of classification. I recall that the children had special pleasure in picking out *collective nouns*, such as *fleet*, *flock*, *herd*, and the like. But, in any case, make it clear that this noun is the visible symbol, the *name* of a thing complete in itself.

In a similar way, a *verb* is a *do-word*. That is enough for your present purpose, and opens the field of words of action and gets the fundamental idea safely established. You follow the same plan about all kinds of verbs, and you will not be surprised if your little pupil takes the words he has heard you read about, and link nouns and verbs together in simple sentences quite without any instruction whatever. When this happens, you may at once tell the child that when such a simple state-

ment is made, it is a *sentence*. It was on this account, that before the parts of speech were thoroughly learned, my children had turned simple sentences into various forms, and soon knew how to recognize a *declarative* sentence, an *interrogative* sentence, one that contained an *exclamation*, and one that expressed a *command*. It used to be a great pleasure for them to try themselves out with this kind of play, and find out their limitations, and also what can and what cannot be done, with the same words. Just remember that *you are simply making the child acquainted with the usual nomenclature of the science of grammar*. That is your main business now, and everything else is clear gain.

Having thus established your bases, you will build around them. In taking up the subject of *adjectives*, I used to take the word "adjective," and analyze it, and show what it meant, and so link adjectives with nouns as neighbors and dependents. The *qualities* or *size* of objects lends itself very readily to this sort of teaching. Sometimes, their *form* or *substance* made the thing more interesting. And so, by easy stages, the child came to recognize that *adjectives are words that tell something about a noun*. That is all they need to know at the outset, and it is a simple and un-

complicated idea. Upon that base you can build the whole conception of modifiers. The more adjectives you use, the wider your scope will be, and incidentally you will have your chance made to teach about the object itself. *Color* in this way is useful, because it comes in handily later on in describing birds, or plants, or animals, and helps to lay the foundation for the ideas of botany or zoölogy. *Number* tells also in the same way, as you count the petals of a flower or the legs of an insect. In short, you simply get the idea fixed that an *adjective tells something about a noun*. Practice and play at this subject will be found a great amusement, as you explain why some kinds of adjectives cannot apply to some kinds of nouns.

And just as you have fixed the word adjective in relation to nouns, so you fix the word *adverb* in relation to *verbs*. *An adverb simply is a word that tells something about a verb*. Here you introduce adverbs of *manner*, *description*, or what not, and group them around verbs. So the adverbial idea is built up, and it needs only a little practice to make the questioning and the answering mutually interesting and entertaining.

Sometimes I used to draw little pictures indicating the noun or the verb, and then group

around them all the adjectives or adverbs applicable to each, and march and counter-march them, picking up fresh ones as they were found applicable, or dropping those that were found not to be useful. Your main object is always to accustom the child to think of nouns *as* nouns, or verbs *as* verbs, or adjectives *as* adjectives, and adverbs *as* adverbs. Hence, when you use a dictionary, you always note what the part of speech is, so that the new word is *classified* from the start in its broadest, most general uses. That is getting grammar instruction by the wholesale, so to speak. Every fresh word thus takes its place in the general language scheme, and you build up the linguistic habit almost unconsciously. Merely saying this, gives the idea that this is very stupid formal work for four- or five-year-old children, but it will not be found so by any manner of means. Often, the children themselves will break in upon you, and tell you the part of speech before you mention what it is.

Similarly a *pronoun* is a *word that stands for a noun*. There is nothing complex about that. The personal pronouns are very readily understood. And because they are so readily understood, you can, in passing, teach all that need be known about *number*, because *singular* and *plural* are easily grasped, and easily



recognized. At the same time, you can teach all that need be known about *gender*, because the *masculine* and *feminine* are ideas easily understood, and applied almost with the beginning of speech. *Neuter* is a little more difficult, but taught simply as applying to things *chiefly without life* is all that you need to do with it. But you still see at once how many of the elements of *parsing* you have here taught, and how easily you can, in getting the child to tell all about a word, tell substantially all that the ordinary high school pupil knows about it, and sometimes a good deal more. This sort of thing may easily be injected into the study of any other subject, and may be more informally taught than almost any other subject, as indeed it should be.

Here you have already five of the parts of speech, and the principal ones. The rest can be dismissed in passing. About *conjunctions*, *prepositions*, and *interjections*, I taught simply by examples. I kept, however, referring to them, merely to impress the *name* of the part of speech. *Person*, meaning the speaker, the person addressed, or the person or thing spoken about, you take along without complicating it with special definition. But you should occasionally remind the child of the



*first, second, or third* person, just to keep the classification in mind.

In all this, bear steadily in mind that what you are teaching is the *nomenclature of the science of grammar*, so that when your child begins to study grammar in connection with a foreign language, let us say, Latin, and from the beginning, the parts of speech are talked about, it has already, as a part of its own intellectual equipment, these distinctions made, and does not have to be told anew, and told stupidly, what the parts of speech are, or what their attributes are, or how they are related. Keep it simple, of course. But keep it *clear*, and keep it in the *form* in which it must be used later on.

There is no objection to your taking up *cases*, if you find that you can, and care to do it—personally, I did it, and believe it to be useful in connection with the practice of showing how words change their form. In this way you show the difference between *declining* a noun and *conjugating* a verb. A rather useful thing to know, and which, if taken up with the study of Latin, in an elementary way, teaches many more things than grammar. You have already, in your habitual investigation of words, shown the varieties of form, and now you can show why they take on these

changes of form. You can show what a *prefix* is and what a *suffix* is, and the many kinds of them, and some of their more obvious uses. And thus, by easy stages, you prepare the way for something else, namely, the building up of *sentence structure*, and the elements of such structure, and their proper relations. When this is done, it should be done with the material the child himself supplies, by getting him to make some statement about some object or plaything with which he is familiar, and then taking the classification. Build sentences, and take them apart, just as you would blocks.

In a similar way you can teach all that needs to be known about the *article*. The use of *the* and *a* or *an* is not difficult of explanation. Nor is the making clear of *definite* and *indefinite*, *this*, and *that*, as pronouns, very hard. Simply get the idea that the ideas of *definite* and *indefinite* are expressed in such words, and that is all you need to do at this stage. It will develop of itself a little later on. So also the use of *interrogative words*, *which*, *what*, *where*, and the like, are easily linked with the *idea of interrogation*, and that is the essential thing.

When the child that has so much equipment as I have here outlined, fairly fixed in mind,

before it is seven years of age it will never find the subject of grammar dull or uninteresting, because the word sense, and the instinct for form, will have been so cultivated that the more formal study will lend itself to experimentation in the form of *composition*, which children love almost above all things. Of course, for a long time, this will be *oral composition*, telling of stories, and I often used to make the acquisitions in some other study the means of getting this oral composition. When a child is invited to tell the story of anything, you have begun the subject of composition, and if there are, as there were in my family, more than a single child, each child will often interject something, or modify something, or supply a missing word, or alter the form of the statement, which is the very best practise imaginable for formal composition. Incidentally, it *trains the ear* also, and makes for a demand for pure and clear statement. While "The Story," which ran on for four years in our nursery, after the children had gone to bed, I used to listen with great interest, how first one child, and then another, added an idea, or supplied one, when the narrator for the evening ran out of ideas, or offered some obvious contradiction of something that had already been said, or that seemed in-

congruous with the narrative. *I believe, that in that continuous story-telling to each other, the children got the best language training they ever received.* I am very sure they got exactly what the freshman English teachers afterward tried to teach them in Harvard, and got it more explicitly and more effectively.

## II

You will always keep in mind that you are doing all this merely to build up the use of *the tool of knowledge*. You will keep in mind that your main task in all these matters is to prepare the child for the use of books when he comes to the more formal and serious instruction. You will, by this means, take off the strange, confused atmosphere with which the study of grammar is begun, and take out of it the stupidity with which the subject is often invested. Your little boy at seven, when he begins Latin, though he should begin Latin before this, but assuming that he begins Latin at seven, will not be staggered by the confused mess which usually confronts him, but will understand *how* language is made, and *what its parts are*, and *why* it is needful for him to know something about those parts. He will seek, naturally, the things in the foreign language that resemble his own, and he

will bring what you have taught him about his own language to bear upon the one he is about to begin. He will have in the background of his consciousness a great deal of material which is familiar to him, and it won't seem so meaningless to him as it often does.

I think it is a very good plan in connection with this study to master a good many words in a foreign language, Latin again, for choice. Any child can learn fifty Latin nouns, and these fifty will make themselves over into a thousand shapes in English. But their Latin form, and often its resemblance to English forms, helps to make the grammatical sense. It is not so easy with Latin verbs, though there, too, is a field worth your exploitation. *If you don't know anything about Latin, study it with your child.* That is one of the very best ways of going about anything. We had, or perhaps it would be better to say that I had, no natural interest in a good many things till my children began to show interest in them, and since that interest was there, I cultivated it in its *scholarly form*. Thus they got the *exact* and *accurate names* of things the very first time. A friend of mine has taught his little girl a perfectly amazing amount of knowledge of chemistry, that being his field, by simply telling the child all about the things

he was working with at any given time. That little girl, probably, after a few experiments, will be able to pass a college entrance examination in chemistry *before high school age*. If the examination were *oral* instead of *written*, she would probably pass with a high mark. The lower mark will come probably, not from lack of knowledge, but from inability *to write quickly in a given time* and in a satisfactory manner what the child actually knows and knows exactly. But no single child should ever, on that account, be held back. Most people of mature years cannot write as well as they speak, nor use the skill and precision in writing which they use habitually in speech.

While I am on this subject of writing, I may as well say now that all I have to say upon it. It was the weak spot of my own plans of training. But as I think it through, it was simply because *I did not realize early enough that ultimately the tests must be made in writing*. If I had to do it again, I should begin *very early* with writing, and make that go hand in hand with the mental acquisitions. Dr. Montessori has shown that it can be done, and I believe it can generally be done. But it takes more time than I had to give, and this because the exercises should be *frequent rather than long continued*. But as all examinations



have to be taken in writing sooner or later, let this grammatical study go along with the writing, and this, because it will chiefly be with single words rather than long sentences, and hence may be done with less weariness and less drain on the strength and attention of the child. I do not believe complicated apparatus is necessary for this purpose. In fact, you don't need costly appliances at all. Your own skill and the child will supply almost everything you need, and just as a child always loves its rag doll the best, so generally the things devised at home have the keenest interest.

*Drawing* goes well with grammatical study, odd as that seems to sound. *Tracing words* helps to make their names and forms linger in the memory. Also supplies the "busy" work for recreation. Let the child copy by means of tracing paper, parts of maps, with the names, and then use these results in connection with your instruction as to the names, and their relation to other things.

In this discussion of grammar study, I have laid emphasis only upon the merest outlines, but you will determine yourself by the measure of interest aroused how much farther you can and care to go. I need not point out that while you are doing all this you are *teaching*

*spelling* and showing, as you go along, how a word that has one spelling has several meanings and how much pleasant information and experiment you can work up out of all this. I have often gone, while visiting a public school, into a third grade room, or even into a kindergarten, and proved that you could beguile children by the hour with what was really serious and scientific knowledge about the *language*. And I have been met months after such a talk by the children who heard it who said to me that they remembered what I had told them, and proudly gave evidence of the truth of what they were saying.

The *analytic* habit applied to language will also go hand in hand with the same habit when you deal with birds, insects or plants. And you get habits of *attention*, *concentration* and *intellectual curiosity* which are really what you are trying to make. The reason why you must do it in the way of *formal terms*, queer as it sounds to have a three-year-old recite to you that "a noun is a name word" and that "a verb is a do-word" is that you must get the child's knowledge into usable form for the educational mill into which he will presently have to go. *The educational institution has to use the ordinary coinage of intellectual interchange.* It has to have a certain standard of uniformity.

It has to use the language of books and the formulas of science. There is no other way. Hence you must not only have the child learn the thing, but *learn to express its knowledge in the form which is the only one in which the schools are able to recognize it.* No public school can take account of the individual child to any great extent. Hence you must produce *what they want* and must have in the only way they are capable of recognizing it. It is sad that this is the fact, but *since it is the fact the sooner you recognize it the better.*

## CHAPTER IV

### LANGUAGES

LANGUAGE, as I have said in a previous volume, is the tool of knowledge. All that is suggested in this chapter is to be taken in connection with what has already been said in the chapters on English and grammar. Though there are varieties of designation, generally speaking, the principles of one language apply to all. The parts of speech, though varying in their operation and function, are the same. The fundamentals of grammar are not essentially for practical purposes different. Hence what has been said about English grammar applies with equal force here.

Now in teaching a language what do we notice first? Simply that long before languages are *written* they are *spoken*. Hence language by the vocal method is the natural gateway. The reason why so much so-called language teaching in the schools fails is because the teachers have no consciousness of it, and this applies almost as much to English as any other. But while it is not possible that every teacher

will be able to use the language colloquially, it is possible to get such a grasp upon it, through perfectly natural methods, as will make the *approach* to it very easy and perfectly *natural*, taking away the strangeness and the hopeless feeling which comes to so many children when they attack an alien tongue. It is therefore wise and helpful to begin with things which are not strange and which do not make for hopelessness, but which make for familiarity and hopefulness. This is best accomplished for little children in connection with their English and history. Here, through the narratives which you will read, the newspaper articles by which you will brief the news, which you will cull and give through the medium of your own information and understanding to the children, you will naturally come upon many things which you know well enough but which you have not transformed into what I have called *negotiable knowledge*. Let us say you want to teach German, knowing something about it or perhaps knowing nothing about it.

Let us say that you are doing this while the great European War is in progress. Hardly a daily paper or magazine comes into your home that does not bring with it scores of German words which have now become so familiar that you know them by sight, and almost their

meaning. You hear or read such terms as *Landsturm* and *Landwehr*, or you see the reference to a submarine as *Untersee*, or you see the names of cities like *Hamburg* and *Ludwigshaven*, or you see references to the German *Taube* or the *Kreuzer Emden* or the *Kriegschiff Braunschweig* and the like. Now it is a perfectly simple thing to take all these words made vivid by dealing with matters of natural conversation and discussion, and take a census of what you have gained by this excursus, as I now do, because I got all these words from a single newspaper article. And what have you secured? You have got the German equivalent for *land, storm, defence, city, harbor, dove, cruiser, war, ship, under* and *sea*, all at the first attempt. Now to make a list of these and find their compounds, is to make a pretty interesting collection in the way of varied vocabulary. It is pretty much of a single character to be sure, but the striking thing about it is that it immediately starts the linguistic sense. To call an aeroplane a dove is an interesting fact to any child. Warship readily suggests steamship and sailing ship, and other kinds of ships. Think of the linguistic possibilities of *Untersee* when you divide it into *unter*, under; *see*, sea, and then into the well known *submarine* which again becomes *sub*, under suggesting at once



*subway*, and *marine* with the Latin *maris* and the English *mariner*, *maritime* and the like. And you got all this out of the article which you read at the morning meal as the news of the day! And for repetition you have these terms occurring in some form or another every day, making the best kind of practise for yourself as well as your child. What you thus do with German you can as easily and readily do with French. In a word you begin the language just as a child should begin it and begins its native tongue, *by the use of it*.

Now that the Italians have gone into the war we shall have also references to the same events simultaneously in several languages—German, French, Italian, and English. What better opportunity could possibly be made for naturalization in linguistics? And the knowledge can be visualized, too, because the words can be written down side by side and their *resemblances* and *differences* noted. Almost any child can be made very quickly to learn from glancing down three parallel columns to find the related words or variants of the same word and put them together and when that has been done your lesson work is made for you.

It is not to be understood that all this requires exceptional scholastic training or ability. How academic does one have to be to see the

resemblance between *ship* and *schiff*? Or between *haven* and *hafen*? or between *kreutzer* and *cruiser*? Anybody with a fairly good ordinary education can do this, the only thing necessary is to do it. This can be done with hundreds of words in any one of the three modern languages which I have named. If the teacher has even a little knowledge of Latin the work is made by so much, more interesting and a Latin vocabulary can be built up at the same time. All that is required is a little reflection and a little practice which very soon will grow to be a most interesting personal enjoyment as well as equipment for the instruction of the child.

You will understand that what you are here doing is by easy and natural stages showing that the same facts have various forms of visualizing and uttering themselves. You are planning to take off the strangeness with which a child for the first time, having had no previous experience, hears a strange language. And by taking away that foreign feeling you at once stimulate the ears to catch resemblances and listen for suggestive sounds and the eyes look for suggestive signs by which one equivalent may be exchanged for another. I have taught very young children a hundred words in two or three languages in a day, in this fashion,

and the knowledge thus gained made them proud of their equipment and made the acquisition of the next hundred a joy to them and to me.

The simplest manner of doing this will be by means of *word-lists* which are now very easily obtainable in almost any language, and selecting the words which by reason of *sound* and *appearance* most nearly resemble English. In fact learning a foreign language begins with the mastery of a vocabulary just as it does with the vernacular. The less a child has to think about what the words mean, the more readily it can begin to think about the relations of the words to each other in the structure of the language, and the more readily you can begin to teach that structure in the form of grammar, and this applies to all languages alike. Professor W. R. Harper, afterward President of the University of Chicago, literally revolutionized the study of Hebrew by means of his word lists, in which he simply took the words that are most frequently used in the Hebrew Bible and created the materials out of which the language, as such, was studied. If on a given page for example a single much-used word occurs 100 times and there happen to be 1000 words on that page, you have *by mastering that word*

*learned one-tenth of a whole page.* So by taking the most used words of any language, and learning these, you annex whole acres of text-books because the same word occurs many times. The acquisition of a working vocabulary in this manner is really a very simple thing, and when it has been done you have the materials for language study. This is really what you do in your home, and without knowing it, when your child first begins to talk. You simply give to it the working words, *hot, cold, look,* and the like. You can do much in this way that will make any language attractive, and if you choose one with which you have some familiarity yourself, the task will be simpler and more interesting.

I have just referred to German words. I have before me a very interesting word list prepared by one of the best elementary teachers in the land, Dr. H. C. Bierwirth of Harvard University. From this list of 270 of the commonest nouns I select the following just to show that one does not need to know much, or indeed anything, about German, as such, to see instantly how an English and a German word may be acquired together by a very young child. Here are such words as *apfel, apple, arm, arm, bett, bed, blut, blood, brot, bread, bruder, brother, ding, thing, doktor, doctor,*

*general*, general, *grab*, grave, *hand*, hand, *hilfe*, help, *hut*, hat, *mond*, moon, *nacht*, night, *paar*, pair, *prinz*, prince, *rose*, rose, *schild*, shield, *schaf*, sheep, *tochter*, daughter, *vater*, father, *wagen*, wagon, *wasser*, water, *welt*, world, *wunsch*, wish,—just to select at random from the alphabetical list. Now just look at the variety of words given here which almost interpret themselves. The same thing may be done with other parts of speech, these being simply nouns. But what you do in this case is something more than merely to learn word equivalents. You are establishing the fact that there is a natural linguistic affiliation between English and German. As you teach English these resemblances will constantly appear and you will, in whatever language you are teaching, and in fact whatever you are doing, build up linguistic power in the form of *negotiable vocabularies*. The importance of this cannot possibly be overestimated for purposes of general culture and reading knowledge and power. As a mind fertilizer this process has possibilities which are simply without limit. Five or six hundred words thus acquired in early childhood will readily be made the basis for use in language study which will make all subsequent work a joy instead of drudgery, because there will be in existence already a *linguistic con-*



*sciousness* which will be always reasoning from what is obviously clear to something that has fascinating possibilities.

From the *singulars* given above, it is an easy and natural step to the *plurals*, and through this process to the *genders* all the while without recourse to formal grammar, but merely in the way of fertilizing and scouting on the frontiers of the ultimate minute study of the language structure. The trouble always comes in crossing the frontier of anything. Once you have really crossed the border line, the march is easier.

Turning now from a modern language to an ancient one, namely, Latin. Here the thing is of much greater importance, because Latin is the base of so much English and is notably the language of knowledge. All that I am about to suggest in this connection can easily be done with little children and very certainly with children who have reached the age of six years. From another word list I take the verbs *dico*, speak, *facio*, do and *video*, see, which are used 1000 times or over in the works of Cæsar and Cicero. Think what the acquisition of those three words really means. Just by way of illustration, let us see what can be found on the surface of those three stems, *dic*, *fac*, and *vid*. I turn to the dictionary and I pick up at a



glance, *dictate*, *dictation*, *dictator*, *dictatorial*, *dictature*, *diction*, *dictionary* and *dictum*. I turn from my dictionary to a hand-book of English synonyms, and I find *dictate*; command, order, enjoin, ordain, decree, prescribe, direct, point, urge, enforce. You can readily see how this business expands, and how I have now in hand the material for all kinds of instruction about that single stem *dic* as applied to but a single word. But with these synonyms I have a great many other things at my command, namely, the practical historical and literary illustrations of the use of these various synonyms. And all this comes out of the stem, to speak. Well, I take the stem *fac*. Again just glancing along the columns of a dictionary I get such a collection as this; *fact*, *faction*, *factious*, *factor*, *factored*, *factorship*, *factory*, *factotum*, *factual*, *factuality*, *faculative*, and *faculty*. Just imagine what a mass of thought is here linked together for your unspinning! Once more I turn to my English synonyms and I get *fact*; deed, performance, act, event, incident, occurrence, circumstance, reality, truth. You can work out yourself how much interesting matter can be extracted from that list, and you will remember that I have taken but a *single word*. What I have done with this single word can be done with each in turn.

In this way your child, by having these distinctions pointed out, gets by leaps and bounds an insight into thought and the expression of thought which is nothing but marvelous.

Let us now take the stem *vid.* Here the connection is not quite so clear because the stem most used is the supine *vis.* So I turn to *vis* in the dictionary and I take again at random; *visage, visible, vision, visional, visionary, visit, visitor, visitant, visible, visitation,* and the like. I take *visionary* to my dictionary of synonyms and I find *visionary*; imaginative, romantic, dreamy, fanciful, imaginary, fantastical, baseless, shadowy, unreal, ideal, chimerical. It only takes a little imagination to indicate what wonderful things can be drawn out of this list. But here again, I ask you to remember that I have used only three words in this whole process. But the three Latin stems have even greater possibilities than those here indicated because I have said not a word about compounds as yet. Take such Latin stems as *cred* from *credo*, believe, or *defend* from *defendo*, defend, *hab* from *habeo*, have, *ten* from *tenco*, hold, *pet* from *peto*, seek, *laud* from *laudo*, praise, *dubit* from *dubito*, doubt, and others which can readily be suggested, and see to what a wealth of language they will lead, and it all will be *language of quality*, namely,

language of good repute found in books of knowledge which must be known and understood if there is to be any association with knowledge, as it is administered by the schools.

I need not pursue this process further because the method has been indicated enough to show how the language study unfolds itself. It follows, of course, that you will have to study out some of these things yourself and it is not unlikely that you will find yourself getting acquainted with what is a new vocabulary to you, as well as the child. So far from this being a disadvantage, I think it a positive advantage in some cases, because then you will be learning *with* your child and that simultaneous approach to the subject is the most powerful stimulant of interest which a child can receive. Its analogy may be seen when any child is permitted to go into the father's workshop and *see him doing things*. Here you are doing things together and your own interest is the pledge to the child that there is something interesting presently to come forth.

What I have already said about *synonyms* will indicate the immense importance of this use of words for language study. Generally speaking, the various synonyms of a given word merely represent the various departments of language in which they are used, that

is, in science, in the arts, in literature, in common speech and the like. They also generally are divided into words of Saxon origin and those of classical origin. By this means you can very readily give yourself any amount of material for the particular language you are studying, but more especially for Latin, because, as stated, Latin is the language in which education developed for so many centuries that it is the base of the scholastic vocabulary which it is your business to teach the child at the earliest moment.

It will be found very helpful and instructive, and as a practical exercise, very fertilizing, to take a given word and use its synonyms as indicating the general usage. Thus I have before me the word *empty*; and as synonyms I have *void*, *vacant*, *unoccupied*; then, *unfurnished*, *unsupplied*; then again, *destitute*, *bare*; and again, *hollow*, *unsubstantial*, *unreal*, *vain*, *waste*, *desolate*; then again, *senseless* and *silly*. It will be interesting to notice this *grouping* and find out the reason for it and other similar grouping of synonyms. By this means you will find the leading ideas which have led to the grouping and discover once more how meanings divide and usage develops.

All this you will do yourself and by usage and illustration show the child how the *same*

*meaning changes in its expression* when applied to different things and so steadily lead upward from material to spiritual things and finally to pure ideas as such. You need have no fear as to the possibility of all this, for I have done it repeatedly. And you will find a perfectly astonishing response, and not a little amusement, in the attempts to apply the differing shades of meaning to various objects in the attempt to match the thing with the idea. But by this process you are building up the reasoning power and training linguistic observation.

Here again I must return to the Bible as your best tool for language training. For a very small sum you can get copies of the New Testament in German, French, Italian, or, in fact, any other language. In the use of the Bible you have an immense advantage because there are large portions of it which most people know, like the Lord's Prayer, the Twenty-third Psalm, Thirteenth Chapter of First Corinthians and the like. These you will, of course, have had the children memorize in English, as also many other passages like the Beatitudes and the Decalogue. The child knowing these and their meaning will find it an interesting exercise to learn them in various languages. By the time the child reads, the



resemblances and differences linguistically will be made available for the eye as well as for the ear. You can thus use *at the same time all* the knowledge thus acquired in English by bringing it into the field of the study of another language. Take familiar stories like that of David and Goliath, the Prodigal Son, and other parables and stories of Old Testament worthies, and having read them in English repeatedly, which you will do as a matter of English training, read them also in the particular language which you wish to emphasize. You may do this by letting the little learner follow your reading in the foreign tongue, having the English version before him. By and by you will reverse this process, all the while noting how readily similar words are recognized and using your opportunities for making verbal changes clear, and explaining the manner in which words change their form, through racial habits of speech and other influences.

*Your use of the Bible in this manner will have many indirect results which are not contemplated in the language study itself, but it will all react upon this very powerfully. The practical effect, too, of the use of the Bible is very great because when you are dealing with the subject of Ethics you will have your*



material made for you again, and in this way the same ideas keep recurring and giving frequent chances for correction, for expansion, and for comparison. The Bible is the universal text-book.

All this will be made more effective by the memorizing of certain passages, either of the Bible or of the other works read, not merely to get the vocabulary, but also to *train the eye and the ear to the usage and the position of the various words* in the language which you are studying. This can never be taught. But it can be mastered by usage and *usage alone* perfects it and creates the feeling for it. Now the memorizing of passages entire, whether Bible verses, passages from Shakspeare, from German or French poems and stories, creates the *sense of relation* of words in the expression of ideas. Idioms and common conversational phrases help in this matter, but in any case in addition to the memorizing of words get the memory trained in the committing of entire passages. How easy this is in English we all know by the passages from the Bible or Prayer Book which we repeat at church, or the orders of service in other formal assemblies. We soon do them mechanically and often even without thought. But this may be done with classical passages also. The amount of neces-

sary knowledge for such a performance, of the grammar of a language, is very slight. The more the better of course. But it is a fact that not a few teachers of Latin insist that the right teacher can get to sight reading in Latin in six weeks.

What I have in mind is indicated in a very interesting introduction to a little book by Professor Post on *Latin at Sight*,<sup>1</sup> in which he says: "The Roman boy grasped the thought not by reasoning as to the relation of the clauses, but naturally, that is without conscious reasoning and in the order of the Latin words and clauses. We may presume that he did this, as we ordinarily do in English, at first sight or first hearing. For us to learn to do this is harder than for the Roman—just as it is apt to be hard for one to do it in any language not his mother tongue—because we do not and cannot acquire the necessary elementary Latin in the same natural way in which the Roman boy acquired his, *for the reason that no one now begins to study Latin until he has passed the age in which a child acquires a speaking knowledge of his vernacular.*"

Now here you have the key to what you are to do. He says that a child to-day usually studies Latin at a period when the acquisitive

<sup>1</sup> Page 13.

faculties have passed beyond the time at which the Roman boy sets himself to learn his mother tongue. That is true and that is the reason why the road is made so needlessly hard. Latin should be studied early, very early. And if you begin in the way I have indicated at six, your boy will *read* Latin easily and with pleasure at the time most children *begin* it. It is true that we do not acquire the elementary Latin early enough, but while we cannot do it as well as the Roman boy did it, *it is not true that we cannot do a great deal more than we do* and I have shown you the way. Moreover I have proved that it can be done.

But the main contention here is sound: that you must come to it naturally, and that natural approach comes by taking the language known, that is English, and *seeing* and *using* the equivalent in the language you wish to study. A Latin New Testament will help in this, also, though, of course, it is very different from classical Latin. But for the purposes I have in mind it will naturalize the tongue and great strides can be made which will make subsequent progress much more rapid and much more satisfactory. By usage alone you acquire the sense of the relation of words in speech or in writing. When you smile at a foreigner's use of English, even though his

every word is correct, you feel simply that he has not had the practice in usage which teaches the right order and relation of the words which he knows perfectly. Therefore have the child memorize passages about all sorts of things, passages from Cæsar, passages from Virgil, passages from Cicero, all of which you will first have carefully *caused to be memorized and understood in English*. With little children this process works wonders in the later study of the language. Sometimes you can set easy poetry to simple tunes and sing them, which makes a pleasant variation, but the special thing to keep in mind is to memorize passages because these present ideas and relations of words *together*.

Let me at this point once more guard you against letting this matter become so formal that it takes on the aspect of a dry duty or a task. *Do not stay long on anything in which there is no interest*. Judge of the effectiveness of your work by the interest you excite. For this reason, while you will look at the textbooks again and again to refresh and enlighten yourself, you will put the subject matter of these books before your child *through the medium of your own understanding* rather than merely repeating what the book says. You will remember what

I have said about keeping within the vocabulary which you must acquire, as indeed there is nothing else to do under some conditions. In our kindergartens, for example, the little children talk about *cubes*, *cylinders*, and the like perfectly scientific terms, because nobody has been able to corrupt them into something which is not scientific. That principle you will never overlook. But at the same time *you will not become merely a talking text-book*. You will know the thing yourself and through the medium of your own understanding you will teach.

For this reason you will employ the moments not formally given to study if indeed there is in this entire method such a thing as what is commonly understood by "formal" study, though it is not less real on that account, in *recapitulation* and *experimentation*. For years, by way of illustration, I went weekly into a certain section of an American city where there were no English signs and kept my visual and other acquaintance with all kinds of languages by studying out the signs. Modernized and corrupted as the languages often were, they nevertheless served the purpose very well. You may do this while walking with children in reading signs in a foreign tongue, or analyzing names of foreign origin,



in the naming of common objects, in the recalling of a favorite passage suggested by something you see. These unofficial studies are not the least important of all. Every house on the street where I live stands to me for an historical event because I associate the numbers with a date that has historical significance.

For this practise we have also a most excellent authority not only in the life of Karl Witte but hardly less in that of John Stuart Mill. In the Autobiography of the latter he says: "My father's health required considerable and constant exercise, and he walked habitually before breakfast, generally in the green lanes toward Hornsey. *In these walks I always accompanied him, and with my earliest recollections of green fields and wild flowers is mingled that of the account I gave him daily of what I had read the day before.* To the best of my remembrance, this was a voluntary rather than a prescribed exercise. *I made notes on slips of paper while reading, and from these, in morning walks, I told the story to him;*"<sup>1</sup> . . . "In the course of instruction which I have partially retraced, the point most superficially apparent is the great effort to give, during the years of childhood, an amount of knowledge in what are considered the higher

<sup>1</sup> *Autobiography*, p. 7.



branches of education, which is seldom acquired (if acquired at all) until the age of manhood. *The result of the experiment shows the ease with which this may be done*, and places in a strong light the wretched waste of so many precious years as are spent in acquiring the modicum of Latin and Greek commonly taught to schoolboys; a waste which has led so many educational reformers to entertain the ill-judged proposal of discarding these languages altogether from general education. If I had been by nature extremely quick of apprehension or had possessed a very accurate and retentive memory, or were of a remarkably active and energetic character, the trial would not have been conclusive; *but in all these natural gifts, I am rather below than above par; what I could do assuredly could be done by any boy or girl of average capacity and healthy physical constitution*; and if I have accomplished anything, I owe it, among other fortunate circumstances, to the fact that through my early training bestowed on me by my father, I started, I may fairly say, with an advantage of a quarter of a century over my contemporaries.”<sup>1</sup>

I have cited this passage at length, though the whole chapter is worth careful reading to

<sup>1</sup> *Autobiography*, p. 30.

reassure all my readers of the great value of language, especially classical study. In America there has been for years so strong a movement against the classics that many people who have never thought the matter through begin with a prejudice against Latin and Greek. But nothing, to my way of thinking, is so enriching and so valuable not only for literary equipment but *hardly less so for careful and logical thought* as classical training. With the many adjuncts to such study to-day, and the study begun early in life, the classics should be a joy to children, not a cross; and where Mill's father had to make his list of "vocabulary," that is, word-lists, these are now available in print, of almost every language and the young student to-day may start a whole century in advance of the child John Stuart Mill in mere equipment. The main difference was in the method and the belief of the elder Mill in the training of his boy and *his giving himself to it*. In this same chapter, Mill says that his father believed that he was better off without many youthful associates, because by this means he was saved from vulgarisms and from the lowering of his own habits and standards. In a general way I believe this principle also sound, and for this reason the careful guardianship of associations is most important. But

that is another matter. Just now I wish to impress the fact *that it was by language study—keen insight into the use of words, distinctions of usage, definition and area of application,* there was developed one of the most logical thinkers of whom we have any record. Mr. Mill also thought that this was vastly better for him, when applied to the study of logic, than the study of mathematics because “in mathematical processes few of the real difficulties of correct ratiocination occur.” This accords perfectly with President Eliot’s opinion and should cause all parents to place special and peculiar emphasis on language, words and their uses, clearness in expression, and this will be best done by the collateral use of one or more languages. Where the language is so composite as English this is not only desirable; it is absolutely necessary.

The spirit, in which all that has been indicated in this chapter is to be done may well be illustrated by liberal quotations from another lover of literature, and an especial lover of Greek. What he says about Greek, in the essay from which I quote, may with suitable variations be applied to any language. It is Andrew Lang’s *Homer and the Study of Greek*. He says: “Philology might be made fascinating; the history of a word, and the

process by which its different forms, in different senses, were developed might be made as interesting as any other story of events. But grammar is not taught thus: boys are introduced to a jargon about matters meaningless and they are naturally as much enchanted as if they were listening to a *chimaera bombinans in vacuo*. The grammar, to them, is a mere buzz in a chaos of nonsense. They have to learn to buzz by rote; and a pleasant process that is—a seductive initiation into the mysteries. . . . Our grammar was not so philological, abstruse and arid as the instruments of torture employed at present. . . . We fortunately had a teacher who was not wildly enthusiastic about grammar. He would set us long pieces of the Iliad or Odyssey to learn, and, when the day's task was done, would make us read on adventuring ourselves in "the unseen" and construing as gallantly as we might without grammar or dictionary. On the following day we surveyed more carefully the ground we had skirmished over, and then advanced again. . . . The result was not the making of many accurate scholars, though a few were made; others got nothing better than enjoyment in their work, and the firm belief, opposed to that of most schoolboys, that the ancients did not write nonsense." . . .

“Judging from this example, I venture very humbly to think that any one, who, even at the age of Cato, wants to learn Greek, should begin where Greek literature, where all profane literature begins—with Homer himself. It was thus, not with grammars *in vacuo*, that the great scholars of the Renaissance began. It was thus that Ascham and Rabelais began, by jumping into Greek and splashing about till they learned to swim. First, of course, a person must learn the Greek characters. Then his or her tutor may make him read a dozen lines of Homer, marking the cadence, the surge and thunder of the hexameters—a music which, like that of the Sirens, few can hear without being lured into the seas and isles of song. Then the tutor might translate a passage of moving interest, like Priam’s appeal to Achilles; first of course explaining the situation. Then the teacher might go over some lines, minutely pointing out how the Greek words are etymologically connected with many words in English. Next he might take a substantive and a verb, showing roughly how their inflections arose and were developed, and how they retain forms in Homer which do not occur in later Greek. There is no reason why even this part of the lesson should be uninteresting. By this time the pupil would know,

more or less, where he was, what Greek is, and what the Homeric poems are like. He might thus believe from the first that there are good reasons for knowing Greek, that it is the key to many worlds of life, of action, of beauty, of contemplation, of knowledge.”<sup>1</sup>

You may not, of course, do all this with little children, and every language has not a Homer; but every language has its great literary figures and masterpieces, and you may do as much or as little as you are capable of doing or make yourself capable of doing. But in the spirit portrayed here, and with the enthusiasm which should be yours as the custodian of your child's intellectual future, who can say what you may not do?

<sup>1</sup> “Essays in Little,” pp. 80-83.



## CHAPTER V

### GEOGRAPHY

GEOGRAPHY is one of the studies that should be among the first entered upon in the instruction of little children. The reason for this is, that geography offers so many opportunities for utilizing *all the child's powers effectively at the same time*. Through the use of maps, it uses and trains the eyes, through the use of blocks or dissected maps it trains the hands and the memory, and through its natural joining with history, manners, travels, pictures, and literature, there is almost no subject that cannot be touched upon in the teaching of this science. Handled with even a moderate degree of skill, it may make the whole course of geography as taught in the grades needless. The materials necessary, too, are so simple and so easily obtainable that it is not strange that the globe was found in every library, and is found now in almost every modern home. It lends itself readily to the teaching of the elements of geometry and geology also, and these will be discussed a little later on. It is the all-

inclusive study, because it is a study of the earth's surface in the first instance, and by natural association the study of everything on the earth's surface. That includes pretty much everything.

But there is a reason for the early use of geography, which is much more far reaching even than the inclusive character of the subject. And this is, that it is the best science for illustrating and embodying what Herbart calls the four moments of instruction, namely, the moment to *show*, the moment to *associate*, the moment to *teach*, the moment to *philosophize*. These constitute, according to this educator, the four steps in instruction, and geography lends itself most readily to them, and makes it easy to learn the manner and method of successful teaching. There is almost nothing that you cannot teach under this heading. You may take, for example, your own surroundings, your own city, county, state, or country, and beginning with this you can roam over the whole of creation, coming back home whenever it is convenient to do so. You can bring to your aid the numberless works of travel, of all kinds; those which have pictorial, those which have historical, and those which have biographical interest. You can deal with the manners, habits, customs, religion, or

what not, of any nation or race under the heavens. You can deal with the fauna, the flora, of any region, and what, with plants and animals of the innumerable varieties, you can make any region in the world alive and full of interest. On the other hand, you can deal with its physical features, its mountains, its valleys, its earthquakes, its glaciers, its forests, its gold mines, its diamond mines, and fill the mind with an endless procession of wonderful things, and all the while you can point at the precise spot where all this happens!

Then again, through this gate you can come to governments, laws, and all manner of racial and national questions. Indeed, there is no limit. Through photographs, very cheap and easily obtainable, you can make any country you wish so vivid that the child will never forget it, and what it stands for, and you can choose what it shall stand for, in the child's mind. If you want to go into the economic side of geography, you can teach what it produces, and what it does with it, to whom it sells, from whom it buys, and so on almost without end. I merely suggest these things out of the thousands of things that suggest themselves, as showing what can be done with geography if you go about it with any sense of what it contains. Think of all there is to tell about,

in the ordinary adult's mind, from the North Pole to Patagonia! Think of the fascinations of the Arctic Zone. Think of those of the Torrid Zone! And think of all that lies between! Just turn to Prescott's History of Peru or Mexico, and see if you can find anything more interesting in this wide world to tell children than the stories of the Incas, or the Montezumas and their destruction by Pizarro and Cortez! Selected portions from these two works will make Peru and Mexico forever interesting to the child that hears them. But you can do the same thing with almost any other portion of the earth's surface. *Geography should be the child's wonderland.*

But contemporary geography is hardly less interesting. Think what an education the whole world is getting at this very moment, in the geography of Europe, Asia, and Africa, through the thrilling events of the great war! Here is a struggle that is exciting world interest, and every morning brings fresh news and fresh happenings from every quarter of the globe. Now it is a battle of Chili, then one off the Falkland Islands, then it is a battle in Persia or Turkey or South Africa, to say nothing of the thrilling events in Belgium, France and Poland. What possible material could be better than to

take these ordinary every-day events, and fix them in the mind of the child now, events that in ten or twenty years will be history! But it is not alone the interest of the land and the people, but the opportunity for learning what is going on in the world, and how the world behaves, and what motives are governing it, and whether these motives are good ones or bad ones. Probably more people are getting instruction in geography, of which they have never known anything before, than at any time in the previous history of the world. But they are getting all *the by-products of that geographical knowledge*. They are learning about buildings, ancient and mediæval art, through cathedrals and public architecture and old world structures, of which they previously knew nothing. Then again, they are learning about habits and national characteristics of the great powers of the world as they never knew them in their lives before. And they are learning it concretely, through the maps that almost every metropolitan daily prints. Think of the material accessible in this fashion that only a few years ago was not even obtainable except at a great cost! But this can be done also with ancient lands and peoples. There is something going on all the time in some part of this old earth, which is

full of human interest. Geography is the basal science through which all these things are understood, because it localizes them. You can point to the spot and say, "There is the place," and that goes a great way toward integrating it permanently in the mind. The mere color scheme of maps, in this way, is a kind of education.

Notice again, the *personalities* that are engaged in this great struggle. Here are the men whose names will live in the history of the world, and will be talked about when the child of to-day is a man, even an old man. Just as the mature people of to-day are talking about Lincoln, Grant, Sherman, Sheridan, Sumner, Garrison, John Brown, and the host of the figures of our Civil War period, so twenty or thirty years hence they will be talking about Kaiser Wilhelm II, Gen. Joffre, Gen. Von Hindenburg, Mr. Asquith, Winston Churchill, the Grand Duke Nicholas, and a multitude of others. All this will come in naturally in discussing the mere geography of the war and its stirring events. And if with all this, we include the innumerable writings of the German professors, the English professors, and the American professors, who have spoken or written about the war, what a vista is opened! It is not to be supposed the child can take in



the full significance of all this, of course. But it can learn the names and master some of the connections, and that is a great deal.

But what seems to me even more important, think of the *public documents* that are being made accessible, just for the labor of picking them up. The official documents like the White papers, the Yellow papers, and the official statements of the various governments, there you have the raw material, from the study of which many an historian of the future will write the text-books which these very babies of to-day will have to study. Think of the interest and pleasure they will have when they come to some citation, and remember to have heard it read or discussed or even talked about in childhood! There is literally no limit to this matter, when one once gets a real conception of how these things are interlinked with each other. In this manner, the Russo-Turkish War of 1876 was impressed upon my own mind. So I fixed the South African or Boer War into the minds of my own children. So the wise parent of to-day, the teaching father or mother, will utilize the world's activities to fertilize, enrich, and occupy with real knowledge the child mind. The mere recital of these things makes the blood tingle and excites the imagination.

## I

*The visible symbol of geography is a map or a globe, or both.* Under such a review of the subject as I have described, it signifies world life. "Everywhere there is life, life full and free, everywhere delight in beholding the multitude of scenes which are unfolding themselves before the child." Get a large map of the world, and hang it where it meets the eye most frequently. Ours hung in the dining room, and was made most use of at meal times, chiefly because that was the time we were all together, and the meal hour was usually the instruction hour. But hang it, in any case, where it is easily accessible and where the forms of the continents and the various lands are easily and readily seen, and where the child will be soon accustomed to think of the size and shape of the various portions of the earth's surface. Always use a map, and whatever the subject you happen to be discussing, use the map, because it objectifies what you are talking about, and makes the question and answer method easy and simple. It also stimulates the imagination and provokes reflection upon the things seen and handled, as it were, in this way. *Map instruction is always concrete.* In presenting the physical aspects of geog-

raphy, for instance, land and water are always before the child. Soon mountains and valleys are taken for granted. Soon also rivers and river basins are differentiated. Take the familiar ones of our own country and familiarize the child with them, through stories about them and their discovery. Thus about the Mississippi, tell the stories of the early explorers. Here is a rich field for literary lore and interesting facts. Most early discovery followed the rivers, because it was the easiest form of travel. As you come to particular points, pause, and tell about them, and then have the child try to do the same thing. It will be found rare sport for him and for you! Or start at any well-known point and make all sorts of excursions from it. But get the greater things first, and then gradually take in the more specific and lesser points and divisions. Trace the mountain system around the whole earth. Pause long enough at various stations at things of interest, and make the journey a sort of pictorial tour. Plenty of material for this purpose is easily to be had.

After the great divisions have been clearly outlined, take particular countries, and get your material about them together, and take them in detail. Your only trouble will be that you won't be able to deal with all that you

have to give, because you will be led along into all sorts of side inquiries about them, and their people, and their natural history and phenomena. This is really *philosophizing* about these lands and should be encouraged. When you can, use some extract from literature in connection with it, as when in Spain, and talking about the Alhambra, have a picture of it, and read some selection from Washington Irving's volume on that wonderful palace. So with other places and countries. But always be pictorial, concrete, fastening on something particular and interesting. "Interest," says Compayré, "is the liking one may conceive for a thing, and that causes one to take pleasure in it. *To interest is to arouse the hunger of the intellect.* Let us mark well that its aim is not to amuse or divert and make teaching into play. . . . Interest, as Herbart understood it, is at once the characteristic of things which captivates the attention, and a feeling of curiosity, of alertness and activity of intellect manifested in the mind. . . . It is interest which is the spring of mental activity, the principle of the intellectual life."<sup>1</sup>

Take time enough to arouse this kind of interest. Do not let it get to be mere diversion or amusement, though it may have this ele-

<sup>1</sup> Compayré, *Herbart*, p. 48.

ment, too. But keep to the facts, and keep to the principle that you are dealing with knowledge, and that it is not less knowledge, because it is highly colored and interesting knowledge. Whenever it is possible to link such information to something that relates to childhood, do that, as the comparison of the child's own life with the life of childhood in some other time or country or historical epoch. The social life of various countries may thus be made the subject of innumerable interesting lessons and informing talks. But don't do it all yourself. Let the child do as much of it as you can get him to do. If you can bring to this kind of teaching objects of one kind and another illustrative of the thing you are teaching, so much the better. Blank maps are easily obtainable, whereby children can be given the specific hand-work of coloring maps after the pattern of the large map before them. That often gives relief and supplies "rest work" from thinking too consecutively. In fact, in this matter children can do what most freshman do in college in history courses, in fixing historical geography. Sometimes it may be interesting to take a single country, like France, and show how often it has changed shape under different rulers. All this will visualize all



the time, the land and its meaning, and its history, but the thing for this period you must keep in mind is the geographical interest. Indeed, in all the various studies the period for any one study is simply the temporary emphasis upon that portion of it, rather than upon some other, instead of being an entirely different subject. Thus the knowledge becomes coordinated knowledge, and all things are seen to be linked with one another.

Trace out from time to time, the great voyages of the discoverers, like Columbus, Vespucci, Magellan, and others. Take trips from one point on the globe to another, and take in the interesting things on the way. After reasonable familiarity with this on the plane map, do it with the globe, and open up the subject of the sphericity of the earth. More about this when we come to the study of geometry and other applied mathematics. But already you can point out what the sphericity of the earth does, as to distances, and trade routes, and the like. You can show what canals have done, the *Suez* and the *Panama* and the *Kiel* Canal, and others. This opens up a fresh and vast chapter of material, which will at once occur to every mature mother or father. But don't come to anything *suddenly* and without context. *Lead*



from one thing to another, the simple things first, those biggest and most easy of understanding and differentiation, and the more complex later on. You are not giving a mass of fragments unrelated to each other. You are teaching, in a connected way, the science of geography. Never let that fact get away from you. This is a fundamental principle.

## II

*Names* should figure largely in your teaching of geography. Have you ever thought that the whole world's life, and much of its history, politics, and civilization, has turned on *names*? I hope I need not tell you what you can do when you come to the great names of the world capitals, like Rome, Athens, Paris, Vienna, Berlin, London, St. Petersburg, or Petrograd, as we shall hereafter have to say, and others. Here your work is cut out for you, because there is so much of history, art, science and the rest suggested merely by the simple name. Just to tell the story of these cities with pictures, photographs, and the like, is to open a whole new world to any child. But just now you are teaching their geographical location and position in the world. Show their relation to the sea and the great roads of travel. Work out for yourself why they are

where they are, rather than somewhere else. But it is hardly less interesting to take them up from the linguistic point of view. Personally we have found *linguistic geography* the most interesting of all. Take, for example, a name like Lincoln, which is really *Lincolonia*, and in England marks the site of a Roman colony. Take the names that end in *burg*, which really means a fortified place, and work out why. Look up in any encyclopædia the history of names, and you will find a mine of information both for yourself and the child. In a country like ours, the history of Indian names is full of interest. Or, point out that all cities that end in *ville* the termination comes from the French, which means city or town. Or those which end in *polis*, which is the Greek word for city, like *Indiana-polis* or *Minnea-polis*. Or, if you want to dip into ecclesiastical history, take the names of cities that are named after saints, like St. Louis, St. Paul, St. Joseph, or St. (San) Francisco. Trace out the history of the names in your own vicinity, and find out by way of illustration that Danvers, Mass., is really *D'Anvers*, the French form of Antwerp. This is the way President White first interested the students of Michigan University in the study of history with some most astonishing, and often amus-

ing, results. Almost any locality, in this way, can be made the beginning of very interesting and fruitful investigations.

This is especially true when you are dealing with Old World names, almost all of which, especially the Asiatic, have some special significance. Find out why you sing in your hymn book about "Araby the Blest." Compare the Straits of *Bab-el Mandeb* with *Bab-el*. Take some of the commoner names, and trace them to their origin, and you will have amusement and instruction made to order for you. Almost any gazetteer of names or encyclopædia will give you these facts in great abundance. Everything is raw material for your own assimilation, and then for the fertilization of your child's mind. The older the names are, the more interesting they are, because in the youth of the race this was the simplest way of fixing anything in the mind and consciousness of the people most interested. Thus you can infer that *Heliopolis* was the site of a great temple of the sun, when you remember that *helios* is the Greek word for sun and *polis* means city. Still in Egypt, link Alexandria with its founder and you open the whole subject of Alexander, his conquests and life, and make it concrete with the existing city of to-day. Many names in themselves tell a story

of absorbing interest. Where the name is linked with a personality, make the linkage clear, and use it again when you come to study history. But just now you are teaching geography; keep that in mind and keep the physical relation in the foreground of your teaching and talk.

You will find the Bible specially rich in this sort of thing, because almost every Bible name has some significance, which is supposed to be derived from the circumstances surrounding its foundation. Thus *Kiriath Sepher* indicates that it was the seat of a library which is now lost, because it means *Book City*. Let nothing of this sort get by you, as you go along. As you travel over the continents, notice these things and jot them down for your own investigation, and you will be surprised how much use you will make of them. The whole history of the ancient religions can be reconstructed, almost, from the surviving names of the deities, and a good deal of the same sort of thing can be done for nations through the names of their principal places.

Geographical teaching should always be *vivid*, *picturesque*, and *exact*. You can make as much of a "story" of it as you please, provided you are always exact about it. This is of very great importance, because unless

you are exact, you will mix things up in the young mind and simply get a great mass of blurred impressions. Don't leap too far at a single jump. Tell things slowly, and see to it that the things are connected distinctly with the time, place and circumstances of the geographical knowledge which you wish to teach. Always remember that in the infant mind there are many latent forces to be awakened, and it is important, so to speak, that if you are to start an electric current that you touch the right button. In fact, that is the way to think about the child mind. You are not shovelling fuel into the mind, you are leading the child's own native mental energy to exert itself in a given direction. You are the efficiency engineer to see to it that nothing is wasted and that its power is not diverted to useless ends.

Don't let the young mind get sidetracked in mere minutiae, however interesting. Timbuctoo is interesting but not important. Rome is both interesting and important! If you happen to live in Carlinville, Illinois, it is worth while to *begin* at Carlinville, but don't stay there, because the vast mass of humanity never heard of it, and would not be interested in it if they did. Stay with a child by the things which are big enough and full enough of content to make it worth while to dwell

upon often, and which yield something fresh and new every time you talk about them. This does not mean that you are to slight local matters, quite the contrary. It is really to give them their true significance and liberate the mind from subjugation to locality and intellectual provincialism. A child can be made cosmopolitan in thought much more easily than an adult. It has no prejudices already formed, it has no interests to subserve, it has no violent dislikes to overcome. Therefore seek to make it cosmopolitan in thought by acquainting it with the varieties of thought which there are in the world, through the various peoples who inhabit it.

### III

*Natural phenomena, plants, animals, and striking configurations* should occupy an important place in the teaching of geography. It is not merely that there shall be information *about* the plants and animals themselves, but these become gradually the indices of the latitudes from which they come. A lion, for example, should suggest an African jungle to a child, not an Arctic ice floe! Here you bring in the principle of *association* which helps very much for geography, especially as to fauna and flora. There are tropical fruits and flow-



ers, sub-tropical fruits and flowers, and fruit common to temperate zones. If these are associated in the mind of the child with the kind of climate and kind of temperature of the respective countries where they are indigenous, there is a good deal gained in the way of geographical association. Thus the reading of Kipling will always associate elephants with India, though they are not confined to India. But that will open the way to the commercial question of ivory and others of a similar nature. Lion hunting will visualize the jungle in Africa, as tiger hunting will visualize it in the imagination with India. These and such like associations are of very great interest for themselves and for the study of geography. Common objects in daily use can be made useful for study, in this way, by tracing out the country of origin, and where objects are stamped with the country of origin as is now required by many countries, including our own, there is a new field of interest opened.

*Flowers* lend themselves particularly to this kind of study, and have the added use that presently this same information will be used in elementary studies in botany and science generally. Whenever plants are mentioned in reading, or foliage, or vegetation of any kind, it is well to raise the question of where such a

country naturally would be. Thus you introduce naturally the question of climate, fertility, soil, and other matters. Geography thus becomes the agent of teaching, as it should, and as every study should, something beside itself. If an effort is made at differentiating species, this is so much additional gain. But it will readily be seen how things hang together if these things are associated together, and every fresh association of this kind makes a new peg for the memory to hang upon. If the geography is not remembered by one thing, it is remembered by another, and this is the soundest way of memorizing anything, because it comes through *association with some kind of permanent knowledge*. Birds and their plumage form another attractive field for this kind of geographical study. Just think what an instructive thing a visit to even a very ordinary zoological garden will do in this connection, and what added pleasure the visit will give if there is brought to it some, even slight, knowledge of what it is expected will be seen. The whole range of the animal world is thus placed at the teacher's disposal for furthering a knowledge of the earth and its structure. The same is true if particular mountain peaks or volcanoes are selected and made the subject of study and exposition. No child that has

ever had the story of the eruptions of Vesuvius or Mt. Pelée brought to its attention, especially with photographs, will ever forget the place and the conditions and the effects of such eruptions.

But here again warning must be given that you are not to plunge into these things *without preparation for them*. Before you talk about volcanoes, tell something about the earth and its crust and its interior. Explain how much knowledge we have about such things, and then show how volcanoes, from causes not known, though they have been extinct for years, suddenly become active. If you tell the story of Herculaneum and Pompeii in this connection, and read an appropriate passage from, let us say, Bulwer's *Last Days of Pompeii*, you will not only make an impression which will create permanent interest, but you will arouse a desire to investigate the whole subject, which will lead you around the whole globe. You may find that you have to look up and learn more about volcanoes than you ever knew in your own life before! Which is just as it ought to be! But come to it *gradually* and by easy steps, first things known, and then things new.

The first question concerning any new plant or flower or animal should be "Where is the

home of this thing," and sometimes to work backward to it, from the nature of the animal itself, is very interesting. Heavy fur usually means one thing, light fur another. Some kinds of teeth mean one thing, others another. The *habitat* of animals generally shows what they must subsist on, and this in turn is shown in the tools they have to work with. This process can be worked out very well with domestic animals by noticing their differences, and thus tracing out their original homes. The distribution of man throughout the earth is similarly useful for its geographical content. Why are races that inhabit certain portions of the earth, as they are, as distinguished from those which we know and see daily? This immediately again, raises the question of the effect of climate, food and nature upon man, and whether he makes his conditions or they make him! This question is readily seen to be one of very large implications. Consideration of it cannot begin too soon.

Along with this, there may be raised simple questions in astronomy. We speak of the "North" star and the "Southern" Cross, and the like. Why? The study of the heavens helps especially, as it affords the easiest approach to the story of the movement of the earth and the stellar bodies. So the question

of the relation of the earth to the sun and the planets, and the general development of the Copernican hypothesis is opened up. Incidentally, the moon is introduced, and the changes of the moon and its use as a measure of time, and the relation of all this to the seasons, and its significance to religious festivals, as Easter, and others, can be shown, and this, in turn, joined to the celebration of these festivals in various countries, in their various different ways. All this, it will be seen, has a bearing more or less direct upon the earth and its surface and conditions and inhabitants and configurations, all of which we call the science of geography, broadly speaking. There is literally no limit to the amount one can do, if the way is open and the inclination leads on. But the child so taught will never find geography tame or unpleasing.

## IV

But no study of geography with children will be complete that does not make large *use of books of travel*. It makes little difference where you begin, after you have a little knowledge of the map. But such books as Nansen's *Farthest North*, or Livingstone's *Africa*, or Stanley's *In Darkest Africa*, or Wright's *Greenland's Ice Fields*, or any one



of a thousand that could be mentioned, will be found invaluable. Any library under "Travel" will give you all the material you can possibly use. You need not use all of any one book, but simply select such as have the element of picturesqueness and vivacity of description. Often biographies will give the same result, especially if they be biographies of explorers which add the element of striking personality. Travellers usually try to make their stories interesting, and while they may often lack historical accuracy, they answer for your purpose, namely, geography. The books of Parkman like the *Oregon Trail*, *Conspiracy of Pontiac*, *Pioneers of France in the New World*, *Count Frontenac*, and others that might be named, are full of geographical as well as historical interest. The works of Prescott and Motley are in the same class. The advantage of using books like these, rather than more modern ones, is that they are classics of their kind, and are wonderful models of style, as well as of deep and irresistible attraction. There are innumerable books on England and France and New England, and the West, and Far West, which may be used. Almost any library will have all you can possibly use. For Japan, the works of William Elliott Griffis will be found unique



and full of charm. The same author has written interestingly, too, of Holland. Indeed, anything from this pen has value for literary form, for historical and geographical interest. But I need not enumerate, because your library is at hand and has them all.

Here again, do not let the subject get away from you. You have been talking, let us say, about Holland, its location, and natural features, the dikes that keep out the sea, and its reclamations from the ocean, and all this should be recalled when you take up, say, *Brave Little Holland*, by Dr. Griffis. If you read from the *Conquest of Mexico*, recall the early discoverers and their story before entering upon some passage of interest. Don't do things disconnectedly. Have a context for your story before you begin it and let it come in its proper place, first the blade, then the ear, then the full corn in the ear! Original pictures by travellers are often of the highest value, because they are out of the conventional lines of illustration. *But do not lose your subject in too many details.* See that the big outlines are always kept in mind, and don't get lost in detail. In dealing with such a book as Amelia Edwards's *Thousand Miles Up the Nile*, you will have many things to linger over. Pass rapidly over those which require

maturity and reflective capabilities, and deal with those which have visual quality, which suggest pictures, and which can readily be comprehended and retained.

Where it is possible to consult *relief maps*, do this, because this will make things much more real. It will also help for some elementary studies in geology later on. But let the travellers tell their stories, and let the interest excited be the measure of how long you hold on to a particular line. Never quite *exhaust* anything, so far as interest is concerned, because this makes it possible to return to it. But in general, the narrative of a real man, having real experiences, especially if they be of an exciting and thrilling nature, cannot fail to help you in your work for the child. I think it wise also, in this same connection, to point out that you will often be in danger of having your own interest so aroused in a given subject that you will think because it interests *you* it must therefore also interest the child. This is not always true. I have myself had the experience of reading to children, getting violently interested myself and reading breathlessly on, only to discover presently, that though the children were watching me curiously, I had gotten far beyond their depth. Read not *to* them but *with* them. Keep the

idea uppermost that you are getting this knowledge *with* them and that their interest and understanding is the paramount matter.

In general, it will be found wise to keep to *groups* in these matters. That is, when dealing with Europe, concentrate on the various European matters. If you are dealing with Asia, drop everything that is not Asiatic. So while you are dealing with matters American, let everything bear upon America. This is simply to avoid confusion, but even more, to drink deeply enough of one thing at a time to prevent the matters from becoming simply interesting diversions. In general, keep along with the history you are studying, so that these things will reenforce each other. Then the transition from one to the other will be easy and natural, and not abrupt. You can often give the whole study a local and contemporary touch, by pointing out the various classes of foreign, that is, non-English-speaking people, in the community, and awakening the liveliest interest in them by discussing the country they came from, what they probably did there, why they left, and what they are doing here, and what changes they must find here as contrasted with their native lands. That will give a kind of respect for this class of our fellow citizens, which has long been wanting in American life.

Under this view, an Italian won't be a "*Dago*," and similar epithets will not easily be adopted by the little becoming citizen of the republic!

*Books of travel enlarge the mind and expand the intellectual horizon.* Next to travelling itself they are the best substitute. Many people who have never been able to leave their own firesides in the body, have, in the mind and imagination, roamed all over this broad earth, have tasted the delights of foreign scenes, and had touch with foreign peoples, and have learned how various and how wonderful is this thing we call humanity. Such persons cease with this experience to be narrow-minded, because they have been abroad. They cease to be provincial, because they become citizens of the world. They get that comparative view of things, which makes for tolerance and inclusiveness of spirit, which is the best result of travel. This is what your work in geography mainly should do. It is of very little worth to know the physical boundaries of nations, and know nothing of the nations thus bounded. *Humanize the study in this way at every turn.* Try to create sympathies with the peoples thus studied, with their conditions, their hardships, and their joys. This also has high educational as well as spiritual value, and helps to create the hu-

manized being you want your child to be. This is the essence of true culture as well. Perhaps this can be indicated by a quotation from Goldsmith's "Traveller" as well as anything. He is speaking of Switzerland and the Swiss:

My soul turn from them, turn we to survey  
Where rougher climes a nobler race display —  
Where the bleak Swiss their stormy mansions tread,  
And forec a churlish soil for scanty bread.  
No product here, the barren fields afford  
But man and steel, the soldier and his sword;  
No vernal blooms their torpid rocks array,  
But Winter lingering, chills the lap of May;  
No zephyr fondly sues the mountain's breast,  
But meteors glare, and stormy glooms invest.  
Yet still, even here, content can spread a charm  
Redress the clime, and all its rage disarm.  
Though poor the peasant's hut, his feasts though small,  
He sees his little lot, the lot of all;  
Sees no contiguous palace rear its head,  
To shame the meanness of his humble shed;  
No costly lord, the sumptuous banquet deal,  
To make him loathe his vegetable meal;  
But calm, and bred in ignorance and toil  
Each wish contracting, fits him to the soil.  
Cheerful at morn, he wakes from short repose  
Breasts the keen air and carols as he goes;  
With patient angle trolls the finny deep,  
Or drives his venturous ploughshare to the steep;  
Or seeks the den where snow-tracks mark the way,  
And drags the struggling savage unto day.

At night, returning, every labor sped  
He sits him down the monarch of a shed;  
Smiles by his cheerful fire and round surveys  
His children's looks, that brighten at the blaze;  
While his loved partner, boastful of her hoard  
Displays her cleanly platter on the board,  
And haply too, some pilgrim thither led,  
With many a tale, repays the nightly bed.

Not often does descriptive verse display the sweet qualities of heart and mind which are found in these lines, and the child to whom such verses are read or to whom travel through books and imagination bequeathes a similar spirit, is a favored being, because sympathetic with the whole wide brotherhood of mankind!



## CHAPTER VI

### HISTORY

“THE world,” says Emerson in his great essay on History, “exists for the education of each man. There is no age or state of society or mode of action in history to which there is not somewhat corresponding in his life. Everything tends in a wonderful manner to abbreviate itself, and yield its own virtue to him. He should see that he can live all history in his own person. He must sit stolidly at home, and not suffer himself to be bullied by kings or empires, but know that he is greater than all the geography and all the government of the world; he must transfer the point of view from which history is commonly read, from Rome and Athens and London, to himself, and not deny his conviction that he is the court, and if England or Egypt have anything to say to him he will try the case; if not, let them forever be silent. He must attain and maintain that lofty sight where facts yield their secret sense, and poetry and annals are alike. The instinct of the mind, the purpose

of nature, betrays itself in the use we make of the signal narrations of history. . . . This life of ours is stuck round with Egypt, Greece, Gaul, England, War, Colonization, Church, Court, and Commerce, as with so many flowers and wild ornaments, grave and gay. I will not make account of them. I believe in Eternity. I can find Greece, Asia, Italy, Spain, and the Islands—the genius and creative principles of each and all eras in my own mind.”

Thus one of the most creative and inspiring souls that ever held a pen approached the study of the world and announced the leading principle of worthy historical study, that it must not be viewed objectively, but subjectively—made our own and verified not merely by literature, but verified by the experience and thought of each individual man. This is what should be kept constantly before the mind in introducing the young child to the study, which records the uses to which the universal mind has been put, whether it be in the dress of Greek or Roman, Italian or German, whether embodied in a great book, a great cathedral or a great picture. Very beautiful, but very vague, you say. True enough, but if there is anything more vague than history, it would be hard to know what it is, unless it is that mythical thing called the Subconscious,

which is playing the thinking of mankind such hilarious pranks at the present time. If you will take any personality, Cæsar, Cromwell, or Goethe, and collect the opinions and interpretations which have been made of him, you will find yourself bewildered at the variety of uses which may be made of the same facts. The fighting generals never get through their arguments as to what actually occurred on any battlefield. The English teach that Waterloo was won by Wellington; the Germans teach that Blücher was responsible for the downfall of Napoleon; and as for Napoleon himself, well, only recently one writer compiled a book composed entirely of Napoleon's own words, supposing probably that this settled things, not recognizing that even this involved the writer's choice of material, and that this selection was only another "interpretation!"

You will never get the soul out of history by merely taking a table of contents of mankind's actions, or a chronological table of the order in which they occurred. Some people think that is history. But history only really begins when we identify ourselves with what happened and try to live through the experiences of the past and get them revived in the dialect of our own experience. This is what Emerson means when he says that "we are

always coming up with the emphatic facts of history in our private experience and verifying them here." This is not only true, but they are never *really* verified until they are verified in the private experience. Viewed in this way, history is something fascinating, thrilling and absorbing. It links you with all the world, because it is all the world in your own terms. It makes you fight with the fighters, love with the lovers, suffer with the sufferers, and triumph with the victorious. It lifts you out of the limitations of your immediate surroundings into the area of world life and world events. It makes your own mind and emotions the center of creation. The majestic figures that have made the world's life or marred it, are not strangers they are fellow citizens of the world.

The natural outcome of all this is a sort of comradeship with men and events. There comes a sort of identification with the actors of the world drama which is like that which you experience at a well-acted play. When you sit in your darkened auditorium and cry softly over some story that is being enacted on the stage yonder, you know perfectly well that it is only play-acting—but you cry, not because of the sorrow which is sham, but the sorrow which is real and which in your own heart you know to exist somewhere, and which may be

possible to you. In other words you *identify yourself* with the actor to the extent of feeling really what very likely to him is not only merely acting but even hard and disagreeable work. Are you duped then? Far from it. You are having something which is vital and genuine to you, whatever his performance may be to him. The very greatest of all poets has told us that all the world is a stage; well, then, since these actors are here and are giving you their parts, observe them, feel with them, understand them, if you can, and let them live in you. That is the way to study history.

But you will say to me that this is a mature use of the mind and not at all possible to children. In fact, just the reverse is true. When you go to the playhouse how often the best efforts of the actor fail to touch you, not because the efforts are not worthy and well-directed, but because you are full of your warehouse, your clothing and tinwares, your leather and wool, your law cases and bankruptcies, your pots and kettles, your dressmaking and your housekeeping, and the thousand things which have gripped your life, and made it hard for you to get out of yourself. Habit has already made you the slave to many things, and the task-masters won't let go! But the child has no such despots. His mind is ready to play

with anybody, Cleopatra or Nero, Demosthenes or Hannibal, and only wants a suitable introduction to make these personages permanent members of his *entourage*. And curiously enough if you don't introduce them they will invent others to take their places. Your child is a real world citizen.

Then again your emotions may be dulled and you unable to experience the great big human emotion as contrasted with your own little Humboldt Avenue delusions. You think in terms of what Brattle Street, or Chestnut Hill, think about the matters, and feel with the mob instinct of your class and associates. But the child, with uncorrupted emotions, is more democratic and more cosmopolitan. He doesn't have to have a tag attached to things before he knows how he feels about them. They are interesting to him because they are human. He will, very likely, share your thoughts and come to new things with some of the cerements of your narrowness and prejudice hanging to him, but, generally speaking, he will accept any kind of company and try to adjust himself to it, and it is your business to introduce him to all kinds and varieties. That is one of the uses of history which many students have not yet discovered. They still think they must add a "moral" at the end of



each tale, just as the preacher must tell you exactly what every text means. Well, the preacher does not know what every text means, and you do not know what the real character of the famous personages of the world's life was, except by fragmentary and often misleading accounts. Therefore let them tell their own story, and let the child try out his mind and feelings together, as each one unfolds himself before him, through the medium of your reading or teaching. You will then see how uncorrupted emotion works, in the presence of things which seem to you stale and unprofitable. You will possibly find your own emotions renewed in seeing them blossom again in the soul of your child. And with your wisdom and supervising maturity you will know when to stop and change the course of these feelings, because you will know when they are becoming dangerous and unwholesome. And you will turn from one to another, and so gently, but surely, train all the emotions because you will select your subjects with care, having that in mind. You will make many a dark day bright, and many a dreary day delightful, because you will show how to get at the springs of the universal life, which makes people superior to their immediate environment.

## I

The best way to begin the teaching of history with little children is through *the study of personalities*, that is, *biography*. You have been teaching, let us say, the geography of France. Well, Napoleon comes first to mind, and that offers at once a starting point for getting a great deal of interesting historical material through the study of the biography of that amazing individual. In English history you have your work cut out for you, from King Alfred onwards. You can vary it any time by taking now rulers and conquerors, now literary men, now scientific men, now explorers, now churchmen. There is no land that has not its interesting figures and as you deal with the geography, teaching the story of the land, teach also the story of some leading personality, so that by the principle of association you link the land and the individual. Just as the history of England is the history of London, or that of France is the history of Paris, so almost every epoch of history has some leading figure. In fact, it will be well to do this by the great epochs of history, which are often named for individuals, as the Age of Napoleon, or the Age of Frederick the Great, or the Age of Pericles,

and so on. Who these people were, and what they did, is an endless tale, to be sure, but the main outlines can be very readily grasped and made the basis for historical exposition. There is no better way of teaching history than through the biographical medium. You will find, for one thing, that such characters are very speedily embodied into the play of children, and you are thus forming also the *play-stuff of the child's mind* and this of a quality which yields knowledge. Be somewhat careful to select the great outstanding figures first, though it makes little difference where you start. It is an advantage of course to be consecutive. The Greek, Roman and Semitic mythologies form the best point of departure, because mythology represents, itself, the childhood of the race and accords naturally with the psychological instincts and habits of child thought. Keep it as a principle that the nearer you get to the beginnings of race history and development the surer you are that you are dealing with the materials of child thought.

For this purpose *fairy tales of all lands* are useful and interesting because they are really the outcome of racial myths of one kind or another. Look into a book like Fraser's *Golden Bough*, for example, and see what the

childhood of the race was like, and you will find many things to interest you as well as the child. It is interesting, sometimes, to take the pagan deities and see them under their various forms, Greek, Roman, Semitic, Norse and Germanic, and see the same idea change its form as it changes its climate and surroundings. But see to it that it is not left hanging in the air, unconnected with anything. Link German fairies and myths with Germany. Link English stories with England. If you deal with the *Arabian Nights* get first of all a picture of Haroun and the Bagdad of his time fixed in the mind as a suitable prelude to the tales themselves. Japanese and other Asiatic folklore will be found interesting as a variant from European matter. All this has historical value and is the beginning of history. You can easily tell the story of the *Ten Thousand Greeks*, as Xenophon tells it, to a child, and with a map can follow the route they travelled and have all kinds of interesting moments. In every such case see that a personality stands out which makes the story radiate around him and his work, because this is the easiest way to fix the details in the mind. It brings a sort of consecutiveness to the narrative and helps to drop things into an orderly form.

Most children are interested in the childhood

of great men, and this by way of introduction, forms a very effective method of creating interest. Think of what may be done in this way, for example, with the story of Moses, beginning with the baby in the bulrushes! And this again leads me to say that Egypt with its magic and mystery, is a wonderful field for this sort of thing. If you once make an outline of Moses' biography and reduce it to modern terms, and then read the classic passages from the Bible which tell that history, you have in fact started the child on what is known as the *historic method* by which all modern history writing is governed.

Often the history of special groups makes an interesting historical excursion, as when, for example, you take up the *Crusades* and open up the wealth of material which they afford. Or, if you are interested in orders, take the *Knights Templars*, or the *Knights Hospitalers*, or the *Teutonic Knights*, and work out their story, as any encyclopædia or special works give it. It will be found very fruitful and be somewhat out of the common pathway. Don't be afraid to dip into unusual things, always remembering that you tell about real people and real things, and fix in the mind somebody who had something to do with the events recorded. For American children, the



great discoverers, especially those of your own region, and the leading figures of American history, will be found useful. Such figures as *De Soto*, *Pere Marquette*, lend themselves to wonderful effect in opening and developing the historic sense. Similarly, the biography of *Franklin* or of *Washington* and others show what can be done in the way of integrating American history before the full importance of it is realized. The heroes of special sections like *Daniel Boone* or *Sam Houston* add the touch of local color and inspiration. Every portion of our land has such local figures and they should be studied first for themselves and then for their larger relations to the national life.

But let this be at first objectively done. Just let the story tell itself and don't try to make it didactic in the sense of formally committing and holding up the child to its mastery in formal way. If you do your work carefully the interest you excite will do that better than you can do it by formal insistence. Let the child repeat the story as often as possible by telling it over to others, or if told by one parent let it be repeated to the other. Such names readily become household words and when met with later on are old friends with whom the new relation of scholarly approach is readily cultivated. You will see how easily all this



can be done in connection with the geography, because so many of the world great names are linked with the physical configurations of the earth, as *Hudson's Bay*, or *Magellan's Straits*, and the like. In fact, these two usually go on parallel lines. When you meet the one, teach also the other.

In the study of biography as history, pictures and photographs help a great deal, and whenever accessible should be freely employed. That *visualizes* what is taught and makes one more agency by which the memory will retain what is told. Often some curious phase of *costume* will cause most important historical matter to be fixed in the thought. As a preacher I have often found, and even more so as a teacher, that when I could link important historical events with something essentially out of the common, some odd legend, or striking piece of information, some linguistic twist, and then visualize it as with a blackboard, as I often did, the teaching survived, when without these devices it was often lost and forgotten. Make the freest use of these things. If you are in the neighborhood of *museums* use these, for that makes vivid and real what may otherwise be vague and dimly comprehended. I found it useful and suggestive often in the study of

some character in the history of the past to inquire who of our contemporary figures it suggested, with some interesting and amusing results. My own children got special amusement out of the habit of playfully dubbing the people who came to our house by names suggested by their resemblance to historical characters they had read about, or had brought to their attention. There is a field for much household fun here. Of course it must not be maliciously done. It can be kept in the area of pure mirth and is really great sport. The varieties of attitude of our friends toward them used to give the children occasion for much acting, and if people who are pompous, condescending, or contemptuous to children could only see these things as they live again in the nursery of carefully nurtured children, they would have some uncomfortable moments, which might not be entirely without desirable results! But in a similar way those who display qualities of generosity, courtesy, patience, and especially evidence of real interest in childhood, also have their reward. My own children will never forget the distinguished Greek scholar who told them the story of *Charon* by exhibiting a coin found in a Greek tomb to pay his fee.

## II

The use of *documents* again makes history study interesting and effective. Go to your library and look into Winsor's *Narrative and Critical History of America*, by way of illustration, and you will see what a mine there is of interesting original documents, which by reproduction form the basis of useful and illuminating history. Now many of our national documents, like the *Compact in the Mayflower*, the *Declaration of Independence*, *Penn's Treaty with the Indians* and others, have been reproduced in inexpensive forms, which may easily be procured. That document is what is called a *first source of history*. Every time you use such a document you are using a source, and by them you can show how history is made and the study of history is developed. Your own court records are such sources. Soldiers' discharges, naturalization papers, citizenship papers, ballots, state constitutions, Thanksgiving proclamations, and official documents, generally all fall in this class. It makes the thing talked about concrete to show the document around which the history revolves. The *White Papers*, the *Yellow Papers*, the *Gray Papers*, issued by the European governments in the present war, are such first sources

of history. This matter is much more important than it seems, for, though you are using it only to make concrete and vivid what you are talking about, really you are inculcating the *principle of research* and of speaking, not at random but on the authority of somebody who has a right to speak. Nothing afflicts the American intellectual life so much, or so painfully, at the present moment as irresponsible utterance. If you can by the use of documents teach a child in its approach to anything, to ask for something that is authoritative, you will by one stroke make it immune from newspaper exaggeration and falsification, and loose talk generally, whatever the source. That is great gain for intellectual stability. There is nothing difficult or mysterious about it. Utilize the same instinct that makes a child take the stuffing out of a doll to find out what it is made of. It helps in reading, too. It enlarges the vocabulary. If you have a little dramatic sense you can make much of it.

The *Emancipation Proclamation* in this way becomes a living document. So does the *Magna Charta*. So will Lincoln's *Gettysburg Address*, and so will many other important and interesting documents. Here again if you will look into the back of your Oxford Bible, or if you will get the *Illustrated Bible Treasury*,

you will have a mass of material to your hand. I merely mention these because they will most readily show the process of seeing things at first hand, and recognizing that you are dealing not with second hand, but first hand material. It is a great revelation to children, and hardly less to adults, to contrast things in the form with which they are commonly known, with their original forms. When this can be done by pictures or documents so much the better. But you can easily lead from this practise with documents to something quite as fruitful and important. You can open the use of *books of reference*. Your use of the dictionary will already have started things in this direction and of this more later. But in finding these documents you can show how there are books which are simply collections of such documents. Professor A. B. Hart's *American History Told by Contemporaries* occurs to me in this connection. Here you have the actual actors, in the periods of which he deals, speaking in their own tongue, and giving the views and attitudes of eye-witnesses and actors in the drama of the making of the American republic. An ounce of this sort of study of American history is worth a ton of stupid, lifeless recital of events without a living personality behind



it, speaking in his native and contemporary tongue. There are many manuals of this sort published and they are easily accessible.

Then again our government publishes many things of this sort which may be had for the asking. If for example you want to know about the state of education in South America, write to the Bureau of Education in Washington and get its publication on that subject, which gives not only a wonderful series of facts, especially interesting to North Americans at this present time, but pictures of the South American universities and schools, some of them the oldest in the Western World, long preceding ours, by the way. The average American will have a very different idea of the South American republics after reading this valuable little treatise. But our government publishes many such things about children, about industries, about national reserves, maps, documents, almost innumerable. Get the habit of writing for these documents. They are valuable often as information, but even more valuable as instruction in seeking and using sources of authority in the shape of documents. All this simply anticipates what now freshmen have to be taught *de novo*. A child with this habit established will soon learn to



look up matters on its own account and in the search of one thing will often find others equally or more valuable.

This study of documents reveals many things which the writers of course did not intend. To read Francis Pretty's account of *Sir Francis Drake's Voyage about the Whole Globe* tells many more things than merely the account of the voyage itself, quite naturally. In a similar way to read Rev. John Robinson's *Address to the Departing Pilgrims* at Leyden is a far more moving thing than the account of the voyage itself, full of moving details that is, as found in Bradford's *History*. *The Tale of Pocahontas*, by Raphe Hamor, secretary of the colony, is a pen picture of Virginia in Capt. John Smith's time not easily forgotten. It is thus that we get into the soul of history and live it and make it our own. If you want to see the most impressive story of an Indian war get Edward Randolph's *Causes and Results of King Philip's War*, and you will understand it, as it is not possible to understand it from any mere history. This is a portrayal of a group of events by a master hand that almost makes you see the contemporary figures. Thus the imagination is constantly reenforced by real materials, and the development of habits of verification, with the freest

emotional play of sympathy and understanding upon the events, makes the finest soil imaginable for the building up of a finely furnished, tolerant and appreciative mind. That is what the study of history should do, and the greater use of original documents the more effective the result.

“As a record,” says Professor Hart, “sources are the basis of history, but not mere raw material like the herbaria of the botanist, or the chemicals of a laboratory, stuffs to be destroyed in discovering their nature; as utterances of men living when they were made, they have in them the breath of human life; *history is the biology of human conduct*. Nobody can settle any historical question without an appeal to the sources, or without taking into account the character of the actors in history.”<sup>1</sup>

It is just this element of the *characters telling their own story* which gives the sources their importance, as they reveal motives and interests which could not be so securely established in any other way. A fellow voyager of *La Salle* will tell the story of the discoverer's ideas, expectations and experiences, as no historian, however gifted, could tell it. Dipping into town records in this way, following up genealogical histories and family documents,

<sup>1</sup> *American History Told by Contemporaries*, Vol. I, p. 3.

makes a most interesting habit for the child, beside teaching the importance of records, as such, the significance of which has already been discussed. These are not dead materials, they are the very life of the people involved, and so the contact is with the actual life of the past. In no other way can the assimilation of history be accomplished. But there are other living documents in the form of town charters, town monuments, which are always to be had. In the newer portions of our country very important interests can be created in this manner and often the development of a given section, influenced by what such studies bring forth. By the time high school age is attained, a well established habit of this kind may well have been created which may have lasting results in the keeping of important records. Few clerks of churches imagine that they are writing what will be in time to come, if they survive, as measures ought to be taken to see that they *do* survive, be important records of names, events, issues in the community life, perhaps personal interests of great historical value, through the fixing of dates of birth, baptism and the like. The church records of New England in this way are priceless in value, because so often carefully and painstakingly made. What would we not give if we had at this moment

more records of the personal history of Shakspeare? How we would prize more of the early personal history of Lincoln or of many another personality that bulks so large in the history of our yet young country!

If all this seems rather mature to begin with three-year-olds or four-year-olds, let me simply remind you that you would not hesitate an instant to read portions of letters from an absent mother to the children or those of an absent father, or any other member of the family. The comings and goings, the people seen, and the new and strange things encountered, would be of very great interest to such children about those whom they know and love. Why, then, may not a similar interest be possible in some of the greatest characters in history, especially when you can show their handwriting, some facsimile of their work, or some important event in which they have taken a part? Of course, much will depend upon your preparation for these things, and your manner of introducing it, and your own enthusiasm in handling it. But that it may be done admits of no reasonable doubt. I have seen children listen breathlessly to documents which might at first seem to be beyond them. But by the time you explain that this woman was about to die for her opinions, you

will find that the reading of *The Justification of a Condemned Quakeress*, by *Mary Dyer*, a matter which will carry itself along and at the same time lay the foundation for tolerance, which is one of the greatest needs of our own time. You do not have to take up the silly fictions, which so many persons think it needful to offer children, to get matter that will interest and instruct. Historical documents without number are now within the reach of any parent who will take the trouble to ask for them. The leaflets of the *Old South Historical Society* in Boston will be found most useful for this purpose. They are made up almost exclusively of original documents dealing chiefly with New England. The local historical societies in other localities doubtless have such material also. They furnish entertainment, instruction, and culture simultaneously.

As this chapter is being concluded there comes an article in the *New York Nation* from its Paris correspondent which throws an interesting light upon this documentary study as it is being carried on throughout all grades in the schools of France at the present moment. The school system of France, as is well known, is a unit from the very bottom to the very top, presided over by a Minister of Public Instruction. Says this correspondent: "It is the



Government's wish that all the students of France shall receive from the war raging at their frontier and in their midst the *utmost civic instruction for the future.*" All classes open with lectures and discussion of the war, its causes, etc., and the correspondent adds: "*In all the classes, also, according to their capacities, documentary lessons are given. Each day* in one of the most frequented Paris colleges the news given by one of the principal papers, comprising the official communications of the Allies and of the Germans and Austrians as well, are followed out on *detailed maps, analyzed, compared and criticised.* Beside the local knowledge of the war thus obtained, there is *a certain reasonable opinion* conveyed by the students to their families. It is easy to understand what influence this may exert against over-confidence or depression excited by exaggerating what are, after all, little more than "tactical" incidents of little importance in the essential "strategy" and still less warranting any surmises as to decisive action. *This is true civic education in calm and deliberate judgment during trying times.*"<sup>1</sup>

The italics are my own. This description of how the students of France are getting the solidest kind of education for their future serv-

<sup>1</sup> *The Nation*, Jan. 28, 1915, p. 103.



ice as wise and useful citizens of the Republic was not written with any educational intent. But it describes exactly what I have in mind as to "documentary study" planned to the grade of comprehension by the parent teacher. There is hardly a single exercise which is more calculated to train the reasoning power, to develop judgment and investigation, than this sort of thing, about the current events of the world, the materials of daily conversation and interest.

### III

*Complete historical pictures* should be made a further element in the teaching of history. By this expression I mean that far-reaching and important historical events should be *picture-rialized* in their completeness, rather than merely assigned their place in the chronology of the national or world history. By way of illustration, it is now comparatively easy when you talk of the *Battle of Waterloo* to get together the pictures of the great actors on all sides of the warring nations. It is possible to get all kinds of material which bears on the battle itself, to collect poems relating to it, or growing out of it, passages in histories, or letters relating to it, and making that battle a complete historical picture, not as an English

victory or a French defeat, or even as an important date in European history, but as a *complete historical event viewed simultaneously from all sides*. Of course, how complete you make it depends upon the capacity of your child and the capacity of the teacher. But in any case you can mass all kinds of material, literary, pictorial, historical, geographical, all at the same time. If to this you add discussion of the changes in military warfare, arms and equipment, and similar matters, you have an immense area to draw from to make the thing a sort of complete conspectus of the times viewed with reference to a single great event. If one will take Creasy's *Fifteen Decisive Battles of History*, in this fashion there will be opened a field for instruction, entertainment, and inspiration which will be of vast effect in the child's outlook upon all events and that is the real purpose of this kind of study. We have reached a stage in the world's life, where nobody cares any longer for the English view, the German view, the French view, or the American view of anything except as these help us *to know the truth, for the truth alone can make us free*. What the world needs, and what is especially to be desired, in the training of future citizens is the ability to recognize that great events are not settled off hand, and that

it requires investigation, deliberation, and weighing of evidence, to form any useful or sound judgment.

Thus you create *the habit of investigation*. The child will unconsciously learn that the world was not made of things that do appear. It will learn to look behind any given manifestation to its cause. It will learn in a rudimentary way to go about finding those causes, and will very likely ask a great many questions which you cannot answer, and which perhaps nobody can answer. But this of itself is not a thing to be regretted. Many things have to be left unanswered in this short life of ours, and the sooner that is understood the better for him who understands it. Still, it is wise to begin early the investigating habit. It helps to train the reasoning power. It helps concentration because it fixes the attention on one thing, but from so many different angles that it creates a sort of sporting interest as to how the thing will eventually come out. *It teaches how to suspend judgment*. Hitherto we have taught children history very much as we have taught them the multiplication table and with about the same result, which is nothing worth having. The *Discovery of America*, taken in this way, will lead all round the world and take in not only Columbus but the preparatory events in

the world, and will make that event a much profounder thing than any single man's daring and desire to find the New World. If you take the *Invention of Printing* in this way you will be led into a veritable wonder world and one that will more than repay all efforts put into it. Take for example such a man as *Roger Bacon* and run down all the wonderful stories and legends about him and you will find the telephone, the submarine, and the aeroplane, ten times as interesting as they are, and that is itself something wonderful. *Get all around particular things* in the history of your own land, in the history of other lands, whether it is the history of individuals, of events, or discoveries, or what not. The investigating habit is perfectly natural with children, and only needs intelligent directing. Whether it is utilized for *real educational purposes* or left to drift into mere curiosity about useless common-places depends upon you. For this purpose, a little note-book carried around for jotting down curious and interesting things, is very useful.

This habit is particularly useful for *recreational purposes*. Painters and paintings, sculptors and sculptures, art objects generally, lend themselves to many miscellaneous kinds of mental fertilization through this habit. But

properly it begins with something of world interest and importance around which many other kinds of knowledge are grouped, which shows how truly all knowledge is coordinated and how the developed mind looks at things which call for observation and judgment. This idea will reappear again when we come to talk about science in general and particular sciences. But the fact that things having historical importance can be pictorialized and lend themselves to narrative and dramatic form in teaching, makes history the field where it can be done with least resistance and greatest results.

Nor should it be overlooked that this method has another very important bearing upon all kinds of study. Almost the first thing now required for the effective knowledge of any subject is to find out the *history of the study of the subject*. That tends to reveal what has been done and where advances may properly be begun. Of course this has little to do with teaching young children. But it has everything to do with saving or wasting time. There is no use, for example, except as a matter of self-indulgence, for anybody who is not historically occupied with the story of transportation to go into the details of the earliest means of locomotion. It may be pleasant to know that cars were once drawn by horses, but



it is a sheer waste of time to go and dig up horse cars and expound them. We live in an age of electric transportation, and the child should begin there and use the past merely as furnishing the means of contrast, and as *enriching the present*. It is much more important to know that a gun is now made that can fire a thousand-pound projectile ten or fifteen miles than to know what the calibre of the cannons in the Napoleonic wars was. It is interesting, of course, if you happen to run across the information, but not worth while taking time to find out. It still remains true that one must know in a general way the history of the past before one can appreciate the present or forecast the future. To know how to go about this is the important thing, and recognize its necessity under some conditions is the decisive element in the premises.

Thus, why a general took one route rather than another, why a nation chose one alliance rather than another, why one invention succeeded where another failed, why one man of great ability failed where another of conspicuously lesser ability succeeded, why national development followed one path rather than another, all these and similar things, require going back over the ground and showing what helped and what hindered any given re-



sult. Often the reason will be climate, sometimes geography, sometimes the season of the year, sometimes an agricultural interest, sometimes a manufacturing interest, sometimes a hasty or foolish speech, sometimes a silent tongue; all these are historical causes and subjects for reflection and discussion. *There are no accidents in history. Everything has a cause, and sometimes is itself both cause and effect.* To master that truth is itself to grasp in childhood a tool of knowledge which is of supremest importance. Applied to personal concerns, like money, occupation, industry, sacrifice, and the like, it is the story of the life of mankind.

## CHAPTER VII

### SCIENCE IN GENERAL

THE most recent report of the United States Commissioner of Education points out that there is lamentable lack of coordination in our high schools in the study of science. As a matter of fact it cannot be said that there is such study at all, because the courses are not related to each other, and the student simply takes what happens to come along, almost without reference to what preceded it or ought to follow it. Perhaps as our high schools are now constituted and held firmly in the grip of the college requirements for admission, with which they have nothing to do, about which they are not consulted, and for which they have nothing to do but prepare their students, this is only what is to be expected.

But there is behind all this a much graver defect about which I wish to say a few words before taking up study with little children of specific sciences, and that is the lack of the understanding of science in general. Science and the scientific spirit have been made the

subject of so much discussion that a recent writer has even ventured to say that many teachers of science are not scientific persons at all. It may well be that this is true. Just as the requirements for admission in English almost of necessity preclude teaching of literature, so that the young people come to college without any knowledge of literature, or any appreciation of literature, so they come without any knowledge of science *per se* and no scientific sense properly so-called. But if the present program is to go on, and there is no reason to expect that it will be readily changed, because the educational machine is so vast, that changes when they do come come very slowly and are dependent upon the vast army of teachers who have to be changed also, for the present it may as well be taken for granted that there will be no radical changes very soon.

Yet to have something of the scientific spirit from the start is almost the *sine qua non* of effective education. What has already been said with reference to the other subjects will have prepared the reader for what is now to be suggested. Science is a habit of mind rather than anything else. It is a specific form of approach to knowledge, which clearly differentiates itself from other forms of approach. To get this habit of coming to any subject is

itself a kind of science, and that is the reason why there is so much discussion now as to the psychological relations of all kinds of human activity. It is now recognized very clearly that merely to get facts is not science. Indeed whether these so-called "facts" *are* facts, depends upon the mind of the investigator. Many a man thinks he is doing a scientific piece of work, merely to gather, laboriously enough, great masses of "facts" which have some relation, more or less, to the subject in hand. To watch a chemical reaction is no more scientific study than to watch the wheels of an automobile go round. It may be such, but merely watching the process does not make it science.

The same may be true of a great many other things that are called science. The so-called science courses in high schools have little or nothing to do with science in its real essence and meaning. That is the reason why you can do most of them with little children, as I am about to advise you to do. By the time your child reaches high school age and work he should be capable of doing something far more complex and important than the simple things which are done there and which, except on their mathematical side, may be done readily enough by very young children. Most of it is merely

memoriter work, dealing with things they have done, and the experiments do not usually, according to my observation, yield anything of the scientific habit of mind. This is true even of college students to a great degree. It is of great importance that children should be guided, so that the scientific habit will by and by be taken for granted, and the intellectual expectations and efforts molded and directed accordingly. It is mainly to indicate what this scientific habit involves that this chapter is written. It is to avoid the error, which is made in many other things, which assumes merely that information is knowledge. It is not. It becomes knowledge only when it is classified. So the things called science are science only when they spring from a scientific habit.

## I

The scientific spirit begins with the *habit of inquiry*. It is essentially the spirit of skepticism. But do not let this frighten you. Most of the troubles in this world come *because people will not take the trouble to inquire*. Half the frauds of the world would disappear if the people who become victims of them would carefully inform themselves and analyze the probability of what is promised has of being performed. Now the child naturally likes to in-

quire. Its sense of wonder is natural, and in this it epitomizes the history of the race. I am not urging that you destroy this sense of wonder, because it is, in the first place, one of the best permanent possessions of humanity, and in the second place is the source of imaginative power which must be cultivated and not suppressed. *But nobody ought to "wonder" about things that can be found out by effort.* You wonder whether or that thing you see in the papers is true. Well, most of them can be verified, if they are true. You wonder if such a statement is true. Well, you can look up the authorities and find out. There is no reason why one should stay in wonderland about things which are within the reach of discovery. You have a right to "wonder" about things which are beyond you, but not about those about you, which, if you make the natural and reasonable efforts at inquiry, you can find out for yourself. For instance, why should anybody wonder about his income and expenditures? Apparently most people *do* wonder about them, to their great detriment. It is just so about many other things.

Now the scientific spirit of inquiry raises first of all the question on any subject *whether it is a subject on which inquiry will help.* Is it knowable or not? Whether we shall wear



robes of white in Heaven may be safely set down as not a subject for scientific inquiry. It never can be known. But whether we shall to-day wear a heavy dress or a light one, and the reasons therefor, are easily ascertainable. *The inquiring spirit takes nothing for granted and asks first of all, is it true.* And even before that, it asks *can it be known.* That is how the scientific spirit begins, and this is of much greater importance than any mere fact or set of facts.

This spirit is the real working power behind many things which seem to be alien to it. You look at a beautiful picture, and admire its coloring, its perspective, and its finished and delightful presentation of its theme. But you do not see the laborious studies behind it, which were necessary before that picture could be painted. Behind all art, there is the science of drawing, and a vast deal of observation and experiment, and a great deal of inquiry and verification of all sorts of things, which in themselves have no beauty whatever. You hear a beautiful symphony or sonata, and you are thinking only of the charming emotions which are created in you, by the sounds you hear and their performance upon an instrument. But you do not see the laborious efforts which had to precede that composition

before it reached its finished state. You look at a beautiful cathedral, but you do not think of the mathematical calculations and the drudgery which had to be gone through with before that beautiful building came into being. All these are the scientific background of artistic creation. There is a general delusion that these things spring, so to speak, like Minerva, full-armed, out of the head of Jupiter. Nothing is farther from the truth. There used to be a story that Mr. Lincoln wrote the Gettysburg address on his cuff on the way down from Washington to the famous battle field. It is now known, I believe, that there are several recensions of that sublime bit of English composition. You sit down and eat a slice of delicious bread. But you rarely think of the skill, the precision, and the care which went into the baking, of which, if one single element were left out, as I left the salt out of some loaves I once baked, makes the most beautiful appearing loaf of bread a failure. It had all the appearance of success, till you tasted it!

“Paraphrasing,” says Herbert Spencer, “an Eastern fable, we may say that in the household of knowledges science is the household drudge, who in obscurity hides unrecognized perfections. To her has been committed all

the work; by her skill, intelligence and devotion, have all conveniences and gratifications been obtained; and while ceaselessly ministering to the rest, she has been kept in the background, that her haughty sisters might flaunt their fripperies in the eyes of the world. The parallel holds yet further. For we are fast coming to the denouement when the positions will be changed; and while these haughty sisters sink into merited neglect, Science, proclaimed as highest in worth and beauty, will reign supreme." This certainly goes far enough, and probably too far. But there is a substantial truth here, which must be recognized very early in life, and the sooner it is recognized the happier and more effective life will be.

The real beginning point for the scientific spirit is *a sort of wholesome unbelief in mere appearances*. You can readily mystify a child, as I often did, with a reflecting mirror throwing a flashing gleam all around the room, and talking about the flying sunbeams. But you do better to show the child how the thing is done, and how light plays such curious pranks, and how reflections come to make such weird appearances as they often do. Such a spirit carefully nurtured will make any child go into the darkest room, which it has known

in daylight, with no more fear than it would in the daytime. A child so trained will stand perfectly still, watching some unusual phenomenon, until it can bring all its previous experiences to bear upon it, for its real understanding. *This habit of unbelief leads to expulsion of fear.* This is what you do when you lead a very little child up to a very big dog, and prove to it that it has nothing to fear, that the big animal only wants to be petted, not to do any harm. It is only by such trying out that we ever get over the vast mass of our natural fears of the strange and unusual.

“Ask and it shall be given unto you, seek and ye shall find, knock and it shall be opened to you,” represents the real beginning of the scientific spirit, and doubtless this was in the Master’s mind in urging his hearers to endeavor to get acquainted with the higher spiritual processes *not by way of conjecture but by way of experiment.* The spirit of inquiry which finds out or seeks to find out all there is to be found out about anything and everything is the primary impulse that develops in a scientific frame of mind. It is not mere critical refusal to believe. It is a desire to know. Personally I believe that this desire to know is the secret of concentration, because the interest has been aroused, and is held to the sub-

ject in hand, by the desire to know the truth about it, and this makes for sustained attention and effort. *This habit of mind is the easiest and surest way known to me, of getting the habit of concentrated attention.*

## II

The desire to know the truth about anything, and a critical frame of mind toward it, brings irresistibly in its train *a study of causes* and hence *familiarity with the relation of cause and effect*. Now the study of causes, itself, has a very bracing effect on the mental life, because it leads naturally to the question as to whether this or that cause, could or would have produced, this or that result. This leads not only to the examination of the cause, as producing the special thing to be explained, but its general adequacy to produce anything. Suppose you perform some slight-of-hand trick with a handkerchief with your little three-year-old child. You try to give the impression that it drops down from the ceiling. Your little one looks up and around, and if you watch the process, you can see him coming to the conclusion that this is impossible, because he sees perfectly clearly that the *implied process could not have taken place*, and hence it begins to look around your pockets, or seeks

your other hand, or tries to find out some other *real and possible* cause for what he has seen. Now of course you can let the child find out such things unaided. But I think it better policy to take such occasions to show how optical illusions are produced, and lead the child to try such tricks himself. That I call the beginning of the scientific spirit, because it is not merely attracted to an unusual thing to know about it, as a matter of curiosity, but also to seek for a real cause of the thing he sees. In scientific circles they call that a *vera causa*.

Again, when children are playing hide and seek, and they stop and listen for the voice of the hidden playmate, what are they doing but trying to determine whence the sound comes, and so to the discovery of the hiding place? What children thus do naturally at play should become a habit of mind, and may readily become so with very little attention. You can teach any number of elementary truths and scientific principles to very young children by remembering this fact. I have often asked my own children, and other children, who have lost a plaything, to stand still and try to recall, step by step, where they had been since they last saw the article in question. I have seen them gradually lessen the area within which it had to be, by balancing partly,



by remembering partly, the reasons for or against a given place, and finally go straight to the article, because, by what was strictly scientific reasoning, they had eliminated all places but the right place.

When a child digs up the roots of a plant to see whether they are growing or not, when it digs out a seed that has been planted to find out whether it has begun to germinate or not, you have natural manifestations of this spirit. When you can show that a reasonable time must elapse before results may be expected, and when you can bring the various factors in growth to the understanding, and have fixed observation upon them, you have begun to create a real scientific spirit. There is no reason why this process should not be applied to all kinds of things. Made habitual, when the child strikes a laboratory, it will make a use of the laboratory which not one child in a thousand makes at the present time. But the simple truth is that what students at high school age now do *under direction* is so simple, and so elementary, that an intelligent parent, even one who has had no scientific training, can do it with little children, if only they can read. I have taught almost all that high schools generally teach about physiology, to little children, with the aid of a manikin and

pictures of the human body, and little experiments with themselves, which they could make and did make, with great pleasure and amusement to themselves.

*Children should be taught to search for causes of things.* Here I am reminded again, that many persons will say that this is not the thing for little children, and that it tends to destroy the illusions and innocent delights of children in "wondering." All I have to say to this is, that most of the healthy children I have known have always loved their own creations very much more than they have loved ready-made things thrust upon, or supplied to them. And I believe there is no subject under the wide heaven in which a child will not be more interested to work out the result itself than to have somebody work it out for him. *And the search for causes is the most interesting exercise of the human mind known.* That is why boys like to "track" an imaginary enemy through the woods and over the fields to his "lair." That is why some of the most popular games are games like hare and hounds, which involve pursuit with the matching of skill in the matter of elusion of the pursuers by the pursued. All these things are merely reminiscences of the childhood of the race, when the laws of the mind were not known and

understood. But why should not our children begin in this matter where we left off? Why should they not be shown how water becomes contaminated, how milk becomes bad, how all kinds of food decay, and how many other things take place, the result of which they can plainly see, but the processes of which seem occult and which need only a little intelligent *direction* and possibly the occasional use of a microscope or a magnifying glass, to reveal?

For a child to learn and incorporate into its habitual mental life the principle that nothing happens without a cause is a very great gain. The earlier it is mastered the greater the gain.

### III

What has just been said will show the child that what can be done once can probably be done again. That comes naturally to children who see anything unusual performed. That was the reason the child to whom I showed what you could do with a common mirror, in making sun flashes dance all around the room, instantly seized the mirror from my hand, and tried to do it herself. What that means is, simply, *trying the experiment* herself. Hence *experimentation is connected inseparably with the genuine scientific attitude*. What the child, before the

experiment by itself, regards wonderingly as the product of *your* genius, or *your* skill, having performed it itself, it takes out of the region of wonder and places in the category of *proved knowledge*. Of course, the child does not always know this, nor, of course, does it consciously aim at this end. But that is what it really does, and you know it, though the child does not. But every time this is done, it *breeds the belief in the child that what you have done, it can do*, and this is an important advance. It leads not only to the habit of finding causes, but to the habit of *experimenting* with things to see what they will do under certain conditions. I remember very vividly one such "experiment" which made an impression on my mind, which has never been eradicated. Some building operations had been going on in our vicinity, while I was a very small boy, and I learned for the first time that unslacked lime, if you put it in water, "boils." That interested me very much, and presently I got some of this lime and put it into a bottle, added some water, and corked it up very tightly. I watched with a good deal of pleasure and interest the boiling inside, till the bottle became so hot that I could not hold it, and began to be afraid as to what would happen. I hurriedly sat the bottle down by the side of the

new building, one, by the way, faced with very fine bricks of special mold and quality, and ran to the opposite side of the street. In a very few moments the bottle burst, that is, the cork flew out and the boiling lime with it, and painted a most interesting picture upon the new and costly brick wall before which I stood! It took several men several days to get the stuff off from those new bricks, so that the marks did not remain, and what I got from my parents, who had to pay the bill for the damage done, may as well be left untold! That was, of course, an *undirected experiment*. But many others, and of much more worth and value (none could be more interesting), may be made *under direction*, which may have thus great educational worth, and even greater psychological results.

It is my conviction based upon a great deal of careful observation that many of the so-called mischievous pranks of young children is nothing more than the desire to "try out," otherwise *experiment*, with things they have seen other people do, *and is a thoroughly sound and worthy activity on the part of children*. So far from being naughtiness, it is just the instinct, upon which to graft a sound principle of scientific habit.

It is sometimes said that this sort of thing

will destroy the sense of mystery in children, and affect the imagination unfavorably. On the contrary, I believe it rather stimulates the imagination *healthfully*, because it takes it out of the region where it is merely dreamy speculation, which weakens will-power, and lifts it into regions where it causes the exercise of the will in the direction of real knowledge. Nothing in modern education is so pitiful as just the result which has been produced in so many cases, namely, dreamy persons, with a good deal of miscellaneous knowledge of one kind and another, but with clear knowledge about nothing in particular. *Experiment* tends to destroy this kind of thing because, as already stated, it takes nothing for granted, and asks, continually, the why and the wherefore of everything. An incidental, but wholly worth while, result of the experimenting habit is that it provides wholesome occupation for children. When tired of one kind of exercise, the teaching parent can readily provide some other kind which will both interest and relieve, but the process of mind training goes on all the time.

And this experimenting habit can go on all the year round, with plants, with animal pets, with simple machinery in physics and chemistry, with physiology, and all kinds of things which are the raw materials, so to speak, of



scientific knowledge. Of course, you understand that you choose simple things and deal with them simply, but you do not deal with them without dealing with them *accurately* and in *scientific terms*. That is the special feature of this form of intensive treatment. You are preparing the soil in which real learning may be planted at a much earlier period than is usual, because the principles are understood and *so many things do not have to be unlearned* because wrong ideas have been planted in the subsoil.

## IV

One other, and perhaps the most important, thing in dealing with science in general is *the inoculation of the habit of measurement*. Substantially the whole of science rests upon this principle, measurement. In former days, the housewife made her bread, and could make it herself, and after long practice her daughter could get the "knack" of making it as her mother did. But it remained a "*knack*." Nowadays we measure the materials, and *anybody who can measure accurately* can get together the materials as well as anybody else. The same is true of many other things. What makes a cook-book so valuable is that the young wife can take it, and if she knows how

to measure, she can get the same result as anybody else, *because she has her formula before her*. All the sciences have practically grown out of this fact. The measurement of the movement of the heavenly bodies has taught us about the seasons, and so have affected our crops and many other things. *Measurement has given us all the applied sciences*, and if you teach a child *not to guess at things*, but *measure them*, you have taught it the greatest principle in all education.

Teach the child to measure, dry measure, liquid measure, length, breadth, thickness, bulk, all kinds of things, to note resemblances and differences, and equivalents, and the like. That is real scientific training. No end of pleasure can be gotten out of time measurements and weight measurements, and the relation of bulk to weight and the like. I had great pleasure myself in weighing all kinds of things to make one pound, with my own children, and the difference in bulk of the various things weighed was a great delight to the children. You can do all these things without expensive machinery, and with common household objects and substances. *You may add somewhat to your own knowledge by doing these things*. By this means, you can teach the *metric system* to a small child, and you can

teach all the ordinary forms of measure, without the child ever knowing when or where it learned them. You can teach the whole *decimal system*, and, as I think, you can teach *percentage* and some other things supposed to be beyond the understanding of little children. But aside from that, *measure everything. Weigh everything. Compare everything* with everything else by means of accurate measurement.

You can do yourself and the child a service by weighing everything you buy, or measuring it, if you get it by measure, and finding out a great many things that have a moral bearing, and possibly have some relation to the question of income and expenditure. Recently, in Boston, some hundreds of false scales were seized by the city authorities, which shows that a great many people are not getting what they pay for. You may do your child an important *economic service* entirely apart from the educational service by inculcating this habit. The American people are notoriously wasteful. A great deal of it will be stopped by the general adoption of this method. I have heard of some very funny stories of discoveries which children made in this manner, which had entirely escaped their parents, because their curiosity to know what

certain things weighed made it clear that there was need for important revision of the weighing apparatus in the neighboring stores! In this, as in some other things, a little child shall lead them!

*All the sciences require exactitude.* That is what makes them science. The elimination of personality, making the knowledge to rest not upon "knaek" or peculiar skill or aptitude, but upon verifiable measurements, that is what makes science. You can teach that to very young children, and most important teaching it is. It is really solving the practical problems in this way, which makes for the only effective science teaching even after the child has reached high school age. And I believe that much of the repugnance to mathematics, though, as I have stated before, I do not believe the pure mathematics have much educational value, would disappear with the general adoption of this habit for children. It *humanizes figures and measurements*, and because it deals with real things it is never out of the region of active interest and pleasure. Taken in connection with geographical study, it can be made most fascinating and full of historical interest as well. You see all these things are linked together in such a way that it makes little difference where you begin if you keep

in mind that you must deal with real knowledge in a real way.

It does not require much discernment either, to see that this kind of thing prepares the way for *economics* as well as for other things. Supply and demand can be brought easily into the field of vision here, always, of course, dealing with things that are related to the child's environment. We found out, for example, that grinding the coffee for each meal, instead of having it ground in bulk at the store, reduced the consumption of coffee in our household exactly one-half, under ordinary conditions. Incidentally we had better coffee! But that discovery was *not only interesting, but economically worth while*. The children, under their mother's instruction, followed the progress of foodstuffs through all their ramifications, till they finally became what they called quite accurately the "ghost" in the shape of the flavor of the bones of a roast, for example, in the final soup! Talk about home economics! We had the ordinary home economics school beaten a mile! But the enchanting thing about all this was, that we had innumerable household jokes and endless mirth over what would seem ordinarily to be the most mirthless transaction imaginable. Do not imagine that you must learn all the jargon of

science, so called, before you can do these things. Just utilize the knowledge which you have, and make it straightforward and clear as you go along, and the rest will ordinarily take care of itself. When you don't know about the thing you are dealing with, go to the library and get some book on the subject, or consult a good encyclopædia, and you will not only learn what you are seeking, but very likely a good many other things beside!

Let me caution you again against being deterred from doing these things because they seem alien to childhood. A few days ago a friend of ours brought in a nine-months-old baby. By turning on and off various electric lights with that child, I proved to myself how a little care in such matter, every day, will secure highly concentrated attention. I did some such experiments with my own children, but not very extensively. I did not, of course, know then what I know now. I know now that you can teach a child of ten all the chemistry and more, than most students know at college entrance.



## CHAPTER VIII

### PHYSIOLOGY

UNDER this caption I suggest the inclusion of many other subjects, and have chosen this as the most convenient way of getting at them all. There are so many things which come into the study of physiology that it may well be made the medium through which you may teach other sciences which will have larger uses later on. It is presumed before you get to the matters which I am discussing in this chapter that you will have informed yourself on details by reading some good text-book which you will not think of discussing with the children, and which will only affect the form and method with which you bring them to the children. One of these is the matter of sex. *I believe thoroughly in sex instruction, and I believe in giving it and getting through with it long before the adolescent period.* With very little children you can discuss all these things carefully and, I may add, *prayerfully*, so that there will be no disturbance when the new life

comes, and there will be other things to think about, because you have provided the materials of thought. I have noted in the bibliography a volume or two which I think parents may read with profit on this subject, and then transmit the knowledge to their little children, and *then, having taught it, leave it*. It is not a subject for high degree of concentration of thought by either children or adults.

But there are other things which may be included and taught here. The elements of *chemistry*, for example, come in here very naturally, because the body is composed of many elements, and the vocabulary of chemistry is an interesting one which lends itself to much and varied teaching in many ways on various subjects. It recurs in the study of botany, and zoology. Then again here you get in your *mathematics* of one kind and another. This is where I should get in my elementary arithmetic as measurements have to be recorded. Very well, learn linear measure and square measure and the metric system in connection with the measurements as they are made, and thus take away the bareness and the stupidity with which so much mathematical study is surrounded. Here, too, I would learn the multiplication tables, though these I would master by singing them; of course, the figures having

been mastered and simple numbers having been explained.

Here, too, I would teach my *physics*, that is, so much of it as is needful, and this again will have significance later on just as the measurements and the tables will. All these things go hand in hand, because you are fertilizing and are not trying to make experts, but just naturalizing your child in the materials and terminology of knowledge, so that it will presently have the all-powerful tool of grappling with *any subject* to which its mind is set, and toward which it is directed to work.

By way of illustration, take the chemical terms *oxygen, nitrogen, hydrogen, carbon, chlorine, sulphur, phosphorus*, for one group; then take *air*, about which you can manufacture about as many stories as you please, with every sort of illustration; or, take the metallic elements which are found in the human body, like *sodium, potassium, calcium, magnesium, and iron*; then again take *water*, as related to the body, or the gases, like *ammonia and carbonic acid gas*, or the various *salts*, or the *organic substances* like *proteids, carbo-hydrates* and *fats*; all these things form a natural and thoroughly interesting beginning of the study of physiology, though many of them are not less needful in other sciences.

Some one will say, of course, How can you deal with these things with small children? Well, the most natural question of a child is, "What am I made of?" and then your opening is secured, and far back of the physiological question itself, you can introduce all these other interesting subjects. It is not my purpose to go into them here, because that is a matter for *your assimilation through some good text-book*. But when you yourself have got this information and made it your own, you will have a wonderland to introduce your child to in introducing it to the study of itself. In this way the interest in its own body and its own processes is *detached from the introspective emotionalism*, which often results in trouble, and reveals the human frame as a wonderful composition of things which are found elsewhere than there, and the *correlation of man with the rest of nature* becomes easy and fascinating. You can readily use the chemistry of common things to illustrate the power and use of these various substances, and make your bread making, your house lighting, your vacuum cleaner, and your ventilation, subjects for much instruction and interesting experimentation. You can teach exact measurements by the shoes the children wear, the garments with which they are clothed, the cir-

cumference and diameter and shape and all sorts of things, of the hats on the heads, and even the materials of which all these are made. It all helps and it is all scientific knowledge. It has a very practical use, too, because it opens up the economic worth of these things and teaches discrimination. That saves money!

How practical and how immediate this sort of thing really is, was recently illustrated by an exciting discussion in the Massachusetts Legislature on the subject of calcium in bread, and for days, the papers were full of discussion as to the rightfulness or wrongfulness of the use by a certain large bread-making firm of this element in its bread. There was all sorts of expert testimony, all very interesting, but most people had not the slightest appreciation of the real merits of the discussion, because so few of them knew even a very little about the human body, or the chemistry of bread-making. And only a *very little* knowledge would have been very enlightening and saved a great deal of nonsense being talked on the subject.

Then again, you will find it useful to get a small manikin, and while it is not at first sight an easy task to take the human frame apart and get much fun out of it, yet with healthy children this is exactly what they will enjoy,

because they do it with every other animal that comes into their hands, and taking the stuffing out of dolls has become one of the regular habits of children. A manikin or suitable pictures of the human body will afford vast interest to children. Of course you will choose your materials, and you will choose your times and seasons.

You can thus make scientific, what parents have to do and always do in any case. Habits of cleanliness about the *teeth*, the *nose*, the *hands*, the *face*, and the *feet*, the care of the *nails*, and such like matters, may be discussed and made the subjects of direct and thoroughly accurate instruction. If, as some allege, the care of the teeth has so much to do with the future health and happiness of the race, and I do not doubt that it has, why not go into the business of showing how the teeth grow, what they are made of, what elements in food go to make them, how they decay, what makes them give trouble, and how they look not only on the outside but also on the inside? Think what an interesting study can be made of the *ears*, and how they transmit sounds, and how they furnish the model for many other instruments that transmit sound! Just look into the subject a little, and find how your telephone, your piano, your phonograph, are



all related to the ear, and you will have all the material you want for teaching all that needs to be known to insure care of the ears forever after!

While the children are playing with clay or in the sand let them make *impressions* or *models* of their own fingers or hands, and notice the details, and perhaps draw them and keep the drawings for further use. By and by you can take other organs. I cannot myself understand why a child which sees a chicken disembowelled cannot have every organ explained, and the similar organ in the human body, if there is one, also explained. Look into the history of special organs about which the child will hear very soon, like the *tonsils*, and get a page out of the evolution of the race! You can easily get a model, or at least pictures of the *eye* and its operations, and this will be of the very greatest interest, and should not only give them, but you, a good deal of material for reflection and discussion. But here again you will keep to the *exact terminology* and not let yourself talk down. The fact that you are handling concrete things will carry along some very hard words. And they will stick. I once blew up a pair of lungs for some young people. Again and again after that they clamored for the "lung story." And

I think I taught them most of the habits of correct breathing by that means.

Through your talks and lessons about the eye, the ear, and the nose, you can open the way to the discussion of the nervous system, and this again, as almost any figure of the nervous system will show you, affords ready-made materials not only for teaching about the nervous system itself, but many miscellaneous and interesting things about the *nerves*. This is the place where you can show *how the strength is conserved*, and lay the foundations for the kind of self-understanding which *prevents nervous breakdowns*. We talk more about them and have more nervous troubles in America, so far as my observation goes, than anywhere else in the world. There is a very great deal of absurd talk about the "nervous" wear and tear among children, and much there is, but it is *not due to work and even less due to natural defects of ordinary children*. But it does not take much to break down the nervous organization, if it is stupidly dealt with, and what is often lacking, is intelligent cooperation between the subject of it and those who have the care and oversight of children. When any such smash-up comes in it is at once attributed to overwork, which is usually not the case at all. The amount of hard labor even

little children can endure is surprising. This does not, of course, apply to defective children or children with some organic difficulty. But in any case, by this instruction *you can make your child almost immune from nervous troubles* by giving it intelligent instruction as to how the nervous system works, and teaching it to recognize symptoms when they occur.

Here again you will be told that a child should not be made to think about these things. But my reply is, that it will meet them at every turn, in nervous people, or people who think they are nervous, and should be made to *look critically* on these things, and note its own resources and expenditures in an elementary way. This is the method by which you can train a child to *school itself for emergencies*. A good portion of life is made up of meeting emergencies. I mean physical emergencies. The child should be trained to meet them. If it knows the digestive arrangements even in a simple way, if it knows how *fatigue* comes about, if it knows how *recuperation* is secured, if it knows how to wait and watch instead of worrying and weeping, some of the most important lessons in life have been learned. This is the time to do it. You can teach all these lessons as you discuss the organs of the body, their functions and habits, and what influences

them, and what their dangers are. *It is astonishing how much an intelligent child thus instructed can help its own convalescence in times when sickness comes. Any hospital superintendent will tell you that the training of the child in this way makes all the difference between a speedy and satisfactory recovery of a sick child, and the slow, unsatisfactory advance of one not so trained. It may mean life or death!*

Simple, but not unscientific on that account, *aids for injury* can be taught at such times. The use of *antiseptics* and their effects can be made second nature, a thing which a good many doctors have not yet learned. In fact, you can through this study train your child so that *its entire attitude toward medical science and medical practice* will be directed by it, and what is of the greatest importance of all, you can make it absolutely *immune to the quack appeals* of one kind and another with which the whole land is filled. If you accomplish nothing more than this, it is worth while. But you will do more, because you will lead it to self-understanding and by and by to a correct interpretation of its own symptoms, so that any difficulty which does come, in spite of care and preventive effort, is diagnosed, and thus the restoration may

be very much more speedy and satisfactory. *Do not let yourself think this is beyond a young child.* The only thing that makes you think so is, that we have all hitherto neglected it. There are whole chapters of medical knowledge which can be thus taught and should be taught. *Quackery thrives on ignorance.* If you make the soil, the disease will surely grow.

What you have thus done about nerves you may do about *bones* and *muscles*. The order does not matter much. Take the thing which comes first in a natural way, but if you can get a small skeleton of any animal you have your work cut out for you. Sometimes there is a museum at hand, which may be visited, and the specimens studied. Learn the names of some of the more important bones, and names of all the *classes of bones*. They will be useful in your study of English and Latin. Take every term you use, first of all as a *word*, and get all the information you can out of it that way, before you go into its special and limited use in this science or any science. Your lesson always begins with word study, no matter what your subject is. Hence, your dictionary is always at hand. You can take the turkey or the chicken you have had for dinner, and have the bones carefully cleansed, and then put them together, which is a very in-



teresting exercise. You can do the same with a rabbit or any other small animal.

A *skull* is a most interesting object, and one the handling of which will have some suggestive results. Its use in symbolism and literature may make it one of the most interesting objects imaginable, strange as that seems at first sight. In fact, this is true of the skeleton generally. You only need to let a child see how the ribs are fastened to the spinal column, and get a good notion of how the human frame is put together, to find yourself flooded with all kinds of questions which it will tax all your skill and ingenuity to answer. *And you must link all this with concrete things.* When you hear food values talked about in domestic science lectures, and the like, immediately apply that knowledge through this study, and thus make the common foods tell their story in scientific terms. Too academic and remote, I hear somebody say? Well, take up your newspaper or magazine of only recent date, and see it discussed with reference to Germany's food supply, and you will see what I mean. No knowledge is alien to you. Because it is yours, it is also the natural possession of your child!

While you are on the subject you may take along other very practical matters which have



scientific import. Let us say you are discussing the *heart*. Here again the literary implications of your subject will furnish the material for preparation for teaching. Glance through your Bible and your "Familiar Quotations" for passages about the heart. Now, of course, you know that when the Bible uses the word heart it does not mean the physiological organ, because it was not known as we know it, and there was nothing known about the circulation of the blood, and the only lessons to be derived are moral lessons. But nevertheless, the central importance of the action of the heart gives you your material. But you can teach such things as the action of the *pulse*, and the *circulation of the blood* and *blood pressure*, and a host of other things which will explain descriptions which will occur in classical literature, when the modern scientific knowledge was not in existence. A *clinical thermometer* will teach a good many things, and a *clinical chart* will help. This also will aid in bringing to the front all sorts of questions which it will be your privilege, if you do not already know, to find out and impart. Do not fear, the questions will come, and the only issue is whether you will have the material. The same is true about the lungs,

and if you can get a pair, either a human lung or that of some animal, and blow it up and show how it works, so much the better.

By these lessons you are showing how the organs of the vertebrates and mammals generally work analogously, and you will more and more ally the thought of the human body with the physical structure of animals generally, and when it comes to biological matters, especially sex and reproduction, you have come by a road which makes the approach *not personal, but scientific, impersonal and natural*. A writer on this subject says that "the questions of the child should be answered frankly, meeting the intellectual needs of the child just so far as they are felt; the information about reproduction should not be abstract generalizations, but should be related to the child—as *his* chickens, *his* kittens, babies of *his* own acquaintance. Broad generalizations are not usually necessary. If this period is properly dealt with, much of the vicious information may be anticipated and rendered less harmful. A sense of partnership with his parents in this knowledge is valuable. The average child learns more during these years (from four to seven) than at any other period of equal length in his life. Much will be gained if the sex

facts can take their place normally and without shock in this growing knowledge.”<sup>1</sup>

Here the mother should be the teacher manifestly. And because this period is so full of power, because so much is acquired in it, you can readily imagine why it is necessary to get this important kind of knowledge *so mixed with other kinds of knowledge* that its impersonal and scientific character will operate to take this special matter *out of the field of self-consciousness*, through which much of the trouble usually comes. Do not let it get specialized in a way which separates it from other knowledge. Keep it in the region where you can readily match any personal allusions by illustrations from some other field, and for this purpose your botany and zoology will prove very helpful. This same author repeatedly urges, what I have said so frequently throughout this volume, that *you must be sure not to use nicknames or vulgar terms, but scientific ones*, which keep the matter in the region of intellectual acquisition. The literary treatment of the subject will supply all the necessities for adorning and embroidering the theme.

The habits of other mammalia, like calves or kittens, feeding, will supply many suggestions

<sup>1</sup> *Biology of Sex*, Galloway, p. 72.

for the relation of the child to the mother, and from these the more intimate relation can easily be suggested. Plants also, and more especially, will suggest the reproductive relation and the transition in thought from one to the other, it has been observed, is not difficult. *All such teaching should habitually be linked with moral instruction of some sort, and this followed speedily with some sort of moral exaction, a specific duty of some kind, as filial duty and obedience and obligation resting on nurture and care.*

Experiments with very little children, babies, in fact, in this field, will be a very interesting and helpful preparation for your later work, because you will see some relations made clear which are not so apparent later on. In these you will discover the relation of the human animal to his remote ancestors. Everybody knows the power of a baby's clutch. That surely is a reminiscence of an earlier stage of development. The same thing is true of its wriggling toes. You can watch the change in the difference between the size of the baby's nose when born, and its jaw, and how differently they look a little later on. I found it a most amusing experiment to let my little children play with colored yarn balls, and note their predilections for one color or an-

other. Over the crib of one of my children when a baby, I placed a mirror in which it could view itself at full length, and thus I observed the child's discovery of its various parts from the waving of hands and the wriggling of toes and legs. Sometimes I placed a light by the side of the crib, and directed the gaze of the baby at the shadows of itself and its hands, and once I produced an electric effect, when the baby, crying naughtily, desiring to be taken up when it ought to have been going to sleep, as I surprised it into seeing itself as it looked in the mirror, while thus crying! Never was amazement and chagrin more absolutely pictured, and we had a great deal of fun out of it. These and many such experiments which will only occur to you, while the baby is in its bath, in which, it will often show that it has come out of a fluid medium and has a history, which involves swimming, a long distance back in the story of the evolution of the race. Indeed a well known athletic instructor says that if a new born baby is put into a proper liquid medium it *will* swim. I never tried this, but I have often been struck with the resemblance between a swimming small boy and a tadpole!

All these things, as you come later to deal with the human body, will give you the sense

of the relation of man to the rest of animal creation, and will point out the *natural way of doing things* which we in our artificial way of living have obscured, much to our hurt. By this means, too, you will discover *early tendencies*, which, observed and provided for, will explain many things which mystify us about our children. In your careful observance of these antics in the baby you will make for yourself the materials for teaching him later on, using illustrations out of his own life. You will often, too, be led to make practical choices of great moment. Thus the best penmanship among my children is that of the one who is left-handed. She writes most beautifully, and her college note-books have a sort of copper-plate beauty by their regularity, neatness and the beautiful formation of the letters. We tried of course to cause her to write with her right hand. I myself was taught to write with both and used to write equally well with both. The mother showed the same left-handed tendency as a child, and was compelled to write with her right and thus utterly spoiled her penmanship. The little girl, as a small child, was compelled at first to write with the right, but it was observed that the moment attention was withdrawn she switched quickly to the left. We finally decided to let her use the left, with



the result above noted. Now, as I view it, it would have been nothing short of abuse to prevent that natural development which has resulted so happily. And I cannot see that it has caused much inconvenience. There are many such things which you will note which, when you come to teach the subject itself, your observation and experience will turn to great practical account.

The same thing is true when you come to deal with the *voice* and the *larynx* and the *vocal chords* by which speech is produced. Your butcher will get you the larynx of a sheep easily enough, and with that working model you can show how the various parts cooperate and how sound is produced. This leads me to say something about the voice. Most people never learn how to use their voices, and the result is that we have the harsh American voice, which is noted the world over for this quality. Now this is not necessary. There are differences in quality of voices, of course, but a pleasant speaking voice is within the reach of all who are not deformed. Your own example and practice in this matter will go a long way toward making the practice of the child. But you can also make the child conscious, very early, of the differences between the various voices it has to hear for their qualities of harsh-

ness, dissonance or pleasantness, and the object lesson will have very great weight. *This matter cannot be emphasized too strongly.* The tone used ordinarily indicates the emotion which causes it and is behind it. You can get very thorough control over the mental operations of the child by the voice, and help it to this same kind of control by directing its own attention to them. You have doubtless noticed that even small babies notice the differences of tone employed long before they know speech. That same influence acquires accelerating power. *If you lose the distinctions of tone by failing to use your voice properly, especially by using it too much, you lose a most valuable instrument for intellectual growth.*

You will remember this when you are reading aloud, or when your child is uttering words of different languages; you will note it at play, and you will especially note it in the ordinary routine of the home. There is nothing so satisfactory in the home as a pleasant-voiced person. There are moral implications here, too, which should not be overlooked. Have you ever noticed the difference between a command bawled out in a rage, and one quietly delivered in even steady tones? Have you ever noticed how you can lower the tone in a roomful of people often by simply lowering the voice?

Have you ever noticed how decisive a change came over the tone of a roomful of people when certain persons stopped talking? Have you ever noticed how surely the tones of certain other voices made themselves heard, no matter how many other persons happened to be talking? Just go into this subject a little on your own account. And while you are studying about the throat, the larynx, and the vocal chords deal with the things they result in, and what it signifies.

There is a spiritual phase of this study, which I cannot leave the subject without at least mentioning, though I have fully discussed the subject in another work.<sup>1</sup> The Christian religion met the licentiousness and the physical as well as moral degradation of heathenism with the assertion that the body was "the temple of the Holy Ghost." In our day we are urging that the body shall be studied and cared for in the interest of social salvation and health. Whether the economic or prudential motive will be strong enough to get these things for us, through education, seems to be open to grave doubt. My own judgment is that we shall have to come back to the Hebrew idea of making it a matter of religion. By them almost every bodily function was regulated by reli-

<sup>1</sup> *Christianity and the Social Rage*, p. 269.

gious law. That made the Hebrew race a marked group in the social history of mankind, and the study of the human body, whatever its physical origin may have been, which is to be effective in the regeneration of the race, must consider it from the spiritual standpoint, and from this standpoint I bid you to begin with your children. As I have remarked, "One thing is very certain, and that is, that if a modern city block were subjected to the severe regimen of the Hebrew codes, seven-tenths of the troubles in them would disappear. Not only did the Hebrews legislate for the relation of the sexes, the relations of parents and children, of special groups to each other, but in a thousand ways, too minute for detailed description here, made their religion govern almost their very breath that its adherents took into their lungs. Ablutions, dress, food, sexual relations, childbirth, dietary, and almost every other form of what we should now regard as the special field of medical supervision, were not only controlled, but highly organized—so highly that it remains a wonderful thing to this day, and many of its precepts, as already stated, have the sanction of expert medical authorities. Religion and medicine were one, not so much through the practise of medicine, as through sanitary regulation which made the

religion of the devotee his physical salvation.”

Take up, therefore, this particular branch of knowledge, in a specially humble and devotional frame of mind. You are dealing with the most wonderful piece of mechanism in the world, the crown of nature, and the most superb exhibition of creative skill which the universe contains. Not a fragment of it but is worthy of your most minute and careful investigation, not merely because it is an intellectual problem of the first magnitude, but, even more, because you are indoctrinating your child into the residence of *his* temple of the Holy Ghost. In this house he is to live and move and have his being. Here he may make for himself a mere warehouse, a sty or a shrine. Given himself under the holiest association known to mankind, and given for nurture, culture and immortality, let him early feel through your instruction that his every part is sacred to some high and holy use. That for him the great composers have made the most entrancing appeals to his ears, the noblest artists to his eyes, the most gifted minds to his thought, and that he may make the highest use of all these gifts, he must master the best use of every one of them. This will lift this whole subject out of the region of the commonplace,

supposing that it could ever fall so low, and make it the study of what it really is—life itself—pure, holy, and endless.



## CHAPTER IX

### BOTANY

PERHAPS the best way in which I can introduce the manner of bringing the subject of botany to the attention of children, in a scientific way, is to quote from a master of the subject, Mr. Grant Allen: "Plants are *living* things; they *eat* with their leaves, and *drink* with their rootlets. They take up *carbon from the air*, and *water from the soil*, and *build* the materials so derived into their own bodies. Plants also *marry* and are given in marriage. They have often *two sexes*, male and female. Each seed is thus the product of a separate father and mother. Plants are of *many kinds*, and we must inquire by and by how they came to be so. Plants *live on sea and land*, and have varieties specially fitted for almost every situation. Plants have *very varied ways of securing the fertilization of their flowers* and *look after the future of their young* like good parents that they are, in many different manners. Plants are *higher and lower*, exactly like animals." <sup>1</sup>

<sup>1</sup> *Story of the Plants*, p. 13.

There you have already a comprehensive program outlined in terms which almost any child can understand. You have, in this description, a "humanized" outline of the various processes which you will inquire into, and into each you can go almost as far as you please. For your purposes, however, you will not go much farther than the merest outlines and let the interest you develop, point out how much farther you are able to go. Some children when they become interested in some special branch of any subject want to pursue it much farther than others. You will be guided in this matter entirely by the interest you create. But as an initial step you will take up these various points, and deal with them as best you may, and let the work itself point out whether you have struck a special lead or not.

First you would be wise to get some elementary text book in botany and soak yourself on the subject. There are many such books and they all, in the elements, go over substantially the same ground though some are clearer than others, and you must be guided in this matter by your own surroundings. But let this be clear from the beginning, namely, that you need not go far from your own home to have all the material which you need, and what you are doing here, again, let me remind

you, is not to merely teach the child to recognize the common plants and flowers of the vicinity *but to inculcate an intellectual method* of inquiry and scrutiny which is the essence of scientific study. First make it clear to yourself that all the natural processes with which you are acquainted in human beings as Mr. Allen indicates, exist in plant life also. This will link it with your study of the human body and make your biological parallels very effective. Plants are *living* things. All life is derived from them, and they were before animal life, which, without them, never could have existed upon the earth. They have *nutritive processes and habits* just like human beings, and have to *earn their food* like them and make arrangements that their *food supply* is not stopped. Sometimes they seem to *change their very nature*, because the conditions under which they find themselves require it in order to live. In this they are again like human beings and almost all animals. Then they have their *offspring, their children*, whom they have to *beget and nurture and provide for*. All this you will assimilate yourself and as you take up this study, step by step, you will have already begotten a kind of affinity between yourself and your child's mind for the wonderful plant creation.

Much of the study of plants fails to get anywhere because the study is linked merely to ideas of the beautiful, and the emphasis is laid on the pleasure of seeing the beauty and the blossoms. That is not your object, though you will appreciate the beauty as much as anyone. Your business is to get into the *life of the plants from their own standpoint*. You are to open a volume of *nature at work* and you will simply follow it *as it works* and be guided by it rather than guiding it yourself. For this purpose you will not always make up your mind what you are going to find. Very likely you will find something you are not looking for yourself. Every such "original discovery by the child, itself, is of great importance because it brings the child *face to face with a law of nature* which goes on silently, inevitably, all the time and for which man has made no provision, and which man did not have anything to do with, in the making. You will often be struck with the additions to your own teaching which the child will make. I recall a small child, which was being taught along this line and had been given a bean to plant in wet sawdust and when it had swelled and was about to throw off the outer skin, the teacher remarked, "You see, the bean has now outgrown its little coat and is going to throw

it away just as your mother does when you outgrow your coat!" Quick as a flash, the maiden replied, "Oh no, she does not throw it away, she makes it over for my little sister!" which was not only a beautiful illustration of economy, but was, in fact, scientifically exact. Nature throws nothing away. She never wastes. And what she discards in one form she utilizes in another. You will have many such pleasant episodes.

Having prepared yourself, so that you know where you are to begin, you will provide yourself with *pictures of plants*, if possible, those which you are going to study more minutely, and let them be very thoroughly known and recognized. In your walks you will gather many of the commonest and identify them in the most general way. This is merely to get the habit of looking about, seeing unusual things and finding the *habitat* of certain flowers and plants. You will readily find that some are always found in certain places, some on high ground, some in marshy places, some by the roadside and some by the river-side. That is all practical information. You will also notice their *size* and *texture*. Some are *strong and sturdy*, others are *slender and light*. You will notice *color* and the lack of it. You will notice *resemblances and dissimilari-*

*ties*. You will notice form, height from the ground, and manner of behavior under various conditions. All this is perfectly simple and but preliminary.

Then you will get a *microscope*, or a good magnifying glass, so that things not visible to the naked eye can plainly be seen. This will be your constant companion, because it will instantly reveal many things which, without it, you would hardly suspect, much less know. If you can keep a little place in the Summer time or a little box in the Winter, though you would be wiser to match your study to the seasons, where you can plant things and watch them grow, so much the better. This same microscope will serve you when you study zoology and the little insects which you will want to know about. In any case, remember you are to proceed with the little student *as though for the first time you were finding out how these plants came into the world and why they stay here and what plans they make for keeping themselves here*.

What makes this study so important is that here you are at the *sources of life*—for plants alone know how to make the materials of life. Animals could not exist without them, and could not have come into the world, if plant life had not prepared the way for them. So



that as you watch the elements of plant life develop, you are close to the sources of all life. Everything living of which we know anything, came from this source which itself *makes living matter out of material found in the air under the influence of the heat of the sun.* When the Psalmist therefore says that our life is but a "vapor," he is stating something which has almost scientific exactitude. You will find that a few such generalizations made clear to your own mind, will help you very much in interesting the children, especially if you keep the human resemblances clear step by step. *Eating and drinking, growing and changing, mating and reproducing, settling down and moving from place to place,* all these can be reduced to definite reasons which can easily be made clear. And when you find a plant in an unexpected place, you will immediately ask what happened to it, that it had to move from its original home, and you will thus be led into another field of knowledge, geology.

The science of biology is the study of living matter and *living matter alone has the capacity for change and reproduction.* This differentiates it from dead matter. There are two kinds of living matter, plants and animals. *The plants are the producers, the animals are the consumers.* You will sometimes find that

the plants make reprisals on the animals, as when they cannot find their materials in the air they catch some form of animal matter and feed on that. That is the explanation of the plants that catch flies and insects, for their own nourishment. The habits of plants are very interesting, and form a very useful way of creating interest in the subject. Sometimes they change a stem into a leaf, for necessary reasons, and sometimes they assume forms for their protection, as in the case of the spines of the cactus. Some again are strong enough to maintain themselves without help, while others have to have help and cling to something. You will always find that the plant *adapts* itself to its conditions, and when it cannot find conditions natural to it and cannot alter the conditions, *it alters itself*. Thus you have the two laws of adaptation and variation illustrated.

These are some of the fundamental things which you will have in mind, and which you will be constantly referring to, because they are a part of the great natural system under which nature works, and has her purposes carried out. They reappear in almost every form of the study of living things, and when once the child gets the idea of *the same law* working in different forms, in the various

fields of nature study, whether plants or animals, including the human animal, you have taught some of the fundamental lessons of science. The earlier these are mastered, the earlier will the reasoning habits be strengthened, and sound habits of thinking developed. In the study of botany, the intrinsic interest of the materials themselves, added to their place in the common ordinary life of children, makes progress very rapid and also develops the ability to rationalize about things which are not so common.

One very important point not to be overlooked, is that you must *let the child do as much of the work itself as it is capable of doing*. Let it point out and count the various parts. Let it note the differences as they appear. Let it make the comparisons and let it work out the why and wherefore, you supplying the leading questions, and making the suggestions when necessary. Here also is a good place to begin *drawing*. Of course, the drawings will be crude, but do not let that bother you. If you could see some of the drawings in freshman laboratory books you would never feel discouraged about anything that little children do in this direction. But as you will be doing this not only in your study of botany, but also in zoology and geology, you will be

getting habits of observation and practice, which will do in a very much more useful form, what is usually done aimlessly and without any end in view. Sometimes too, children will develop unusual skill in this way, which, of course, when it is the case, indicates another talent which should carefully be conserved. Therefore keep blocks of blank paper around, and pencils that make a distinctly black mark and, when possible, let the completed plants and parts of plants be colored. This form of activity can easily be made "busy work" for the employment of odd times. Dull and stormy days can through this means often be made most profitable and happy days.

When possible, get complete plants, that is dig them up carefully and press them or examine them entire, first try to classify them, your text book will be of use here, and then take up the various parts of its structure. *Don't attempt too much and do the same thing over many times*, the practice is quite as important as the results. By this means you get manual dexterity in handling delicate things and care in separating them and preserving them. When you go walking, a little tin box, large enough to put an entire plant into without injuring its parts, slung over the shoulder, is very useful. If you can get one with three

compartments you can put insects into one, plants into another, and minerals into another, and so all your scientific studies will go hand in hand.

*Learn to cut up a plant carefully* in various ways so that you can get a view of its interior structure and can note how it is put together. The mounting of these parts in plants that are large enough, and you will select such at first, because most easily handled, will also afford pleasant and profitable work. Keep the child at work and though you can do it much better yourself *let the child do it*. It is well to keep all such efforts from the very earliest. They will make the material for comparison with later productions, and also indicate the measure of progress. Whenever you use a common flower or plant, *always refer to it by its scientific name*. You will remember I said that this will help you in language study, and these names all have a history. The reason most of them are in Latin is, that it was and is the language of the learned world and is read all over the world which would not be the case with any other.

Common *garden vegetables* offer a rewarding field for experimentation, radishes, carrots and the like. You can study them at every stage of their growth and note the various



parts. The drawing of their interior structure too, is simple and attractive work. Use your garden for everything you have learned. Make frequent reviews of the things which you have worked out and see that they are recognized whenever there is an occasion for their recognition. Show the functions of the structure clearly and simply; what leaves do, what stems do, what roots do, and how they do their work. Get all these easily discernible things well understood before you take up fertilization, though no definite place can be made where you shall begin or end. Your purpose being to fertilize, yourself, you will cause many things to be planted in the child mind, only you will guard as best you may, against giving *mere confused masses of information*. It is not *how much* you teach but *how much* you make *absolutely clear* that is your object. When the mind is clear, acquisition comes rapidly enough.

You can make the subject one of pleasurable interest by means of *seedlings*, using for this purpose the ordinary bean, pea, sunflower and the like which you can sow in sand or moist sawdust, and as they develop, you can watch them and compare them. *Notice everything about them* and see that you do by *making drawings of them*, that is, letting the child



make the drawings. Your text book will give you most of the practical directions, but what I am calling attention to, is, that the processes are carefully noted and compared. Apparatus of a simple sort can easily be devised and most of the simple practical experiments for your purpose can be made without much difficulty. You can take the various grains and examine them after they are sprouted in this same way. Seeds of melons, squash or cucumbers, will add to the interest because these are common every day things about which any child will know the final end. Write to the Department of Agriculture at Washington and have them send you a list of their publications, and look them over and out of them you will get all sorts of material for experimentation. *Seed catalogues* and *flower catalogues* will also give you useful material not specially for botanical study, as such, but as showing pictures which stimulate the imagination and give you the common equivalents for the scientific names which you will habitually use. *Just remember that everything is grist for your mill and that you are to get information from every source and work it through your own mind for the purpose of giving it scientific form and shape for the child.* Try out every sort of thing that has any prom-

ise in it. But always bring whatever you begin to a full complete ending, that is, do not let things hang at loose ends. Finish what you set out to accomplish. Thus if you begin with a geranium just get everything out of it that it is possible for you to get, and while all that you get won't be all of it, nevertheless you will have for that particular plant a more or less complete set of ideas. Do this with a plant of each group, getting this way variety.

The most fascinating portion of the study of plants is that of *fertilization*, that is, the marriage of plants. Make it clear that the flowers are the mates of plant marriage, sometimes husbands, sometimes wives, sometimes both. Sometimes, in the lower forms these processes are not very clear, and in some plants, a single part, if it is placed in wet soil begins at once to grow into a new individual plant. There are many forms of this process and your business will be only to deal with the simplest at first. Make it clear however that the *flower* of any plant exists only for the purpose of *reproduction* and that all its parts, and its form, and its color, all have some part in securing this necessary work. You will show what the *stamens* are and what the *pistils* are and what *pollen* is and how all these work together and you will watch some flowers go

through their regular work, or see them in pictures in their different stages, to see just what occurs. The stamens and the pistils are the true flowers, because upon these depends the work of reproducing and the petals are merely the *envelope* in which these are placed. These petals *by their color attract insects* which help in the fertilization and their coloring is usually for this purpose. They are simply an announcement to the insect world, that this is a good place to get honey, which is the sweet sticky substance in the flower, and by coming to them the insects carry the fertilizing pollen from one plant to another and thus aid the work of keeping the species alive.

But there is a different purpose here, too, which is one of very great interest. By this means different plants are *crossed* and thus you get healthy specimens, which is exactly what happens when different members of the human family mate with other family stems than their own, and so preserve a healthy strong stock. What human beings do by purpose and plan, the plants do naturally to keep themselves alive and see to it that they have *strong healthy children*. The higher the plants are in their order, the more necessary this process is. Just as with human beings.

This usage of the insects is a very interest-

ing thing to watch, because it shows how the plants marry. You will often see a bee coming out of a flower into which he has poked himself, quite covered with pollen. Well, he will go into another flower and he will rub that pollen off at the right spot and fertilize the plant to which he goes *by putting the pollen on the sticky stigma of the flower to which he goes*. That keeps it there and prevents him from carrying it further. And so the marriage takes place. The plants did not do all this at first, but began in a much more humble way. But gradually, they found that they could get the insects to come if they put the honey in an attractive place, and made the petals bright with color, so that they could easily be seen afar off, and very soon they established a plan of cooperation with them. The plant world is full of such plans, and when they result in the marriage of the plants the plant is encouraged to do the same thing again. By and by, it becomes a family habit. Generations of insects trained in this way, know exactly where to go and what they will find when they get there.

Sometimes you get curious results which neither the plants nor the insects planned for, and when this is the case, you find a new kind or variation of the plant. All these things

you can see very clearly, in common flowers, like buttercups or columbines or others quite as common. Then again, you will often notice that the plants have found out that they are visited by other than friendly insects, *raiders* who simply want to get what they can without doing anything in return for the honey they get. If you will look carefully, you will find that they have made provision for these raiders into their preserves, and have made *protective places* where they hide their honey and only give it up when the proper visitor arrives.

Watch the butterflies at work, and see how they help in all these plans, getting a good view of them before they crawl into the flower, and how they look when they come out. Even these insects which fertilize make mistakes sometimes. They, like the rest of us, meddle with things that look promising, but which are dangerous and they often pay for their experiments with their lives. I have seen butterflies make such mistakes.

Then again there is another agent, which has to do with the perpetuation of plant life and that is the *wind*. Grasses are generally fertilized in this manner and the *catkins* which you are so glad to welcome in the Spring are of this character—that is *wind-fertilized*. The

wind does a great many wonderful things and it is most interesting to see how the grasses hang out their stamens to the wind. It is for this reason that they are so numerous and cover such vast areas.

Then again, you will deal with the *fruit* which is simply the effort of the plants *to provide for their young*. It is the *seed* which is the *stored food* of the plant upon which the young child has to live, when first it begins to germinate, and that is also the reason why these same seeds or fruit are good for us to eat, many of them, because they are full of nutrition. By these the young plant can live for a long time, till it gets to the point where it can send out into the soil its own little rootlets and agencies for getting its own food.

By such simple stories, and in this simple manner, you will induct the little children into the study of what becomes the science of botany. Use your text book freely *yourself* but do most of your work with the plants themselves, and let the children do all that they can in their own way under your guidance. When once a careful dissection of a plant has been made, let the child make another on its own account, and so get the habit of noticing peculiarities and things which it has not seen before. Often vary your story



by going into other phases of the subject, by dealing with the very materials out of which the plant is formed. For example, take the subject of *chlorophyll* and explain what the significance, the perfectly tremendous significance, of the green coloring of the plant world is. That will afford you materials for many hours and many reflections and discussions about things of never-ending interest.

In the midst of the study of the plants themselves, you can bring home to the child the wider implications of the plant world, its relations to the animal world, including man, for food, and the fact that without it we should all die, because we should have nothing to eat and that applies not only to us, but to the animals which we also eat. Point out that there was a time when there were no plants or only the very lowest forms which appeared first because of the *geological condition of the earth*. I have taken the botany first, because it seemed to be the science in which interest is most readily excited and where the variety of material is greatest. But out of all this you can develop relations of thought with the most modern and vital of economic subjects like food supply, fertility of the soil, the forestation of areas from which the trees have been cut off,

and the mass of topics which will be found in almost any morning newspaper or magazine. When the child finds that what it has been studying in this simple way is related to the big practical questions with which the master minds of the world are struggling, its interests will automatically expand, and you will often discover that it raises questions which did not occur even to you.

Always keep to *the habit of asking for reasons*, the why and the wherefore of everything. If you don't know yourself find out. But encourage that habit because it lies at the base of the organization of the mind for dealing with problems concerning which there are few data to begin with. To look about with a new question, and work out some kind of a hypothesis concerning it, and then finding out whether it is right or wrong, is the best mental training that exists. Some things to be sure are fixed and you may say that they are to be learned outright. But not many, and we are constantly finding out that many things we supposed to be fixed are not fixed at all. Study physical laws along with all this material. The pressure of air, and the velocity of the wind, and the fall of rain, and the creation of gases, and their effect or modification of living life. That will lead you directly into many

practical things which concern the daily life of the child itself. You can show best by the study of plants how much *conditions affect results* and by this method make the child itself conscious much of effective life depends upon conditions, and show which of these it has in its own keeping. Plant life responds so readily to all sorts of changed conditions, that it illustrates many ethical as well as natural laws. Hardly a tree but shows the effect of some outer influence which has been brought to bear upon it while growing, and the habits of plants in adapting themselves to their conditions may well furnish the illustration for the profoundest moral lessons with which the human mind can deal.

## CHAPTER X

### ZOOLOGY

THE general methods which have been laid down in dealing with plants apply also to the study of animals with this difference: *the plants stay put*, while the animals move about and hence you have to catch your animal in order to study him. What this means is, that animals have *organs of locomotion* and a generally much more highly developed set of organs including those of motion. There are some scientists who believe that the lowest forms of animal and plant life either are alike or come together and whether this is true or not, it is true that at the bottom they are very much alike. By the time you get to comparing, let us say, a tree with a horse or a cow, you have travelled a long distance because the highly developed horse has a distinct and special set of organs for walking, for digesting, for breathing, for circulation, much more highly differentiated though the plants have organs which perform the same functions. But with the animals generally speaking *the particular*

*organ does the work of that organ*, while, in plants, the whole plant works at everything almost. Then again animals have a *nervous system* and in this they differ entirely from the plants.

These organs, however, are simply an evolved form, that is, a higher form of what exists in lower animal forms and in plants. The animals simply represent a higher stage of development. The word *zoology* means the science of animals or discourse about animals. You cannot, of course, take up the earliest forms which require a very careful use of the microscope but you can readily begin with some of the more general and common things which lie all about you. You can, for example, study the *aphidæ* on the rose bushes or on the fruit trees and see what the *ants* do with them. You can study an *ant hill* and the work of the ants themselves and the form and structure of the houses they build and watch them at work, a most absorbing and interesting occupation. You can watch *bees* at work or you can study the work of *wasps*, or *spiders*, all of which present most thrilling phases of this kind of study.

A very good beginning may be made by taking any common insect, a spider or a beetle, for choice, and study its parts through a magnify-

ing glass and taking it apart piece by piece and seeing how it is put together and working out what all are designed to accomplish. You can find a great deal of entertainment, as well as information, in noticing carefully *the structure and form* of every organ and then asking what it has to do with the habits of the animal. You will notice how thoroughly *every organ is adapted for the work which it is designed to do*. All this, of course, did not come about by accident. It took a very long period, just how long nobody can say, till each one of these tiny instruments became so exactly fitted to do the work for which the insect uses it. A common grasshopper lends itself for *dissection* very nicely and the parts are readily separated and analyzed.

You will not have done this many times, before you will become aware that the same great law which we discovered in plants, is also at work here and that the *animals have become adapted to their surroundings* just as the plants have been. Sometimes you will see the *remains* of the organs for which the animal once had use, but for which it has now none and consequently it is disappearing or changing. Nature does not waste anything, least of all power and strength, and when organs cease to



perform any special office, or have any work to do, she lets them die and they pass away. But often the place where they were shows traces of them, and there are said to be many such remains in the human body, of the organs for which man once had use, but for which he has none now.

You will notice that the differences in these respects are those which affect the struggle for life most keenly, *fingers* and *toes*, *tentacles* and *antennæ*, because when the use of these becomes changed, the change has to be made quickly. It is just as if you began to go bare-foot and very soon your foot would show the changed order of things, because you are walking all the time and changed habits here would be very serious. You can notice this also in the hands and fingers of workmen in various callings, and see how their work affects their hands. All this in animals is very common, and has to do with the saving of the animal's life. It found that it had to change its habits, if it wished to survive, and only those who could do this, did actually survive, hence the expression the *survival of the fittest*. Only the strongest and the readiest could make the changes. It is just so with men. Those who can readily meet new conditions, and adapt themselves to them, get along when changes

are necessary. Those who cannot alter their habits, or are not strong enough to do pioneering into new conditions, die off. The law is the same in both cases. Most of our domestic animals had wild ancestors, just as man had wild ancestors. We have been tamed and they have been tamed. But by this *taming process*, we have also lost something, namely, the ability to endure hardship and fight for life under severe or adverse conditions. The foot of a horse, for example, has gone through many changes before it came to be what it is now.

*Conditions make most animals what they are* and that is the reason why animals in the cold climates have heavy fur and those in milder zones have nothing like as heavy coats. The *climate* has much to do with the habits and disposition as, of course, it affects the food and much more about animals. The *nature of the soil* and the *character of the food supply*, all have great influence in this direction. You will often have noticed how, in hunger, animals eat things which they do not usually enjoy. If that process were continued long enough, the unusual food might easily become the habitual food, and the *digestive organs would gradually become accustomed to it and take on a form and method which would pro-*

*vide for it.* When you consider the peculiar digestive apparatus of a cow, for example, you have only to consider the food and habits and purposes of the cow organism, to account for most of it. In dissecting insects or small animals always look at the various organs, for strange and curious things.

The general principles of zoology can be best understood perhaps by taking *some single specimen* and studying it in detail, though for little children this is sometimes wearisome, yet the study and dissection of a *frog*, gives endless delight and furnishes all sorts of information which has great uses. Frogs besides are interesting creatures in themselves and are easy to get at. You will, of course, have by you some good text-book in which what you are studying may be looked up, and you may be guided yourself, so that you can study with the children. Some general instruction as to *classification* may be given at first, though generally it will be found best to give it by implication, though the four-fold classification of Cuvier is still as useful as any. But you can easily indicate the difference between *vertebrata*, the *arthropoda*, the *mollusca*, and the *vermes* and if it is found necessary some others. But as you will recall that you are not making a zoologist, but merely teach-

ing the child that there is a vast field of knowledge called zoology, and what it is about, you need not at this stage concern yourself about the many things which will come when more formal study is entered upon. You will, of course, strike such a term as *protozoa* and you will be wise to find out what it means and perhaps at some stage, tell the child about it. It is not difficult to define and enough is said in the papers and magazines to-day about *cells* and *cell-life* to make it readily intelligible.

It is well, however, to take up the *embryology* of the various classes of animals and find out how they come into the world, and how they mate, and what changes they undergo from infancy to maturity. In the frog, of which I have already spoken, this is a very interesting process and one easily made intelligible even to little children. The *birds* will help to make this part of the study interesting too, because they can so easily be observed in the Spring. But though you will study many things about many animals, try, if possible, to keep one on the table constantly for further study, all the time getting more and more information about it, till it has been thoroughly worked over. You will not have exhausted it even then. But you will have established

some of the principles, which is what you are after.

If you happen to be by the sea shore you have your work made for you in the study of the *sea-urchins* and *shells* and *crabs* and even lower forms which you will hunt out and put under your microscope. Some have considered this one of the most fascinating portions of the study. I have seen some eminent men spend a whole afternoon over a *clam* and every moment of it was wonderful to me. The same is true of *fishes* which can easily be dissected and studied by the waterside, either of the sea, or lakes, or rivers. If you will make a *water glass*, that is, a box with a glass bottom, and push it down into the water of a pool, your face above it shutting out the light from above, you will see many wonderful and curious things. At some of the Southern sea resorts they have boats fitted with glass bottoms by which many interesting things under the boat can be seen. A little experimenting here will be very rewarding. This also leads me to say that the keeping of an *aquarium* helps in the study of fishes and water animals, making observation easy and the recording of such observations regular.

Try out all sorts of experiments before settling down to any theory about anything. If

you get a live frog, for example, put him in a tub and watch how he *swims*, how he *eats*, how he *rests*, and how he *jumps*, and notice the difference between a frog which is an hour in the light and one which is an hour in the dark. If you happen to be training *a spider*, notice what attracts him, what frightens him, how far he can hear and the like. Put a dead fly where he can get at it, or better, a living one so that it cannot get away, and watch him strike it and kill it. Or, if you happen to be studying a *worm*, put it on a sheet of paper, and watch it move, how it moves, what it will do when you touch it; examine its various parts and see what they do if you touch them. If you happen to be studying birds, which you can often do very well with an ordinary opera glass, take the various organs in detail. I have watched a humming bird thus for a long time and gotten a very thorough view of his methods and beauty while at work.

It will add very much if you make *collections of insects*, because by this means you can make *comparisons* more readily and this is really a very important part of the work. To see, side by side, two animals which are in many respects alike and in others quite dissimilar is to *emphasize their differences* and this will make it both natural and easy to in-



quire what makes the difference and thus make a straight road to the habits, food, digestive organs, and the like, and make your lesson for you whenever you wish to take it up. It will also form interesting material for *drawing* animals in whole, or in part, and *comparing the parts* after they are thus drawn. It will also make it easy to compare *colorings* and some of the butterflies and dragon-flies are very beautiful and when examined under a glass disclose rare things. Great care should be exercised in this part of your task, because delicate parts are easily broken and this very delicacy of handling is itself a kind of training in dexterity and skill, which helps in many ways both in the writing and in the drawing. But it will help in other things too. A child that has learned how to handle delicate insects' wings, will handle every other thing with much more care and tenderness. Clumsiness will disappear and every task performed with the hands will be enhanced thereby. It will also add grace and beauty to the hands themselves.

This is especially true in *handling the feathers of birds* which suffer from careless handling and lose much of their beauty and almost all of their texture. Always handle a bird by the bill, and then you won't break or mar anything. Never drag it over any sur-

face. Some persons have a constitutional aversion for *snakes*. But if you happen to find them, especially the small and harmless kind, put them in a glass box, find out about their food and study their habits. It will give some important information, besides being of great interest. In fact everything is a part of your task because you are making the acquaintance of the great world of animal creation, and by seeing as many portions of it as possible, you are laying the foundation for the understanding of the laws of the great animal world by which they and we are alike governed.

In this same connection you will discover that almost every animal has some kind of *defensive weapon*, because every animal has its own particular enemies against which it has to be constantly prepared to fight, if it wishes to live. The study of the methods of defense by animals is very interesting because some of them are aggressive and visible and some of them are not visible. Animals that cannot defend themselves by strength do it by cunning. Many animals have what is known as *defensive coloring* for this purpose, by which they so identify themselves with their surroundings that it is often very hard to see them. Others have other ways. You will often be surprised

how still an animal, with quick motive power can stand till it is sure that it is in danger and then dart almost with the quickness of lightning to some place of security. But the study of these things furnishes the material for much reflection, not only on the life of lower animals, but hardly less upon the life and development of man.

The defensive equipment of animals also suggests another matter, namely, the *parasitic animals* which live upon their prey, actually making their habitat upon the animals they live upon. These are found not only among land animals but also among water animals, and the study of parasites again leads to some interesting conclusions. *Parasitism* has come to have a meaning, not only in the field of natural history, but also a deeper and more significant meaning in the affairs of men. Nothing can convey the hideousness of living without working or productiveness of some kind to young children, than to see the little lice which infest the larger animals and realize that *their entire life is lived upon the bodies of other beings than themselves*. The notion that there are *parasitic men* who live upon others, doing nothing for themselves, was a distinct ethical shock to some young children I was teaching and I think hardly anything I ever did made

them so anxious to work lest they should in their own minds become identified with parasites.

By contrast, the study of bees makes a fine method of inculcating the higher virtues of industry, frugality, forethought, and patience. *Bees* can be watched so easily and the literature of the subject is so full and so many descriptions are accessible, that it is a very simple matter to follow them through all their work and teach the various principles which they are illustrating. *Wasps*, which though not so highly esteemed popularly, are hardly less wonderful in the way they go about their work, and a most interesting comparison might be made between the resemblances and differences of the queen wasp and the queen bee. Both are very remarkable personages and singularly efficient and important to their kind.

Perhaps not with the very smallest little children, but surely with children of seven or eight, you can try the *dissection of an animal of higher calibre* than any of those yet suggested—let us say a rabbit. What you have tried with a frog or a bird, will have in a measure given you the courage and experience to try something larger and the rabbit is easily cut up and the organs taken apart and examined. You can do as much or as little as seems

wise to you in this matter, and must be governed by the interest and disposition of the child. Some children love this sort of thing, and are never happier than when cutting up something and trying to find out what is on the inside. There are others that shrink at first, and some who never enjoy it, even after they have become used to the idea of dissection and know its necessity and importance. But wherever you find the disposition, push it to the utmost and get all the information you can. This is your golden time when there are no interests competing with you, which you cannot readily overthrow or circumvent.

This is also the time when you will frequently stimulate your young student's interest by taking him to the nearby museums and showing him all sorts of animals, especially those which he has handled and which he will observe with a tenfold greater interest because he knows something about them through personal contact.

Many cities have also now *zoological gardens* with all kinds of animals and frequent visits to these, with the equipment of knowledge which you will give before you go, so that the young people will know what they see when they look, and what to look for, will help in the study of animal life. Of course, all this



time you will be having a harvest time with other things, namely geography, teaching all about the lands of the nativity of these animals, and all you know about them or can gather about them. You will have a perfectly joyous time (I did) working out the wonderful scientific names of the various species and classes and families of animals, and enriching the vocabulary by great additions of all sorts. Remembering what I have already said about word-study, just think of what materials you have in such words as mammalia, carnivora, palæontology, zoogeography, morphology, and the like. My own children used to jump at these and their kind, with a snort of pleasure which was wonderful to witness, and when they had once gotten a firm grip on them, they used to hang them about their conversation like garlands, or as a warrior might display his spoils of the chase. As, in fact, such they were.

*Animal pets* can be made to play a large part in this study if the pets are made to be something besides pets, and are studied as well as played with. I remember very well some children who knew all about white mice and did perfectly wonderful things with them, and never understood how intimate and exact their knowledge was till I saw students in the medi-



cal school, doing the same things with mice they were experimenting with in their research work. So, also, I have known children who displayed positive genius with rabbits, and I knew a little girl who had above a hundred canaries in the attic of her home which she had reared herself, and which she almost seemed to know by name. In another home, I saw a humming bird that had almost been frozen and which was found outside of a window, so trained that it would come at call and sit on the finger of its keeper and which feeding on its food of diluted honey was one of the most interesting sights I ever witnessed.

What can be done with birds is well known to many people. Children can easily be taught comradeship with their pets, in fact, take to it naturally, and often these pets will endure a good deal from children whom they have learned to trust. I think I have already mentioned the story of the incubator chicken Tom (the original duet being Tom and Jerry, remains of a dozen, all the rest of whom perished) and how abominably domesticated he became, and what a nuisance it was continually to be mistaken into thinking that a baby was crying, when it was only Tom cheeping and wailing for company! I wouldn't advise cultivating house mice but for a number of

months I had, in the evening, after the children had gone to bed, a good deal of amusement calling a mouse with musical instincts out of his hole while I played the piano to him. His exhibition of positive joy, and his efforts to dance, were a source of great delight to me. I taught him to modulate his steps pretty well for an ordinary mouse, with whom I had only a long distance acquaintance, and more than once he rolled over in the determination to keep up with the fast time I gave him. He never loved me enough, however, to let me see him at close range and rushed to his hole immediately after the orgy. He disappeared quite suddenly.

Of course, all these things have no particular scientific value, but they open the mind to the possibilities and show how wonderful the animal world is and what we may yet learn. In this connection animal stories may be used with good effect and purpose. Stories of the great exploits of dogs or horses are always welcome to children and with the scientific material the human elements may be mingled so that the whole subject gets a sort of glow which is both stimulating and informing. You can never know when these little experiments will give you pleasure. While I am writing this, a big spider from outdoors has

crawled up on the window sill and hearing the click of the typewriter is wondering whether to go on or not. By and by, I shall write his history!

The geographical distribution of animals can be made a very pleasurable occupation for young children, by taking large sheets separately, and placing upon them pictures of animals and then locating them on the map. Sometimes the evolution of a particular species can be shown in successive pictures which makes an interesting exhibit. Then too, the distribution of marine animals can be made equally interesting by placing them on the map in the various parts of the ocean where they may be found. This sort of work is good for indoor days and will be found to be valuable for many other things than this particular subject. It will be found a useful thing too, to associate *geographically* the animals and plants of a particular region, and thus get a line on groupings of animals and plants and see how this is related to climate, soil, food and other conditions. There are many such devices which can be worked out and you will, of course, do this first of all for the region where you happen to be. In fact, cultivate your own region first in everything, not only because it is easier and simpler to do this, but

because the interest in the things near at hand will prove that you do not need to go far from home for enjoyment and pleasure. Distance will always lend enchantment, so place the emphasis on the things near at hand.

But this should not prevent your getting from the libraries, books of scientific interest and exploration. You should go often to the library and visit this department and see what new books there are and look them over and frequently have them by for reference and always be selecting materials from them which are suited to your purpose. You will be careful to observe the difference between the books which deal with the subject in a more or less scientific manner, and those which merely record pleasant tales. Be careful not to confuse *newspaper stories about animals* with scientific knowledge. The more faithfully you do the work of *observation* and *comparison*, especially with a microscope, noting how everything operates under law, the less you will be deceived.

You will see so much evidence of design and purpose in the habits of animals, that it will be next to impossible for you to avoid raising the question of *instinct and reason in animals*. On these points there is much difference of opinion and naturally many scientists, especially those who have given their lives to close

and patient study of the habits of animals, believe that they reason like man, only differing in degree. It is certain that animals do things that look like reasoning, namely, exercise the power of choice, show preferences as to color and odor, and have their likes and dislikes, just like human beings. Then again they show contentment and anger, they have feelings and seem to have memory. We know that they select special foods and flowers, and seem to show discrimination often in a high degree. Then again, animals show the *social spirit* often in a degree which might well be emulated by some men. Those that live in *colonies* show that they know how to get along together, distribute their tasks, mind their own business, and bear their own burdens. They seem to know how to punish promptly and effectively, those that disobey the rules and have a high sense both of order and discipline. They seem to have the sense of direction as in the migration of birds, and often exhibit wonderful powers in getting back to the nest when they are lost. Whether the "instinct is unconscious reason," or not, it is a powerful thing. What is very certain is, that naturalists who have close contact with animals and who observe them for years incline more and more to the idea that animals have powers like those of

man though in a lower degree. To be sure *inherited habits* may account for a great deal but not for all. The operation of the great powerful laws like those of struggle for life, reproduction, food, and the like compel very astounding things and show how strong these laws are. These are the main things to learn because their mastery has a no less powerful influence upon our own conception of human life and work. At any rate, if instinct is the sum of inherited habits in animals, we may learn a good deal about its influence for ourselves of our own habits and look out for them.

It is hardly possible in study like this, to avoid the question of the *relation of man to the rest of animal creation*. Nor is it necessary that it should be avoided. The animal nature of man is so pronounced, so ever present, and periodically manifesting itself in so many ways, that his relation to the animal world may well be taken up and general ideas about it inculcated. Of course, this is not the place, nor is childhood the time, to go into the graver questions. But the general resemblances between man and the higher anthropoids may not be overlooked. The differing characteristics of the various races of men may well be pointed out, and the *relation of man to his own environment* may well be taught while



you are showing what happens to animals if you change their geographical relations and with these, their food, the soil on which they live, the climate which affects them, and the companionships in which they have to live and move and have their being. All this in animals in a detached kind of way, is interesting enough. It becomes of acute and burning interest when applied to ourselves.

Nor is it without special interest at this present time. Man is being made over by the inventions which are changing his nature and habits. For example, the ease with which we are transported by motor cars and other vehicles from one place to another is making walking less and less a habit. How will that effect the legs of the future generations? The same is true about our food. What kind of teeth will the future generations have with all their food prepared for them? What kind of stomachs will they have, with the things they put into them? What kind of eyes will they have, considering the new influences which are affecting them? All these things may very reasonably be discussed as showing the effect of habits, surroundings and natural forces upon the life of man.

But along with this come the questions of race amalgamation. The so-called inferior

racés are not disappearing. They are increasing. They will be in closer contact in the future with the white races than ever before. They will learn, are, in fact, learning now, not only the strength but also the weaknesses of the white races: The troops from India, for example, and Africa, must be getting a great deal of education about their white brothers in the trenches in France at the present moment. How will this affect them when they get back home and spread abroad the knowledge of what they have learned? What will the general attitude of European races be in the future toward the Asiatic races? Will they mingle? And if they mingle in commerce and war, will they not mingle in other things too? Is not the possibility of these races being crossed in sight? How will that affect civilization? All these are very real things and children now living will have to make some very important decisions relative to these questions.

Moreover the general laws which we have looked into, of the struggle for existence, the preparations for aggression and defense, the measures for the security, and growth of offspring, what is the significance of these things in the larger area of man's future? All this shows how important it is that there should be in the background, a wider knowledge of these

processes as they exist in the animal world, and as a part of the general laws of life, higher and lower alike. We have seen how in the war now raging all the higher interests of life have become submerged in the brute struggle for physical conquest. But into this struggle have been brought, for the first time, the highest brain developments, the best resources of the intellect, and they have all been laid at the feet of the war machines of the fighting nations. Notice too, while you are about it, how the war operating as a new environment is changing governments, altering the course of political development, breeding new and different ideals of national life, and the relation of the individual to his government and his fellow men. Thus we are seeing in the realm of man what we have been talking about in the changes that take place among the lower animals.

In a similar way, notice how this same war is giving the world *new ideas of food* and the amount needful for life. Notice how it is affecting *ideas of economy* and the public control of every necessity of the nations. All these, when they have done their work, will leave the people subjected to them very unlike what they have been before these changes were introduced. From this visible example, you can

easily work backward to the time when there were none of the things which we count so common to-day, and man had to get along without them and so steadily you get back to the primitive man, who was so nearly like an animal that he was subject almost exactly to the kind of laws that we have seen operating upon animal life. He lived very like them, for he had no houses; he ate the things they did, because he knew nothing about cooking; he had the instincts and the abilities which they had, of quick observation, higher sense development, to make up for his lack of mental development. Hence he could run and jump and swim and hear and smell as we cannot, having no need for these highly developed powers as he had. The story of man's own development on the animal side should be taught because it will explain many things which if understood and recognized will help to greater self-control and through this to a higher efficiency and usefulness.

Not far from the spot where I am writing this, there is a house which is more than one hundred and fifty years old. It has been inhabited by successive generations and as you go about it and study the structure as it stands to-day, you can see the marks of each generation. The architecture has undergone a va-

riety of changes, parts have been added here and there with little regard to plan, because there was no plan. Each generation made itself comfortable and added what it needed, with little reference to looks or indeed anything but its own satisfaction. But this is not all. If you go inside, you will see that the very timbers have changed. The great timbers which were once easily obtainable are not in the newer parts. In the older portions, the great broad boards in the floors were hewn with an adze because there were no saw-mills to make them. The newer parts give the evidence of the existence of machinery, which the earlier generations did not even dream about, much less use. So, on every side, you see how time and circumstances have changed not only the internal and external appearance of this house but the very stuff of which it is made.

Thus it has been with man. Thus it has been with the world of nature and in animals we can see this process taking place in the cross-breeding and the development of special types. Only a year ago, we were greatly afflicted in this region with brown-tail moths. This year there are few, almost none. Why? Because the brown-tails mated with another kind and produced a degenerate type, which is not nearly so harmful and the new worm is

distinctly less strong and capable and able to cause trouble. It therefore fell an easy victim to a parasite which took them off by thousands. The caterpillar nests full of these dead hybrids tell the story and such stories are constantly being enacted, not only among the animals, but also among men. Children who are made to see these things in operation, will have a much more rational conception of life, be subject to fewer illusions in life and better able to cope with the problems with which they must grapple when mature life is upon them.



## CHAPTER XI

### GEOLOGY

THE study of geology like that of every other science, should be begun by a sort of orientation in the use of the various terms employed. It will be interesting to compare the words *geology*, *geography*, *geometry*, and other similar words, with a discourse on the distinctions involved and the resemblances in the kind of knowledge which they connote. This can readily be done on some occasion when synonyms are studied, or other word studies are made, and will themselves form an introduction to the subject.

This study also assumes a few other things which very likely you have worked out in the study of geography, like the elements of the solar system, the relation of the earth to the sun, and the action of the sun upon the earth. You have already noticed this and made use of it in relation to plants and animals. You have talked about the seasons and the changes of climate and by this means you will have already prepared for the more detailed talks about this science.

*Geology is eminently an outdoor study*, though this may be said of all the sciences in one way and another. Still because it deals mainly with *the forces which have made the earth what it is*, and aims to follow these forces to their beginnings, and then follow them in their work and variations, under differing conditions, you can begin almost anywhere. We began in the garden, with the action of the spray, which after some time began to make little streams and wear away certain little beds and then carry away the soil from one spot and deposit it in another. From this we pointed out that what was here taking place, on a minute scale was really what happened in the earth on a large scale, and made the vast modifications which could be seen anywhere. In fact, we often set the water working in various ways in order to produce some of these results so that the action could be plainly seen.

You will probably find it easiest therefore to begin the study with *observation of the action of water*. Rivers, streams, any running water, will illustrate some of the more fundamentals, and you will have great pleasures in seeing these principles recognized from time to time, while you are apparently not doing any studying at all. Whenever we went fishing

we made the occasion one of studying the action of water. Whenever there was a rain-storm we went out into the rain, and especially, when there was a heavy rainfall noticed the changes which the water had made. We noticed from Summer to Summer, what changes had taken place *in the course of familiar streams* and places where the action of the water could be noticed. We took occasion to point out in times when the water in the river was low, how the changes were being wrought out and when there was an overflow from freshets above, we noticed the results of that also.

Since so large a part of the earth's surface has been made what it is by the action of water, and since this action is always the same whether it operates on a large or a small scale, you have excellent opportunities for observation. Also it affords *a splendid opportunity for making rough drawings* and thus leading forward into a general study of *topography*. It leads to noticing *elevations and depressions*, and this again leads to *measurements* of one kind and another, by means of which, many forms of the most fundamental thing in all science can be taught and mastered, namely, *exact measurement*. You can teach the *tables of measurement* in this collateral way,

and the child learn them without ever having had to face them formally and indeed often without ever remembering when they were learned. Thus when you measure the *circumference of a tree*, and then figure on its *diameter*, on the rate of growth and the like, or as you measure *the rate at which the water wears away the bank of a stream*, and many such things, inculcate the habit of exact measurement and teach the method of its performance at the same time.

Then you will deal with the things which show the action of water. *Pebbles*, small stones, which have become *rounded by the action of water and by rubbing against each other*, are very interesting in this connection. We taught them in connection with the story of David and Goliath when it says, that David "took five smooth stones from the brook" for his sling, and we reconstructed the *geological action of the water in framing those stones for their use in the sling*, and the reasons why David chose them, and made it an interesting conjunction of *the alliance between natural and moral forces for the achievement of the purposes of God*. You will find many such occasions.

Then, again, you will notice and show how *water is a great carrying agent* and what stu-

pendous results have come about by this force. You can easily show in a glass of water, how *sedimentation* takes place and you can from the action of flowing water show *what the action of ice is* and so lead up to the *great glacial epoch* and what that did for the earth. You can show how *ice can carry great masses of stone*, and very likely you will not have to go very far, to find some boulder that has been carried many hundreds of miles from its native place, to be where it is. You will show how these stones and the smaller ones are gradually broken up not only by bumping against each other, but by the *action of the water in freezing in the crevices, which finally breaks them up and then grinds them into fine particles* which are thereby more readily transported.

You will also notice the *location of the stones*, especially the larger ones and ask why they are where they are, rather than in some other place. In fact, you will do just what you do with plants. Why is it here rather than in some other place? And having asked that question, you will set about finding the reasons. Then again you will find large masses of earth very much mixed *in rows or mounds* and you will ask yourself how that came about, and perhaps in a given region

you will be able *to follow out the line of such deposits*. Thus you will find out where certain kinds of geological action have ended. And you will see what they have left and when this process has been repeated several times you will have shown how we determine certain geological results from these investigations.

Sometimes you will be going by a road where there has been some rather deep excavating necessary, for the levelling of the road. You will notice the *stratification* and often you will be able to show very distinctly *the layers* in which the deposits have been placed where they are. Often you will find a special kind of a boulder sticking out, whose ancestry you will trace out and tell where it came from. This you can very readily do. Often you will find the same kind of a boulder in different places and have an interesting time comparing the differing situations and the causes which produced them.

Then, again, you will notice how *sand* is formed and the *different kinds of soil* and learn what that involves. How soil is changed by the infusion of new elements brought by the water, and especially by the carrying in of new kinds of rock. You can readily gather the various *kinds of rocks* found in your vicinity and learn to name them,



and get some of their leading characteristics. All these things may be carried on coincidentally with your study of plants and often you will find a plant in some cranny which the water has caused either by flow or by frost, and then deposited soil enough for some tiny plant to grow. All this is very elementary, perfectly simple, but very fundamental. It is surprising how possible it is for people to go through the world, and see all these things and never exhibit the slightest curiosity about them.

From these simpler forms of the action of water you can go on to those of wider scope. *Mountains* and *valleys*, the *hills* and the *rivers*, the *lakes* and their *sides* or *banks* or *shores*, are all material for much investigation from the pebbles on the beach to the great cliffs that overhang and awe on the mountain sides. Thus you will come to some of the more tremendous geological forces. You can here deal with the *theories of the earth's interior*, the *action of fire and heat* and you can often see how the masses of stone lie on the mountain side. You can open up the whole subject of the *earth's crust*, and how it was formed and what is happening to it all the time.

You can, at this point, vary the subject by taking up *some of the great upheavals of his-*

*tory*, the great earthquakes and will find it interesting, not merely on the geological side, but likewise on the side of history and human interests. There have been enough of these, even lately, and there are some going on all the time apparently, to make it easily possible to link this subject with very present day affairs. *Earthquakes* may very easily make your point of departure for teaching not only a great deal about the earth, and its surface, and its interior, and its changes, but hardly less of its effects upon mankind and civilization and the like. Make everything tell and pictorialize everything. Pictures of such scenes are easily accessible, and show, not only the powerful forces at work, but also the fearful effects which they leave upon the landscape and upon the people who come under their terrible influence. Often you can get some literary picture, like that of the earthquake and the eruption of *Vesuvius* described in the *Last Days of Pompeii*. Never fail to link all these things with some literary form, if it is possible, some book, some picture, some fine description. If you will yourself read a book like Professor Wright's *Ice Age in North America*, or his *Greenland's Ice Fields and Life in the North Atlantic*, you will have all the material you need, made to your hand.

Then when there is a *flood* you can make a beautiful play hour in the garden by making a small flood of the child's own. The building of little *dams* is a favorite play of children in any case. You can show these things in connection with the recreation time and give important names and knowledge without the semblance of formal teaching. Indeed all natural phenomena as they are reported are materials for your purpose. Write to the Geological Survey at Washington, or write to your congressman and get him to send you a list of the interesting things the Government prints for free distribution. You will get much information about the *soils* and *the geological formations of your own vicinity* and will find it very interesting and often entertaining.

Often you will find the *dried up beds of streams* a good opportunity for teaching, also the paths which the Spring *freshets* or the *melting ice* have made in the woods, evidence of the work of water as it affects plant life. Sometimes you can see how certain foliage indicates that *the plants have followed the water courses*. This is especially interesting when you are rambling in the woods for Spring flowers. Show, too, how *heat from the sun* affects these things as you can readily do by

contrasting those spots where the sun shines through, and those where the density of the foliage prevents that heat from reaching the soil. These things are so obvious, that even a small child can readily be made to perceive the difference.

If you live by the sea shore or indeed if you do not, the *action of the tides* forms an interesting introduction to the subject of the ocean and *the action of water on a vast scale*. You will often see the curious formations of the rocks on the shore, and sometimes you will see after a storm, evidence of the amazing power of the waves. If you live by a lake, greater or smaller, that too, will illustrate much. Find out the geological history of it, and often simply by sitting by it, and looking around you can show what geological forces have been at work. Sometimes there will be a great *intervale* or large area and then you can show how the *subsidence of water* has formed *terraces* and the low levels and was gradually left in the bed of the living stream. Sharp turns in the river or stream will often show *how the courses change* and you can readily see by the action of the currents what curious results are formed by the striking by the water of some obstruction, and what happens till it *wears it away* or *breaks through it*.

When you are dealing with the ocean you may well introduce the subject of *ocean currents* and the wonderful story which that unfolds. You can take the *Gulf Stream*, for example, because it is so well known and show what tremendous results come from that warm stream across the Atlantic, affecting not merely ocean travel, but hardly less climate and through it civilization and the course of history, the relation of nations and the development of particular types of civilization. You can often link *the history of a nation with its geology*. You can discuss the effect on the character of people by the fact that they live in highlands or lowlands, in the interior, or by the sea, and by this means once more link the action of great natural laws with the story of the life of man upon the earth.

Sometimes you will find *fossils* or going to some nearby museum you will see all kinds of *animal remains which have been found in the rocks*. Sometimes you will see the *footprints of reptiles and birds*, and all this will open the subject of the relation of geological conditions to the state of animal life. In a similar way you can trace through the *corals*, the rise and growth of *islands* or *the extension of the land* and the results which have been achieved by reclaiming parts of the land submerged for-

merly by the sea. You will find it interesting often to compare the *coastline* of some of the nations of antiquity with their present coastline, showing that it has changed.

Any unusual natural phenomenon should arrest your attention and make you ask how it came about. *Sharp declivities* or *narrow gorges* or *water-falls* great or small, all present problems which are in your line not to solve, of course, but to talk about and impress as a part of the *story of the earth*. The course of streams, the direction of their flow, and the curious turns and twists which they often make, are all a part of this sort of work. If you are in the region where there are *mines* of any description, or *quarries*, that again is an opportunity for you. It will be pleasant exercise and employment to take your little hammer with you and your chisel, and knock out or chip off portions of the rocks for examination under a magnifying glass at home.

A particularly interesting and fertilizing branch of this study is that of *glaciers* and the *action of glaciers*. That is too large a subject for consideration in a little sketch like this, but you will find plenty of material in your library which will not only be interesting as regards the glaciers, but will do much in a literary way besides. Pictures of the great



mountain ranges, of the Rockies, of the Alps, of the Canadian Rockies, are all easily accessible, and a comparison of them will be found of great interest and the books about them full of fascinating material which has literary as well as scientific interest. Often, in books of travel which you will read or cause to be read, you will come upon some strange information as to geological formations which, of course, you will seize upon for your purposes here. But especially the study of the great glacial epoch in North America will open a vast storehouse of knowledge and with it many other things which will be useful in other fields also.

Often particular localities make the subject of intense interest like the study of the *Grand Cañon* or the *Yosemite Valley*, about which all sorts of information can easily be obtained. *But keep steadily to the scientific aspect of the subject* though you will use the pictorial and human interest of the subject to make the scientific side entertaining. Always keep in mind that though you are entertaining, *your purpose is to instruct*. Use the scientific terms. And if you mean *erosion* say so. If you mean *sedimentation* say that. And show what it is. Utilize all the knowledge that you get from other fields here, notably that from the history and life of plants, with the gases

which enter into their life, and the forces which modify them. The air, the wind, the sun, the soil, and all that in them is, are a part of this study. This does not mean that you will always, or even generally, deal with these things as you would with mature people, *but when you do, do it in scientific terms.*

A very good and simple plan for the wider general geological outlook is to get a *geological map* of the state where you happen to live, or of the country, and get a general view of the whole region, its mountains, its valleys, its lakes and rivers, and the various kinds of soil. Link this with the location of the centres of population and the industries and the natural products, showing why certain industries are where they are, and how the *organization of industry must to a certain degree follow the great natural distribution of raw material.* Compare the agricultural regions in this respect with the manufacturing regions. Compare the great mining regions and their products, with those of other regions. Oftentimes it will make an interesting experiment to go into the composition of certain articles and ask where the material came from and then work out where it probably was made.

For this purpose you may take, let us say, *coal.* You can very readily get all the mate-

rial you can possibly use. The composition and formation of the coal beds, the rise of industries because of the abundance of fuel, and the correlation of many kinds of activity on this account, makes a most interesting story. Or you can take *limestone* and the settlement of certain populations by reason of the limestone in the soil, will disclose some very curious facts as to the settlements in our own land, by populations who sought soil like that to which they were accustomed in Europe. Or, again, the use of certain kinds of building materials because they happened to be plentiful, causing decisive influence in the habits of the people by reason of the houses in which they lived, all deal with this subject. *Everything leads back to the soil*, the earth which is the mother of us all. If you want to give a chemical turn to the subject, write to the Department of Agriculture and get some of its publications about the soils and *what may be done to change them or enrich them* and make them more productive. One thing always leads to another, but you are always adding to the knowledge of the child and telling it the things which will presently have very much more meaning than they seem to have at the outset, and will lead it naturally and habit-

ually to correlate things which often seem to be very widely apart.

*Volcanoes* form another interesting branch of the subject and though you will deal with it only superficially you will nevertheless be laying important foundations. The stories of eruptions make very vivid reading and are listened to with breathless interest. The spectacle of a fiery mountain, pouring out *smoke* and *flame* and *streams of lava*, give you plenty of scope, not only for all your descriptive powers, but with it all you may tell the story of the untamed forces of nature about which we have not yet heard the last word. There are many interesting volumes in almost every library on this subject.

You will also find that as you get better acquainted with the stages of *periods of the earth's development*, there is a *regular ascending movement in the animal world* and you can thus easily and naturally correlate the *stages of animal development* with the *periods of the earth's life also*. Making tables of this sort is interesting work and when there has been enough of a foundation laid, and it does not require as much as one might suppose, it makes a very interesting exercise to locate, in time, the varieties of animal life, beginning at

the lowest. This will also give you an entirely *new field for linguistic study*, because your study will bring you into contact with any number of strange names and their history will supply your material for linguistic work. Your experience with the *geological vocabulary* will be one of the interesting things in connection with it, both for your own enjoyment and that of the children. Your main purpose being fertilization you will dwell on the words and their use, and when you have occasion in reading other material to notice one or more of these geological terms, make use at once of your opportunity to fix the knowledge which you had given when you had this subject specifically in mind.

Geology is in general the most comprehensive of all the sciences because it is, according to Le Conte, "*the history of the earth and its inhabitants as revealed in its structure and as interpreted by causes still in operation.*" This takes in pretty much everything as you see, because it assumes a knowledge of *astronomy*, of *physics*, and *chemistry*, of *mineralogy*, and *zoology*, and *botany*, because the plant and animal life are so closely related with the earth's development. For this reason there is hardly any branch of knowledge which does not link itself somewhere with geology, and

this gives it living vital interest, because *the causes which made the earth in the past, what it is now, are, many of them, in active operation now*, so that presently we shall watch the earth change about us and see ourselves adapting ourselves to the changes which take place. Sometimes we accelerate these changes by our own habits or works, as when we take off, ruthlessly, the great forests and release great floods which formerly were absorbed by the roots of the trees and the vegetation which lived with them. Or, when we take up *vast beds of minerals* and change *the place of vast bodies of the earth*. Or, when we dig *subways* or *underground railways* and alter the course of *subterranean streams* or make other changes which vitally affect the life of mankind. And when you come to see the significance of all these things, and make the child see them, the earth and the changes in it become matters of the very keenest interest. The sciences, strictly as such, when they come to be studied later will be doubly interesting because there is a reasonable substratum of general and accurate information about some of the more elementary matters.

The *composition and chemical elements of rocks* will afford many pleasant experiments for recreation hours. And when to this is



added the study of the *characteristics of minerals* such as color, form, hardness, lustre, and the like, there are supplied all the materials necessary to give the child suitable occupation for hands as well as mind.

The extreme value and importance of all this will be borne in upon your own mind, if you will reflect just at this time on the great importance to the warring nations of Europe of raw materials to the nations, and how important these things are to national life. See how important it is, for example, to the nations to have a large supply of *petroleum*, of *copper*, or *iron* or *coal*, and what a tremendous importance suddenly these natural supplies assume to the nations who want to build ships and guns, and transport armies, and supply them with food and otherwise carry on their wars. See what importance scientific knowledge has played thus far, and see how for the first time, science is recognized as having utterly supplanted the qualities of personal heroism and valor in the fight of great forces by land or by sea. For the first time in history, nations have organized *science boards* to assist their army and navy boards in the preparation for successful war. See how great the changes have been and how *gas bombs* and *liquid fire* and a vast variety of

other chemical discoveries have come to have a fearful significance in such struggles. Our own country, for the first time in its history, has a *board of invention* for its navy and has called such men as Edison and others to bring the resources of science to the aid of war preparation.

In the midst of all such things nothing can be healthier than to turn to the great natural forces which the Creator has placed in the earth and which we are only on the merest edge of knowing, in all their fulness and power. Where so much is done in the laboratory, and where all that is done there has to be wrought out of the raw materials, it will be seen what an immense advantage it is to know a few of these things early in life, to gain an adequate understanding of their significance later on in the more formal period of education. When one means is exhausted or destroyed, men have had to find another way and necessity here as elsewhere has been the mother of invention. See what has been wrought in the conquest of the air and the submerging of war craft under the sea! But the air, and the sea, have always been here and their possibilities are even now only partially understood. But better than these processes is first hand contact and observation with all

these forces themselves and a knowledge of how they work. Thus is the mind trained to know something of the world in which the human race has lived, and must continue to live, and thus is the race prepared for its life in the future.

There is no reason known to me why young children should not be made to know, long before what we call their education begins, most of these great elemental powers and learn to guide their thought in consonance and harmony with these laws. Water wears the rock. And these little streams of scientific knowledge wear away the mechanical notions of life by which so many millions of people live and die, without ever knowing the earth in which they are born and live and pass away. But they should know. And such knowledge makes for a higher type of life. It makes for a more reasoning and reasonable existence. It teaches the *value of life and the long road through which life has come to have the meaning that it now has for man*. It leads to *reflection* and in the best sense taking life seriously, which is just what the vast mass of men do not do. But it does, besides all this, the higher work of naturalizing a man in his world and making it for him a place of satisfaction and rational labor and effort.

It does even more. Personally I believe here is the field for the *true culture of the emotions*. *Science may spiritualize the world yet, in spite of the fact that until now it has been employed only in a pagan way*. The spiritualizing process begun early, creates reverence for the work of God and as with the biblical writers, rocks, floods, and fields, mountains, and trees, the birds of the air and the fishes of the sea all speak of the glory of God and the wonder of His handiwork, so a little child may be led into the noblest of spiritual conceptions through contact with the world of God's creative skill and power.

Every little geological excursion after this manner will change the prevailing conception of a finished world, into a fresh one of a world in the making. It will lead to a fresh understanding of the value of all things. It will create abhorrence of waste. It will see both *the power and the economy of nature*. It will cause deep feelings and dreams about the nature and purpose of life itself. It has always been to me, an interesting fact, that most of the geologists I have known have been men in the deepest and highest sense religious men. They went abroad in God's world and saw His operations in a big and divine way. In contrast with the laboratory worker, who felt

the glory of his own little achievement, these saw the mighty strokes of great monumental laws and saw things wrought out on a huge scale. Huge mountains thrown up where none existed before, vast areas bodily transported from one spot in the earth and set down in another, mighty monoliths lifted as a child lifts a pebble and carried vast distances, and then left in striking and weird postures to arrest the attention and challenge the brain of man! All these are the things you start in the brain of the child to think about. You set it to work on something which challenges all its own possibilities, and start it on the long road which has no ending, the wonder work of the Almighty.

Few people can gaze on the wonderflow of Niagara without deep emotion. I once saw with terror the Mississippi overflow in my boyhood, so that in places it was twenty-five miles wide. I have gazed on the Bernese Oberland and quivered under the scintillating beauty of the Alps, beauty beyond the descriptive powers of man. I have shuddered under the cliffs of the Canadian Rockies and felt an awe, which no religious thinking can possibly produce. If you give your little child an insight into these things you are building the mind of a human being, who must perforce become great



in thought and learn to live greatly in the presence of the greatness of creation. How different all this from the narrow-minded being who simply rises, feeds, takes a trolley to his office or store, and then back again at night, and never knows what the world really is!

Think of the vast masses borne along steadily by the flowing waters of the rivers of the earth! Think of the silent disintegration of granite cliffs, which the wind is causing through the years, see the valleys exalted and the mountains and hills made low! Think of the fertilizing flood of the Nile, and the industrial flow of the Merrimac, and the devastating flow at times of the Mississippi! Think of the commerce borne by the great oceans, think of the harbors and ports of the world! Think of the trade winds and the ocean currents! Think of the mined substances which we dig out of the darkness of the bosom of the earth, and make into a million wonderful, and useful and beautiful things. Hardly a child but has personal ornaments the history of which scientifically scrutinized and analyzed will not be made to gaze with wonder upon the transformation of nature's raw materials into the beautiful finished product. This is because the mind of man has sought them out, thought about them, learned to separate them,



learned how they came about, and then practiced in their shaping and fashioning for the higher uses of man. When you think of geology as embodying this kind of reflection and study, you have something other than merely memorizing the names of geological epochs, and the classification of strata and the analyzing of rocks and minerals. *You have here the romance of the earth.* And this is what you must teach, together with the crude, bare facts. It is a romance, wonderful, inspiring and full of thrilling situations and volcanic moments, literally and emotionally.

A great man once showed my children a bit of *radium*, one of the earliest and finest specimens in the country. No one will ever be able to describe what was in their countenances and what was wrought into their hearts and souls by this great man, as he talked about radium and what it might do and the significance of its discovery! But what Professor Morse did out of his own wonderful knowledge, you may out of much less knowledge do for your own children, having first made your own heart and mind responsive to the meaning of these great natural facts and forces.

It may be well to make *collections of rocks and minerals* or perhaps, where they are obtainable, of the various kinds of *semi-precious*

*stone.* All these things help, of course, if to every one of them there is added *something of scientific import.* Altogether, geological studies lend themselves most readily to the larger ways of thinking and supply the subjects for reflection upon the wider aspects of life more naturally than almost any other kind of scientific studies. It is more possible to generalize about them for one thing. They call for inferential reasoning for another. They are not so clamorous for immediate decision as some others, and all this tends to make them the medium for larger thinking and a wider view of things than many others. Their comprehensiveness and inclusiveness, of course, adds to this also. But certainly nothing is so calculated to open the minds of children and parents to each other and reveal them to each other as to take little excursions for geological study together. The human discoveries will be the greatest of all!

## CHAPTER XII

### GEOMETRY

IN urging the study of *geometry* by young children, I wish to be understood as taking up not merely that specific branch of mathematics, but the general subject, from geometry as its easiest and most pleasant point of approach. I have on many occasions testified to my belief that *most of the time spent in mathematics in elementary education is worse than wasted*, an opinion which I acquired from President Eliot more than twenty years ago. The study of arithmetic as it is carried on by most schools, public and private, is a waste of time, and, as I believe, a distinct deterrent to rapid and effective progress, to say nothing of being a stupid barrier to advancement in those benighted regions, where it is made the *sine qua non* to promotion. Most of the mathematics, as thus studied, contribute nothing particular to the child's knowledge, give no intellectual stimulus, are utterly barren of interest and a source of trial to teachers and students alike. It is, of course, necessary that

young children should be taught numbers, a matter easily acquired. They should be taught to count, as they are taught to spell. They should learn simple *addition*, simple *subtraction*, simple *multiplication* and simple *division*. But even these may be taught collaterally. The multiplication tables may be mastered easily and musically, if possible, but no educational value should be attached to this. It is *memoriter* work, pure and simple, and should be inculcated as such.

But the whole subject should be approached from an entirely different end, as I view it, and I have styled this geometry because the materials are derived from that branch of mathematics most readily. For example, you can teach a child that a *point has position only*. You can show it that a *geometrical straight line* is the shortest distance between two points. You can show it what a *right angle* is, an *acute angle* and an *obtuse angle*, and with this instruction you can teach the use of these words and their general place in English usage. You can proceed to teach about *triangles* and *squares* and *rectangular figures* and then go on to *polygons* of all sizes and kinds and in every case you are dealing with something tangible, concrete and capable of immediate and direct application.

In this manner of proceeding you can teach all the things that so much time is wasted upon. You can show a little child that already handles a tape measure in making doll clothes how to *measure the sides of any figure*; you can thus teach it *linear* measurement. You can take a checker board and teach it *square measure* and do it in fifteen minutes and never have it forgotten. You can give habits of *exact measurement*, the *basis of all scientific knowledge*, and you can teach necessary reasoning by this means most clearly and satisfactorily.

From *plane surfaces* you can proceed with ease to *solids*. You can deal with *cubes* and *cylinders* and you can teach *drawing* while you are doing. You can give manual dexterity and skill in handling tools and instruments while you are doing this. You can have tables measured, and floors measured, and all kinds of figures identified, and all kinds of forms geometrically identified all the time. You can have *circles* drawn and all sorts of *diameters* drawn and you can give the principles and facts of relation as you go along as a part to practical exercise. As a matter of fact many children do these things without any instruction, only the parents do not get

the full value out of what the child does naturally and without any urging whatever.

In doing all this as with the other subjects we have talked about *you will always give them their proper names*. You will talk about the diameter *as diameter*. You will talk about *plane surfaces* and *solids* just as they do in any high school geometry class. There is not the slightest reason why you should not and there are all the reasons possible why you should. While you are doing this you can take along many principles of physics like *weight* and *volume* and *power of resistance* but all this is incidental to *the business of teaching measurements*.

There are so many ways of utilizing these things that it is hard to state where you shall begin. We used to measure the *circumference* of trees or of plates or of wheels and the like. We used to draw all kinds of figures and then see how many things, *geometrical facts*, about them we could tell, like identifying the *kinds of angles*, the *names of the figures*, and the like. In doing all this we taught the simple elements of arithmetic and sometimes some of the more involved processes.

In this sort of study we also taught many of the simpler propositions both of geometry



and algebra. My own opinion is that mathematical study may very properly *begin with algebra because the use of letters is so much more simple and so much more interesting.* The use of such expressions as "the sum of two numbers," "the difference of two numbers," the "difference of their squares," their "cubes" and many such terms are easily comprehended while the use of terms as *factors* and *factoring* generally is much more easily comprehended with letters than with figures. In a word, you are dealing with the *terminology of mathematical study* which is only saying that you are extending the child's knowledge of English, a highly specialized branch, to be sure, but nevertheless a branch of English which needs to be mastered along with the rest of the dialect of knowledge.

It has not been my experience that children thus early inducted into this terminology have any difficulty with such terms as *tangent, arc, perpendicular* and the like. *Centre* and *radius, area* and *volume*, all in their proper significance never presented any special difficulty and on the contrary presented many interesting psychological evidences that there is a natural affiliation of the human mind with these things if we ever find out how to express it. I believe that much, if not most, of the

trouble with the entire subject of mathematics is due to the fact that *most of the mathematicians know nothing about the English language*. I judge this, of course, by the language which I find in the books on mathematics but more especially, by the use of the tongue they make when they propound what they call "original" problems. They are original in many more senses than intended, and mostly so in the monstrous misuse of the mother tongue. If there is anything calculated to disgust or harass a young student more than these things, I cannot imagine what it would be.

Take most of the *definitions* which you will find at the beginning of any text book in geometry like, *straight line, curved line, broken line, plane surface, curved surface, rectilinear figure, curvilinear figure*, and the like. I have never experienced the slightest difficulty in teaching these to little children with blocks and having them draw on command the kind of figure required. Indeed, it was in connection with *circles* that I took a globe and taught all I know about *latitude* and *longitude* and many other things incidentally. Of course, the main interest is not mathematical, except in that it teaches *exactness* and *measurements* and calls for *reason-*

*ing* and demands *proof*. These are much more important than all the rest combined. But even here it must be remembered that the reasoning is always necessary reasoning. In this it differs so thoroughly from the method employed in most of the other sciences that almost any child will feel the difference, unless the method of approach is some such an one as I am now describing.

The approach to this subject is probably made easier and more pleasant by the fact that the children are using their hands as well as their heads. *Handling a sphere* is a very different thing from talking about one. So, too, handling *pyramids, cubes, and cylinders*, tells more about them in three minutes than three hours of talking about them, because of the difficulties of exact definition, suited to the mind of a child. Of course, it can be done. But to take a pyramid and measure all its sides, and find out all that can be told about it in a simple way, is great training in *exactness, both of practice and thinking*. Often if you will let several children do this at the same time and then let them *compare their results*, you will develop a first class debating society.

When we struck a term like *equilateral*, or *quadrilateral*, I always used to rest the children by making the subject one of *linguistic*

*interest* because those words lend themselves to a good deal of interesting discourse. It used to be a source of great amusement to me to hear the children repeat these discourses with my own intonations and gestures to other and younger children. But I see no reason why this is not as good a process of training or how it differs in effectiveness, as indeed it did not, in my household, from letting the children experiment with a piece of dough in baking, or a piece of cloth in making the dress of a doll! In both cases we were playing with different kinds of knowledge. The only difference was, the kind I played with, is necessary to get into college and has sanction as knowledge worth an academic degree, while the other has as yet no such sanction. They still think stones are better than bread at the universities!

As I write these lines I can look about me and hardly see an object which was not used in this sort of study. The *floors*, the *walls*, the *pictures*, the *windows*, the *desks* and this very typewriter, were all utilized in this particular branch of study. We drew all sorts of figures and we noticed all the various shapes, which were to be found in the room and we accustomed ourselves to noting *differences of shape* and *size* and *area*, and, in fact,

all the things *which made use of our geometrical knowledge* and where the processes were not too complicated, we worked them out. I often had measurements of window screens made, or of pipe, or of the width and length of stairs, or of rugs, and all sorts of objects which gave, so far as I have been able to observe, quite as accurate results as one gets from most children in the earlier years of the high school. It took longer of course, and there was the natural clumsiness and lack of manual dexterity and skill, but the final results were not more inaccurate than those which I have seen given by high school children. In fact exact measurement is not a common thing. Ask any builder or ask yourself when you have had occasion to make measurements!

This form of mathematical study with little children lends itself most effectively for intelligent play. *Building with card board* or with *stiff paper* or with *blocks* or even with *boards*, and the *drawing of plans* and working in accord with the plans, is valuable manual training and experience and this is the best way to get it. What I have seen of manual training has not, except in its more advanced stages, been higher in educational quality, though naturally more exact in achievement, than what I have seen done by

little children in this respect, and it is my opinion, that with such training a ten-year-old child can do in a single year all the arithmetic of the first eight grades and where there is any special aptitude in this direction even more. It is to me proof positive of the utter worthlessness of most of the mathematics of the grades, beyond mere memoriter work and discipline and speed in writing or reciting.

Hours and hours of happy pleasant occupation may be secured in this way and all sorts of material may be utilized. As I recall it now, in our own household, we utilized *cups* and *saucers*, measured and drew broken pieces, tin cans, the discarded boxes in the kitchen of wood and of tin or card board, and caused the children to make all sorts of articles some of which remain to this day. The habit of *working after a plan or model* we found a most useful and fruitful method of working. And in connection with these things, let me say, there is no possible use in getting valuable and costly materials for this sort of thing. Your own home has all that you need and it only calls for a little reflection on your part to provide all the materials you need. Here, too, you can use all the kindergarten materials if you care to do it that way. My own experience has been that children who have been



taught how serious tasks are performed, do not wish to think they are "playing" at their work, but wish to see something accomplished which represents real achievement and gets real praise and approval. In our own home it led to the cultivation of the *habit of invention*. My own children will never forget the wagons and other vehicles they themselves built and with which they spent hours while the most costly and handsome things which had been purchased, lay about unused.

In mathematical study of this kind and its instruction, one fact should be borne in mind. *It is here that the superior maturity of the parent or teacher counts for most* and where the form of devising the problem or arranging the work has its best illustration. *But everything should be concrete.* Abstractions are not of a great deal of use even to mature people, and even less to children. You can prove this any time by telling a child about some geometrical figure and noticing its blank inability to comprehend what you want, and then setting the same child to work out the same problem with tools of some kind or materials with which it can be given the opportunity of measuring and comparing its own work with the model which it is set to follow.

Another feature of it which impressed me

was that it developed the *habit of pausing at stated intervals and checking up results* from time to time. Most mathematical study being based on necessary reasoning admits of just this, hence you can *trace errors* or you can set the child to go over its own work either forward or backward and find out its own errors. This is a very educative process because it *stimulates scrutiny and comparison and measurements* and leads to care and precision as few other things can or do. In many forms of study this is not possible. But because mathematics for the most part is based on *necessary reasoning*, the various stages can be marked off with exactness and *the error absolutely located*. This can be worked out in all sorts of ways. And most children will have genuine and justifiable satisfaction in comparing the substantial accuracy of some later work with the clumsiness and inaccuracy of some earlier performance. But, in any case, there is always activity with the hands as well as the mind and this helps in the dual development in connection with matters of real educative utility.

A necessary part of mathematical study is that of *recording accurately what has been worked out*. Experience seems to show that about so much practice is needful for each in-

dividual child, before it can write *exactly* what it means to write and what it knows *absolutely*. Most children can do very much better in an oral examination than in a written one, and the reason for this is perfectly plain. When it comes to writing accurately, this in itself is *a kind of art*. It is so much an art that it is not infrequently true, that inferior students can write better papers than students who have greater actual knowledge of a given subject. It is in the mathematical work that this must be mastered though it comes not less in the work of languages, but while there it frequently explains itself, an error in mathematics is fatal to the whole subsequent process. *For this reason great accuracy should be insisted upon in writing, copying and drawing and frequent repetition* should be insisted upon though it may be done in a manner which will not be too taxing to the little minds. But nothing short of *absolute correctness* should be insisted upon since this is all there is to the study of mathematics. A line is exactly six inches long or it is not. It is ascertainable whether it is or it is not. *Never leave such a matter in doubt*. In fact, leave nothing in doubt, about which final knowledge can be obtained, though this rule has more force in

mathematics than anywhere else because as stated that is all there is to it.

It is here, too, that the general value of mathematical studies can be determined. Two and two are four, and they are no more to a sage who has lived seventy years, than they are to a child of four years. The sage knows no more about it than the four-year-old, because that is all there is to know and can be verified by the one as well as by the other. Nothing that the sage has experienced in life, no wider contact with men and events, no insight into the human mind or the human heart, can add one jot or tittle to that fact. It is just so with the multiplication tables. They are not matters of reasoning or experience or depth of feeling or point of view. *They are just mechanical facts and hence their only value is that they are right.*

It is one of the unanswerable proofs of my position about most of the mathematics, I mean, of course, the pure mathematics, that they are steadily being reduced to machine action. No bank any longer relies upon the clerks to add up accurately, long columns of figures, or even performing certain kinds of other figuring transactions, because they have *machinery which can do it more rapidly and*

*do it more accurately.* A machine never gets tired doing the same thing. A human being does. The human mind craves new applications of principles, and fresh insight and fresh knowledge concerning all that comes to it. A machine has no such necessities and because mathematics has no such capabilities or natural possibilities, *most arithmetical transactions can be done by machines which are more and more coming into general use because they are more trustworthy than the human mind*, susceptible as the latter is to moods, weariness and error. Take good note of this, when you are urged to make your child a good arithmetician and find his progress impeded because he refuses the stupidities which are supposed to make for discipline!

But, by these same tokens, when you *do* have anything to do with them *they must be accurate or they are nothing.* Hence insist on precision. See that results are *exactly right*, not "about right" or "nearly right" and don't allow yourself to use such terms in connection with mathematical work. They are *right* or they are *wrong* and that is all there is to say about them. *That is the sum of their intellectual content.* Hence you must get that or you get nothing. In fact, you get worse than nothing. You get habits of inac-

curacy which are damaging beyond calculation. I believe the study of arithmetic in the schools, as often carried on, is responsible for a vast amount of the carelessness and heedlessness of many people. They could not get the work *absolutely right*. So they took "*something just as good*," meaning thereby "*nearly right*" or "*about right*."

In many communities this is being recognized and changes are taking place, which show a recognition of the valuelessness of what I have been describing, but there are many communities where these things are insisted upon, as the condition of higher and advanced study. You will find it far better to do all this work at home, than to trust it to the school, where almost perforce it has to be badly done, and done under conditions which can hardly fail to secure irritation and tribulation, both for the teacher and the pupil.

While you are dealing with the matter of measurements you may take the occasion also to teach the *metric system* which is more and more coming into general use, and which the child will have to have later on in any case. It is simplicity itself and can just as well be taught here as anywhere. Here again you can use your *word studies* in connection with it, which will make it interesting as you go



along, but in any case, try it out and see what comes of it. It will be one thing more learned in this direction and will aid in your general plan of fertilization. At the same time you can teach the *elements of percentage*, and the *decimal system*, because all these run on all fours together. In fact as you take up the words of any given science and analyze them you will be preparing for the teaching of the science itself because you will be *giving definitions* and *furnishing illustrations* which will themselves take you a considerable way on the road to what you wish to achieve.

If all this seems very advanced to you and almost impossible, just try it out. Of course, you will *clarify your own ideas* so that you know exactly what you are talking about and then the matter will be easy enough. Just keep before you constantly that *a clear idea can be comprehended by a child, no matter what the subject matter happens to be* and do not underestimate this capacity. You will in general find that the real limitations are not those of the child, but your inability to tell clearly what you know perfectly.

As you glance through your arithmetic select the *applied forms* of it, and try them from time to time, always relating them to something specific and that has some immediate in-

terest to the child itself. The ways will suggest themselves to you as you go on and you will set forth on many a tour of exploration and come home laden with many things which you did not expect to find out when you set out. Whenever the child raises some question about which you are not clear yourself *work it out with the child* and *let him see the process by which you arrive at your own conclusions*. The decimal system, to which I have just referred in its applied forms, has many such examples of practical application. The *use of money* and *interest* and the like, can easily be shown in intelligible form and the principles very readily inculcated. And there are many others.

If all this seems rather like a large contract, just remember how before the era of text books and in a comparatively recent period, such operations had to be performed by relatively illiterate people as indeed they still are. Your child with the modern resources of knowledge, can do to-day what these people did years ago, being acquainted only with the crudest possible ways of proceeding. Just study the work of a *cash register* and let that teach you. Notice sometime some of the more highly developed *balances* of your butcher in which not only the weight is given

but the price is worked out on the tables, calling for almost no calculation. In fact notice all such machines wherever you come across them, in fact, every *device for measurement or computation*. A little attention to the machine will show how simple it is, concretely studied. *But never try to do these things in the abstract*. I have elsewhere spoken of the habit of *weighing* things purchased at the grocer's or the butcher's. Plan to do the same thing with dry goods which can be *measured* also, all of which will teach many other things besides the mathematics involved. It is by these constant demands, here a little, there a little, line upon line, and precept upon precept, that principles are established.

## CHAPTER XIII

### ETHICS

IT is when we come to the field of ethics that we appreciate the immense value of the course which we have been pursuing. Nothing seems so easy as the regulation of conduct. Nothing actually proves so difficult. Broadly speaking there are *two kinds of people in the world: those who obey some outward authority and those who are governed by their inward light and convictions.* To a certain degree we are all governed by what is outside of us, because manners, customs, place of residence, occupation and the like, all begin to exercise an iron sway over us from the moment we are born. The very food we eat has its part in making us what we are. And to many of these things we must conform, because no man liveth to himself in this world any longer. There used to be a time when, if a group of people did not like the place where they were they could go off to some uninhabited place, and start a new civilization of their own. But that period is now over. You may change

jurisdictions if you please, but wherever you go, somebody has already set up a particular code to which in part, at least, you must conform.

But even when we have a highly developed state of civilization the question does not become easier. In fact, it tends to become more difficult because great masses of people, swayed by all sorts of influences, call for decisions which involve the most careful balancing of *facts, motives, conditions* and *antecedents* and the like, which make it often a very difficult matter to know just what to do, even when there is an unflinching disposition to do right. We have before us at the present moment a striking illustration of this condition. Just see what different interpretations equally upright people put upon the various facts of the war! Read the documents which the authorized spokesmen have offered to us for the justification of their course, and if you have any reason left, you will at once become aware how hard the pressure is, in the modern world, to regulate conduct and opinions.

You will also see, if you examine this matter, that the *meaning of words* plays a huge part in these opinions. You will see statesmen, who ought to know better, using the *same*

*word in different senses*—a very common fallacy of logic. You will see them twisting perfectly clear matters into all sorts of shapes, in order to make a point where none exists. You will see them confusing matters, sometimes very obviously, but just as often without intention, because they are juggling with the meaning of words and are either enlarging or contracting the *content* of a particular word or phrase. It is in matters of this kind, that exact and careful English proves its value and where the uses of word-study and analysis appear to best advantage. But you will see more. You will see how the desire to make a particular point is very obviously distorting the facts.

Now all this, which is specially clear in war time, is at such times only an exaggerated presentation of what most people do habitually. Careful use of language and knowledge of language tends to prevent the worst forms of this in ordinary times. Exact scientific knowledge gives an effective weapon for the checking of those who would use such methods upon matters which affect us. Hence the great value of these. But back of this there is always the *moral question itself* and the *conception of morals*, and back even of that a *certain ingrained ethical sense* which



is, I suppose, a union of habits and the culture of ethical thinking. In any event nothing seems so necessary to the world at this moment as enlightened moral instruction.

This instruction should begin very early in youth and I am urging that it be done in the formal terms, for the reason that I have previously urged, namely, that by this means the child will have earlier access to the literature and discussions of moral questions, and issues will be less subject to prejudices and passions and will have a better chance to lead an orderly, happy and useful life and one that is governed by the highest motives. Many people do the best they know how to do and this is nothing but the simple truth. But their "best" is so crude and damaged an affair, that we not infrequently wish some persons were more positively bad, that their reformation might seem to them the more necessary. There is nothing in this world so difficult to deal with as a human being who *thinks he is right and has neither the knowledge nor the training to be susceptible to the agencies by which he can be shown to be wrong*. Such people are the worst enemies of moral growth and progress in the world. *Positive wrongs show their character at once and can be branded as such*. But the actions which have

the dubious shading, which make it hard to condemn, and harder to approve, and which make a perfectly fair person unable to decide just which is predominant, present the great difficulties. It is just so with studies. A positive and palpable error usually leads to its own correction. It is the doubtful things that complicate studies. They also present the main complications of life.

Under this intensive regimen which I have been advocating I have many times advised exactness as to detail and urged that you take any amount of time and patience to get *exactness*. Nothing is lost by this. On the contrary, when the habit has been formed, progress is very rapid. Now ethical instruction which is to be effective has to be preceded by something which is more or less exact at a time when there is no judgment, no independent reasoning power, and no ability to discriminate. That exact thing is a thing much despised in our day but one to which I believe the whole world will have to come back sooner or later. *It is the principle of authority.*

By this I mean that there must be a *period of absolute and unquestioning obedience*. Why this should excite opposition as it so often does, is very strange to me. We exact absolute obedience in many things. We do not

let children jump into rivers, or eat poisons, or meddle with dangerous machinery. We demand and get as absolute obedience as it is possible for us to get. Nobody thinks he is being bullied when he sees a red lamp in the road at night! Why? Because he knows that is the recognized method of indicating danger. Nobody but a fool would drive on over that lamp without inquiring why it was there! In a similar way we have certain experiences and certain knowledge about which there is no doubt whatever. There are certain practices, the results of which we know as absolutely as we know that the sun shines. We do not hesitate to make absolutely final rules about them.

Now I believe in this absolute obedience. I believe in getting it by the best means possible, but I believe an irretrievable damage has been done to any child that has not learned it. Of course, *the chief use of your maturity and skill is to avoid needless conflicts*, and this is the main use of your superior intelligence and knowledge, namely, to prevent conflicts from arising. *But if the conflict does arise there is only one thing that must happen: you must win and get your way absolutely till a more excellent way has been shown.* This may re-

quire physical force, in fact, often does. But whether it does or not, there are two kinds of persons who never amount to anything in this world: *the people who cannot do exactly as they are told* and *the people who cannot do anything else*. Obedience, it has been said, is the organ of spiritual knowledge. It is the organ of every kind of knowledge.

Now this is what I mean by the principle of authority. It lies at the basis of rational action. It takes for granted that experience, age, wider knowledge, and special training, are worthy of regard and until they are matched by something superior are to be regarded *absolutely*. *It is not necessary for a father to be right to insist that his will shall be obeyed*. All the presumptions are in his favor in any case, assuming that he is a good man. The child is right in supposing that he is right and in standing on his word absolutely without any qualifications whatever. We fathers know that we are not always right, perhaps not usually right. *But we also know that in ninety-nine cases out of a hundred the child is safer in following our error than his own*. There is a choice even in mistakes. You should train the child to know and understand this principle as thoroughly as it is possible to

teach it. Because upon the recognition of its force, will depend much of its happiness and effectiveness.

Having made this clear you should begin your study with the child by showing its *personal relations*. You do this right along though not usually formally. You may well begin by asking what things pertain to the child alone. What things are *personal* and *individual*, how it is separated or different from every other creature in the world. What does this involve as to itself? What does it involve as to others? What does it mean as to behavior? How does this affect ideals, aims and purposes? Take that word *self* and work in through its various ramifications and see what you get out of it. Contrast *selfhood* and *selfishness*, make the various compounds of the word like *self-consciousness*, *self-dependence*, *self-nurture*, *self-culture*, *self-sacrifice* and turn over these various contrasts of meaning and see what they will lead to. You will have little difficulty in finding material here for all the time you wish to put into it.

Take up the words which have to do with the personal moral life. Take such a word as *good* and turn it over and over, and see what comes of that. What is the difference between a *good* man and a *good* knife? What is the dif-

ference in meaning, when we say a *good* horse and a *good* book? You will readily see that here you are dealing with *functions* and *uses* and *ideals* and it is your business to separate them and accustom the child to think along these lines. In a similar way you may take the word *bad*. A *bad* man and a *bad* error may be compared and various other bad things. Go into these distinctions because they lie at the base of ethical thought. You can readily make applications of these words which will lead to the very heart of ethical questions. Ask whether a *good* ball-player can also be a *bad* man? Or whether a *bad* citizen can be a *good* father?

In a similar way you will early begin to make clear the distinction between *natural evil* and *moral evil*. What for example is the difference between *pain* suffered as a consequence of putting the finger in the fire and that suffered when the hand is slapped for disobedience? How does the result differ when a fall from a roof breaks a man's neck and kills him or an electric wire kills him, and the law which takes his life by electrocution? The kinds of evil in the world should be made the subject of a good deal of discussion and instruction. The same thing applies to all moral words, like *wrong*, for example. How does a *wrong* an-



swer to a question differ from a *wrong* act? You will be surprised how soon these distinctions may be made and how important they are in regulating behavior and simplifying the questions of moral training.

No question ever staggered me so much as when my own children first asked me what *sin* was! I pondered long before answering that question because I did not want them to confuse *sin* and *sins*. Nor did I wish them to think of character merely as a *series of acts*. Nor did I wish them to think of *goodness as a group of prohibitions*. After a good deal of reflection I evolved this and I give it to you because it practically settled the question of moral training in our household forever. "*Sin is the choice of something lower when something higher is possible.*" That lifted the subject entirely out of the region of *specific acts*. It made no difference whether the particular thing was worthy or unworthy. If something higher and better was possible, there was *sin*. I think that simple definition, crude as it seems, simplified every moral problem which the children ever faced. It made prohibitions practically needless, and caused much reflection at a time when reflection is usually wanting. I think *it induced the habit of reflection* as such a very desirable result apart

from its moral significance. Personally I think this kind of discussion has educational uses beyond all other mental exercises, because it almost always deals with *personal applications* and *involves the will*.

*Personal rights* and *personal duties* came to figure largely, because of these questions and answers. It led to some very amusing situations of which the following is an example. I had been teaching something about the *right of immunity* on the part of others from *pain*, because of matters which were strictly of our own choosing and interest. And I had been saying, that if one of the children tumbled over and bumped its nose and suffered pain on that account, it was hardly just that the whole household should be made to hear the bawling and so be made miserable by what was the result of *personal carelessness*. Shortly afterward, I was coming home and one of the younger children ran to meet me. She stumbled on the brick walk and fell and got a rather severe bump on her nose and was generally shaken up. She started in for a good cry, but seeing me she suddenly recalled what I had said and through her sobs uttered this: "*I am not making everybody miserable.*" It is needless to say she got all the consolations, but it has been a source of great comfort and im-

pressive gratitude to me, that this particular child afterward, threatened with an illness which might well have ruined her life, and where recovery was contingent upon exceptional obedience and self-control, came through gloriously and is to me a miracle. Nothing can possibly persuade me that this child, now a college student, does not owe her life, in part, to the early assimilation of that principle of self-restraint, which became the means of her physical salvation.

These things will occur many times when there seems to be a *conflict of duties*. When children's interests seem to clash, they must be given a chance to work out manfully their own decisions, even at an early age. I believe myself in strong government. I am a strong believer in authority. But strongly as I am personally bent in this way, there is probably no household where greater freedom has prevailed and where less coercion has been employed. I believe this to be due to the early instruction in ethical matters in the scientific way.

From personal duties to *social or communal duties* is a short step and the step is taken easily and naturally where there are any ideas to work upon. These same children evolved many *community rules of their own* which were

interesting to me, as having a decisive bearing upon childhood teaching in ethics as opposed to mere formulas. For instance, I have just been in the kitchen where I saw a huge plate of cookies which one of these children has just been baking, a child no longer, of course. Over the place there is a sign marked F. H. B. which means "Family Hold Back." The story of this injunction is that years ago when the mother made cookies or new bread, no limitations were placed upon their consumption, unless there happened to be occasion for it, company being expected or something of the sort. Well, the children themselves evolved the "family hold back" sign for their own guidance and soon applied it to other things, berries if they had been berrying, or other things which had been gathered. I well recall how impressively they came to inform me that I was exempt from the F. H. B. rule!

Now what was this? Simply the recognition of a *community*, as separate from a *personal* interest. That sign was never disobeyed. In a similar manner, I often caused personal caprices in taste to disappear, by pointing out that a happy household was impossible where everybody was insisting that his or her tastes had to be consulted at every moment. *Social ethics* in this manner came

to be a natural subject of discussion. The people at church, the habits of the people in the town and village, the behavior of men in public life, public and political questions, all came to be naturally discussed under the general principles which were being exemplified every day in the household. I often raised these questions as we read the newspapers to them, and asked them to judge what they would do under such circumstances, after the manner of early Greek education. It was always interesting to me to see with what accuracy they judged public men (as I view it, of course) for their acts.

The contrast between *public* and *private* aspects of moral questions should receive early attention, and social interests, in their larger sense, should early be brought to the notice of the child. If there are several children in a household, these matters come up naturally and are rationally settled generally, but their guidance for instructional use is a very important part of intensive education. Nothing admits of so many qualifications, nothing allows so many questions which are real and just in their relation to the question under discussion, as the matter of moral action. *It may fairly be said that the right kind of thinking here will help to right every other kind of*

*thinking*. It is important too to bring into this realm the questions of knowledge, like the possibility of complete knowledge, how far right judgments are possible, and the function of passing judgment on men and events and actions. Most mothers, in fact, do try to do this, because they have to do it often to find out just what it is they are to deal with, in training the character of their children. If it is done in set terms and with a view to causing the child to think in terms which make the possibility of scientific thought, so much the better.

The question of *veracity* should be discussed in many forms in relation to many matters and under many guises. *Truthfulness* and *veracity* should be compared. The *right to reticence*, the *obligation to speak*, and the moral effect of each, form interesting questions. How interesting may be seen in the current news when men, apparently of the highest standing, differ as to their duty in such matters. There is hardly a community that does not from time to time present questions with which the life of the whole community is involved. *Great strikes*, or problems of *city politics and administration*, the *care of roads and highways*, the *laying of taxes*, all these have an important place here. Incidentally



elementary *government* may and should be taught here and *the relation of moral action to government clearly indicated*, the lack of which is the most lamentable fact in the public life of America to-day.

Here you may also begin to give some elementary instruction in the *meaning and uses of law*. There is probably nothing about which the public mind is so perverted at the present moment, as the meaning of law, the administration of the law, and the status of courts, judges and the like. It is wise to teach the little people *how courts came about* and *what law has done for civilization*, what it means to *weigh evidence* and what it signifies to *render a decision on the weight of evidence*. This looks very mature and "oldish" as one says it, but in practice it is not difficult and the results are very important. *Law* and *lawlessness* begin in my judgment in the home, and in the habits, instruction and general attitudes of parents. But the obedience which is worth anything to the community is one which is based upon rationality and not merely upon blind acceptance of what is ordered by somebody who appears to have the authority to give commands.

Law naturally suggests *liberty* as a contrast. What liberty is as contrasted with

*license* can be shown in a thousand ways and should be. *Liberty under law* is the greatest lesson one has to learn in this world, not merely with relation to action, but hardly less with relation to *opinions* and the *formation* and *expression of judgments*. This last is very important. *The uses of speech*, the right to speak and the limits of speech are very important things to master. You may find your cases made for you in any newspaper, by simply studying the utterances of public men. Proprieties of utterance in times of war, and utterance of opinions in times when diplomatic negotiations are in progress, are matters fresh in the public mind at this moment. Example goes a long way, of course, but it is not necessary merely to show the way but also to show the "why."

The commoner social relations will naturally come in for friendly comment because they cannot be avoided. The ordinary social life of most families carries with it *comment on the happenings of the community*, and the ordinary social occurrences of one kind and another may either be made an instrument for the mental enlargement of the children or may be made a means for their social degradation. Who has not been aghast to hear the free and anarchic discussion of neighbors and fellow

citizens by parents in the presence of their children, in a manner which could not possibly eventuate in anything but the destruction of just judgment and kindly and honorable opinions of mankind! These things are very much more important than they seem, *because they will indicate to the child that what is taking place in its own home is very likely what is taking place in other homes* and that this is the normal and natural way of passing judgments and forming opinions. Of course, it can result in nothing but what one finds everywhere, petty and contemptible jealousies, miserable subterfuges, social lying and intrigues, the abomination of much of the social life of to-day. *The manner of it and the practice of it begins with the listening children.*

On the contrary, when these things are made the occasion for an effort to test the *accuracy of statements and inferences*, whether they do or do not conform to a *fair and honorable moral standard* and what the moral attitude to these things should be, there is a distinct gain to everybody concerned. There are many matters about which we are reticent where we should speak. And many more about which we talk too freely, when we should be reticent. The critical attitude is a good one here, when it works all ways at once, both

outwardly and inwardly. Above all *the cultivation of a desire first for the facts* and then *the weighing of the meaning of social facts* is of great importance in the training of the child. The same thing applies to the great occurrences of the community. It is a good thing to show children at a comparatively early period the different *types of life* in the community, to point out the *useful people* and the *useless people*. It is good to go to the industrial establishments so that the child can get an adequate idea of how the things it takes for granted are produced, and what the *human factor* in them signifies.

It will be a great illumination to many children to see what other children do with their lives. To go into a great industrial establishment and see hundreds of men and women at work, to note the regularity of their occupation, to see the discipline and self-subjection involved, and to see that it is understood that this goes on year in and year out, is to make an impression which will never be lost. Utterly apart from the interest of the work itself, special attention should be given to the human beings who are doing this work, and questions raised as to *their point of view as to life, work, recreation, pleasure, the worth of existence, and the limits of initiative and development,*

which comes to persons under such conditions. Nothing so impressed me in this matter as the ignorance of a wealthy classmate of mine at Harvard, a man who has since devoted himself to helping his fellow men with conspicuous success, when I went with him to see one of the factories of Massachusetts in operation. The contrast between his own beautiful, luxurious and abundant life, and the narrow, restricted and maimed existence of many of these people, was never forgotten by him. I shall tell that story some day too. He often said to me that children should never be permitted to grow up without some kind of *reasonably full knowledge of how other children grow up and how human beings spend their lives.*

This naturally leads one to talk about *privileges* and *immunities*. Why are some people *rich* and others *poor*? Why are some *educated* and some *ignorant*? Why are some *efficient* and others *inefficient*? These are problems that may not be attacked too soon, especially on the moral side. How much does *equipment* have to do with *success*? And what is *success* anyway? Who is judge of when a man's work is well done? Who is to control his opportunity for making the most of himself? Have men generally the *oppor-*

*tunity* to make all there is in them come to the surface? If not, why not? What is the relation of success and effectiveness to conditions of life? Which predominates in the ultimate result, the *man* or the *surroundings*? What is the meaning of *tools*? Where do tools come from? What part do *industry, skill* and *perseverance* and *education* have in the making of life? Are *privileges* the result of these, or of something else? You can easily get to some of the most searching things in life in this easy way. And perhaps it won't hurt any of *us* to do this for our own sakes as well as the children!

You will find that as you deal with nature studies of one kind and another, that the moral questions come up, and this is the time to show the difference between *natural law* and *moral law* and indeed the relations of one to the other. Natural relationships bring certain kinds of rights and duties. Often questions which stagger us, when put independent of some concrete matter, become easy to handle when we deal with them impersonally, and this is especially true when we deal with the question of sex, though people will always differ as to what they ought to do about such matters, and very properly, since it is by no means easy to dogmatize about it. But the public discus-



sions are so frequent now, and the newspapers and magazines talk so freely, that since you are to produce a *reading child* and a *thinking child* you might as well deal with it yourself. Of course the basis has already been laid in *habits* which you are insisting upon quite independent of any instruction, *duties* which you lay down, and *requirements* which you make, merely because you are set to do it and about which you will permit no particular question to be raised till they have become necessary to the child's comfort. *Cleanliness, when it has become a habit becomes a protection.* Sound hygienic living at first, inculcated by mere authority, soon becomes its own sponsor, because departure from it means discomfort and unhappiness. But this having been done, cultivate the discussion of the inner things. And encourage the expression of ideas without regard to whether they are satisfactory or not and *never show contempt for the opinion.*

So much has been said about respect for the child's *personality* that seems to me mere fudge, that I hesitate to say my own word. By all means have respect for the child's personality and especially by never showing contempt for anything that has real and genuine interest for the child. *But never lose sight of the fact that the main interest for you is*

*keeping the attitude of respect for superior judgment and superior experience and only raise the question whether it is superior judgment and experience.* Reverence for authority, age, and the ability to endure the eccentricities and peculiarities of disposition on the part of mature persons, should be learned by children, and when this process which I have been talking about is carried through, you will find the child making qualifications in its own way, which are very illuminating. Take a case of my own. I believe and have always believed strongly in authority. I came to it by experience, by philosophical study, and by religious conviction. But, of course, you can become overbeamed on any subject. Ordinarily, life itself makes the necessary qualifications. But one of the things which has always been a special source of irritation to me has been *carelessness*.

In our home I dreaded exhibitions of carelessness even more than infractions of rules, and I do still, because I dread the influence and power of irresponsible action more than I do positive action, even when it is bad. Well, my stern rebukes of things sometimes led me to be unjust, as, for example, articles might be broken without the child who caused the break being aware of it, as in play or

without noticing it. On one such occasion a stern rebuke, which landed on nobody in particular, but which silenced excuses because I rather tartly exclaimed, "Then nobody did it!" when each child disclaimed the act, led to the organization by the children of "The Scapegoat Club" in which it was agreed that somebody *should* take the blame, though unconscious of it. I may have already referred to it. The important thing was that this was a clear recognition of *my* defect, and a provision for it. I cannot see that it ever interfered with my children's affection or obedience. They knew my horror of carelessness and sought to pacify me and they did.

The saving clause of this transaction was that it disturbed no moral relations. They knew that my anxiety was for *them* and not for the mere cost or value of any article. That made them attempt to provide a *modus vivendi* just as they did with the cookies. But it showed moral discrimination and appreciation and this is the important thing. Happy is the house where parents and children are thus morally related, because it makes for unity of action and purpose and ideals. It makes for freedom of thought and liberty in action. It releases powers which otherwise would be bound up either in fear or lashed into resist-

ance. I have known it to happen in both these forms, because there was no moral common denominator in the home.

All ethical instruction ultimately raises questions of religion and concerning these I will not say much, having discussed them elsewhere. But I think I may add, that *religion is the surest handmaid of every other interest in life, because it harmonizes with every other interest, which is rational and which has any ideal element in it.* But let not your religious teaching become mere moral harassing. Link it with history, with art, with public life and service, with the enjoyment of life, and with the glory of the world. Cause it to be an all *pervasive* thing rather than a specific set of acts and duties. Your use of the Bible for English will help to take away *the mechanical idea of religion*, and there is this to be said: *the more mechanical your religious life for the child is permitted to become the surer will be the reaction from it.* If you want your child's religion to be real, it must be free in the sense in which I have indicated. It must be linked with all kinds of human interests, and it must show that it is related to all the things which call for energy, power of decision, character, skill and ability. The reason why religion has so often seemed to fail, is that it has not

been linked with any great paramount interest by which human life is governed. Your *minister* should be an important personage to you, if he is worth it. That he may be worth it, help to get one who is worth something. The *church*, whatever your sect, should be of tremendous interest to you, therefore see to it that you help to make it worth while. Your *moral alliances of every description* cannot help but exercise a powerful influence upon your children, whether you wish it or not. We have to be in the world with other human beings, and we have to be like them enough to live with them. But *it is for us to determine whether our children shall be submerged by them or hold the rudder of their own careers and steer by their own light, reason and conscience*, and this you must help to secure by helping to make those influences which you cannot escape, what they ought to be. I was always anxious about the ministers my children were to hear, when they were not listening to me. I was always anxious who commanded their attention and always sought to know *why*. I always noted what kinds of personality gained influence and affection with them, because these were indexes of what I should do myself. You would feel grieved, I know, if you should find out, what is un-

happily too often true, that your child is taking its social ideals from people not in your home and its moral attitudes from persons who are more careful to define them, than you yourself. Therefore observe these things carefully. Let nobody rob you of your greatest jewel in life. Never permit anyone to acquire a superior influence or power over your own. That you may do this, may I say *you must be superior* to any other. Nothing in heaven or earth can prevent a nobler spirit, a better mind and a purer heart, from getting a superior influence with your child, if these are matched, against your own. Nothing can prevent greater skill and greater devotion from winning their hearts. I know this, because I have often matched myself against *unworthy, foolish and careless* parents for the children's sakes, and have never had any difficulty in winning.

*But this ought normally never to be possible*, because natural affection, constant intercourse, intimacy of relation and undiluted confidence between parents and children are a mighty barrier. These childlike loyalties are very beautiful to witness, even when they are foolish. For example, a friend of ours was a beautiful cook who made dainties which we never could equal in our own home. We all



knew it and we all gloried in the artist cook, as our friend really was. But again and again, when she tried to get our children to admit that her products were better than "mamma's" the determination to stand by "mamma" asserted itself, in spite of the obvious recognition of the better product of the artist. Up to a certain point this is most admirable. In morals, it should always be the case. *Children should feel called upon to stand on the parental platform against all creation. That they may stand upon it worthily, it is your privilege and mine to make it worth standing upon through thick and thin. The moral solidarity of the home is its strength and its glory. Cast not away wantonly this pearl of greatest price.*

## CHAPTER XIV

### BIBLIOGRAPHY

THE purpose of this chapter is to indicate some use of the tools which you are to employ for teaching in the manner in which I have shown it to be done in the previous chapters. You will have gathered from what has been written, that you yourself are the chief source of instruction for your children, and that the main value of this work is, that it comes to the children with your own interest and through your maturity. That is where the home teaching differs from teaching in the school, where the relation is formal and professional. With you the relation is one of *identity of interest*, and linked with *absolute authority* and *finality of judgment* and program. Hence you are not merely to show what is to be done but join in the doing. I have shown in the new edition of the *School in the Home*, in the chapter on the "Montessori System and the Home," that the great feature of that plan is its emphasis upon the influence of the parent and the parental rela-

tion. Just keep it constantly before your mind that *you* are the important feature in the entire scheme of work.

Your work lies in the first instance largely with *books*. That means that if there is a library in your vicinity your first business is to get thoroughly acquainted with it. Let no week go by that you do not go to the library, and make yourself thoroughly familiar with what there is in it. The librarian will be only too glad to give you any assistance you may want, and you should learn how to use a card catalogue and how to get at things quickly. You should also study the lists of new additions, and get quickly anything that seems to promise help in your work. *Use the libraries a great deal even if you have many books at home because there are always things there which you cannot possibly have.* If you can take the child and introduce him also and let him early associate his childhood with the library and its contents, do that also.

You should have first of all for your work a good *dictionary*, preferably one that gives the etymology of words and their history. If you cannot have such a dictionary yourself, when you go to the library, make lists of words which you are to look up there and get your knowledge from the large dictionaries there.

Then you should have some first class *encyclopædia*. These two tools are absolutely necessary. I should add to these a good large *atlas* and a large wall *map of the world* hung where it can readily be consulted. In fact, group all these things where you can get at them readily. What you cannot have by you, have frequent access to at your library. In many states the state university will gladly coöperate both as to help in studies and help in books. The library of the University of Oregon, for example, sends out books to people all over the state on application. Other state universities do this also and you can thus get help on particular matters by writing to some responsible person. This is especially true, if you care to get information on some special science. The head of the department will usually welcome your inquiry and set you in the way of getting what you want to know.

You should have likewise some good *book of synonyms*. I shall later mention some specific works, but you can easily locate one, because there are many which are not costly and it is absolutely needful for your purpose. *Write to the leading publishers for their catalogues and study these.* By the study of these you will find out what is being published, by whom, and you will find this of itself will introduce

you to a large area of information which will be very useful to you. Such firms as Ginn and Co., D. C. Heath and Co., Houghton Mifflin and Co., of Boston; and Henry Holt and Co., The Macmillan Co., Appletons, and Crowell, of New York, as well as others, will give you a great deal of information, through their catalogues. I have never failed for years to get a full set of these catalogues and many others, just to keep before me what was being done and have by this means often found most useful aids to my work.

Have a *plan*, and a *program*, and a *time table*, for your work. *And stick to it.* Have a different subject for every day and thus let the days be associated with some special task. You will find this dignifies the work in the mind of the child and your own mind. It will also subconsciously lead to your organizing your knowledge for that particular time. In addition to all this, it will mean that the work will be simplified and seem less like a task. There is enough variety to prevent monotony. I found the use of a blackboard most helpful. Other parents get as good results just by writing materials, but I always liked to see the thing large myself and my children did too. I think it made for clearness.

As to English, you must make the choice

yourself, but if you will follow the line of the requirements for admission to college, you will be doing well because most of the stories can be read to little children with profit. Read a great deal of Shakespeare and the Bible, of course. Read out of the standard authors, choosing things you like best yourself, but also doing a little exploring on your own account. Read the books and familiarize the child with the literature which most children approach at about the high school age. In fact, you will find it useful to get such lists from the school superintendent and follow them. Have nothing to do with the ordinary "readers" so-called. Most of them are worse than useless. Study *literature* all the time. Study the biographies of the leading authors, English and American, not exhaustively, but enough to make the child familiar with the names. When you read *Rip Van Winkle*, for example, tell all you can find out about Washington Irving. Similarly of others. This is just to make the child acquainted with the names. Some of the facts will stick, too.

*Teach grammar from a Latin grammar* and in connection with your study of English, remembering that whatever you teach, you are still teaching English and with it grammar. But use the forms and the terms employed in



Latin grammar. Any standard Latin grammar will answer your purpose, Allen and Greenough's, Harkness, or Bennett. In this connection also you will find *The Latin Word List*, by G. H. Browne, most useful. Paul R. Jenks' *Manual of Latin Word Formation* will also be found of great service, and one of the most useful books I have seen for the use I have in mind is Dr. B. L. D'Ooge's *Latin for Beginners*. These, of course, are *tools for yourself* and for the fertilization of your own mind. If you have no previous knowledge of Latin yourself these will supply it for your purposes. If you care to give yourself some special preparation, study in connection with these Prof. E. C. Woolley's *Handbook of Composition*.

As to the other languages, I must refer you to the catalogues and you will choose according to your predilection German, French or Italian. I know the French and German best and Bierwirth's *Elementary German* and Fraser and Squair's *Shorter French Course* will supply your need. Both taken in connection with small German and French dictionaries will give you all the materials you need.

For your study of geography, you will use simply your *map* and your *globe* and the material you will find in your other studies. But

I would take this up in connection with your daily "current events" study, in which your map and the things which the locality suggests will give you all the geography you need. Just keep in mind, I must caution you again, that you are merely giving the little child the grand outline of things and preparing the soil. You are not acquainting it with unusual and strange things but with the great general mass of ordinary knowledge, without which it cannot work at anything.

For your study of history you must have Ploetz' *Epitome*, without which you should never be, and which is packed with all kinds of things and, except the dictionary and the encyclopædia, the most useful book you will have. You will find in it not merely history, but geography, biography, diplomacy, and many other things. You should get some standard American history like Channing's and get a look at the large *Narrative and Critical History of America* in your library. If the library hasn't got it, make them get it because it is packed with all kinds of interesting things which you need to know. In the chapter on history I have referred to some other works, just as I have in the chapter on English.

For science teaching there is no better book

to have at hand than Caldwell and Eikenberry's *General Science* and if you do not care to have a special text book on the other sciences, this one will give you a great deal of help. I have made numerous references to it already and for practical use and usable information, it is one of the most available volumes I know. It has many practical experiments in connection with its text which make it very interesting as well. Bergen's *Elements of Botany* and Professor Spalding's *Introduction to Botany* are both very useful, the latter being specially adapted to your purpose because of its specific directions for teaching and helpful suggestions. Mr. Bergen's book gives more advanced and scientific information which you will find valuable. In this same connection Mr. Grant Allen's *Story of the Plants*, and his *Flashlights on Nature* are both valuable, both as scientific materials and as interesting reading. Professor Colton's *Zoology*, especially the second part, which deals with the practical side, you will find almost indispensable because of its suggestiveness and helpful directions. Lindsay's *Story of Animal Life* will be found full of interest also. For the studies in geology and indeed other sciences, the little manuals of the Boston Society of Natural History will be found very

useful. Professor Shaler's *First Book in Geology* is from a master hand. In connection with all these, as well as literary studies, as such, I want to urge you to have at hand another indispensable little book called *High School Word Book* by Sandwick and Bacon, which will give you many things of which I have spoken again and again. You will find this little book of much service to you in many directions. If I had had this book when I began with my own children my work would have been cut in half.

There are two books which you should read for your own sake as well as the children's, which will, as I think, help on the most important subject of sex instruction, namely Tracy and Stimpff's *Psychology of Childhood* and Galloway's *Biology of Sex*. Taken in connection with such a book as Foster and Shore's *Elementary Physiology*, you will have everything in that direction that you need and much more than you can possibly use. You will find here much that is of interest to you personally entirely apart from the question of what you wish to do for your children. Dr. Florence Richards' *Hygiene for Girls* is especially good in its chosen field. For ethical instruction such a book as Professor Drake's *Problems of Conduct* will be found fertilizing

and assimilated by yourself will give the materials for approach to the subject with the children.

These, of course, are but a few of many books equally good, and I may add to them in some later edition of this book. I mention these merely because I happen to know them and know that you will find them fitted to what I have in mind.

I think, too, I ought to say a word about newspapers. The weekly edition of the *Springfield* (Mass.) *Republican* is the most valuable newspaper adjunct to household training and education I know in the newspaper field, because it combines so many things of first-rate quality for your purpose. Its editorials are in good English and its columns carefully edited. Its reviews of books are good and authoritative generally. Its handling of literary and musical matters is enlightening, and altogether any household that once gets in the habit of reading it, will never be easy without it. For keeping abreast with the leading ideas of the time and having put before you what an enlightened citizen ought to think and talk about, this newspaper has, I believe, no equal in the United States.

Similarly we have found the same to be true, though on somewhat different lines, of the

semi-weekly *New York Evening Post*. It is not so comprehensive as the *Springfield Republican*, but in its field authoritative, and its editorial discussions are the equivalent of a liberal education, read through a series of years. This is true also of its book reviews. Both these newspapers aim to give the news truthfully and in a form which will not insult the intelligence and taste of readers. It will be of much value to your children to be reared in a home where newspapers like these are read and their opinions talked about. I think I need not say that in suggesting any of the books or papers I have mentioned in this book, I am doing so in a purely disinterested fashion. I mean that I have no interest directly or indirectly in any of them, nor do any of them know I am writing these lines. Many of the authors, in fact, most of them, I know only through their books.

Keep in touch with the Bureau of Education at Washington for their publications. Also with the state university of your State, and the school officials, as to text books and authorities about matters concerning which you are in doubt. Get the habit of looking at all the books in your vicinity wherever you happen to find yourself and constantly add to your knowledge of books in this way. You



will soon learn to distinguish between books of permanent worth and those of ephemeral interest. Look into a book before buying it. In this way you will find yourself acquiring an ability to test many books by casual glance through them. But always keep before you this one fact, that you are getting all this material in the *book form* because that is the form in which it is educationally negotiable.

The matter of newspapers is much more important than is generally suspected. The daily newspaper which the children see and handle, and whose views and news they hear discussed, has a decided influence in forming their point of view on many things. Children should be taught to read not from books but from the newspaper and in connection with current, vital things. They should be taught how to seek facts in daily reports, and by this means get the habit of knowing what is taking place around them. The newspaper that enters your house is therefore a capital matter.

#### FINALLY

Throughout the pages which have gone before, I have tried to give you a fairly reasonable transcript of how I believe it possible for ordinary people, who have the welfare of their

children on the intellectual side seriously at heart, to build up the mental life in such a way as to not only make the whole subsequent school life vastly more productive than in most cases it now appears to be, but also rear persons who are actually superior persons in themselves, capable of thinking carefully, capable of controlling themselves in times of crises, capable of using their energies to the best possible profit for themselves and their families, and the communities in which they live, and calculated to help in making a finer and nobler civilization. *Always remember that the advances of the world are not made by the thousand and one people who can do things fairly well, but by the few persons who are able to do them exceptionally well.* It must be reasonably clear to almost all onlookers that most people, as we see them, do not appear to get much out of life besides eating, drinking and sleeping. Most of them do not seem to be distinguished by anything in particular. Most of them leave no particular impress upon the communities in which they live and move and have their being. And this is true, not because they have not the natural capabilities for doing many of these things. It is chiefly due to the fact that in the earlier stages of their development, when they were

making their pathway, nobody thought it worth while to point them wisely and train them effectively. Hence most of them are the prey to the superior persons who use them for their own purposes. I am firm in my belief, often expressed, that given good health and freedom from organic defects, the difference in the possibilities of most children is very slight. I do not believe most geniuses are such except by contrast with the general indolence and stupidity around them. Given intensive culture, a high degree of self-control and self-expenditure, rational ideals and specific aims early in life, almost any child will surpass expectations. The question is simply, in the first instance, whether the parents will wake up to this fact, and recognizing it, will supply the *first aids to superior personality*. That is what this book seeks to do, and I close with the assurance that even approximately following out the line of procedure I have indicated, you will have joy and satisfaction beyond expression. You will not only have the joy of what your child will achieve, but have the added joy of knowing that in part, at least, it was your own character and devotion that produced the result.

THE END



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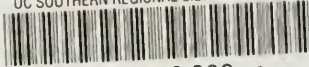
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